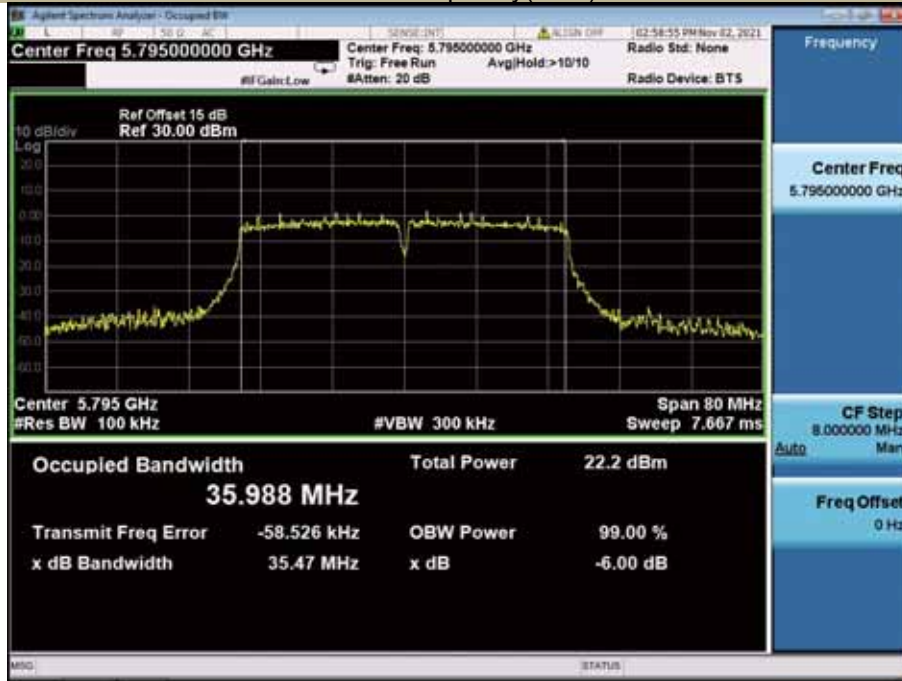
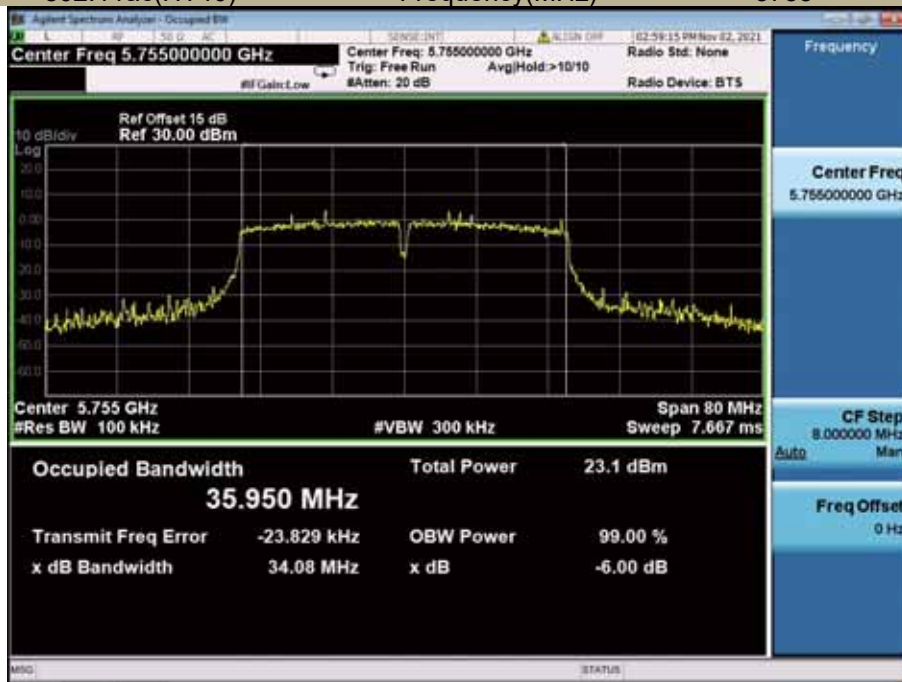


-6 dB Emission Bandwidth U-NII - 3
 Test Model 802.11n-HT40 Frequency(MHz) 5795



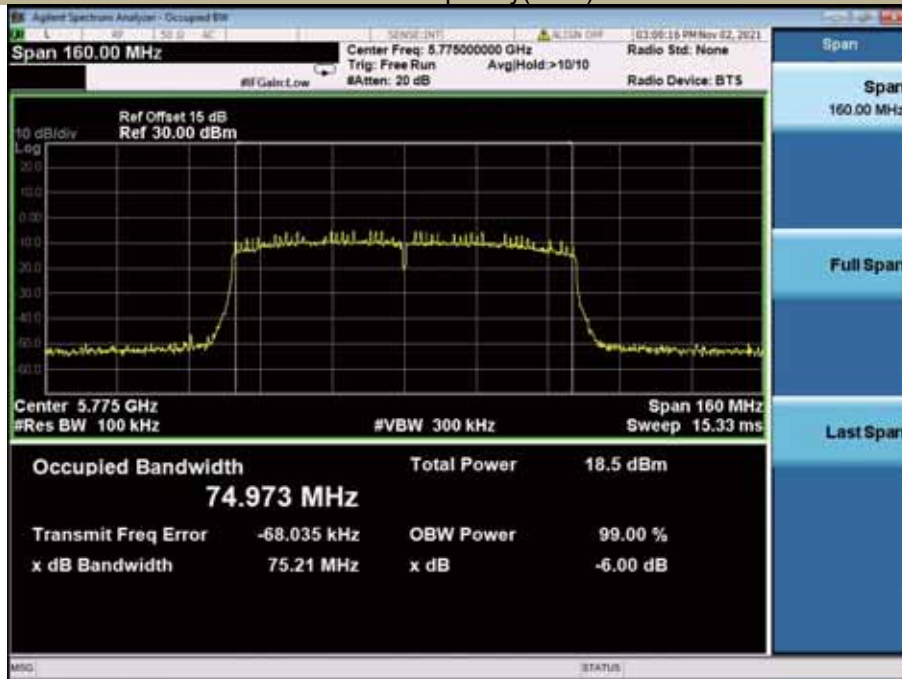
-6 dB Emission Bandwidth U-NII - 3
 Test Model 802.11ac(HT40) Frequency(MHz) 5755



-6 dB Emission Bandwidth U-NII - 3
 Test Model 802.11ac(HT40) Frequency(MHz) 5795



-6 dB Emission Bandwidth U-NII - 3
 Test Model 802.11ac 80 Frequency(MHz) 5775



8.2 MAXIMUM CONDUCTED OUTPUT POWER

8.2.1 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(E)

8.2.2 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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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 client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

■ 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations

8.2.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.2.4 Test Procedure

The maximum average conducted output power can be measured using Method PM-G (Measurement using a gated RF average power meter):

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

- a. The Transmitter output (antenna port) was connected to the power meter.
- b. Turn on the EUT and power meter and then record the power value.
- c. Repeat above procedures on all channels needed to be tested.

8.2.5 Test Results

For 1T1R

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)		Limit (dBm)	Verdict
				Antenna 1	Antenna 2		
U-NII – 1	802.11a	CH36	5180	13.26	12.38	24	Pass
		CH40	5200	13.4	13.09	24	Pass
		CH48	5240	13.9	13.25	24	Pass
	802.11n-HT20	CH36	5180	13.22	12.09	24	Pass
		CH40	5200	13.33	12.96	24	Pass
		CH48	5240	13.64	13.1	24	Pass
	802.11ac(HT20)	CH36	5180	13.31	12.14	24	Pass
		CH40	5200	13.73	12.97	24	Pass
		CH48	5240	13.93	13.04	24	Pass
	802.11n-HT40	CH38	5190	13.03	11.69	24	Pass
		CH46	5230	13.09	12.36	24	Pass
	802.11ac(HT40)	CH38	5190	13.21	11.57	24	Pass
		CH46	5230	13.23	12.49	24	Pass
	802.11ac(HT80)	CH42	5210	12.63	12.92	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)		Limit (dBm)	Verdict
				Antenna 1	Antenna 2		
U-NII – 2A	802.11a	CH52	5260	13.42	12.88	24	Pass
		CH56	5280	13.51	12.32	24	Pass
		CH64	5320	13.11	13.13	24	Pass
	802.11n-HT20	CH52	5260	13.33	12.78	24	Pass
		CH56	5280	13.33	12.28	24	Pass
		CH64	5320	13.21	13.30	24	Pass
	802.11ac(HT20)	CH52	5260	13.55	12.73	24	Pass
		CH56	5280	13.50	13.48	24	Pass
		CH64	5320	13.04	12.86	24	Pass
	802.11n-HT40	CH54	5270	13.45	12.34	24	Pass
		CH62	5310	13.51	11.28	24	Pass
	802.11ac(HT40)	CH54	5270	13.60	12.46	24	Pass
		CH62	5310	12.96	12.59	24	Pass
	802.11ac(HT80)	CH58	5290	13.35	13.82	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)		Limit (dBm)	Verdict
				Antenna 1	Antenna 2		
U-NII – 2C	802.11a	CH100	5500	13.44	12.90	24	Pass
		CH116	5600	13.06	13.71	24	Pass
		CH140	5700	13.98	13.44	24	Pass
	802.11n-HT20	CH100	5500	13.06	12.99	24	Pass
		CH116	5600	13.18	13.77	24	Pass
		CH140	5700	14.15	13.49	24	Pass
	802.11ac(HT20)	CH100	5500	13.00	12.43	24	Pass
		CH116	5600	14.00	13.13	24	Pass
		CH140	5700	13.95	12.80	24	Pass
	802.11n-HT40	CH102	5510	12.84	13.83	24	Pass
		CH134	5670	13.07	13.10	24	Pass
	802.11ac(HT40)	CH102	5510	12.75	11.18	24	Pass
		CH134	5670	13.30	13.05	24	Pass
	802.11ac(HT80)	CH106	5530	13.22	13.39	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)		Limit (dBm)	Verdict
				Antenna 1	Antenna 2		
U-NII – 3	802.11a	CH149	5745	13.45	13.87	30	Pass
		CH157	5785	13.69	13.31	30	Pass
		CH165	5825	13.44	13.44	30	Pass
	802.11n-HT20	CH149	5745	13.39	12.94	30	Pass
		CH157	5785	13.16	12.94	30	Pass
		CH165	5825	12.98	13.18	30	Pass
	802.11ac(HT20)	CH149	5745	13.27	13.03	30	Pass
		CH157	5785	14.23	12.19	30	Pass
		CH165	5825	12.97	12.42	30	Pass
	802.11n-HT40	CH151	5755	13.32	11.91	30	Pass
		CH159	5795	14.11	12.37	30	Pass
	802.11ac(HT40)	CH151	5755	13.14	13.22	30	Pass
		CH159	5795	12.89	12.34	30	Pass
	802.11ac(HT80)	CH155	5775	13.07	13.27	30	Pass

For 2T2R

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)	Limit (dBm)	Verdict
U-NII – 1	802.11n-HT20	CH36	5180	15.70	24	Pass
		CH40	5200	16.16	24	Pass
		CH48	5240	16.39	24	Pass
	802.11ac(HT20)	CH36	5180	15.77	24	Pass
		CH40	5200	16.38	24	Pass
		CH48	5240	16.52	24	Pass
	802.11n-HT40	CH38	5190	15.42	24	Pass
		CH46	5230	15.75	24	Pass
	802.11ac(HT40)	CH38	5190	15.48	24	Pass
		CH46	5230	15.89	24	Pass
	802.11ac(HT80)	CH42	5210	15.79	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)	Limit (dBm)	Verdict
U-NII – 2A	802.11n-HT20	CH52	5260	16.07	24	Pass
		CH56	5280	15.85	24	Pass
		CH64	5320	16.27	24	Pass
	802.11ac(HT20)	CH52	5260	16.17	24	Pass
		CH56	5280	16.50	24	Pass
		CH64	5320	15.96	24	Pass
	802.11n-HT40	CH54	5270	15.94	24	Pass
		CH62	5310	15.55	24	Pass
	802.11ac(HT40)	CH54	5270	16.08	24	Pass
		CH62	5310	15.79	24	Pass
	802.11ac(HT80)	CH58	5290	16.60	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)	Limit (dBm)	Verdict
U-NII – 2C	802.11n-HT20	CH100	5500	16.04	24	Pass
		CH116	5600	16.50	24	Pass
		CH140	5700	16.84	24	Pass
	802.11ac(HT20)	CH100	5500	15.73	24	Pass
		CH116	5600	16.60	24	Pass
		CH140	5700	16.42	24	Pass
	802.11n-HT40	CH102	5510	16.37	24	Pass
		CH134	5670	16.10	24	Pass
	802.11ac(HT40)	CH102	5510	15.05	24	Pass
		CH134	5670	16.19	24	Pass
	802.11ac(HT80)	CH106	5530	16.32	24	Pass

Band	Operating mode	Channel Number	Channel Freq. (MHz)	Conducted Output Power(dBm)	Limit (dBm)	Verdict
U-NII – 3	802.11n-HT20	CH149	5745	16.18	30	Pass
		CH157	5785	16.06	30	Pass
		CH165	5825	16.09	30	Pass
	802.11ac(HT20)	CH149	5745	16.16	30	Pass
		CH157	5785	16.34	30	Pass
		CH165	5825	15.71	30	Pass
	802.11n-HT40	CH151	5755	15.68	30	Pass
		CH159	5795	16.34	30	Pass
	802.11ac(HT40)	CH151	5755	16.19	30	Pass
		CH159	5795	15.63	30	Pass
	802.11ac(HT80)	CH155	5775	16.18	30	Pass

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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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 client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

■ 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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

■ 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations

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

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “ provided that the measured power is integrated over the full reference bandwidth ” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set RBW = $1/T$, where T is defined in section II.B.I.a).
- b) Set VBW = 3 RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

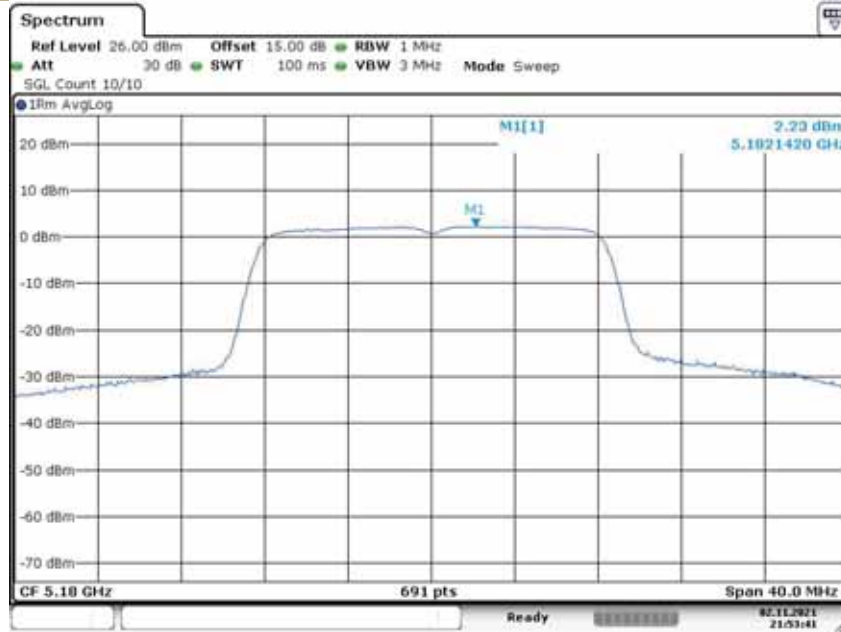
8.3.5 Test Results

For 1T1R-Antenna 1

5150-5250MHz

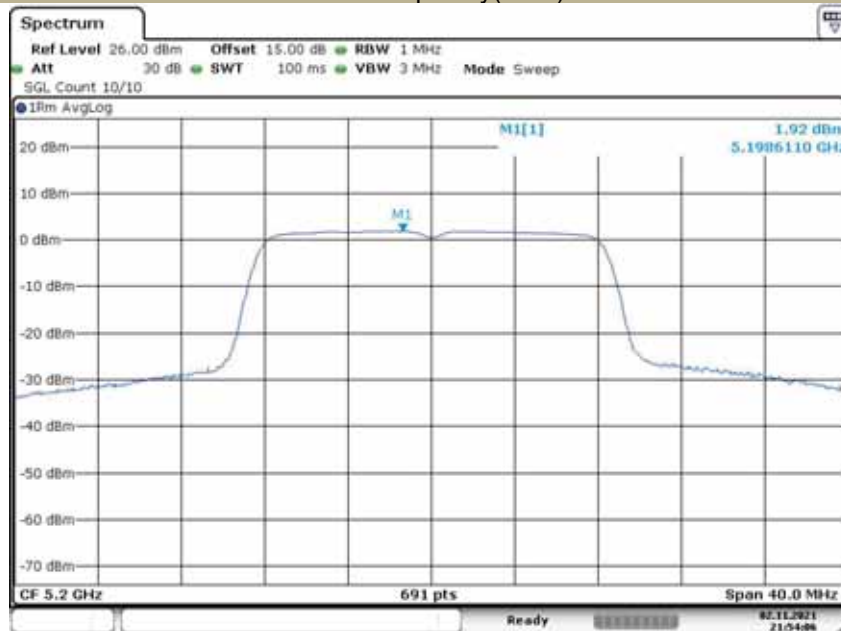
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5180	2.23	11
	5200	1.92	11
	5240	2.10	11
802.11n-HT20	5180	1.94	11
	5200	1.58	11
	5240	1.61	11
802.11ac(HT20)	5180	0.90	11
	5200	0.61	11
	5240	0.22	11
802.11n-HT40	5190	-1.03	11
	5230	-1.24	11
802.11ac(HT40)	5190	-1.07	11
	5230	-1.44	11
802.11ac(HT80)	5210	-2.18	11

Power Spectral Density U-NII - 1
 Test Model 802.11a Frequency(MHz) 5180



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Power Spectral Density U-NII - 1
 Test Model 802.11a Frequency(MHz) 5200

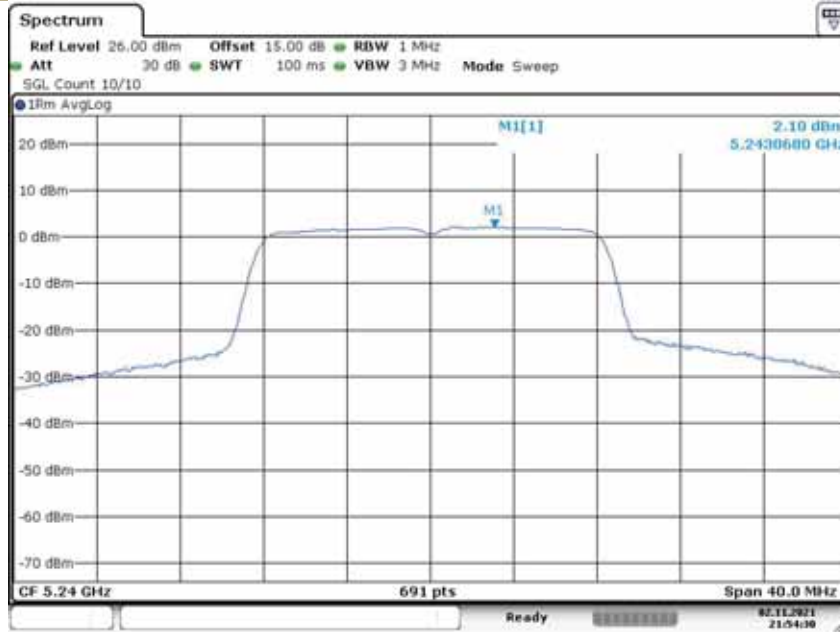


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Power Spectral Density
Test Model 802.11a

U-NII - 1
Frequency(MHz)

5240

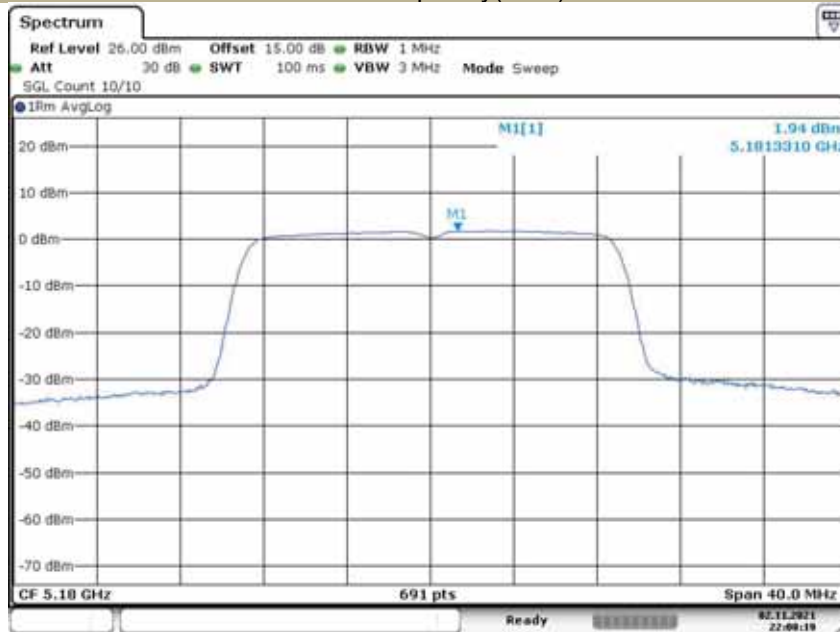


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Power Spectral Density
Test Model 802.11n-HT20

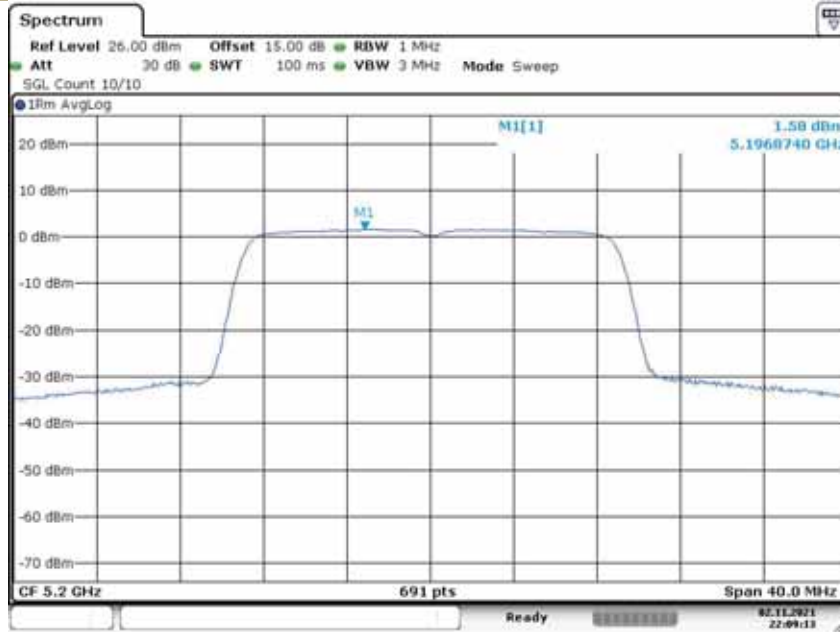
U-NII - 1
Frequency(MHz)

5180



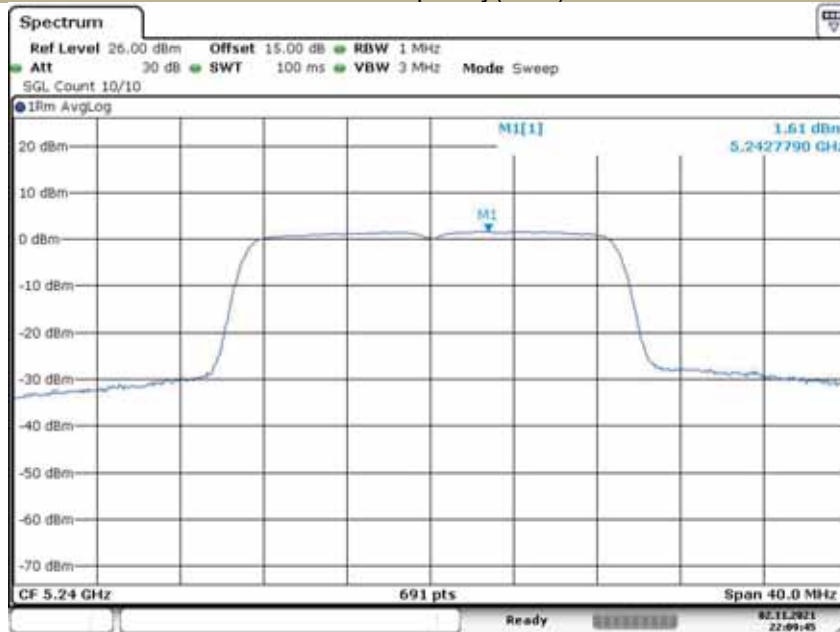
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Power Spectral Density U-NII - 1
 Test Model 802.11n-HT20 Frequency(MHz) 5200



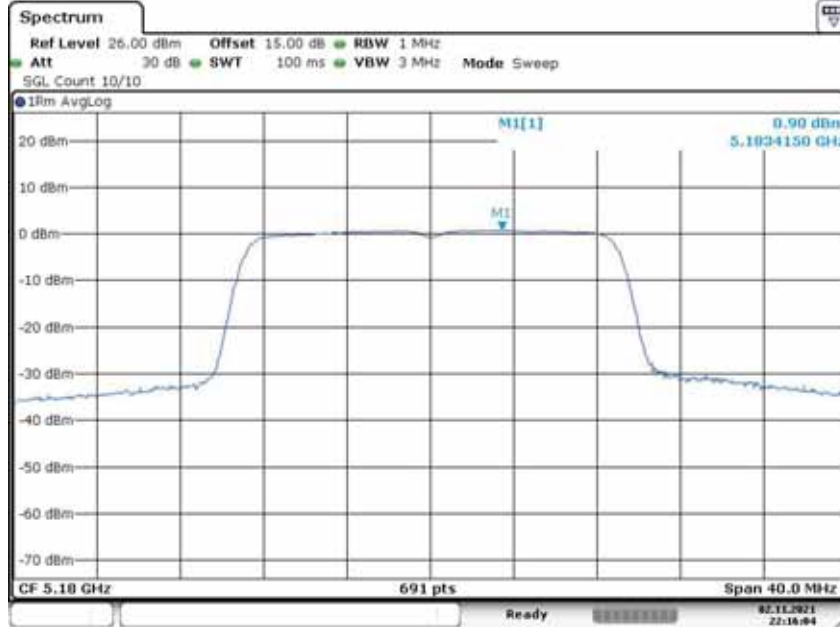
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Power Spectral Density U-NII - 1
 Test Model 802.11n-HT20 Frequency(MHz) 5240



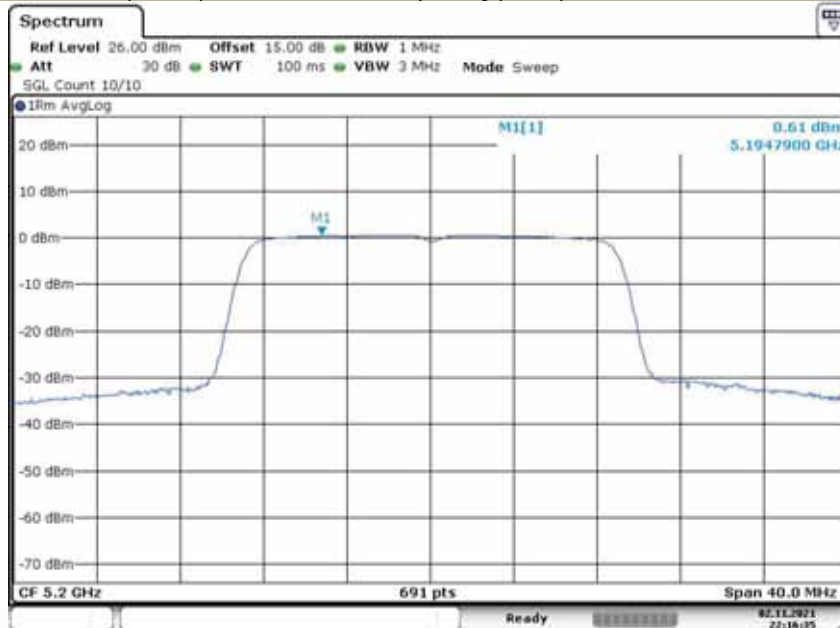
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Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5180



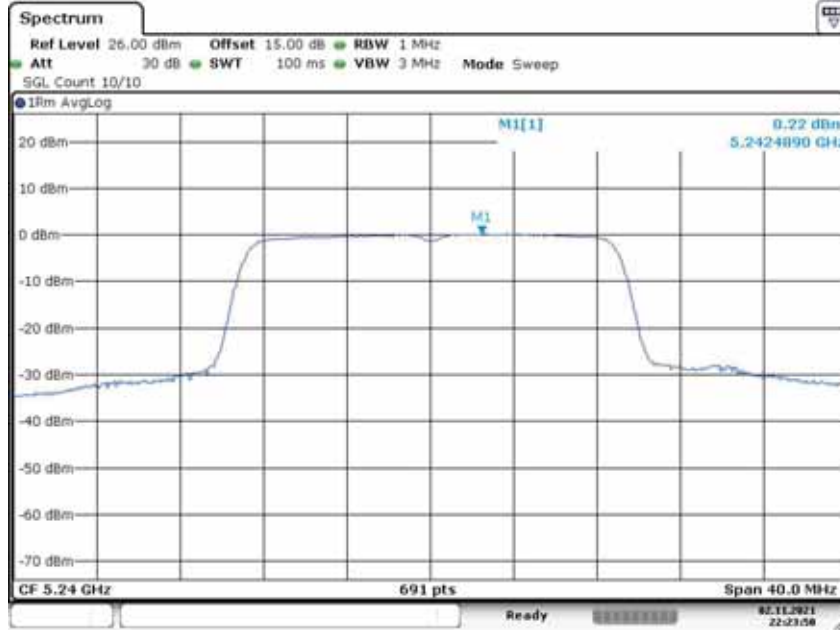
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Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5200



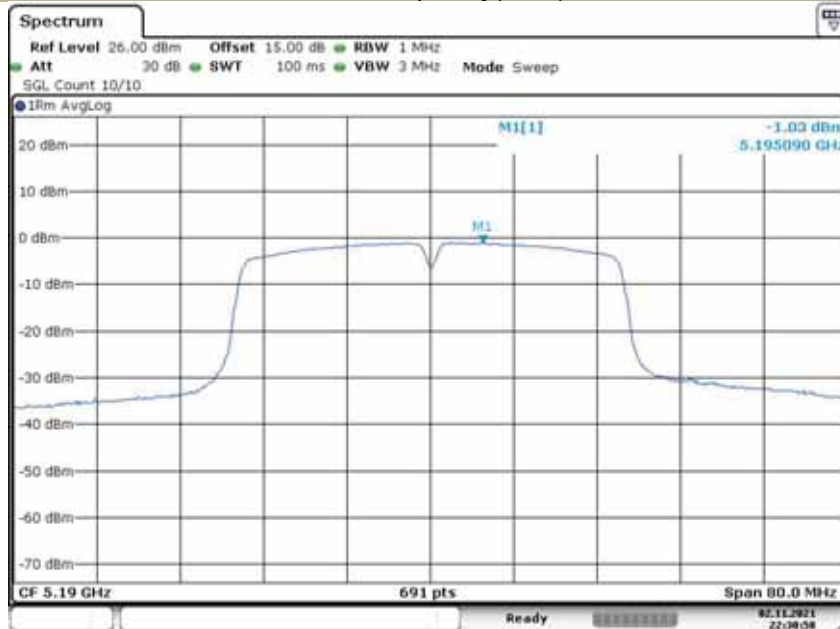
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Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5240



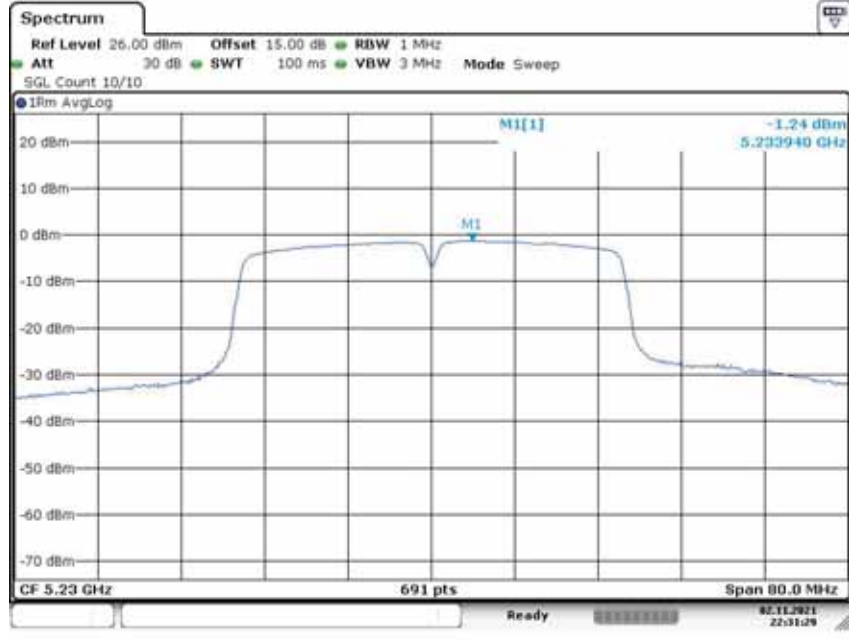
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Power Spectral Density U-NII - 1
 Test Model 802.11n-HT40 Frequency(MHz) 5190



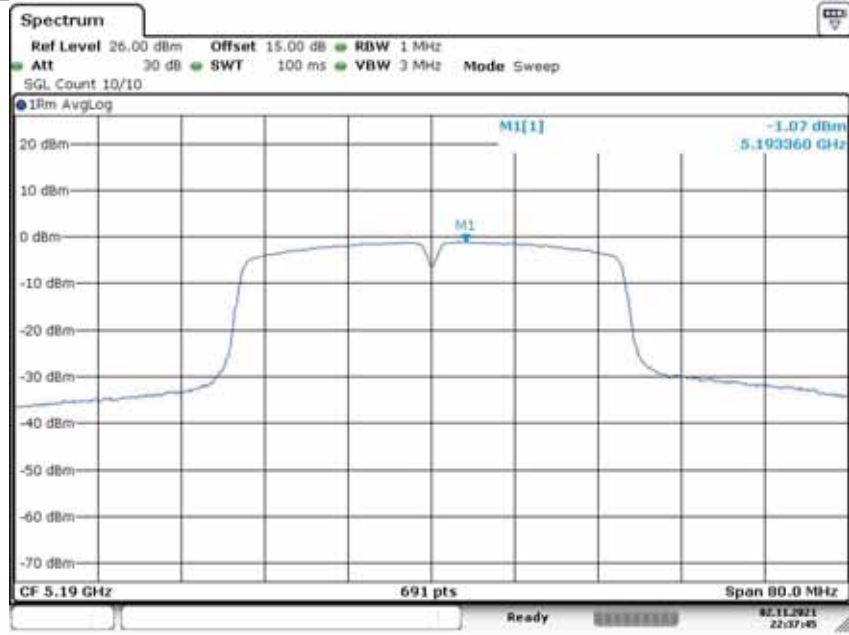
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Power Spectral Density U-NII - 1
 Test Model 802.11n-HT40 Frequency(MHz) 5230



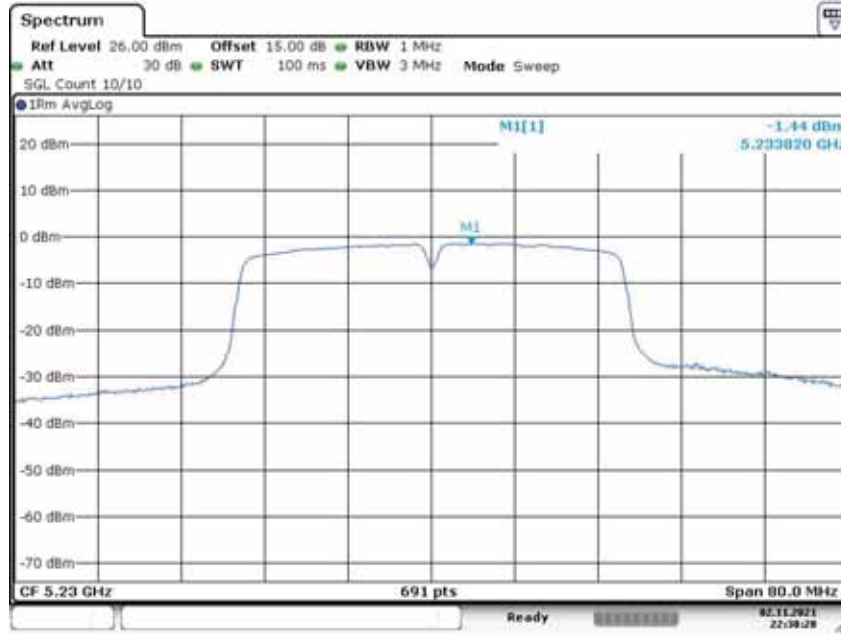
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Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT40) Frequency(MHz) 5190



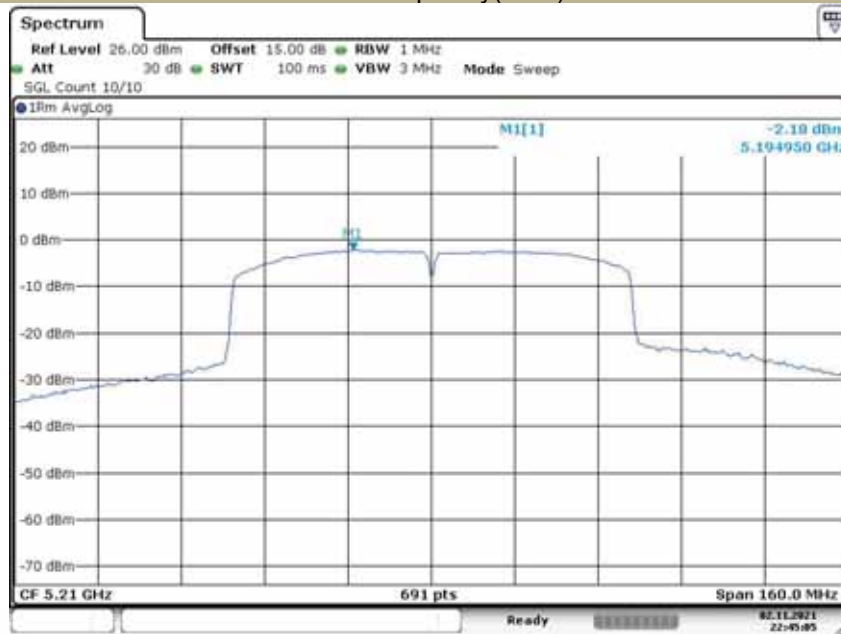
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Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT40) Frequency(MHz) 5230



Date: 2.NOV.2021 22:38:27

Power Spectral Density U-NII - 1
 Test Model 802.11ac 80 Frequency(MHz) 5210

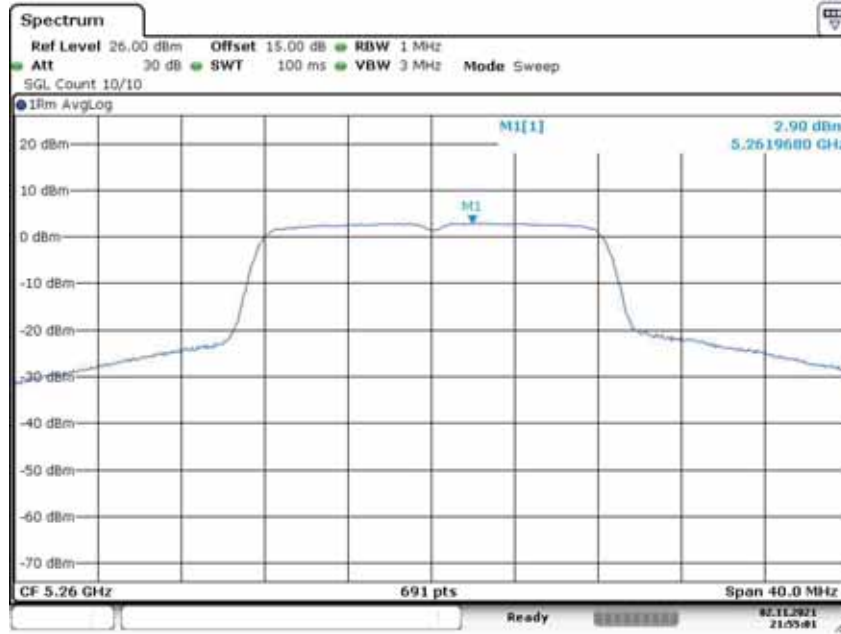


Date: 2.NOV.2021 22:45:06

5250-5350MHz

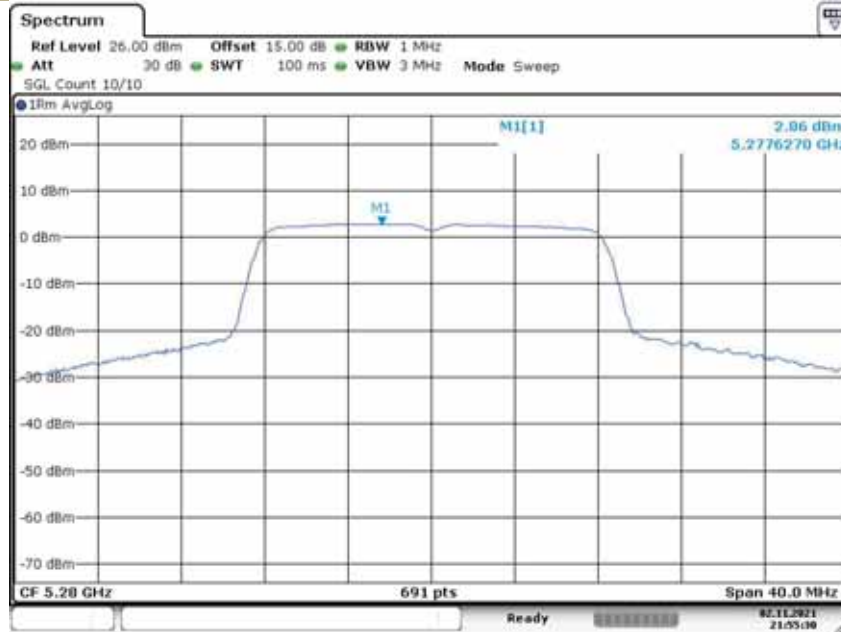
Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5260	2.90	11
	5280	2.86	11
	5320	2.52	11
802.11n-HT20	5260	2.61	11
	5280	2.37	11
	5320	1.84	11
802.11ac(HT20)	5260	1.21	11
	5280	2.17	11
	5320	1.25	11
802.11n-HT40	5270	-0.16	11
	5310	-0.96	11
802.11ac(HT40)	5270	0.18	11
	5310	-0.93	11
802.11ac(HT80)	5290	-1.03	11

Power Spectral Density U-NII – 2A
 Test Model 802.11a Frequency(MHz) 5260



Date: 2 NOV 2021 21:55:01

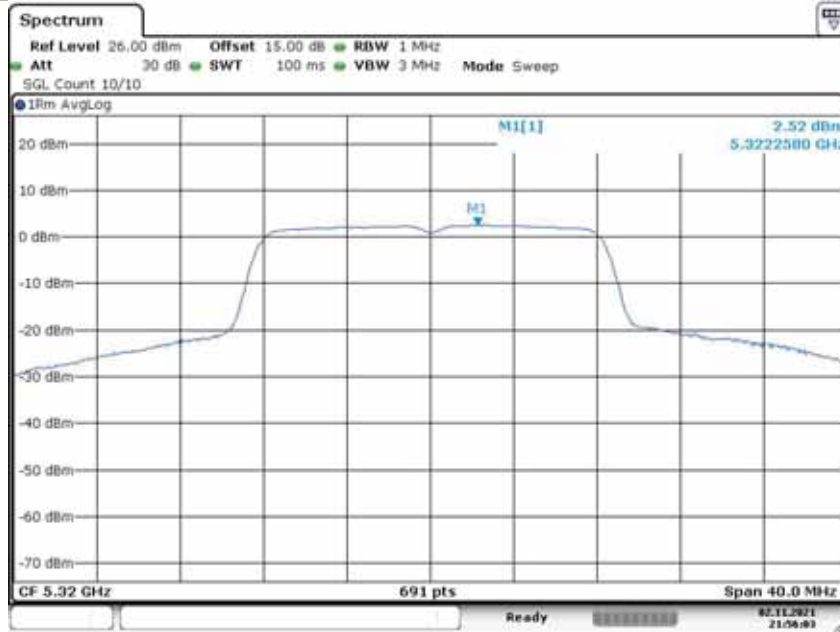
Power Spectral Density U-NII – 2A
 Test Model 802.11a Frequency(MHz) 5280



Date: 2 NOV 2021 21:55:30

Power Spectral Density
Test Model 802.11a

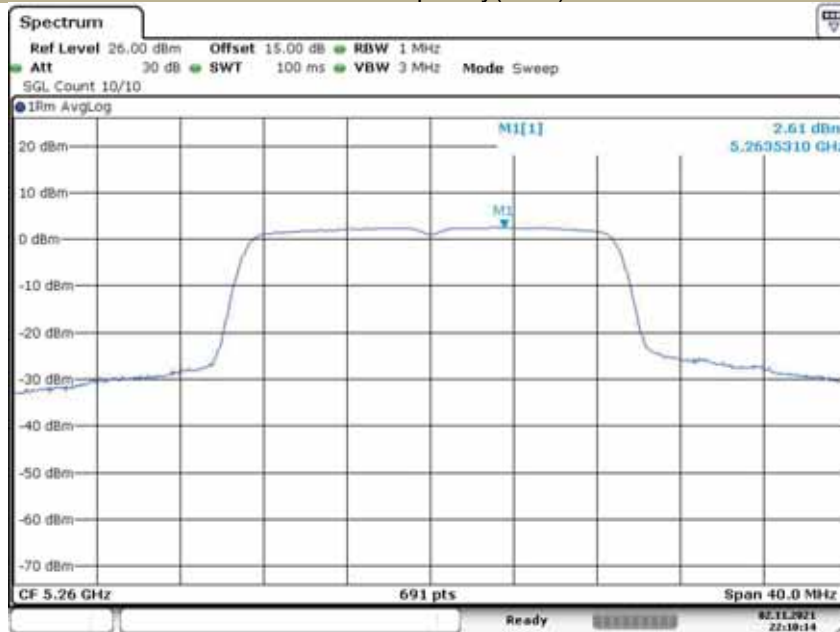
U-NII – 2A
Frequency(MHz) 5320



Date: 2.NOV.2021 21:56:04

Power Spectral Density
Test Model 802.11n-HT20

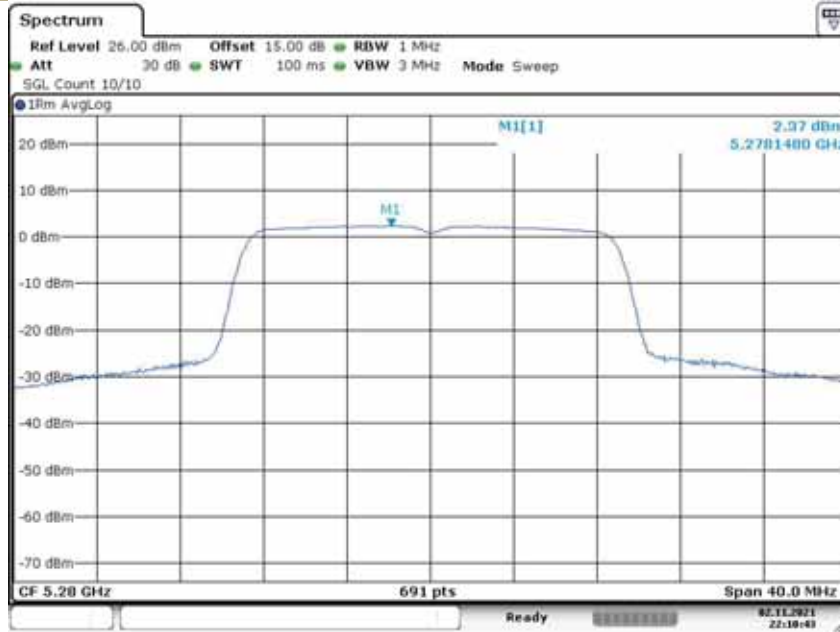
U-NII – 2A
Frequency(MHz) 5260



Date: 2.NOV.2021 22:10:14

Power Spectral Density
Test Model 802.11n-HT20

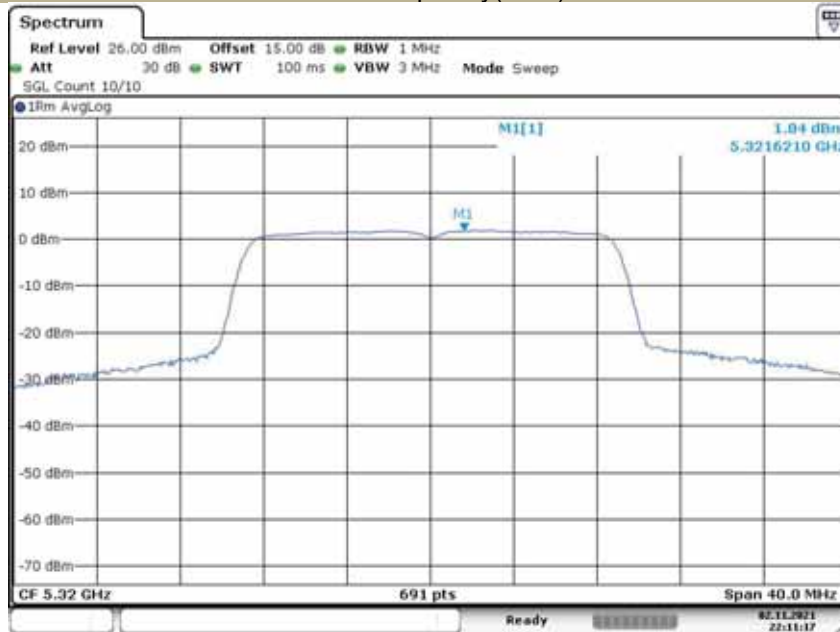
U-NII – 2A
Frequency(MHz) 5280



Date: 2.NOV.2021 22:10:43

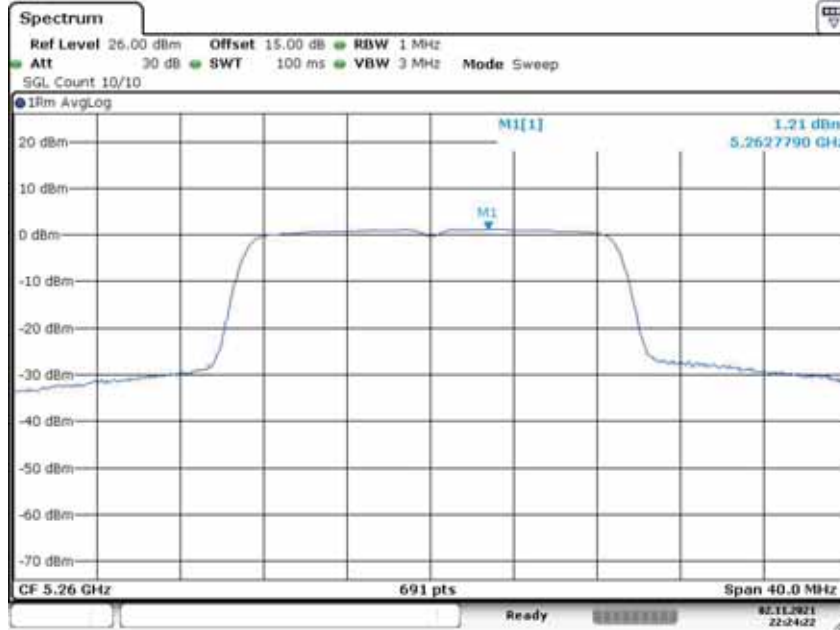
Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2A
Frequency(MHz) 5320



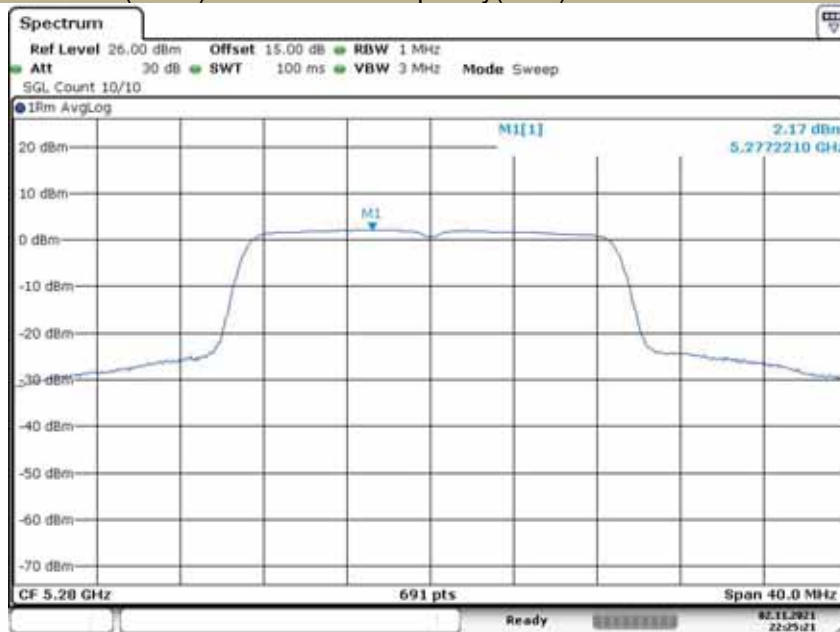
Date: 2.NOV.2021 22:11:17

Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5260



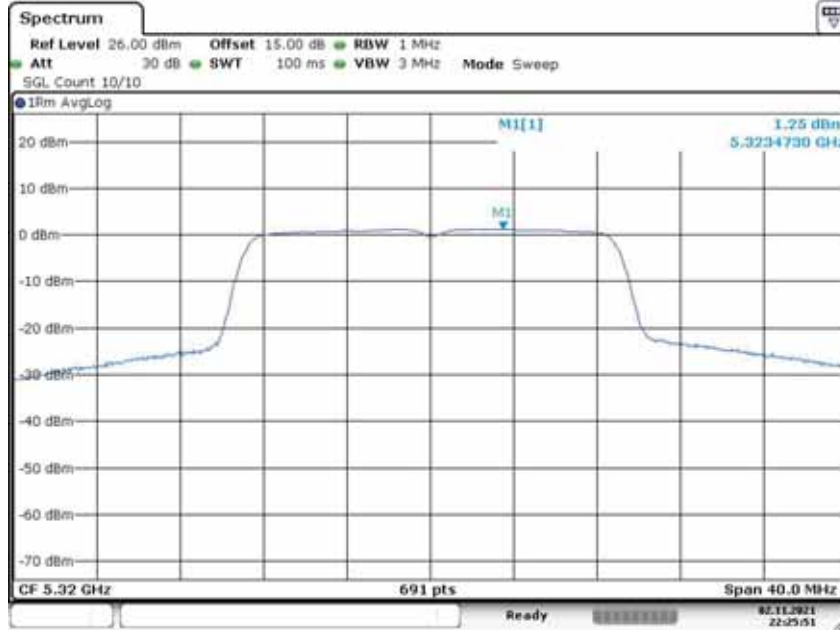
Date: 2.NOV.2021 22:24:22

Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5280



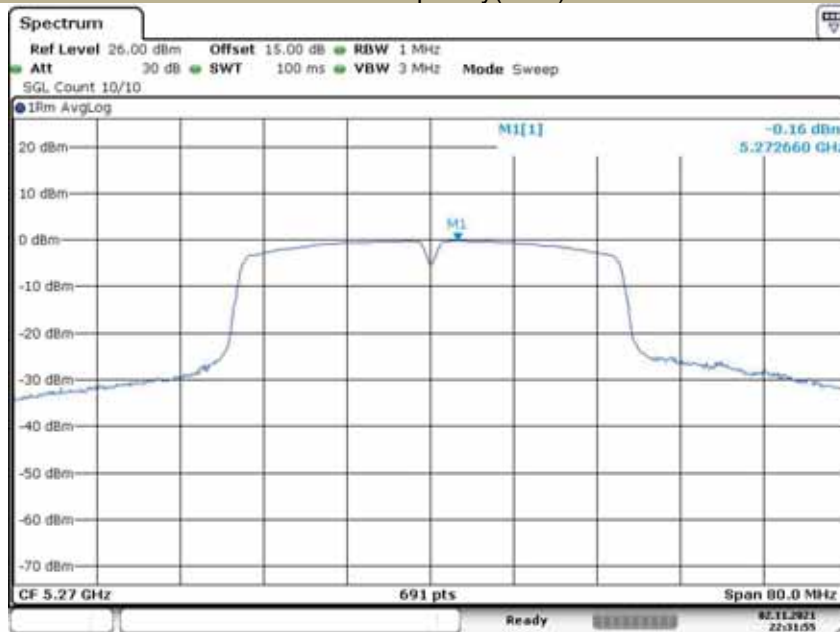
Date: 2.NOV.2021 22:25:21

Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5320



Date: 2.NOV.2021 22:25:52

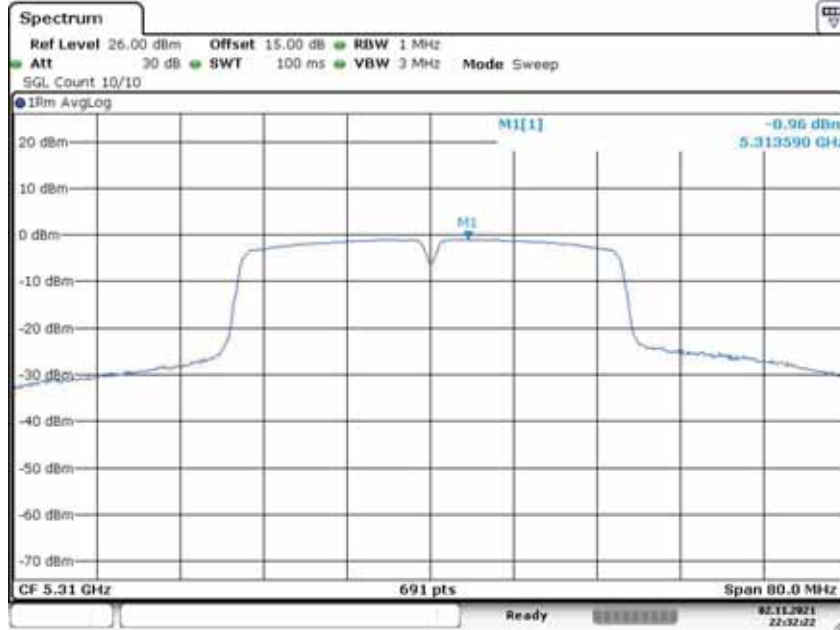
Power Spectral Density U-NII – 2A
 Test Model 802.11n-HT40 Frequency(MHz) 5270



Date: 2.NOV.2021 22:31:55

Power Spectral Density
Test Model 802.11n-HT40

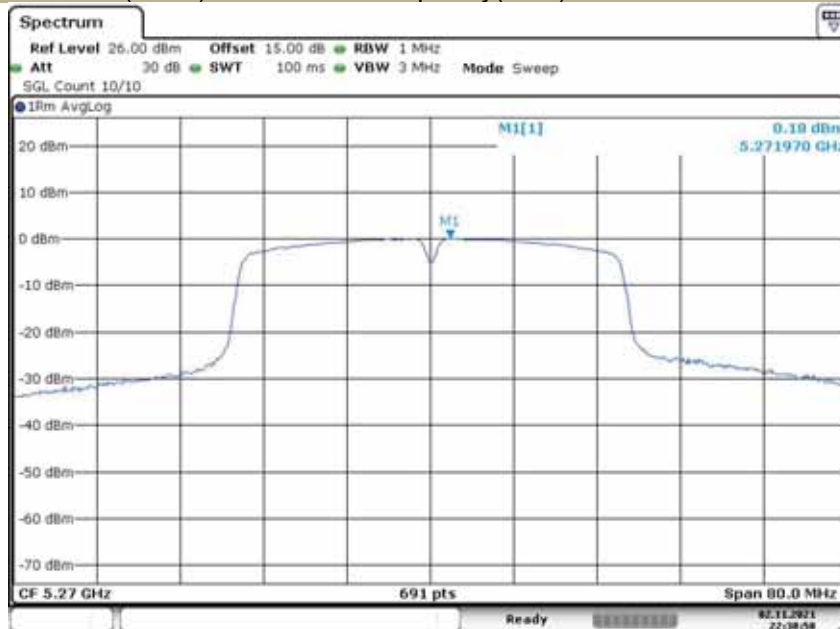
U-NII – 2A
Frequency(MHz) 5310



Date: 2 NOV 2021 22:32:22

Power Spectral Density
Test Model 802.11ac(HT40)

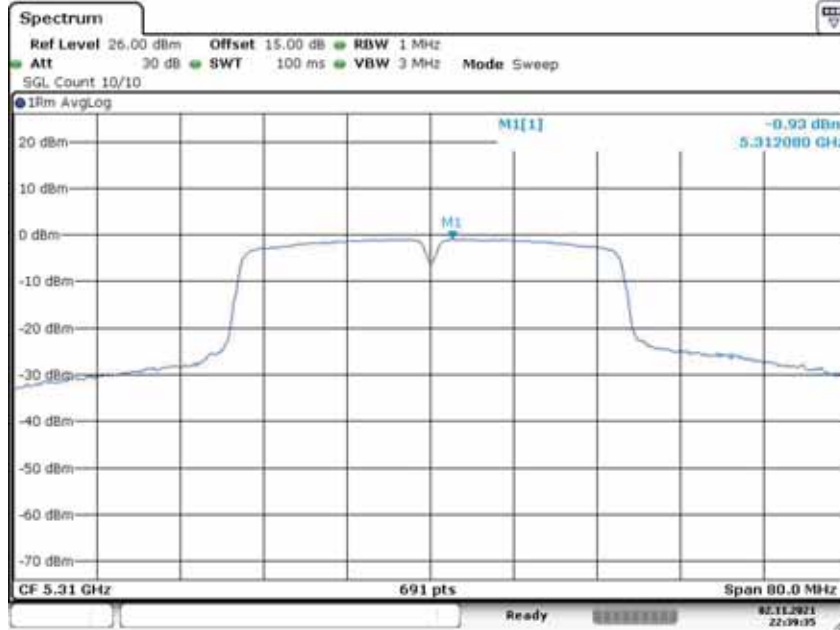
U-NII – 2A
Frequency(MHz) 5270



Date: 2 NOV 2021 22:38:59

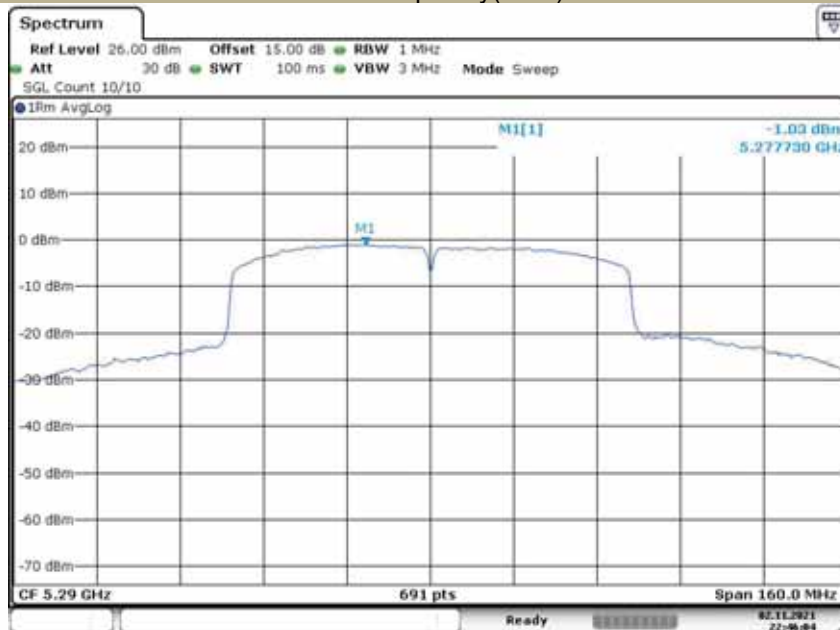
Power Spectral Density
Test Model 802.11ac(HT40)

U-NII – 2A
Frequency(MHz) 5310



Power Spectral Density
Test Model 802.11ac 80

U-NII – 2A
Frequency(MHz) 5290

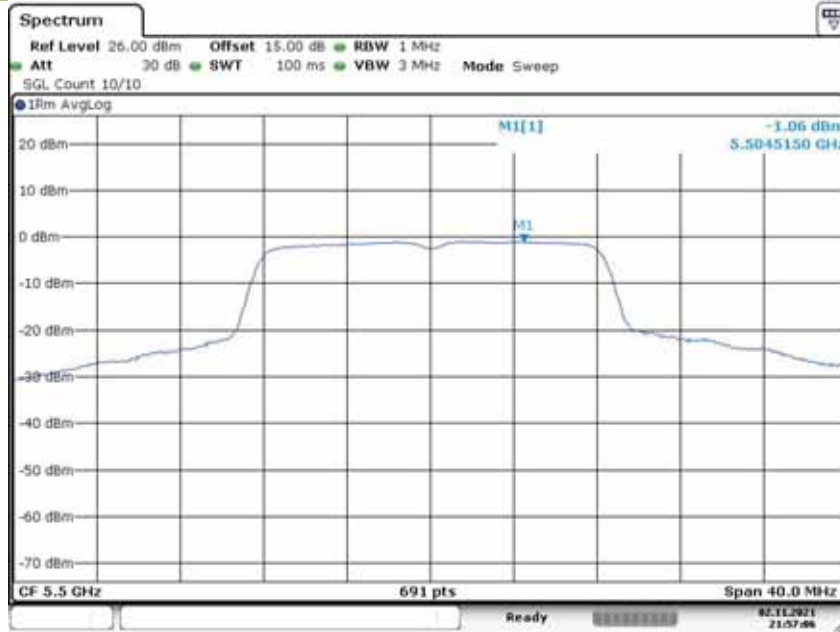


5470-5725MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5500	-1.06	11
	5600	0.68	11
	5700	2.24	11
802.11n-HT20	5500	0.23	11
	5600	1.68	11
	5700	3.38	11
802.11ac(HT20)	5500	-0.77	11
	5600	0.92	11
	5700	2.62	11
802.11n-HT40	5510	-2.64	11
	5670	-0.77	11
802.11ac(HT40)	5510	-1.70	11
	5670	-0.83	11
802.11ac(HT80)	5530	-0.04	11

Power Spectral Density
Test Model 802.11a

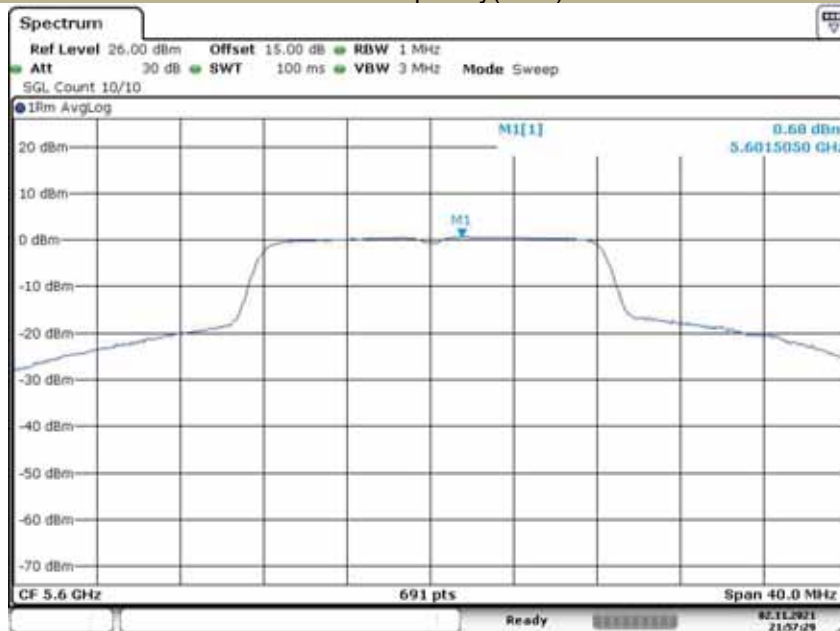
U-NII – 2C
Frequency(MHz) 5500



Date: 2.NOV.2021 21:57:06

Power Spectral Density
Test Model 802.11a

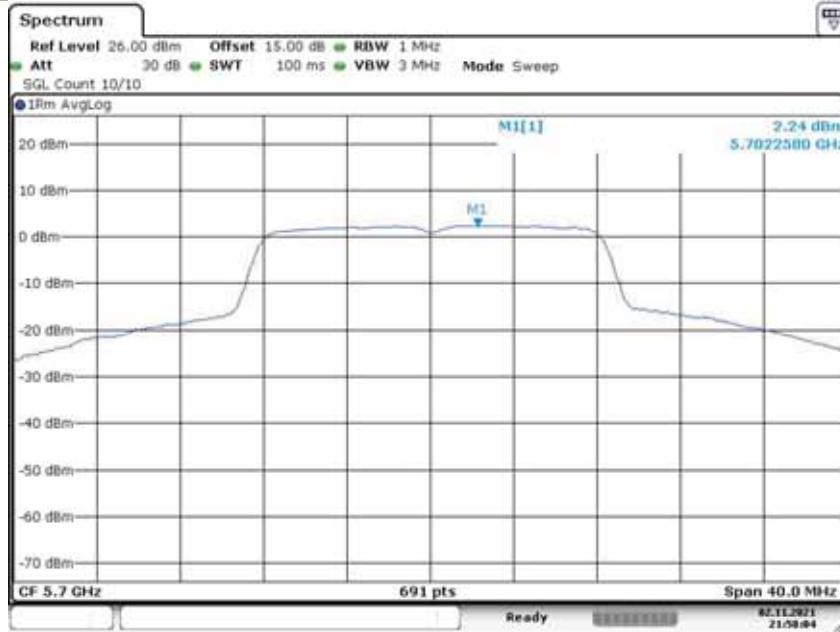
U-NII – 2C
Frequency(MHz) 5600



Date: 2.NOV.2021 21:57:29

Power Spectral Density
Test Model 802.11a

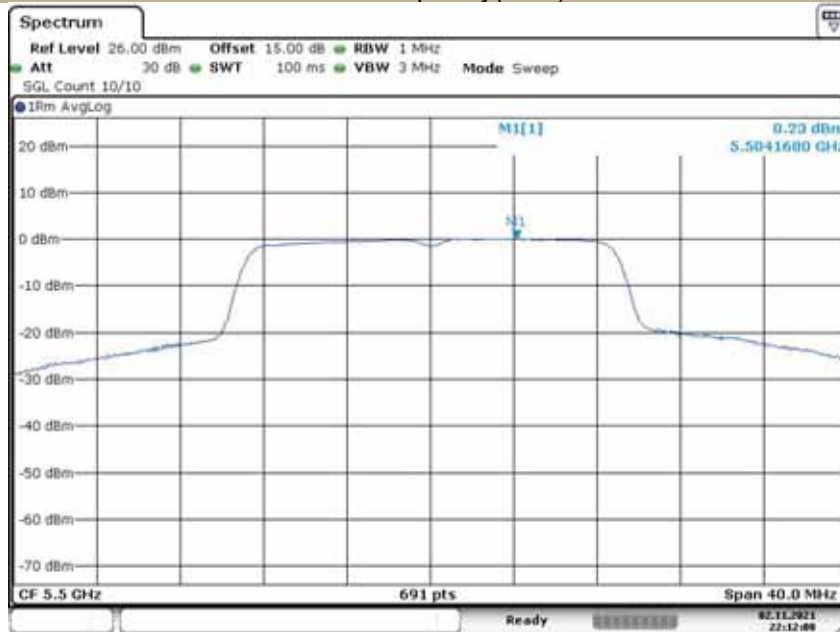
U-NII – 2C
Frequency(MHz) 5700



Date: 2 NOV 2021 21:58:04

Power Spectral Density
Test Model 802.11n-HT20

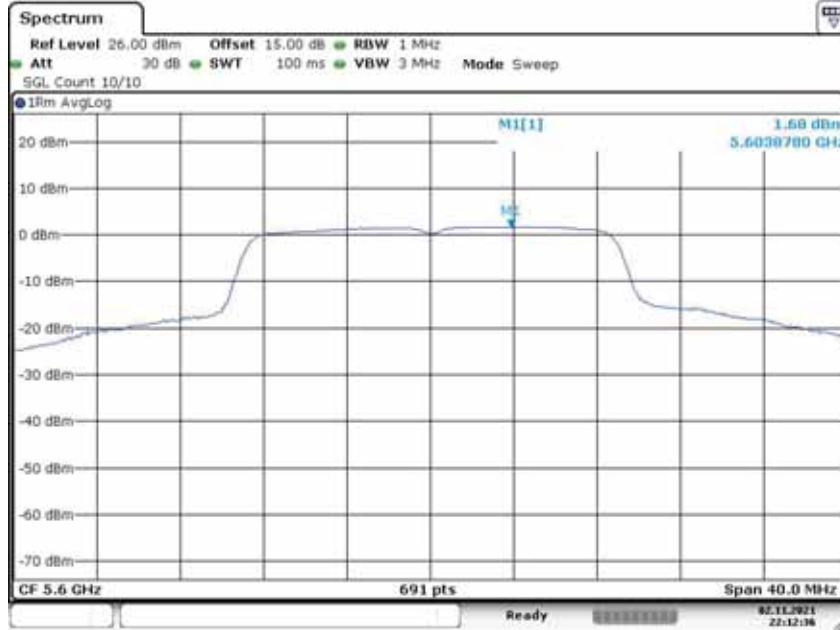
U-NII – 2C
Frequency(MHz) 5500



Date: 2 NOV 2021 22:12:08

Power Spectral Density
Test Model 802.11n-HT20

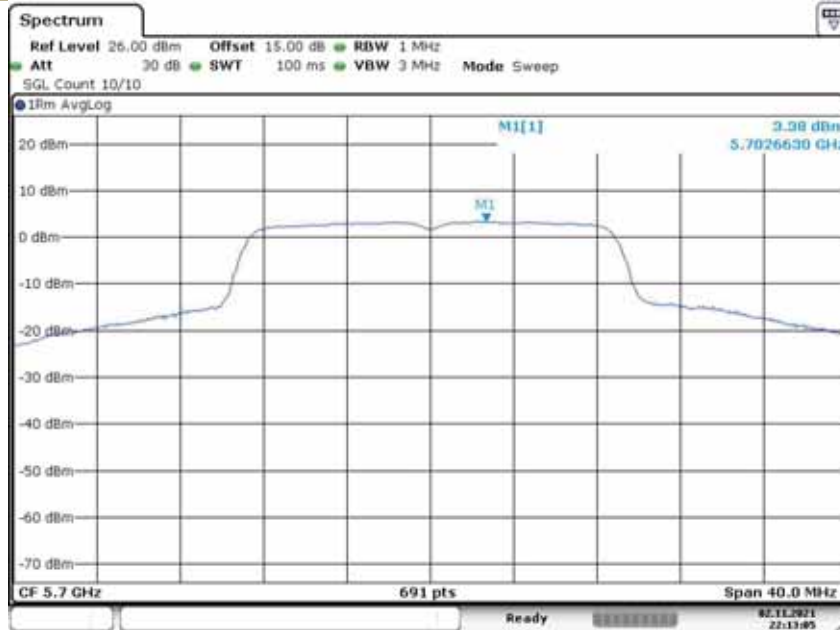
U-NII – 2C
Frequency(MHz) 5600



Date: 2 NOV 2021 22:12:38

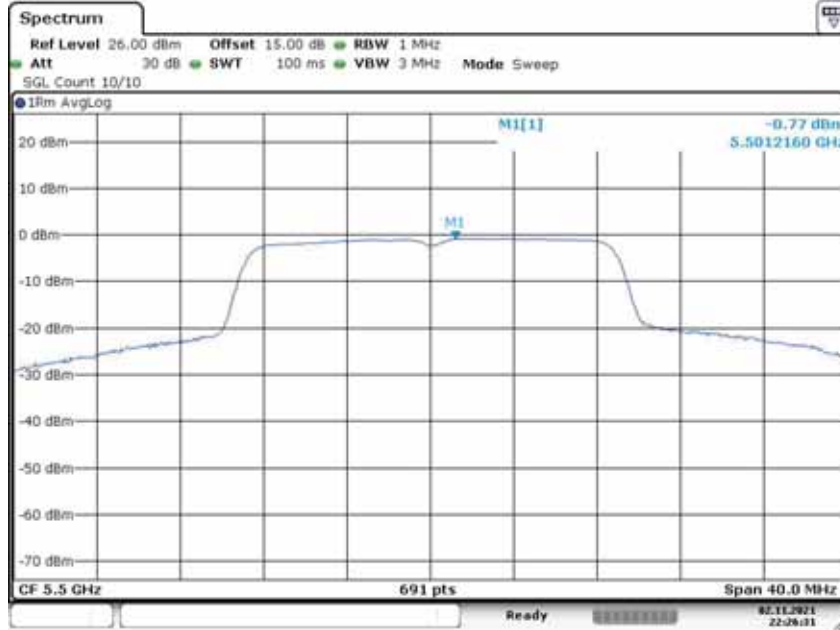
Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2C
Frequency(MHz) 5700



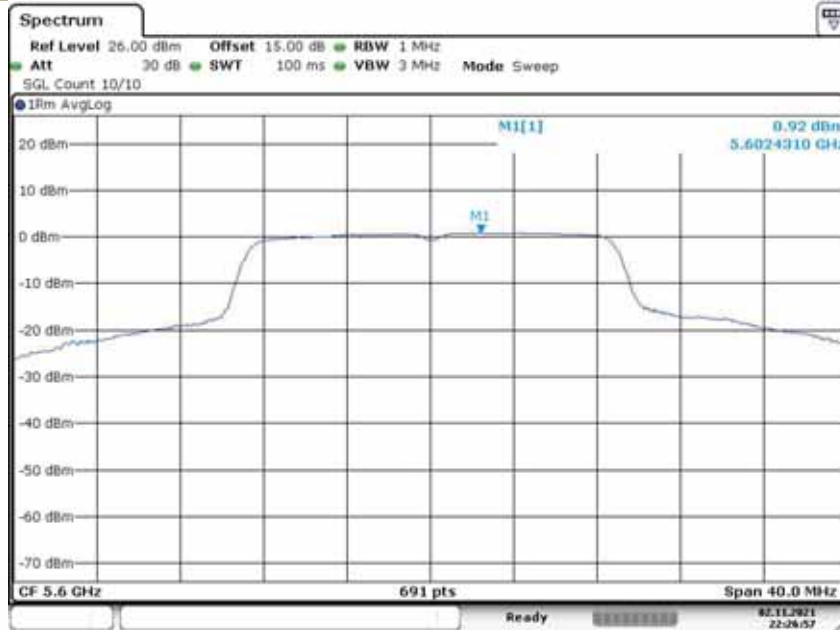
Date: 2 NOV 2021 22:13:04

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5500



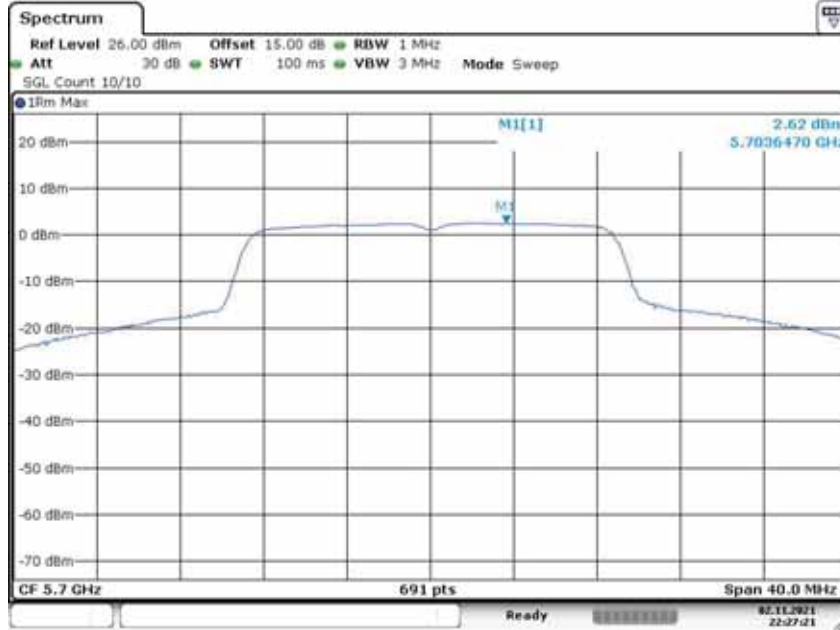
Date: 2 NOV 2021 22:26:31

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5600



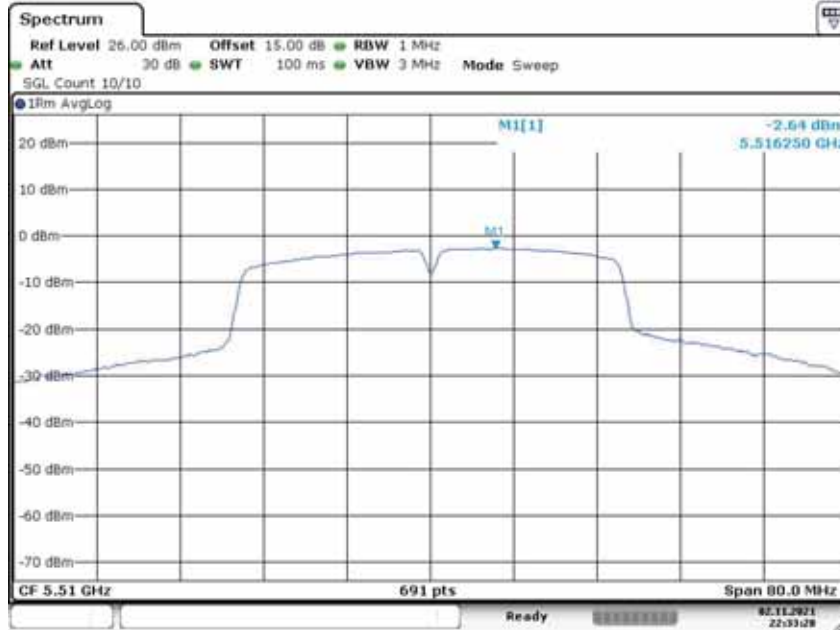
Date: 2 NOV 2021 22:26:57

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5700



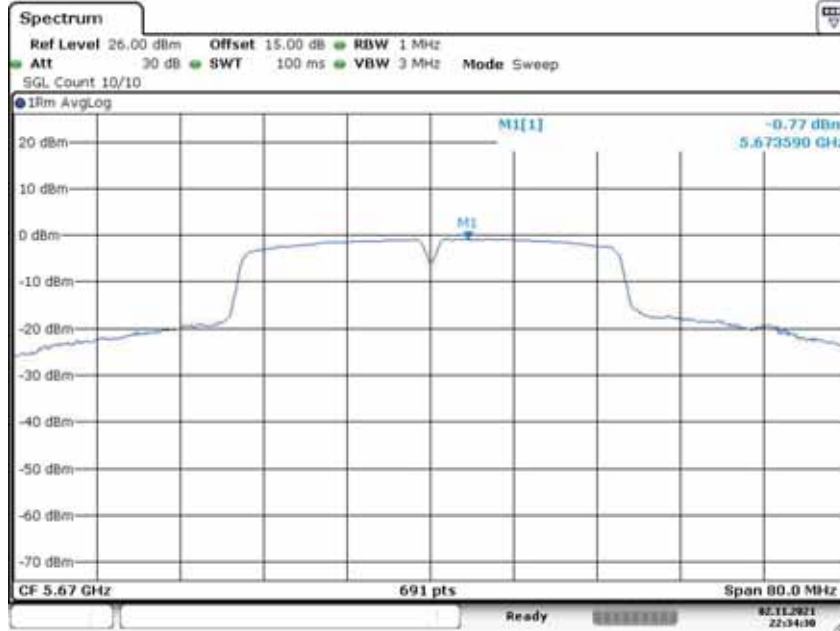
Date: 2.NOV.2021 22:27:21

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT40 Frequency(MHz) 5510



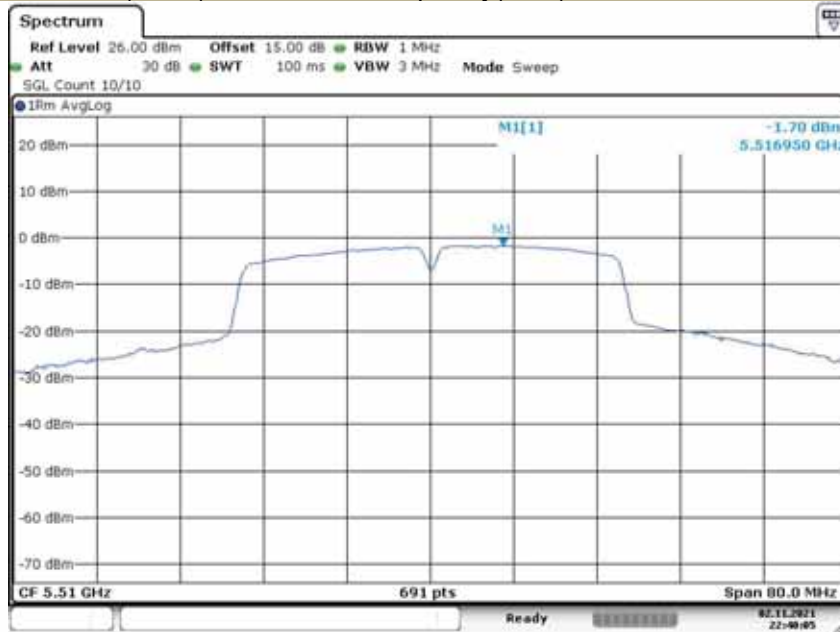
Date: 2.NOV.2021 22:33:27

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT40 Frequency(MHz) 5670



Date: 2.NOV.2021 22:34:30

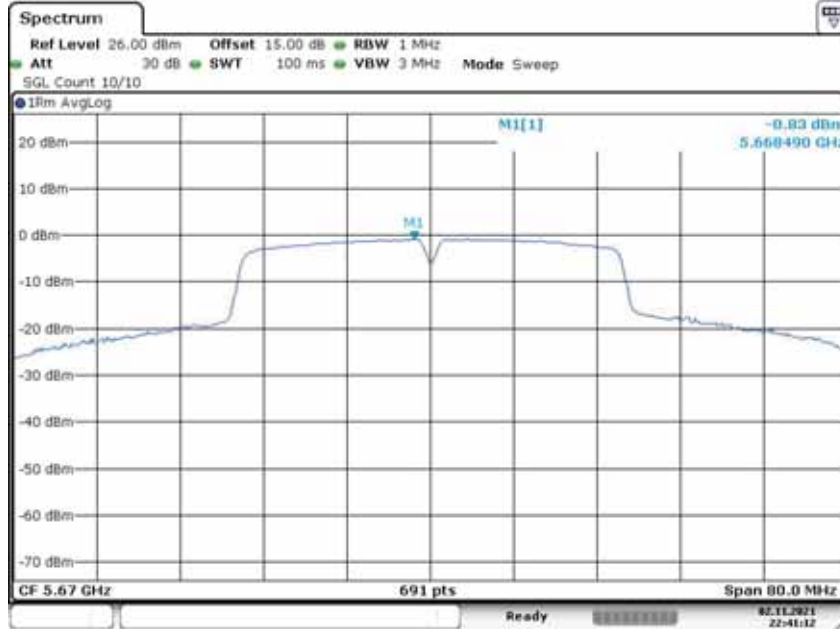
Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT40) Frequency(MHz) 5510



Date: 2.NOV.2021 22:40:05

Power Spectral Density
Test Model 802.11ac(HT40)

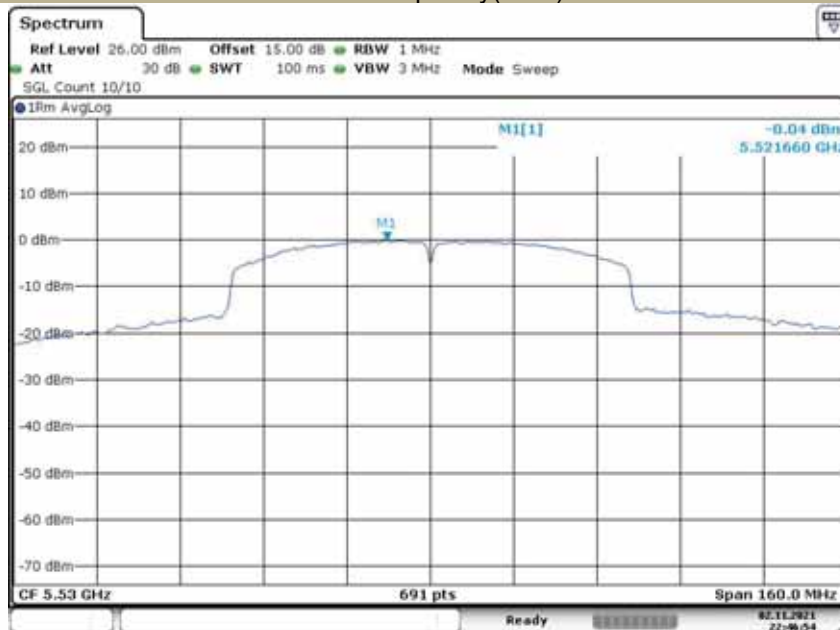
U-NII – 2C
Frequency(MHz) 5670



Date: 2.NOV.2021 22:41:12

Power Spectral Density
Test Model 802.11ac 80

U-NII – 2C
Frequency(MHz) 5530

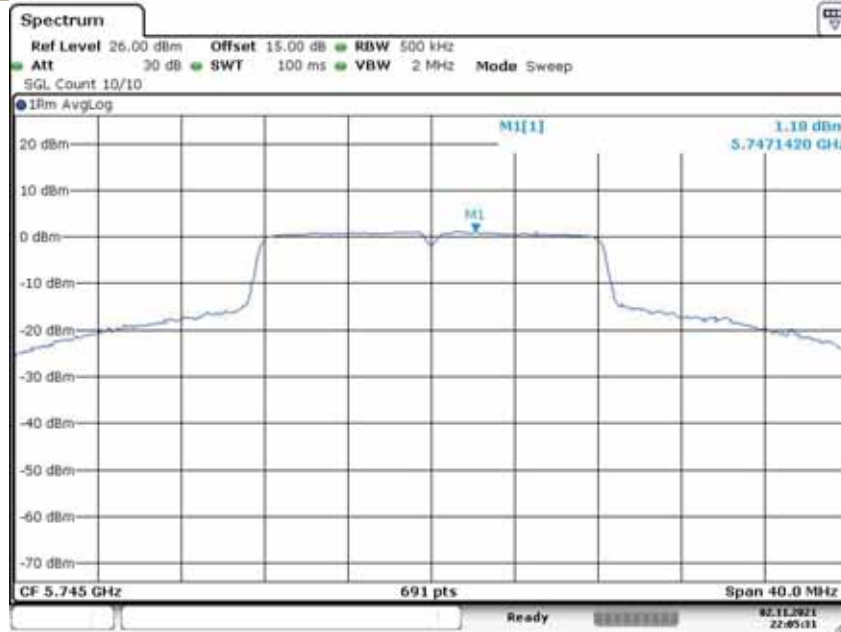


Date: 2.NOV.2021 22:46:54

5725-5850MHz

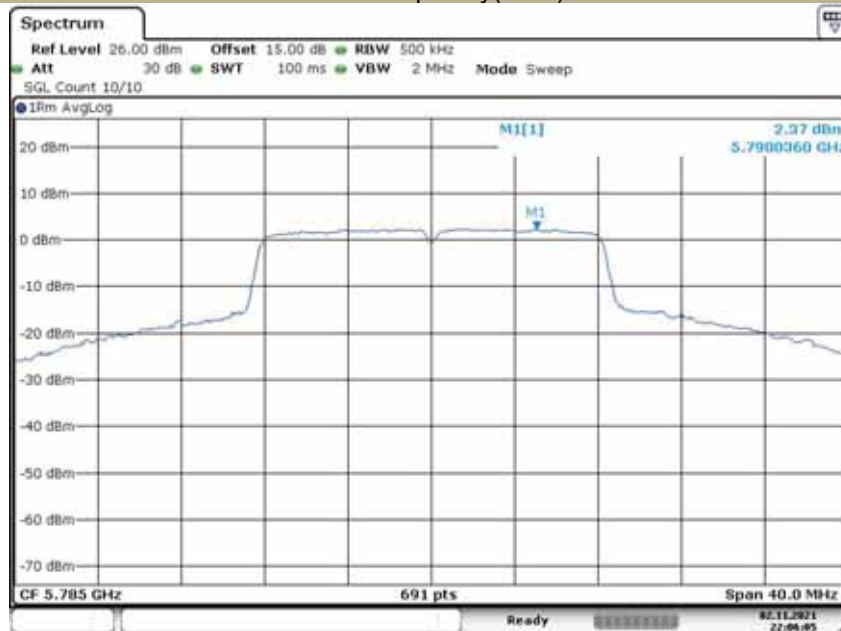
Operating mode	Test Channel	Power Spectral Density dBm/500kHz	Limit (dBm/500kHz)
802.11a	5745	1.18	30
	5785	2.37	30
	5825	2.45	30
802.11n-HT20	5745	-1.40	30
	5785	-0.18	30
	5825	-0.42	30
802.11ac(HT20)	5745	2.68	30
	5785	1.31	30
	5825	1.08	30
802.11n-HT40	5755	-1.81	30
	5795	-0.30	30
802.11ac(HT40)	5755	-1.83	30
	5795	-0.31	30
802.11ac(HT80)	5775	-2.60	30

Power Spectral Density U-NII - 3
 Test Model 802.11a Frequency(MHz) 5745



Date: 2 NOV 2021 22:05:31

Power Spectral Density U-NII - 3
 Test Model 802.11a Frequency(MHz) 5785

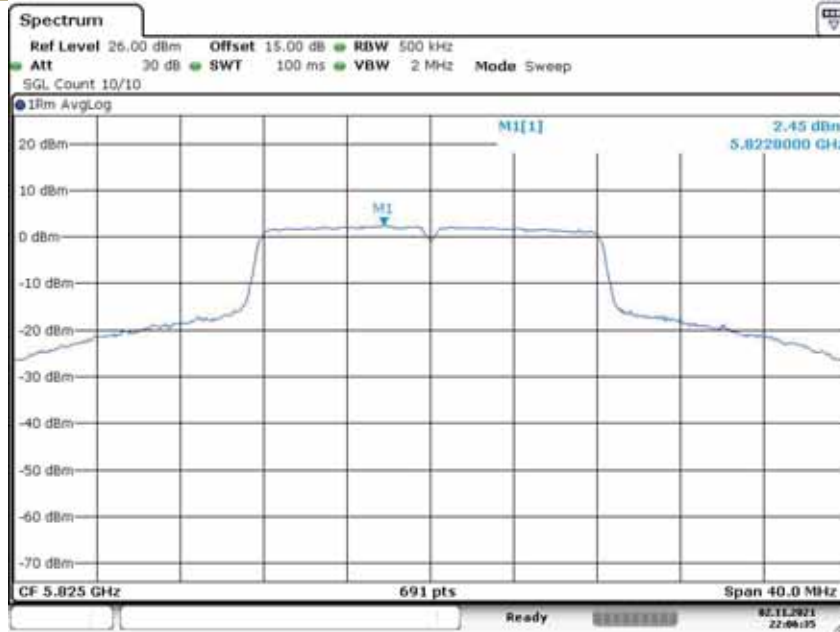


Date: 2 NOV 2021 22:06:05

Power Spectral Density
Test Model 802.11a

U-NII - 3
Frequency(MHz)

5825

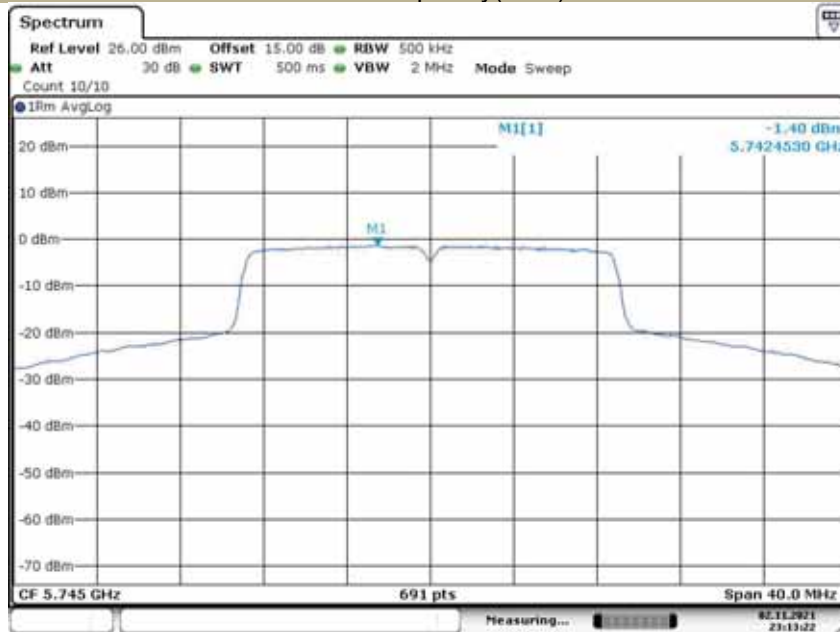


Date: 2 NOV 2021 22:06:35

Power Spectral Density
Test Model 802.11n-HT20

U-NII - 3
Frequency(MHz)

5745

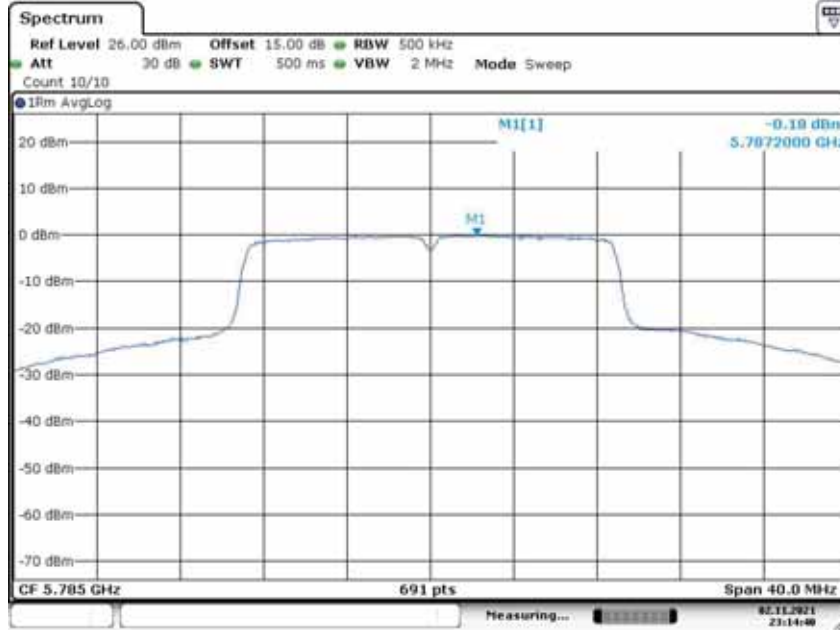


Date: 2 NOV 2021 23:13:21

Power Spectral Density
Test Model 802.11n-HT20

U-NII - 3
Frequency(MHz)

5785

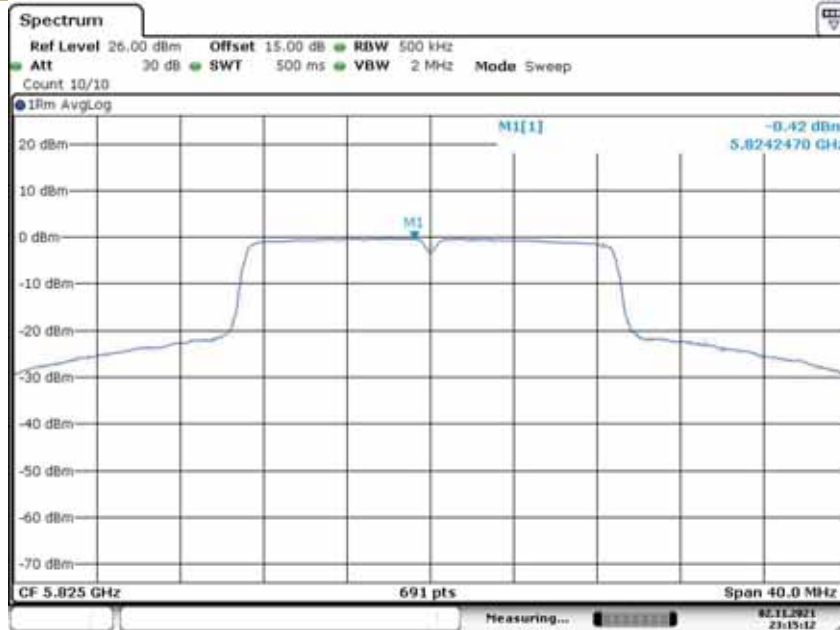


Date: 2 NOV 2021 23:14:39

Power Spectral Density
Test Model 802.11n-HT20

U-NII - 3
Frequency(MHz)

5825

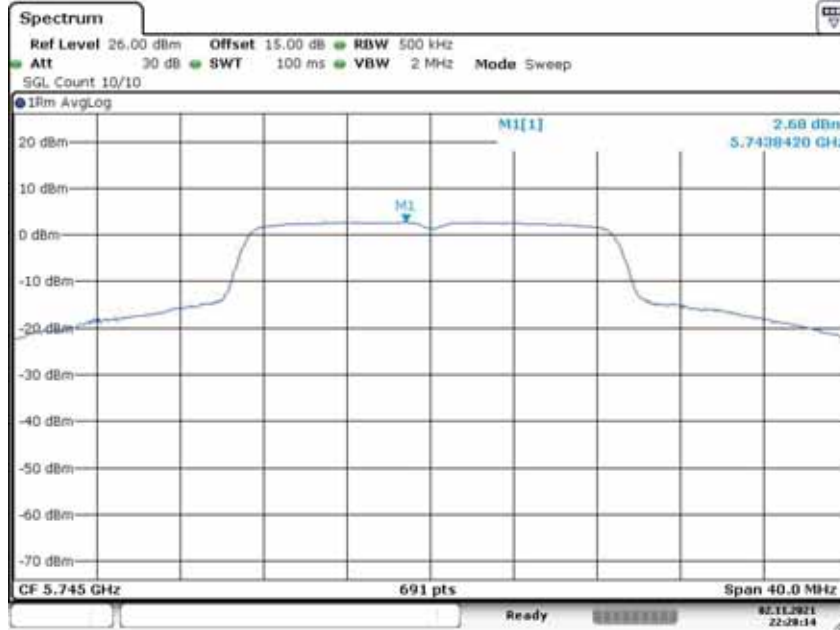


Date: 2 NOV 2021 23:15:13

Power Spectral Density
Test Model 802.11ac(HT20)

U-NII - 3
Frequency(MHz)

5745

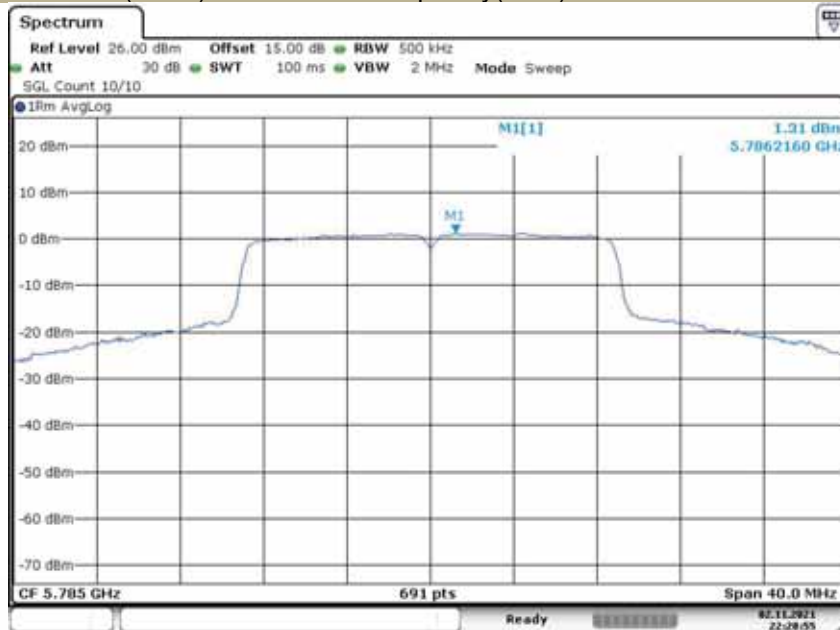


Date: 2 NOV 2021 22:28:14

Power Spectral Density
Test Model 802.11ac(HT20)

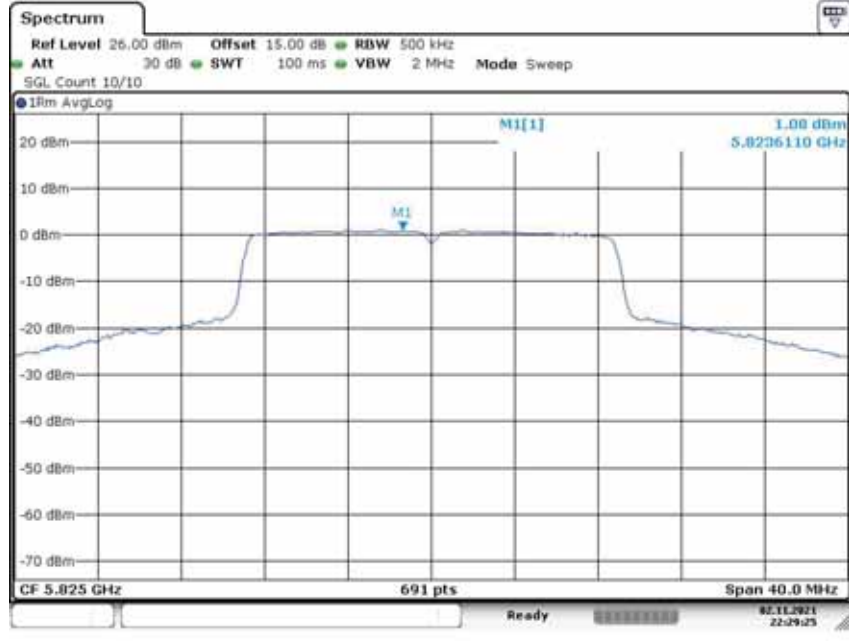
U-NII - 3
Frequency(MHz)

5785



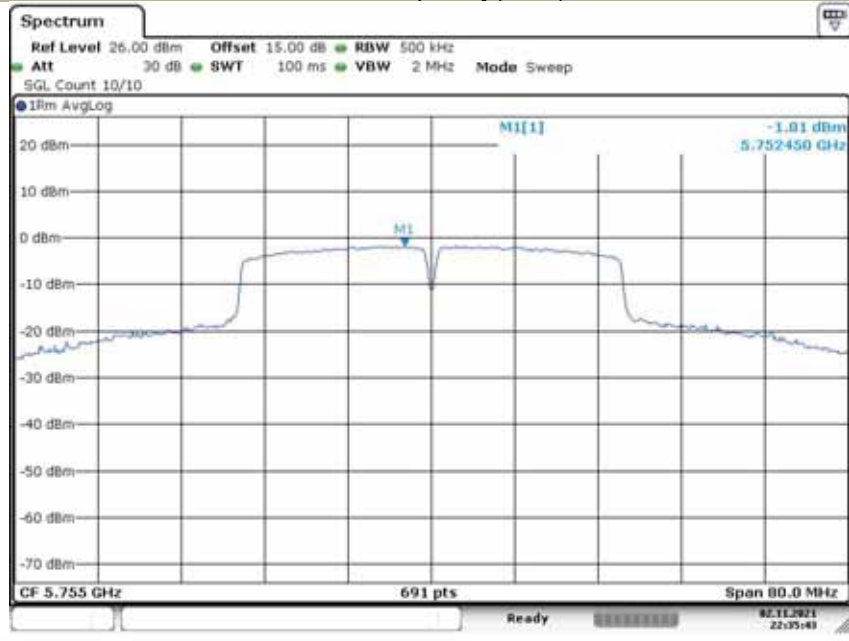
Date: 2 NOV 2021 22:28:55

Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT20) Frequency(MHz) 5825



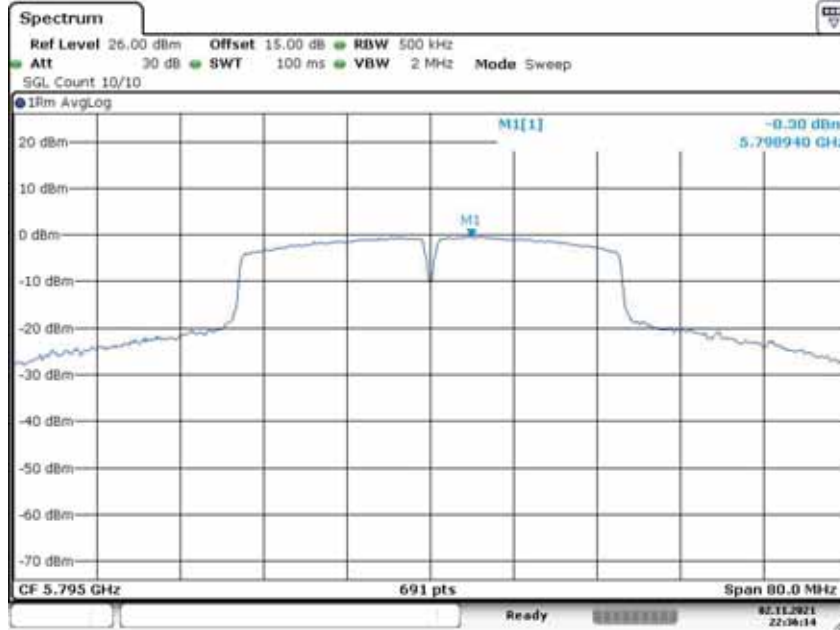
Date: 2 NOV 2021 22:29:26

Power Spectral Density U-NII - 3
 Test Model 802.11n-HT40 Frequency(MHz) 5755

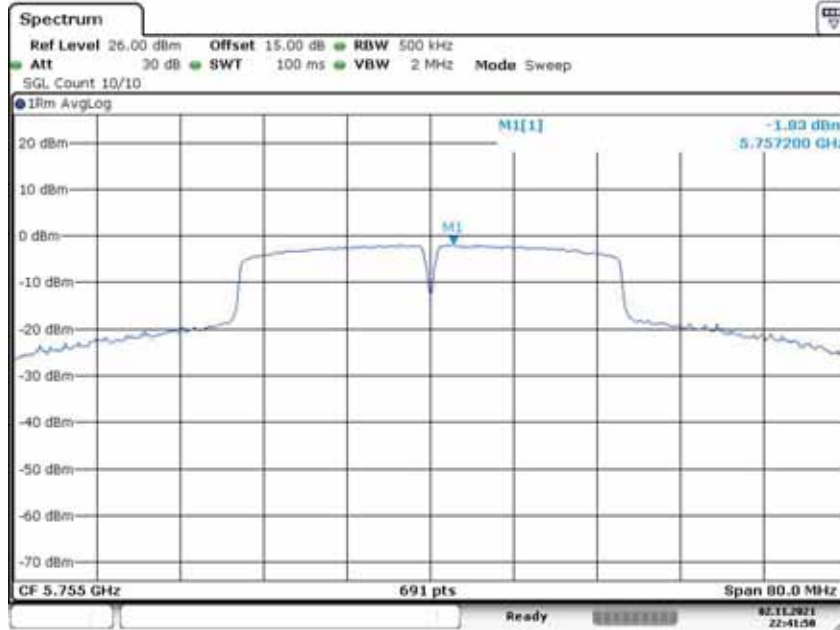


Date: 2 NOV 2021 22:35:43

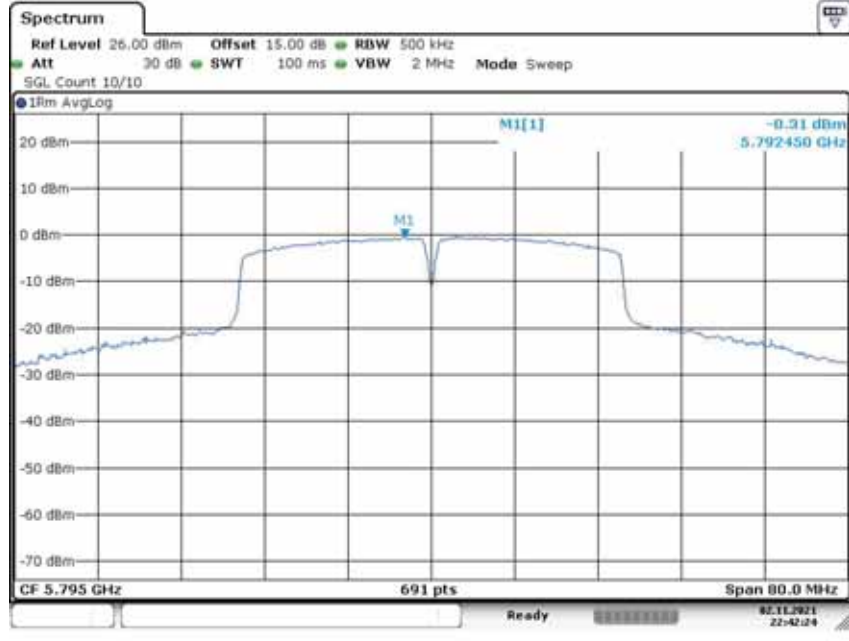
Power Spectral Density U-NII - 3
 Test Model 802.11n-HT40 Frequency(MHz) 5795



Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT40) Frequency(MHz) 5755

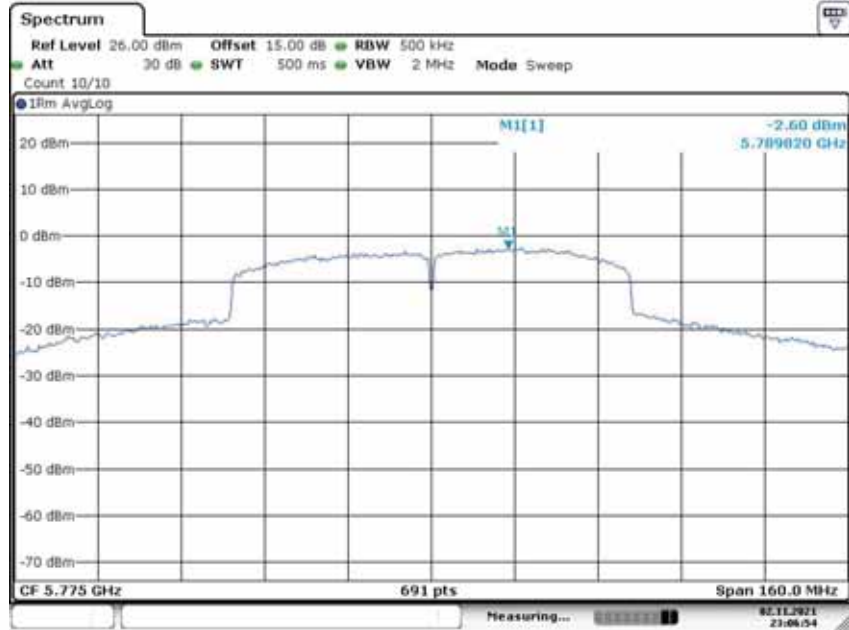


Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT40) Frequency(MHz) 5795



Date: 2.NOV.2021 22:42:24

Power Spectral Density U-NII - 3
 Test Model 802.11ac 80 Frequency(MHz) 5775



Date: 2.NOV.2021 23:06:54

For 1T1R-Antenna 2

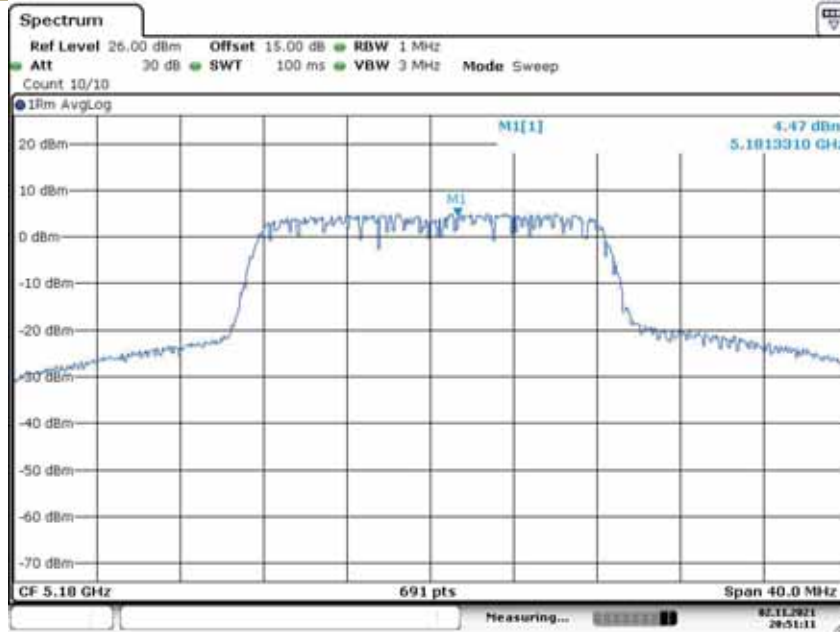
5150-5250MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5180	4.47	11
	5200	3.49	11
	5240	3.91	11
802.11n-HT20	5180	0.38	11
	5200	4.25	11
	5240	4.31	11
802.11ac(HT20)	5180	2.94	11
	5200	3.93	11
	5240	3.51	11
802.11n-HT40	5190	0.92	11
	5230	1.59	11
802.11ac(HT40)	5190	0.87	11
	5230	1.66	11
802.11ac(HT80)	5210	-1.43	11

Power Spectral Density
Test Model 802.11a

U-NII - 1
Frequency(MHz)

5180

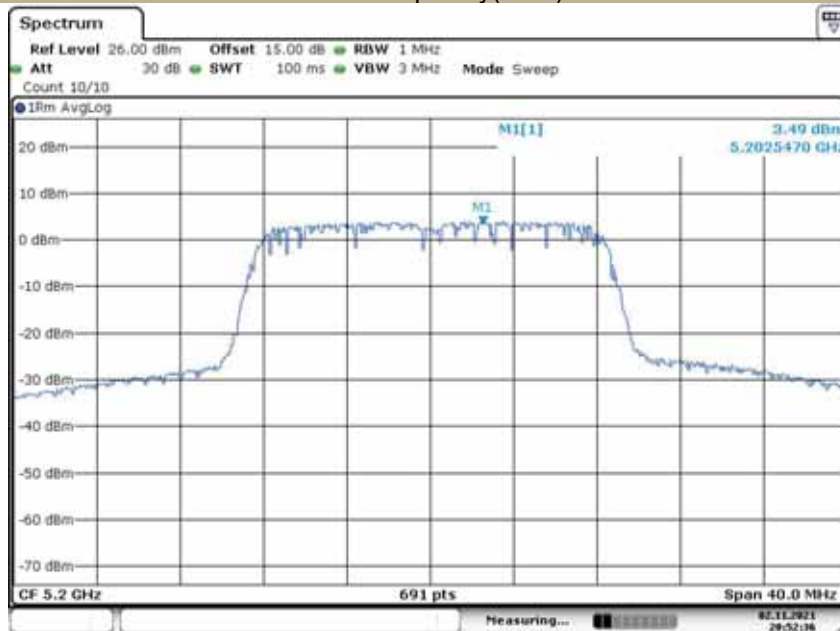


Date: 2 NOV 2021 20:51:11

Power Spectral Density
Test Model 802.11a

U-NII - 1
Frequency(MHz)

5200

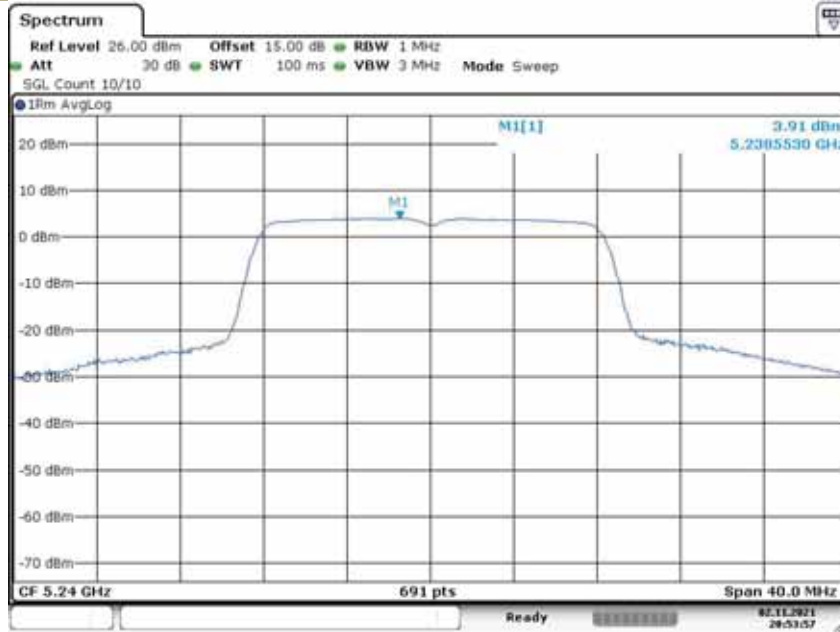


Date: 2 NOV 2021 20:52:36

Power Spectral Density
Test Model 802.11a

U-NII - 1
Frequency(MHz)

5240

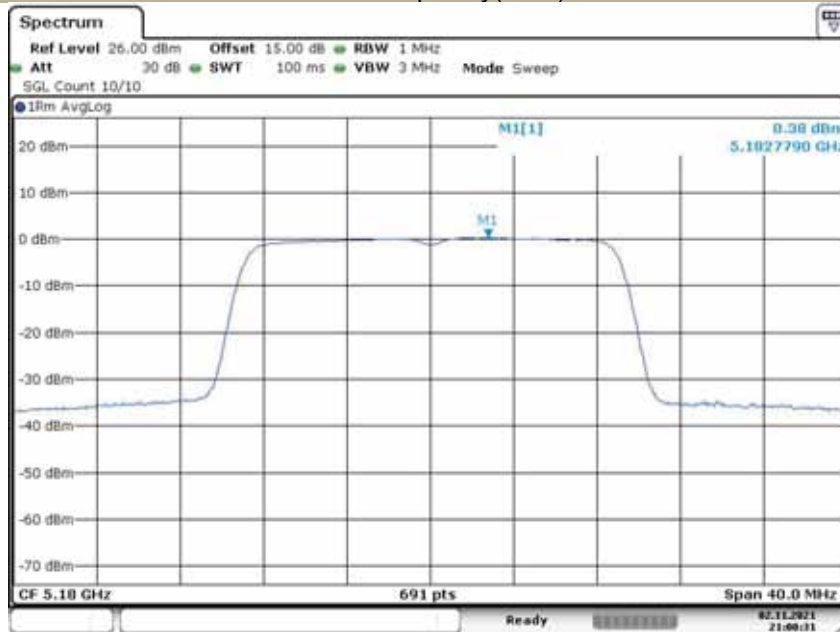


Date: 2.NOV.2021 20:53:57

Power Spectral Density
Test Model 802.11n-HT20

U-NII - 1
Frequency(MHz)

5180

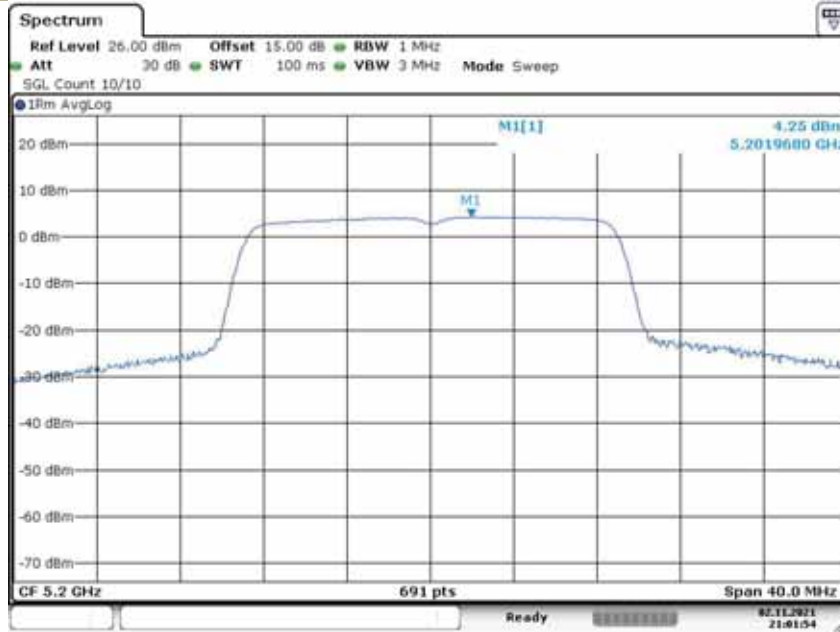


Date: 2.NOV.2021 21:00:31

Power Spectral Density
Test Model 802.11n-HT20

U-NII - 1
Frequency(MHz)

5200

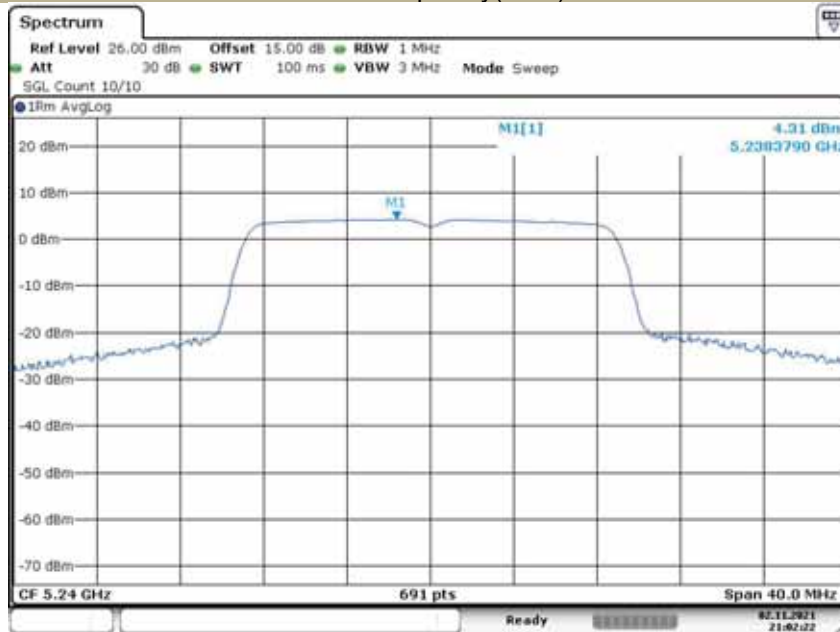


Date: 2 NOV 2021 21:01:54

Power Spectral Density
Test Model 802.11n-HT20

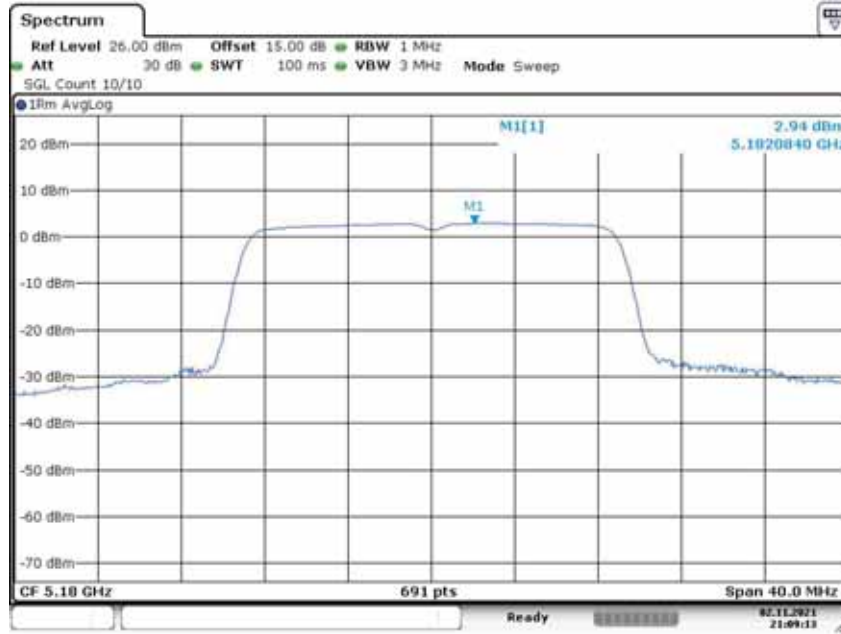
U-NII - 1
Frequency(MHz)

5240



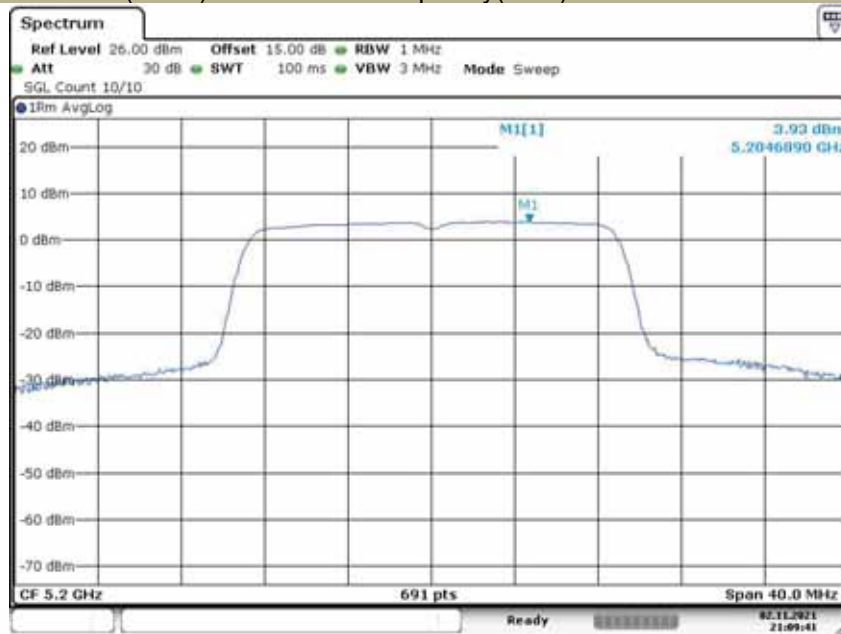
Date: 2 NOV 2021 21:02:22

Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5180



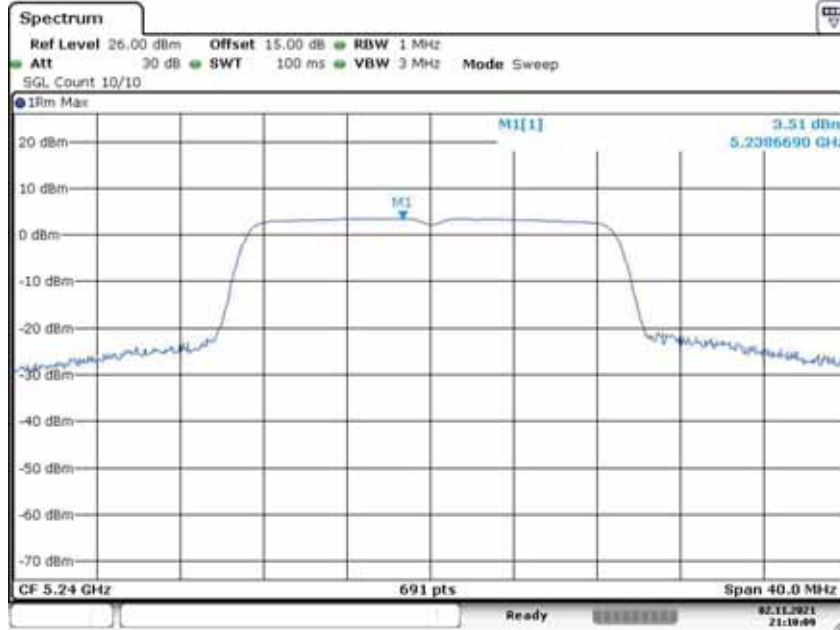
Date: 2.NOV.2021 21:09:13

Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5200



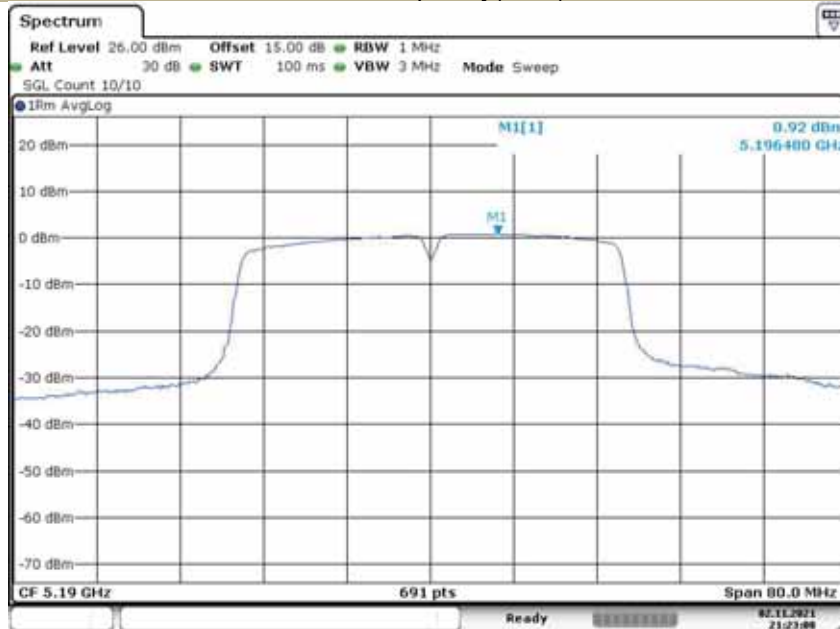
Date: 2.NOV.2021 21:09:41

Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT20) Frequency(MHz) 5240



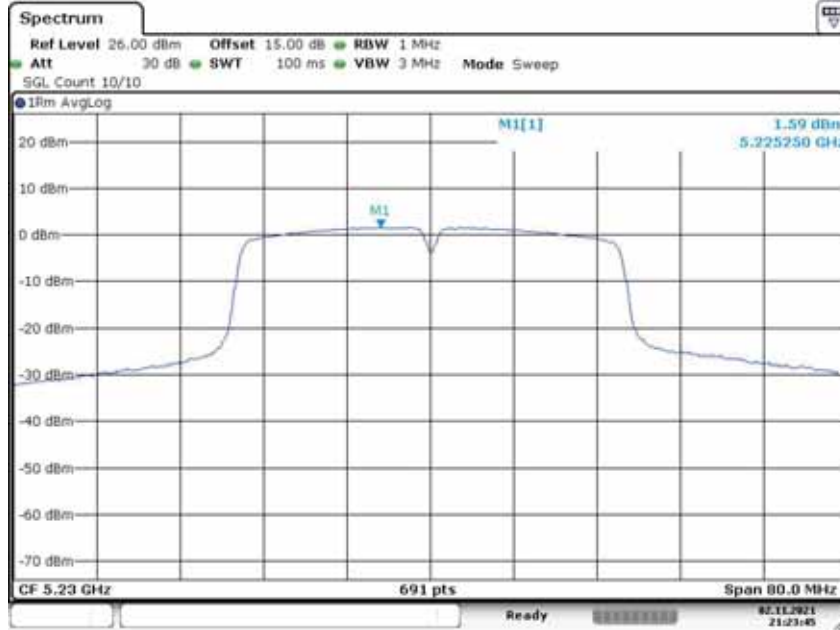
Date: 2.NOV.2021 21:10:10

Power Spectral Density U-NII - 1
 Test Model 802.11n-HT40 Frequency(MHz) 5190



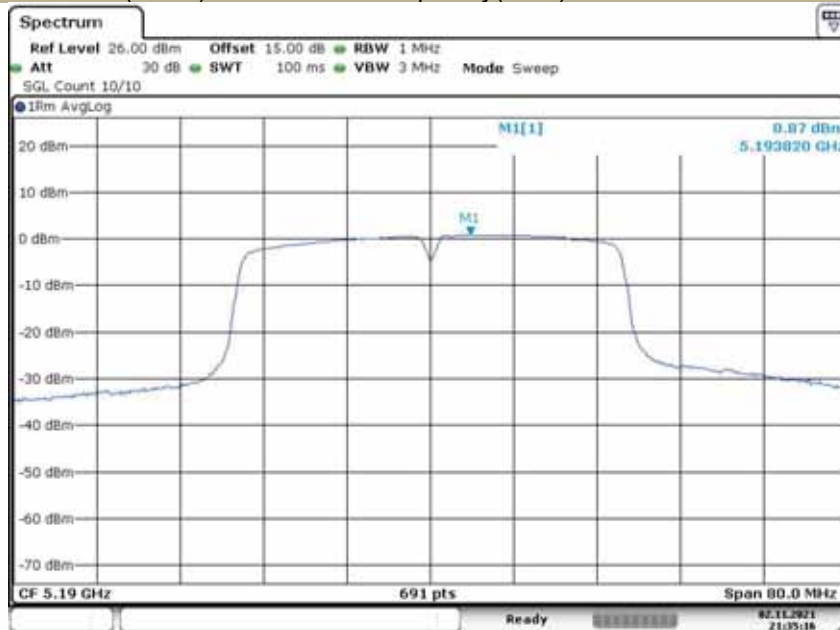
Date: 2.NOV.2021 21:23:08

Power Spectral Density U-NII - 1
 Test Model 802.11n-HT40 Frequency(MHz) 5230



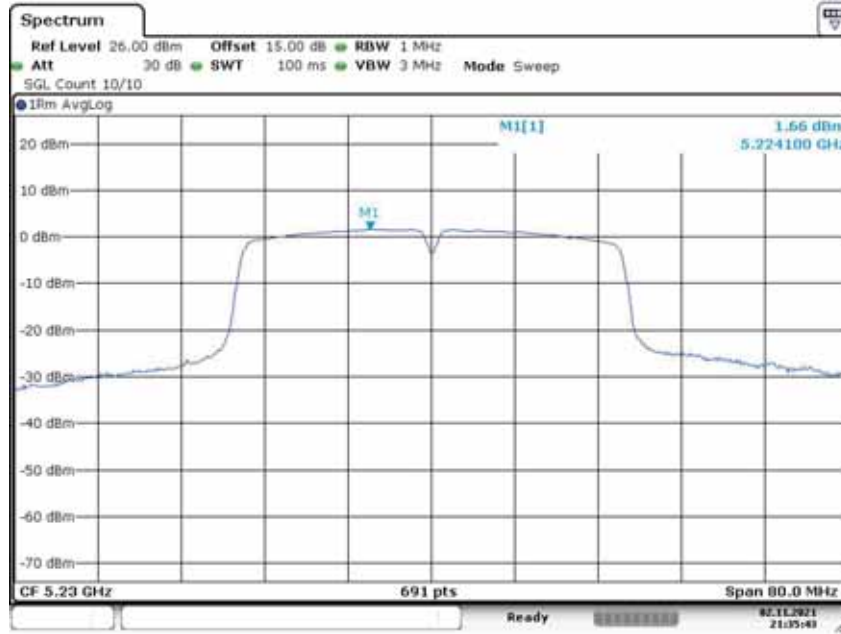
Date: 2 NOV 2021 21:23:45

Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT40) Frequency(MHz) 5190



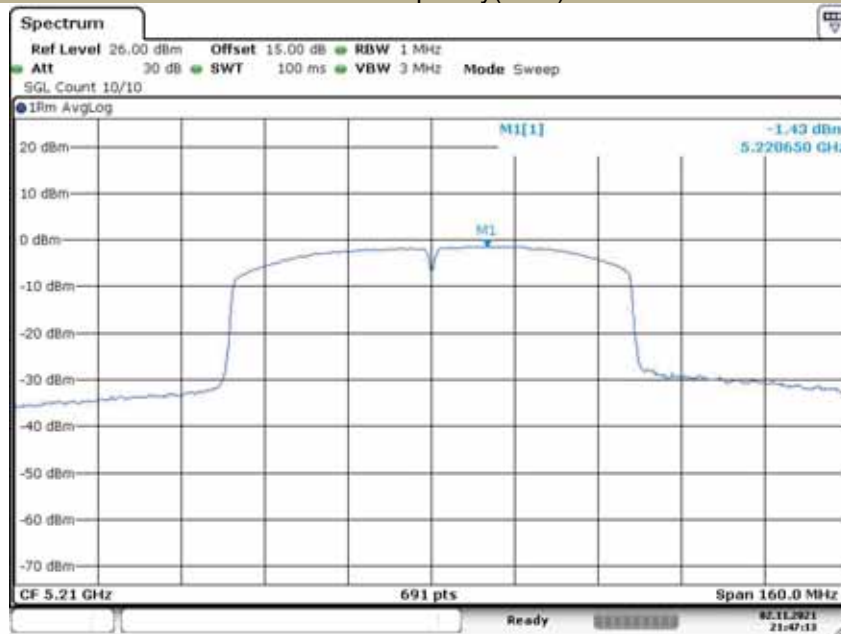
Date: 2 NOV 2021 21:35:17

Power Spectral Density U-NII - 1
 Test Model 802.11ac(HT40) Frequency(MHz) 5230



Date: 2.NOV.2021 21:35:43

Power Spectral Density U-NII - 1
 Test Model 802.11ac 80 Frequency(MHz) 5210



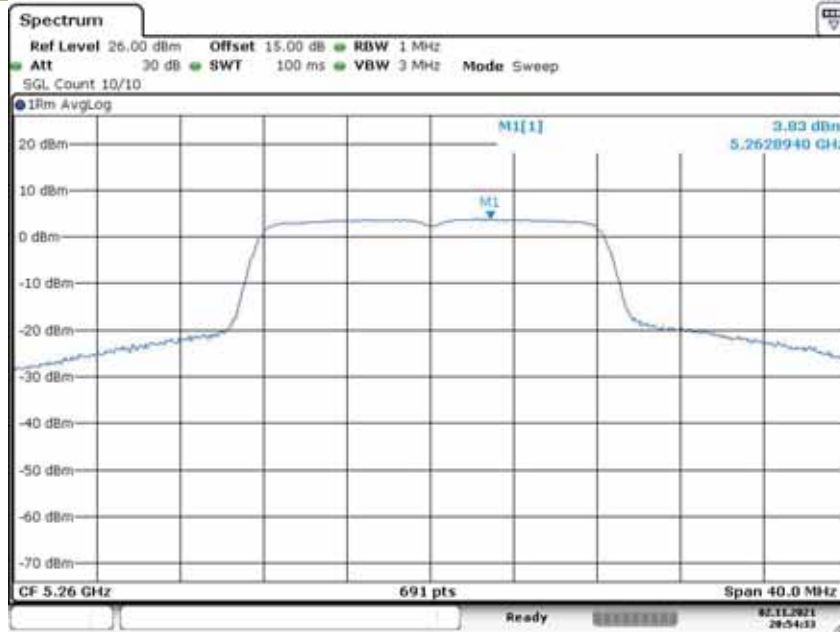
Date: 2.NOV.2021 21:47:13

5250-5350MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5260	3.83	11
	5280	4.73	11
	5320	5.58	11
802.11n-HT20	5260	3.69	11
	5280	4.69	11
	5320	5.58	11
802.11ac(HT20)	5260	3.24	11
	5280	4.32	11
	5320	5.69	11
802.11n-HT40	5270	1.39	11
	5310	3.06	11
802.11ac(HT40)	5270	1.26	11
	5310	2.85	11
802.11ac(HT80)	5290	-0.09	11

Power Spectral Density
Test Model 802.11a

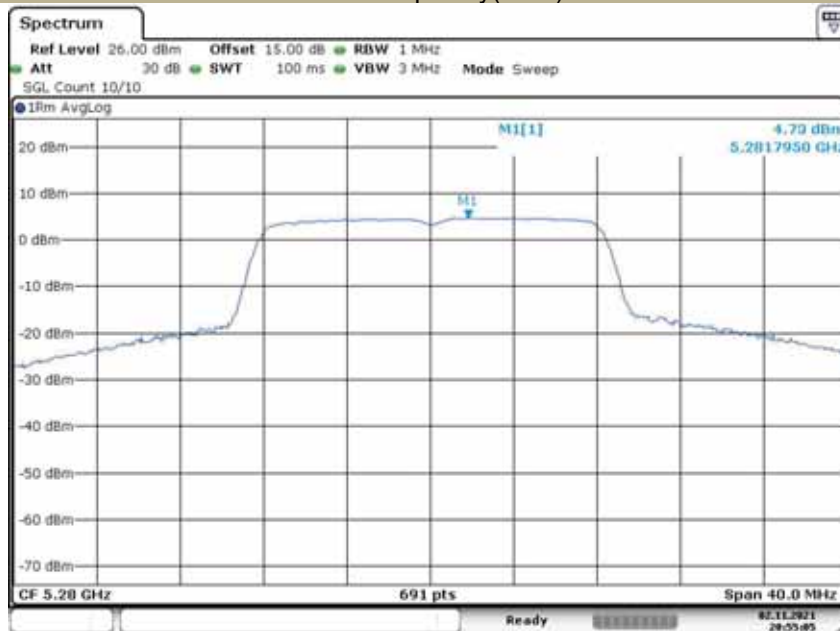
U-NII – 2A
Frequency(MHz) 5260



Date: 2 NOV 2021 20:54:32

Power Spectral Density
Test Model 802.11a

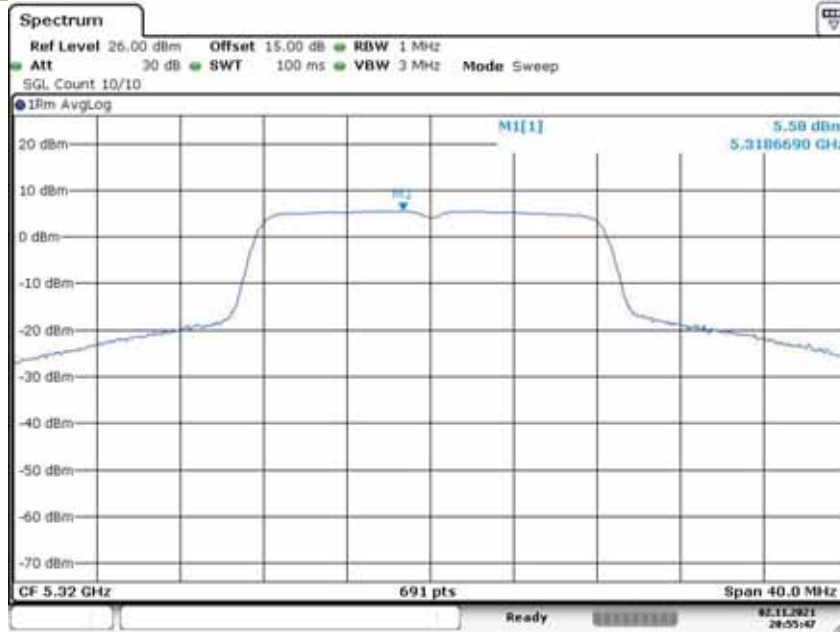
U-NII – 2A
Frequency(MHz) 5280



Date: 2 NOV 2021 20:55:05

Power Spectral Density
Test Model 802.11a

U-NII – 2A
Frequency(MHz) 5320



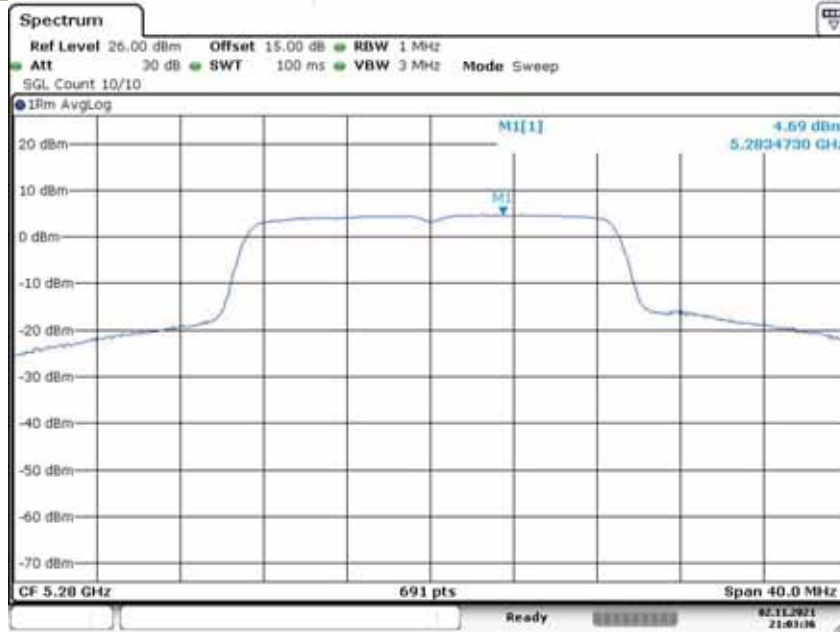
Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2A
Frequency(MHz) 5260



Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2A
Frequency(MHz) 5280



Date: 2 NOV 2021 21:03:36

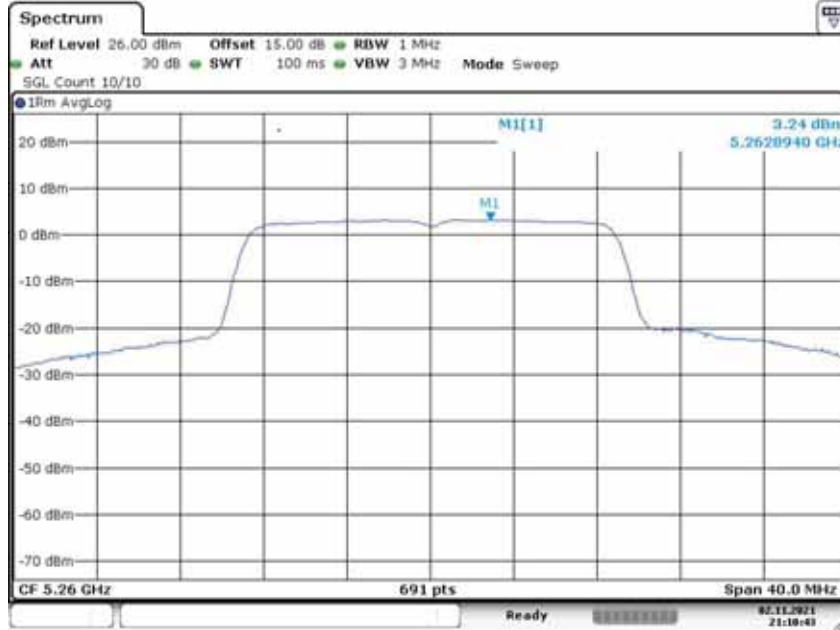
Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2A
Frequency(MHz) 5320

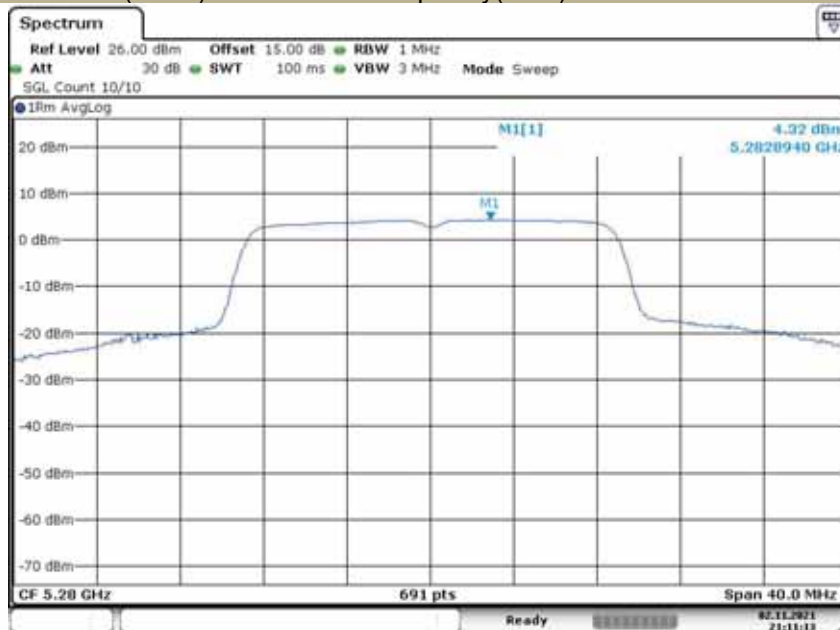


Date: 2 NOV 2021 21:04:12

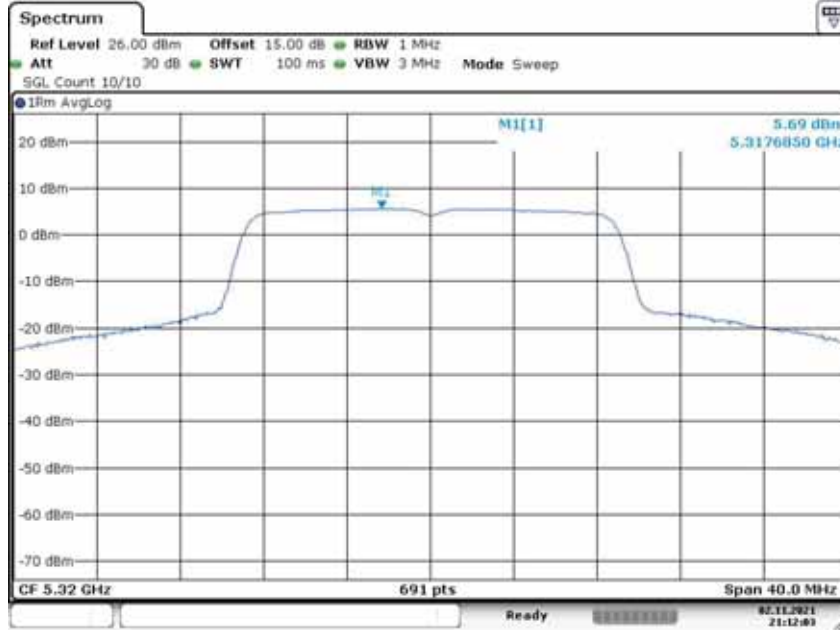
Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5260



Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5280



Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT20) Frequency(MHz) 5320



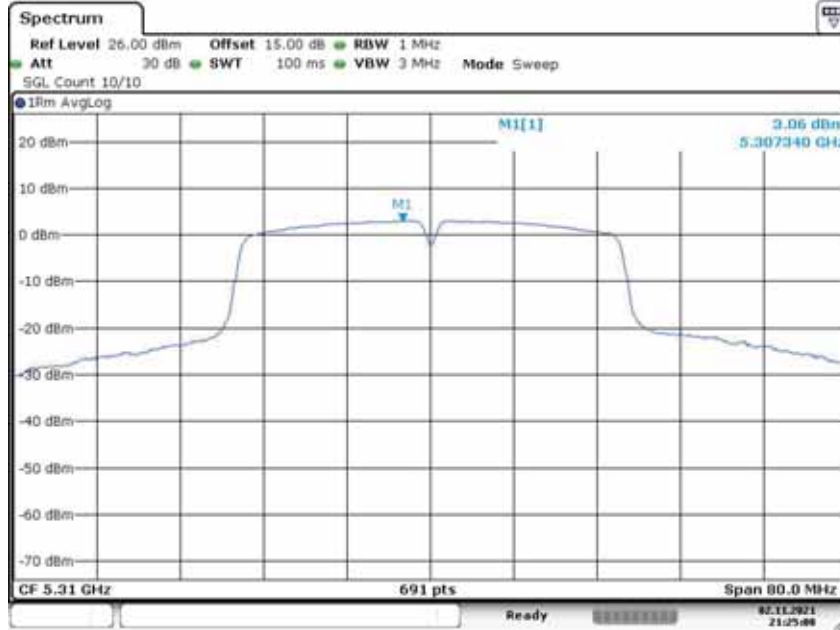
Date: 2.NOV.2021 21:12:03

Power Spectral Density U-NII – 2A
 Test Model 802.11n-HT40 Frequency(MHz) 5270



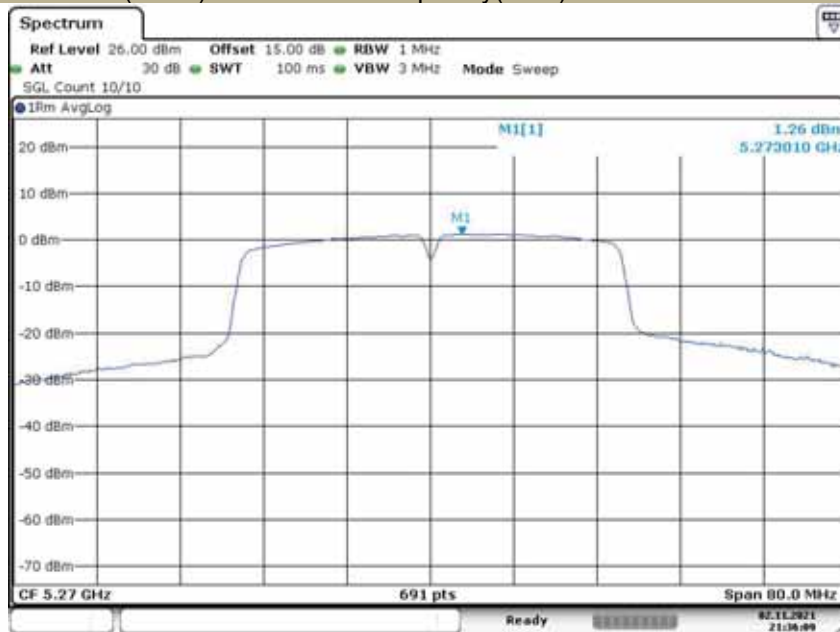
Date: 2.NOV.2021 21:24:29

Power Spectral Density U-NII – 2A
 Test Model 802.11n-HT40 Frequency(MHz) 5310



Date: 2.NOV.2021 21:25:08

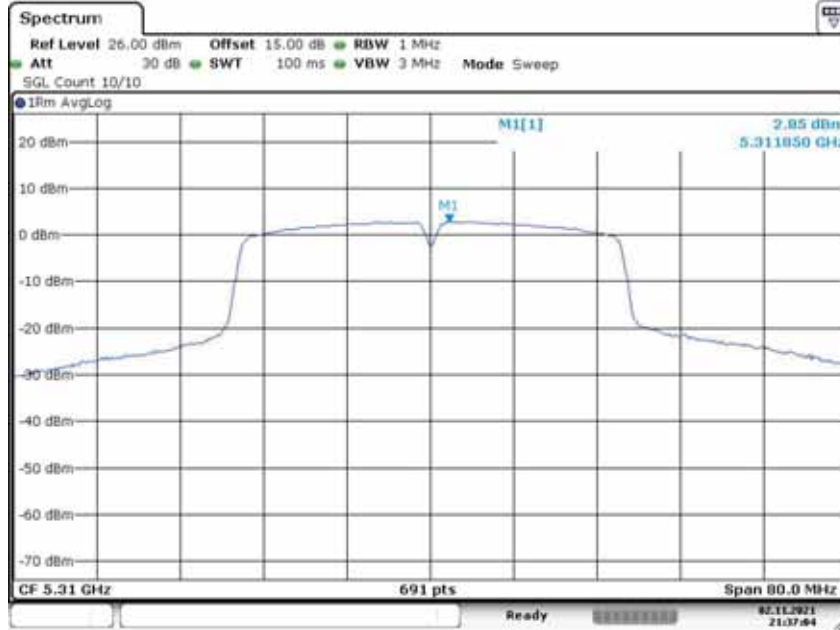
Power Spectral Density U-NII – 2A
 Test Model 802.11ac(HT40) Frequency(MHz) 5270



Date: 2.NOV.2021 21:36:09

Power Spectral Density
Test Model 802.11ac(HT40)

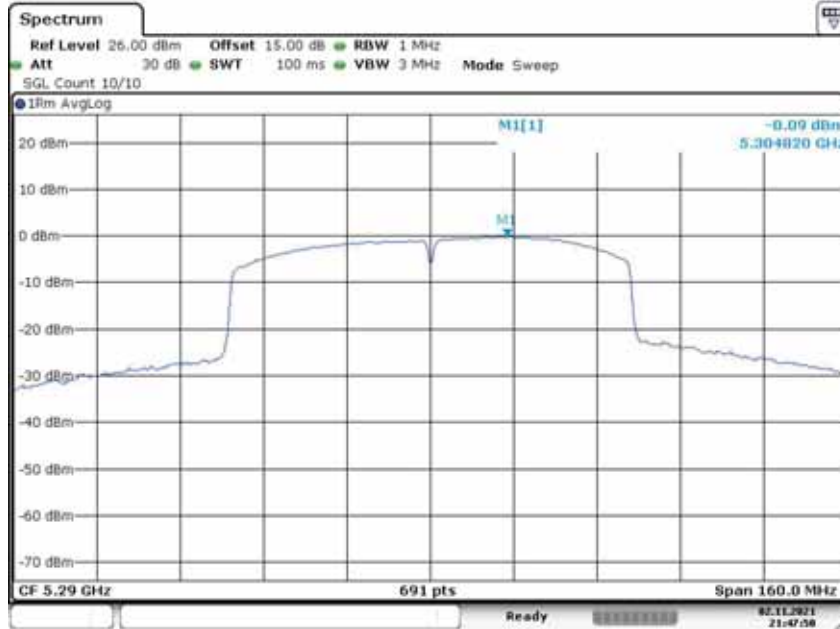
U-NII – 2A
Frequency(MHz) 5310



Date: 2 NOV 2021 21:37:04

Power Spectral Density
Test Model 802.11ac 80

U-NII – 2A
Frequency(MHz) 5290



Date: 2 NOV 2021 21:47:50

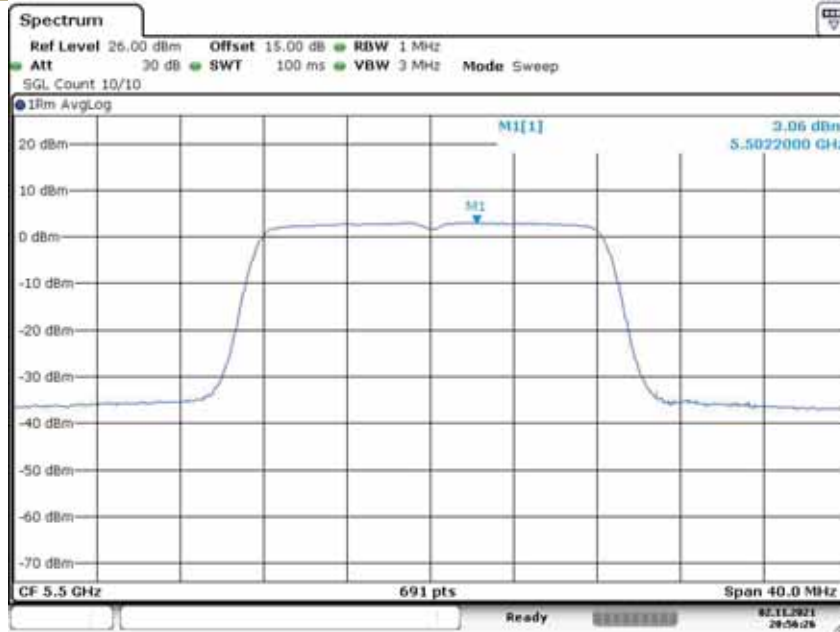
5470-5725MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz	Limit (dBm/MHz)
802.11a	5500	3.06	11
	5600	3.84	11
	5700	3.54	11
802.11n-HT20	5500	5.30	11
	5600	6.02	11
	5700	5.63	11
802.11ac(HT20)	5500	5.32	11
	5600	6.15	11
	5700	5.55	11
802.11n-HT40	5510	3.23	11
	5670	3.18	11
802.11ac(HT40)	5510	5.31	11
	5670	3.04	11
802.11ac(HT80)	5530	2.40	11

Power Spectral Density
Test Model 802.11a

U-NII – 2C
Frequency(MHz)

5500

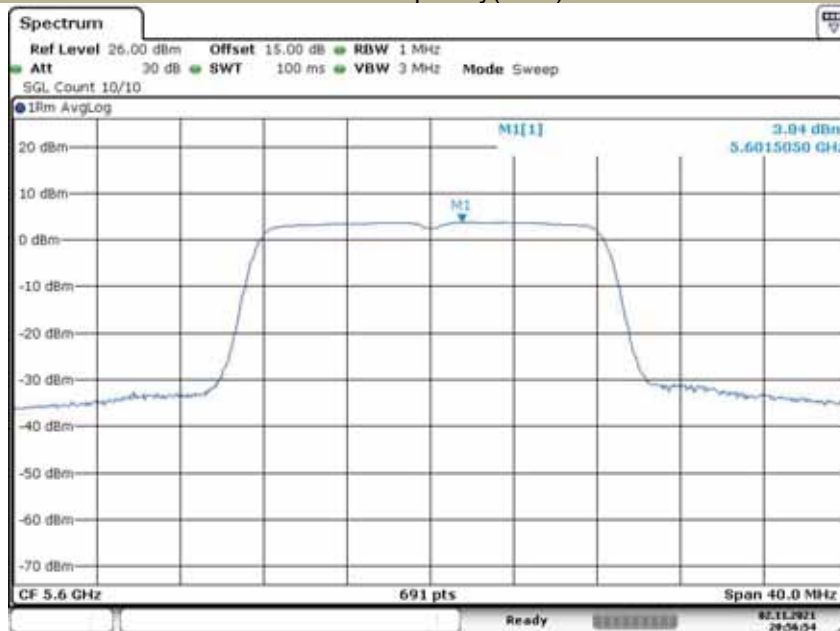


Date: 2 NOV 2021 20:56:28

Power Spectral Density
Test Model 802.11a

U-NII – 2C
Frequency(MHz)

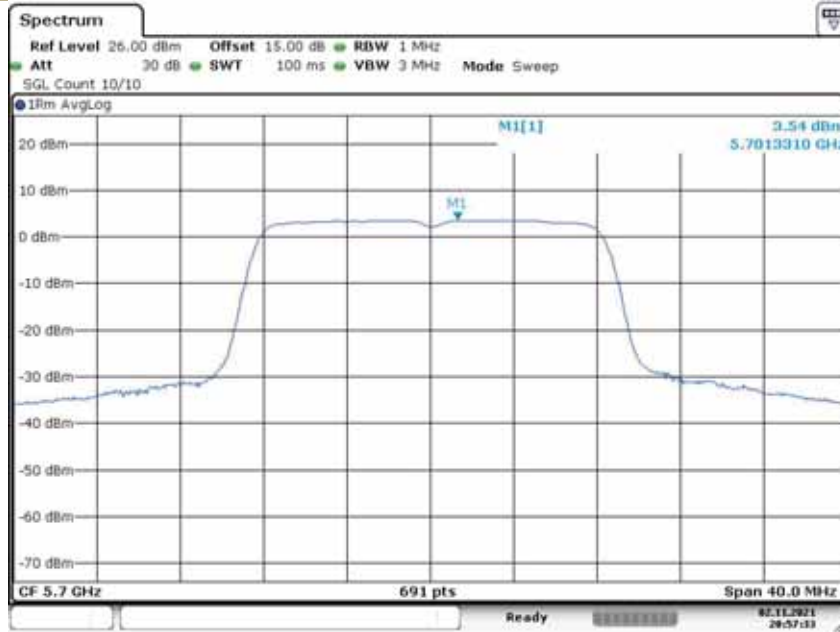
5600



Date: 2 NOV 2021 20:56:54

Power Spectral Density
Test Model 802.11a

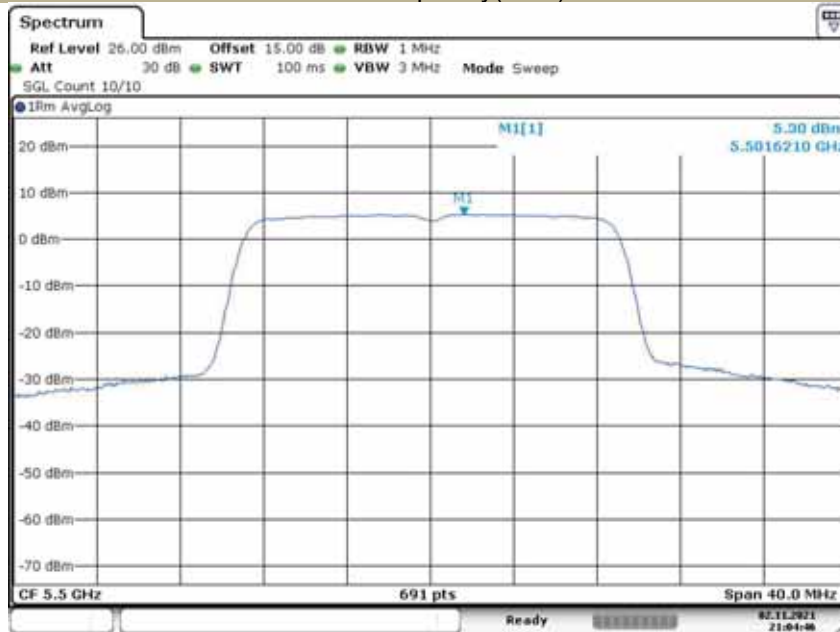
U-NII – 2C
Frequency(MHz) 5700



Date: 2 NOV 2021 20:57:33

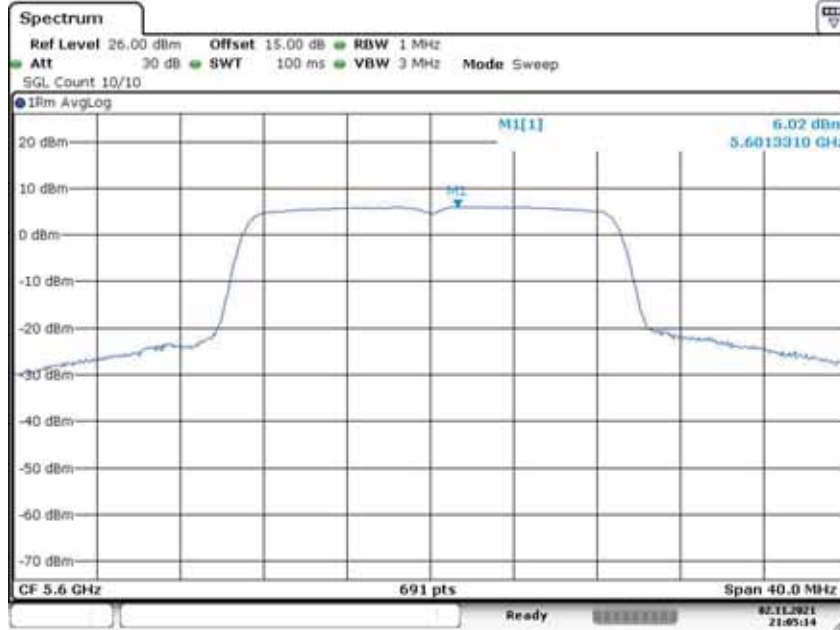
Power Spectral Density
Test Model 802.11n-HT20

U-NII – 2C
Frequency(MHz) 5500



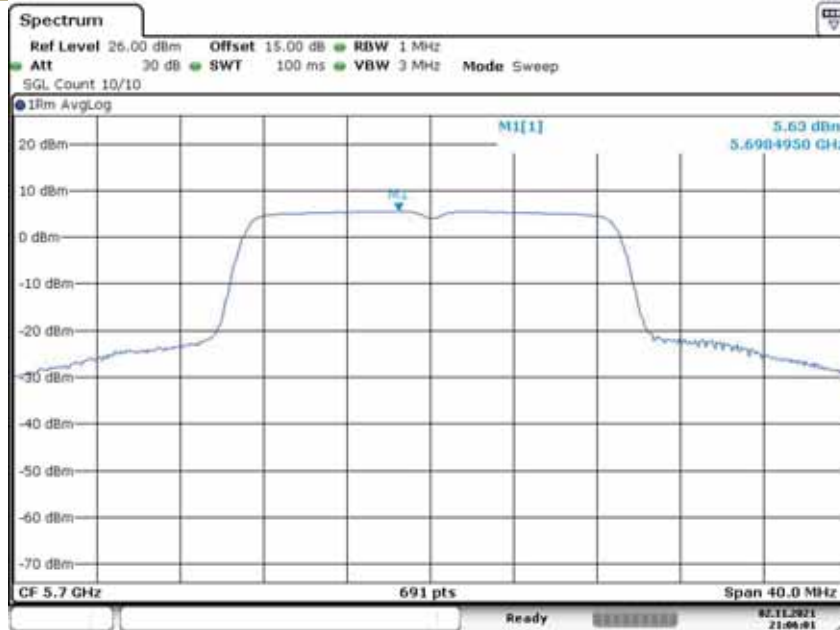
Date: 2 NOV 2021 21:04:46

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT20 Frequency(MHz) 5600



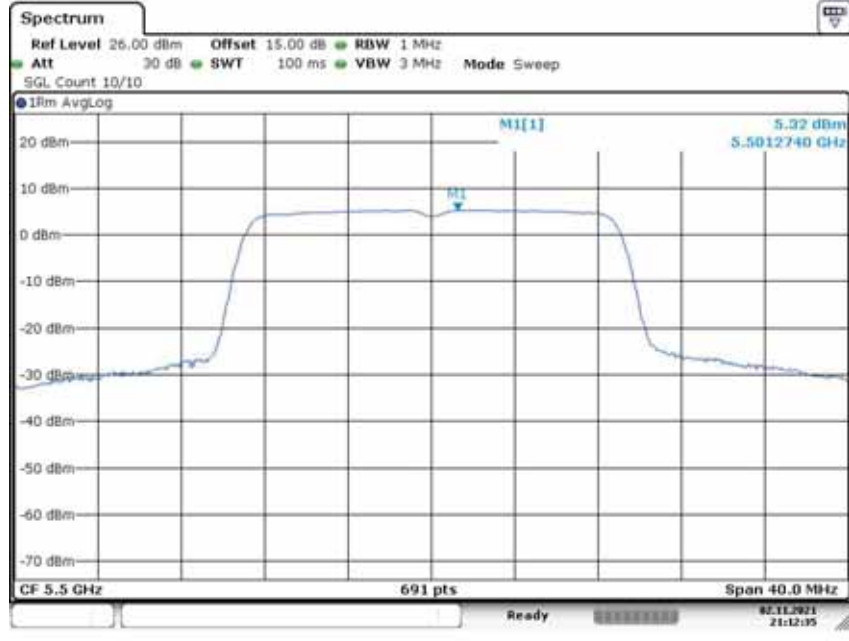
Date: 2 NOV 2021 21:05:14

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT20 Frequency(MHz) 5700



Date: 2 NOV 2021 21:06:01

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5500



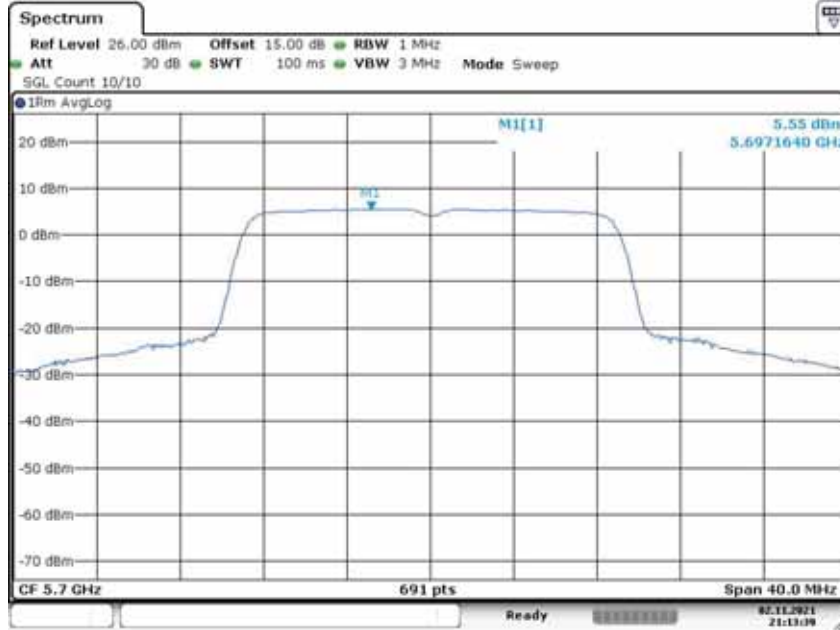
Date: 2.NOV.2021 21:12:36

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5600



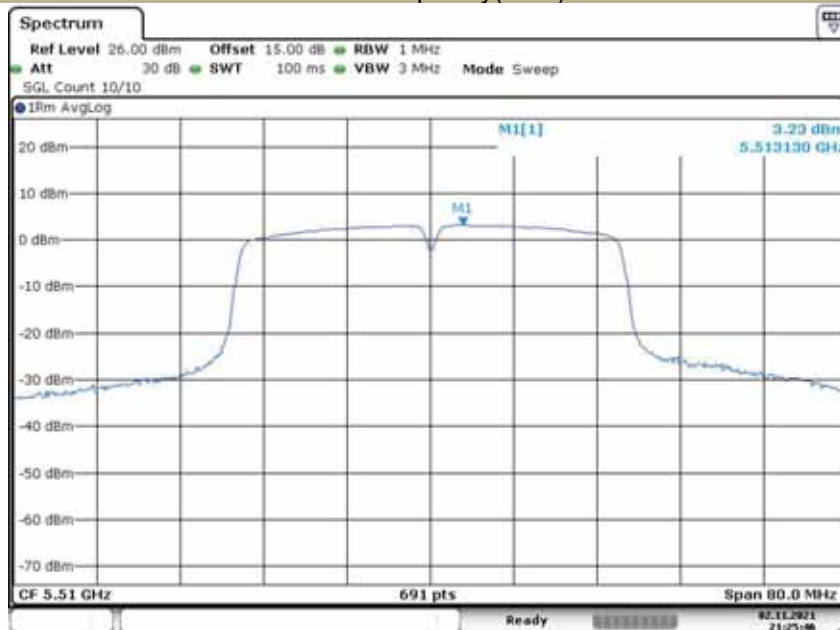
Date: 2.NOV.2021 21:13:12

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT20) Frequency(MHz) 5700



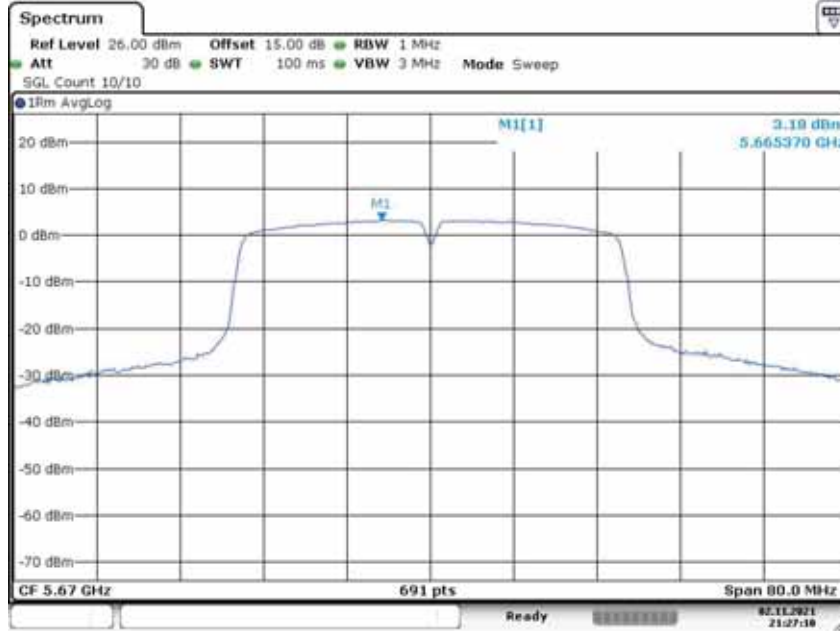
Date: 2.NOV.2021 21:13:39

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT40 Frequency(MHz) 5510



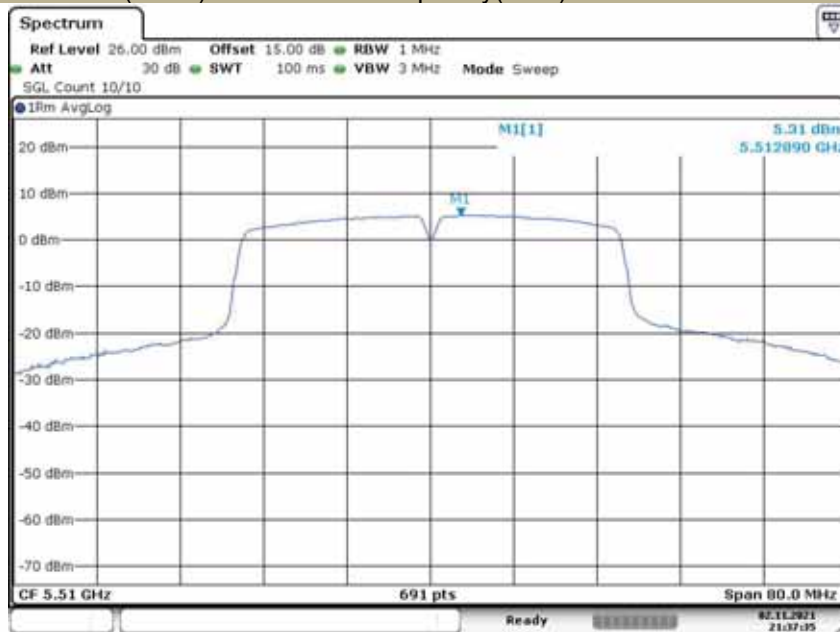
Date: 2.NOV.2021 21:25:47

Power Spectral Density U-NII – 2C
 Test Model 802.11n-HT40 Frequency(MHz) 5670



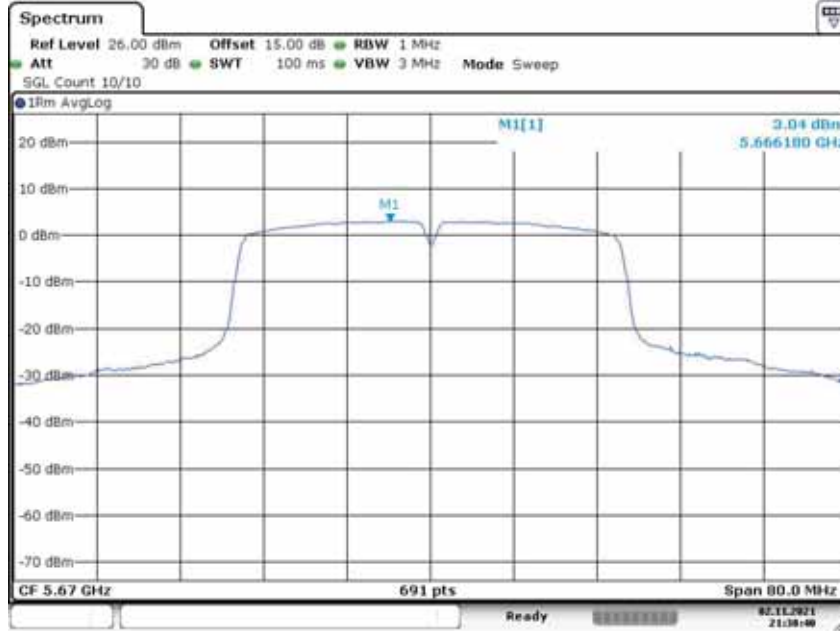
Date: 2.NOV.2021 21:27:10

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT40) Frequency(MHz) 5510



Date: 2.NOV.2021 21:37:35

Power Spectral Density U-NII – 2C
 Test Model 802.11ac(HT40) Frequency(MHz) 5670



Date: 2.NOV.2021 21:38:40

Power Spectral Density U-NII – 2C
 Test Model 802.11ac 80 Frequency(MHz) 5530



Date: 2.NOV.2021 21:48:21

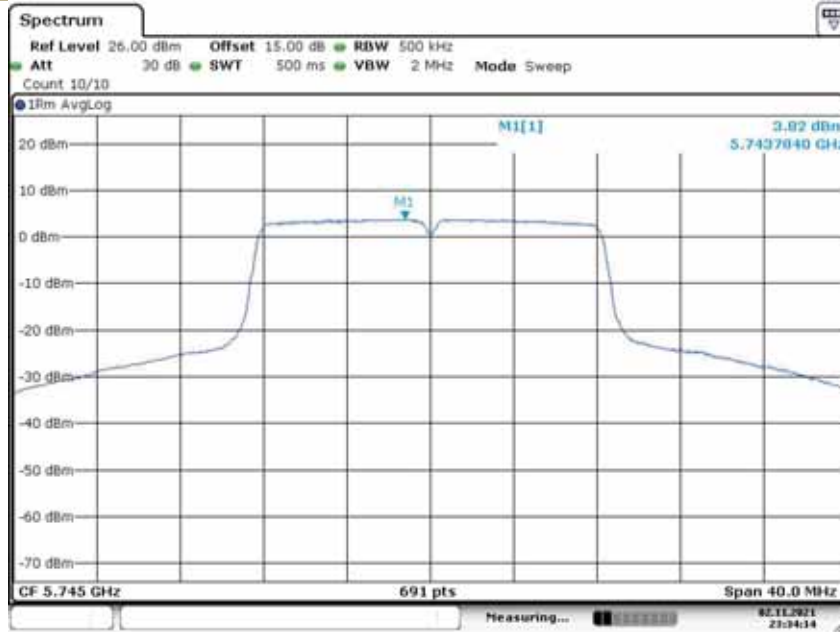
5725-5850MHz

Operating mode	Test Channel	Power Spectral Density dBm/500kHz	Limit (dBm/500kHz)
802.11a	5745	3.82	30
	5785	2.26	30
	5825	2.44	30
802.11n-HT20	5745	2.91	30
	5785	2.57	30
	5825	1.91	30
802.11ac(HT20)	5745	3.60	30
	5785	2.13	30
	5825	2.70	30
802.11n-HT40	5755	3.18	30
	5795	0.29	30
802.11ac(HT40)	5755	0.79	30
	5795	-0.42	30
802.11ac(HT80)	5775	-0.49	30

Power Spectral Density
Test Model 802.11a

U-NII - 3
Frequency(MHz)

5745



Power Spectral Density
Test Model 802.11a

U-NII - 3
Frequency(MHz)

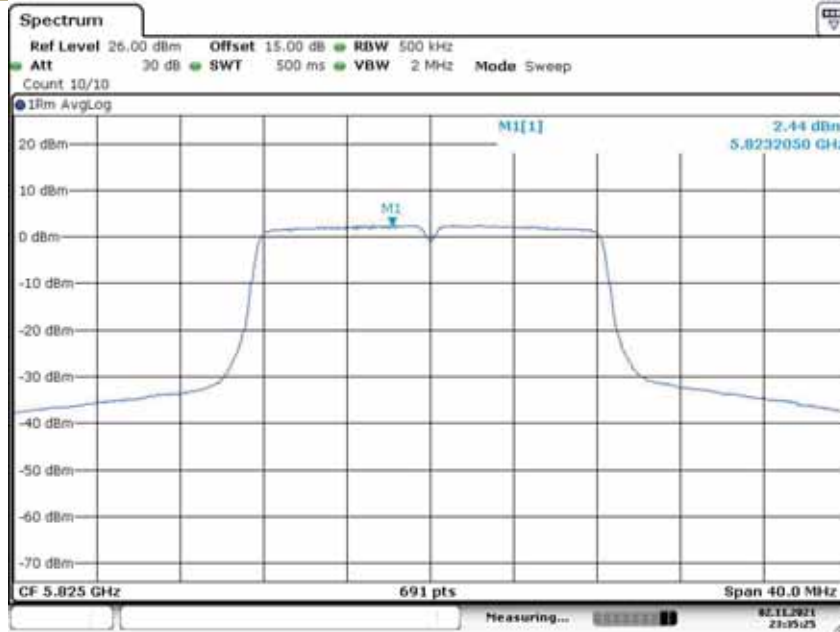
5785



Power Spectral Density
Test Model 802.11a

U-NII - 3
Frequency(MHz)

5825



Date: 2 NOV 2021 23:35:25

Power Spectral Density
Test Model 802.11n-HT20

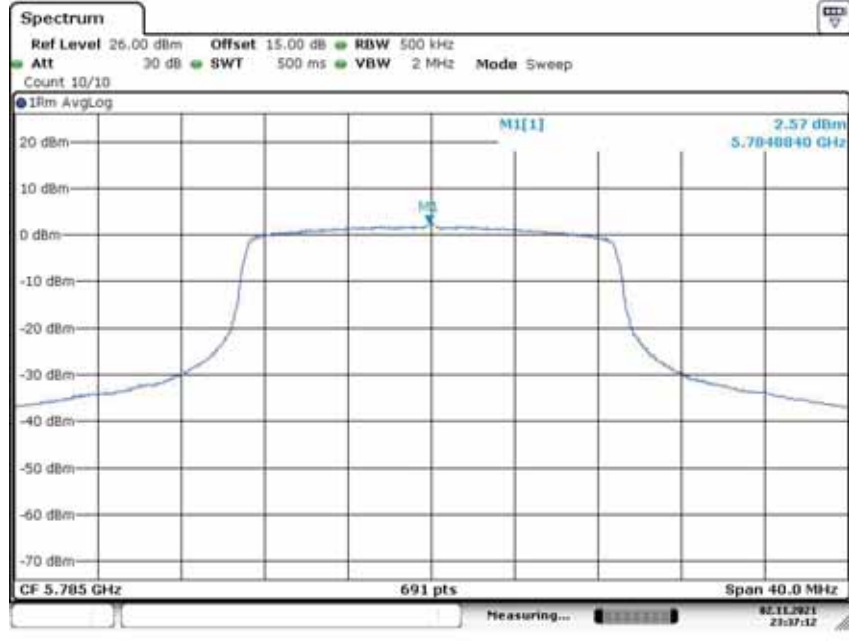
U-NII - 3
Frequency(MHz)

5745



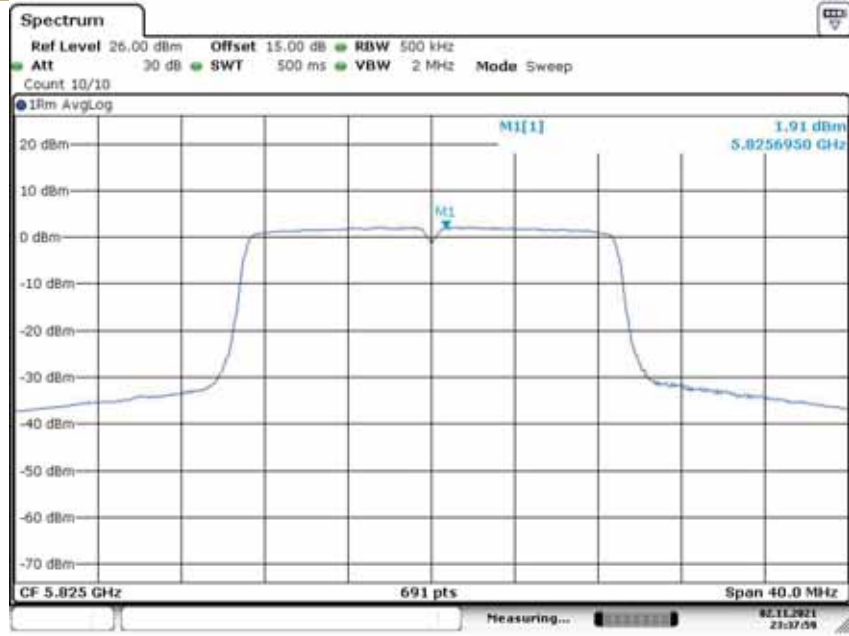
Date: 2 NOV 2021 23:36:03

Power Spectral Density U-NII - 3
 Test Model 802.11n-HT20 Frequency(MHz) 5785



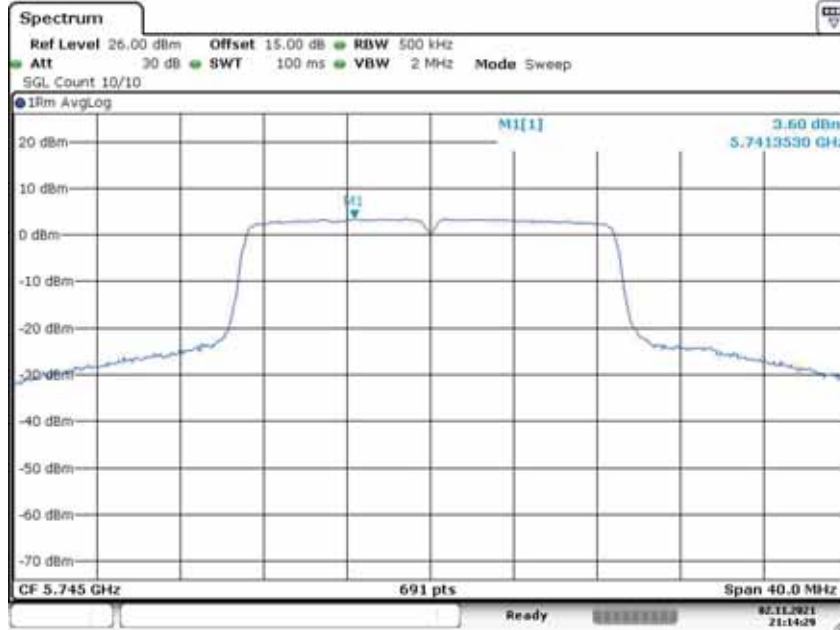
Date: 2 NOV 2021 23:37:12

Power Spectral Density U-NII - 3
 Test Model 802.11n-HT20 Frequency(MHz) 5825



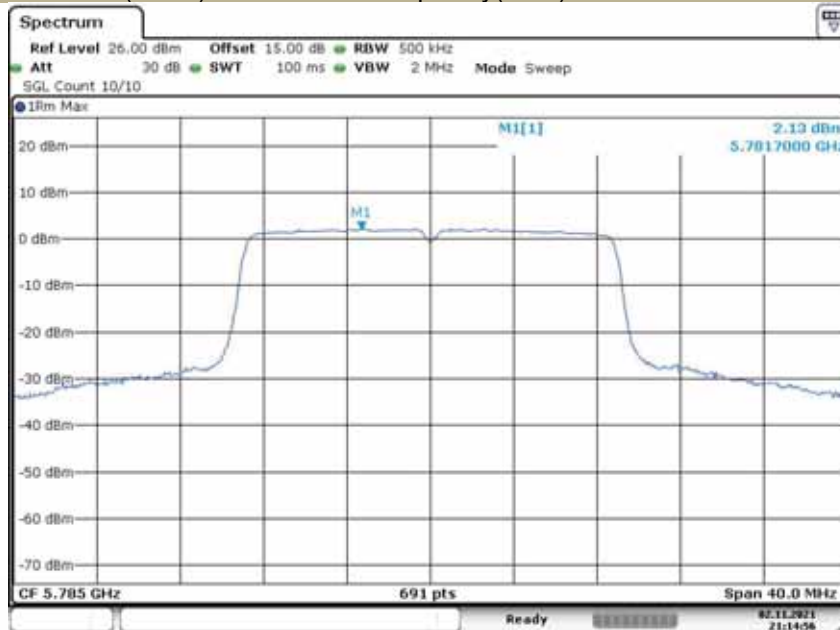
Date: 2 NOV 2021 23:37:59

Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT20) Frequency(MHz) 5745



Date: 2.NOV.2021 21:14:29

Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT20) Frequency(MHz) 5785

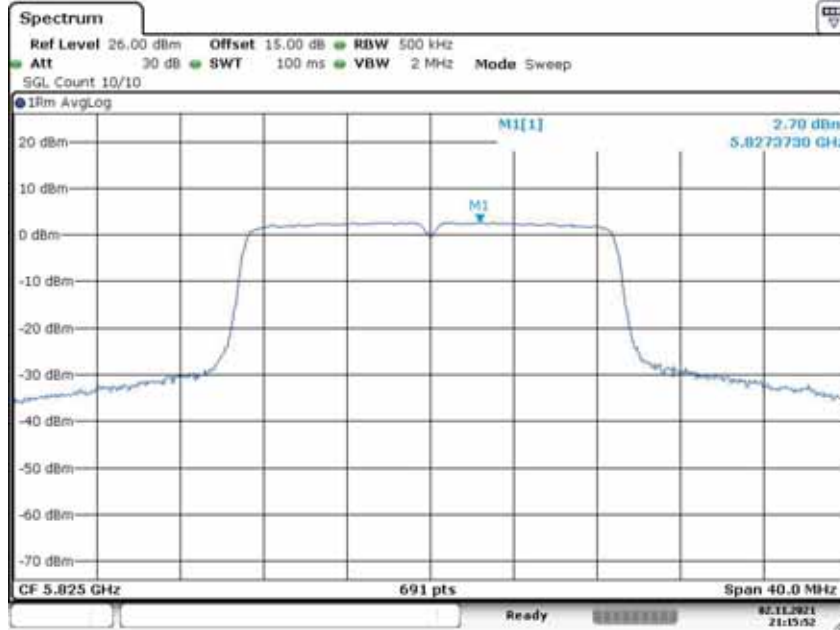


Date: 2.NOV.2021 21:14:56

Power Spectral Density
Test Model 802.11ac(HT20)

U-NII - 3
Frequency(MHz)

5825



Date: 2 NOV 2021 21:15:52

Power Spectral Density
Test Model 802.11n-HT40

U-NII - 3
Frequency(MHz)

5755

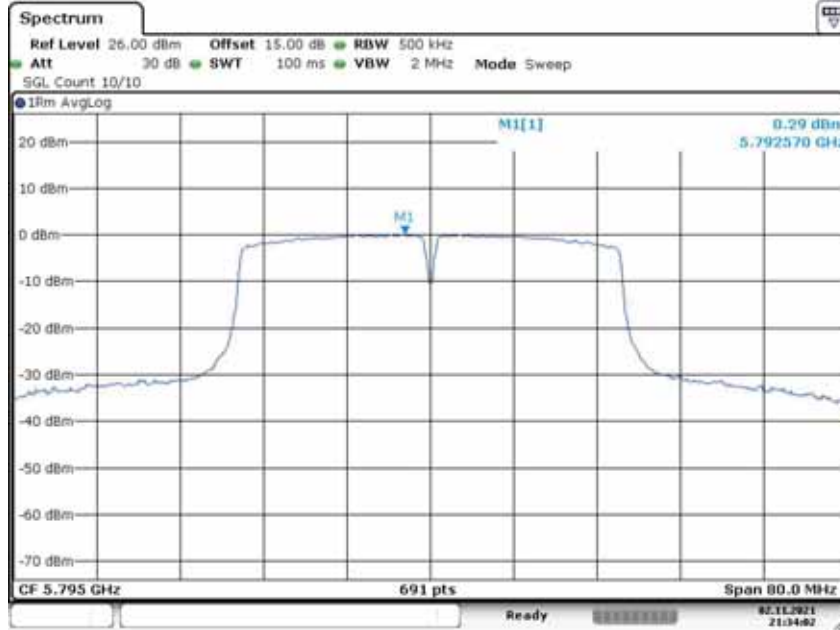


Date: 2 NOV 2021 21:33:02

Power Spectral Density
Test Model 802.11n-HT40

U-NII - 3
Frequency(MHz)

5795

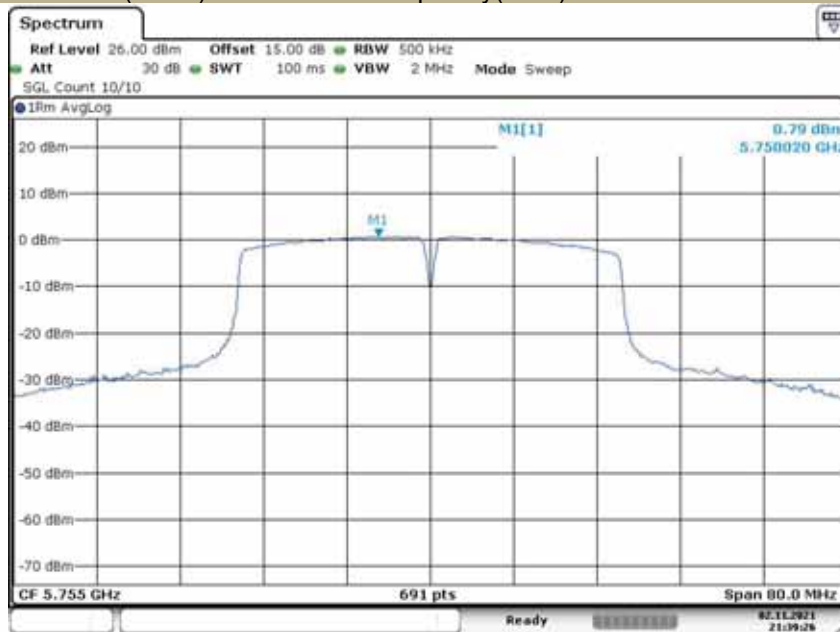


Date: 2.NOV.2021 21:34:02

Power Spectral Density
Test Model 802.11ac(HT40)

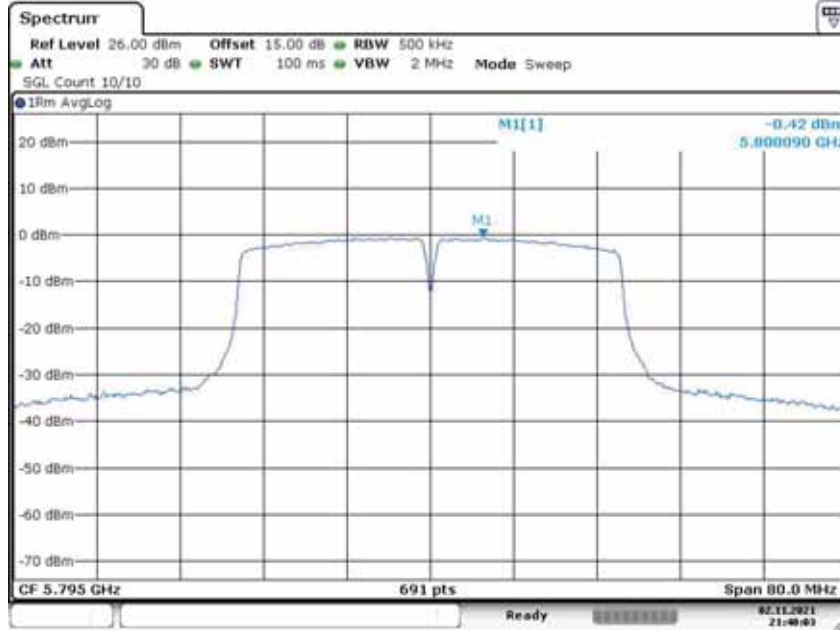
U-NII - 3
Frequency(MHz)

5755



Date: 2.NOV.2021 21:39:26

Power Spectral Density U-NII - 3
 Test Model 802.11ac(HT40) Frequency(MHz) 5795



Date: 2.NOV.2021 21:40:04

Power Spectral Density U-NII - 3
 Test Model 802.11ac 80 Frequency(MHz) 5775



Date: 2.NOV.2021 21:49:54

For 2T2R

5150-5250MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz			Limit (dBm/MHz)
		Antenna 1	Antenna 2	Total	
802.11n-HT20	5180	1.94	0.38	4.24	11
	5200	1.58	4.25	6.13	11
	5240	1.61	4.31	6.18	11
802.11ac(HT20)	5180	0.9	2.94	5.05	11
	5200	0.61	3.93	5.59	11
	5240	0.22	3.51	5.18	11
802.11n-HT40	5190	-1.03	0.92	3.06	11
	5230	-1.24	1.59	3.41	11
802.11ac(HT40)	5190	-1.07	0.87	3.02	11
	5230	-1.44	1.66	3.39	11
802.11ac(HT80)	5210	-2.18	-1.43	1.22	11

5250-5250MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz			Limit (dBm/MHz)
		Antenna 1	Antenna 2	Total	
802.11n-HT20	5260	2.61	3.69	6.19	11
	5280	2.37	4.69	6.69	11
	5320	1.84	5.58	7.11	11
802.11ac(HT20)	5260	1.21	3.24	5.35	11
	5280	2.17	4.32	6.39	11
	5320	1.25	5.69	7.02	11
802.11n-HT40	5270	-0.16	1.39	3.69	11
	5310	-0.96	3.06	4.51	11
802.11ac(HT40)	5270	0.18	1.26	3.76	11
	5310	-0.93	2.85	4.37	11
802.11ac(HT80)	5290	-1.03	-0.09	2.48	11

5470-5725MHz

Operating mode	Test Channel	Power Spectral Density dBm/MHz			Limit (dBm/MHz)
		Antenna 1	Antenna 2	Total	
802.11n-HT20	5500	0.23	5.30	6.48	11
	5600	1.68	6.02	7.38	11
	5700	3.38	5.63	7.66	11
802.11ac(HT20)	5500	-0.77	5.32	6.28	11
	5600	0.92	6.15	7.29	11
	5700	2.62	5.55	7.34	11
802.11n-HT40	5510	-2.64	3.23	4.23	11
	5670	-0.77	3.18	4.65	11
802.11ac(HT40)	5510	-1.7	5.31	6.10	11
	5670	-0.83	3.04	4.53	11
802.11ac(HT80)	5530	-0.04	2.40	4.36	11

5725-5850MHz

Operating mode	Test Channel	Power Spectral Density dBm/500kHz			Limit (dBm/500kHz)
		Antenna 1	Antenna 2	Total	
802.11n-HT20	5745	-1.4	2.91	4.28	30
	5785	-0.18	2.57	4.42	30
	5825	-0.42	1.91	3.91	30
802.11ac(HT20)	5745	2.68	3.60	6.17	30
	5785	1.31	2.13	4.75	30
	5825	1.08	2.70	4.98	30
802.11n-HT40	5755	-1.81	3.18	4.38	30
	5795	-0.3	0.29	3.02	30
802.11ac(HT40)	5755	-1.83	0.79	2.68	30
	5795	-0.31	-0.42	2.65	30
802.11ac(HT80)	5775	-2.6	-0.49	1.59	30

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 Span= Entire absence of modulation emissions band

Set the video bandwidth (VBW) =30 kHz. width

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

802.11a		5180		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5180.0109	10.9	Pass
	0	5179.9831	-16.9	Pass
	10	5180.0049	4.9	Pass
	20	5179.9831	-16.9	Pass
	30	5180.0187	18.7	Pass
	40	5180.0185	18.5	Pass
	45	5179.983	-17.0	Pass
85% Vnom	25	5180.0082	8.2	Pass
115% Vnom	25	5179.9894	-10.6	Pass

5200				
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5200.0179	17.9	Pass
	0	5199.9895	-10.5	Pass
	10	5199.9989	-1.1	Pass
	20	5200.0005	0.5	Pass
	30	5200.0104	10.4	Pass
	40	5200.0056	5.6	Pass
	45	5200.0124	12.4	Pass
85% Vnom	25	5199.9867	-13.3	Pass
115% Vnom	25	5199.9801	-19.9	Pass

5240				
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5239.9836	-16.4	Pass
	0	5239.9801	-19.9	Pass
	10	5240.0077	7.7	Pass
	20	5240.0079	7.9	Pass
	30	5239.9832	-16.8	Pass
	40	5240.0046	4.6	Pass
	45	5240.0021	2.1	Pass
85% Vnom	25	5240.0106	10.6	Pass
115% Vnom	25	5239.9884	-11.6	Pass

5190

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5189.9852	-14.8	Pass
	0	5189.9985	-1.5	Pass
	10	5190.0016	1.6	Pass
	20	5189.9815	-18.5	Pass
	30	5189.9858	-14.2	Pass
	40	5189.9866	-13.4	Pass
	45	5189.9988	-1.2	Pass
85% Vnom	25	5189.9863	-13.7	Pass
115% Vnom	25	5190.0055	5.5	Pass

5230

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5230.0199	19.9	Pass
	0	5230.0057	5.7	Pass
	10	5230.0191	19.1	Pass
	20	5229.9925	-7.5	Pass
	30	5230.0119	11.9	Pass
	40	5230.0173	17.3	Pass
	45	5229.9959	-4.1	Pass
85% Vnom	25	5230.0114	11.4	Pass
115% Vnom	25	5229.9805	-19.5	Pass

5210

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5209.9883	-11.7	Pass
	0	5209.9906	-9.4	Pass
	10	5209.9822	-17.8	Pass
	20	5210.0018	1.8	Pass
	30	5209.9826	-17.4	Pass
	40	5209.9979	-2.1	Pass
	45	5209.9962	-3.8	Pass
85% Vnom	25	5210.0022	2.2	Pass
115% Vnom	25	5209.9909	-9.1	Pass

802.11a		5260		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5259.9928	-7.2	Pass
	0	5260.0191	19.1	Pass
	10	5259.9879	-12.1	Pass
	20	5259.9849	-15.1	Pass
	30	5260.0095	9.5	Pass
	40	5259.9957	-4.3	Pass
	45	5259.9996	-0.4	Pass
85% Vnom	25	5259.9931	-6.9	Pass
115% Vnom	25	5259.9854	-14.6	Pass

		5280		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5279.9861	-13.9	Pass
	0	5279.9859	-14.1	Pass
	10	5279.9877	-12.3	Pass
	20	5279.9918	-8.2	Pass
	30	5280.0192	19.2	Pass
	40	5279.9865	-13.5	Pass
	45	5279.9901	-9.9	Pass
85% Vnom	25	5279.9956	-4.4	Pass
115% Vnom	25	5280.0067	6.7	Pass

		5320		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5319.9824	-17.6	Pass
	0	5319.9957	-4.3	Pass
	10	5320.0074	7.4	Pass
	20	5319.9883	-11.7	Pass
	30	5320.0137	13.7	Pass
	40	5319.9816	-18.4	Pass
	45	5320.0034	3.4	Pass
85% Vnom	25	5319.9804	-19.6	Pass
115% Vnom	25	5320.0194	19.4	Pass

5270

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5269.9911	-8.9	Pass
	0	5270.0083	8.3	Pass
	10	5270.0113	11.3	Pass
	20	5269.9932	-6.8	Pass
	30	5269.9965	-3.5	Pass
	40	5269.984	-16.0	Pass
	45	5270.0052	5.2	Pass
85% Vnom	25	5269.986	-14.0	Pass
115% Vnom	25	5269.9801	-19.9	Pass

5310

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5309.9918	-8.2	Pass
	0	5309.9992	-0.8	Pass
	10	5309.9917	-8.3	Pass
	20	5310.0105	10.5	Pass
	30	5310.011	11.0	Pass
	40	5309.9898	-10.2	Pass
	45	5309.9949	-5.1	Pass
85% Vnom	25	5310.0099	9.9	Pass
115% Vnom	25	5310.0094	9.4	Pass

5290

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5290.0194	19.4	Pass
	0	5290.0189	18.9	Pass
	10	5289.9864	-13.6	Pass
	20	5290.0028	2.8	Pass
	30	5289.9928	-7.2	Pass
	40	5290.0016	1.6	Pass
	45	5290.0109	10.9	Pass
85% Vnom	25	5289.9945	-5.5	Pass
115% Vnom	25	5290.0194	19.4	Pass

802.11a		5500		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5500.0038	3.8	Pass
	0	5499.986	-14.0	Pass
	10	5499.998	-2.0	Pass
	20	5499.9974	-2.6	Pass
	30	5499.9916	-8.4	Pass
	40	5499.9885	-11.5	Pass
	45	5500.0111	11.1	Pass
85% Vnom	25	5499.9976	-2.4	Pass
115% Vnom	25	5500.0195	19.5	Pass

		5580		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5579.9807	-19.3	Pass
	0	5579.9905	-9.5	Pass
	10	5580.0062	6.2	Pass
	20	5580.0004	0.4	Pass
	30	5579.9994	-0.6	Pass
	40	5579.9804	-19.6	Pass
	45	5580.0142	14.2	Pass
85% Vnom	25	5580.019	19.0	Pass
115% Vnom	25	5579.9949	-5.1	Pass

		5700		
Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5700.0189	18.9	Pass
	0	5699.9833	-16.7	Pass
	10	5700.0117	11.7	Pass
	20	5699.9809	-19.1	Pass
	30	5699.994	-6.0	Pass
	40	5700.0198	19.8	Pass
	45	5700.0019	1.9	Pass
85% Vnom	25	5700.0157	15.7	Pass
115% Vnom	25	5699.9902	-9.8	Pass

5510

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5510.0001	0.1	Pass
	0	5509.9917	-8.3	Pass
	10	5510.0078	7.8	Pass
	20	5510.0187	18.7	Pass
	30	5509.9903	-9.7	Pass
	40	5510.0042	4.2	Pass
	45	5509.9901	-9.9	Pass
85% Vnom	25	5509.9870	-13.0	Pass
115% Vnom	25	5509.9850	-15.0	Pass

5670

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5669.9961	-3.9	Pass
	0	5669.9963	-3.7	Pass
	10	5670.0081	8.1	Pass
	20	5670.0032	3.2	Pass
	30	5669.9865	-13.5	Pass
	40	5669.9894	-10.6	Pass
	45	5669.9993	-0.7	Pass
85% Vnom	25	5670.0032	3.2	Pass
115% Vnom	25	5669.9926	-7.4	Pass

5530

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5530.0121	12.1	Pass
	0	5530.0102	10.2	Pass
	10	5529.9936	-6.4	Pass
	20	5529.9896	-10.4	Pass
	30	5529.9902	-9.8	Pass
	40	5529.9986	-1.4	Pass
	45	5529.9981	-1.9	Pass
85% Vnom	25	5530.0057	5.7	Pass
115% Vnom	25	5530.0047	4.7	Pass

802.11a

5745

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5744.9895	-10.5	Pass
	0	5745.0007	0.7	Pass
	10	5745.0026	2.6	Pass
	20	5745.0129	12.9	Pass
	30	5744.9896	-10.4	Pass
	40	5744.9801	-19.9	Pass
	45	5744.9949	-5.1	Pass
85% Vnom	25	5744.9969	-3.1	Pass
115% Vnom	25	5744.9914	-8.6	Pass

5785

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5784.9955	-4.5	Pass
	0	5784.9941	-5.9	Pass
	10	5784.9902	-9.8	Pass
	20	5785.0016	1.6	Pass
	30	5785.0079	7.9	Pass
	40	5785.0021	2.1	Pass
	45	5785.0138	13.8	Pass
85% Vnom	25	5784.9829	-17.1	Pass
115% Vnom	25	5785.0040	4.0	Pass

5825

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5824.9851	-14.9	Pass
	0	5825.0033	3.3	Pass
	10	5825.0053	5.3	Pass
	20	5824.9874	-12.6	Pass
	30	5825.0094	9.4	Pass
	40	5825.0197	19.7	Pass
	45	5824.9992	-0.8	Pass
85% Vnom	25	5825.0101	10.1	Pass
115% Vnom	25	5825.0054	5.4	Pass

5755

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5755.0145	14.5	Pass
	0	5755.0082	8.2	Pass
	10	5755.0119	11.9	Pass
	20	5755.0011	1.1	Pass
	30	5754.9966	-3.4	Pass
	40	5754.9986	-1.4	Pass
	45	5755.0136	13.6	Pass
85% Vnom	25	5754.9838	-16.2	Pass
115% Vnom	25	5755.0131	13.1	Pass

5795

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5795.0044	4.4	Pass
	0	5795.0138	13.8	Pass
	10	5794.9919	-8.1	Pass
	20	5794.9902	-9.8	Pass
	30	5795.0157	15.7	Pass
	40	5794.9952	-4.8	Pass
	45	5795.0144	14.4	Pass
85% Vnom	25	5794.9841	-15.9	Pass
115% Vnom	25	5794.9909	-9.1	Pass

5775

Voltage(V)	Temp()	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-10	5774.9877	-12.3	Pass
	0	5775.0065	6.5	Pass
	10	5774.9966	-3.4	Pass
	20	5775.0176	17.6	Pass
	30	5775.0026	2.6	Pass
	40	5774.9861	-13.9	Pass
	45	5774.9862	-13.8	Pass
85% Vnom	25	5774.9977	-2.3	Pass
115% Vnom	25	5775.0058	5.8	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 ($\mu\text{V}/\text{m}$)	Field Strength ($\text{dB}\mu\text{V}/\text{m}$)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log ($\mu\text{V}/\text{m}$)	300
0.490-1.705	24000/F(KHz)	20 log ($\mu\text{V}/\text{m}$)	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 $\text{dB}\mu\text{V}/\text{m}=20 \log (\mu\text{V}/\text{m})$

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 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 $f < 150$ KHz(9KHz to 150KHz), 9KHz for < 30 MHz

(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 \geq 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 \geq 98 percent, set VBW \leq RBW/100 (i.e., 10 kHz) but not less than 10 Hz.

• If the EUT duty cycle is < 98 percent, set VBW \geq $1/T$, 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

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

■ Spurious Emission below 30MHz(9KHz to 30MHz)

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor = $40\log(\text{Specific distance/ test distance})$ (dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor

- For Undesirable radiated Spurious Emission in U-NII – 1
All the modes 802.11a/n/ac has been tested and the worst result antenna 1 802.11ac recorded as below:

: Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11ac Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11255.2	V	47.08	-48.2	-27	-21.2
15292.38	V	54.52	-40.7	-27	-13.7
17997.39	V	65.16	-30.1	-27	-3.1
12299.58	H	47.47	-47.8	-27	-20.8
14656.24	H	55.04	-40.2	-27	-13.2
17914.36	H	64.48	-30.8	-27	-3.8

Test mode: 802.11ac Frequency(MHz): 5200

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11154.8	V	57.52	-37.7	-27	-10.7
14423	V	59.7	-35.5	-27	-8.5
17953.23	V	65.12	-30.1	-27	-3.1
11071.29	H	57.57	-37.7	-27	-10.7
14377.22	H	59.63	-35.6	-27	-8.6
18000	H	65.12	-30.1	-27	-3.1

Test mode: 802.11ac Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
12290.69	V	57.77	-37.5	-27	-10.5
14914.78	V	59.59	-35.6	-27	-8.6
18000	V	65.28	-30.0	-27	-3.0
11402.55	H	58.27	-37.0	-27	-10.0
14410.5	H	59.8	-35.4	-27	-8.4
17961.02	H	66.52	-28.7	-27	-1.7

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11ac

Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
11255.2	V	57.73	41.4	74.00	54.00	-16.27	-12.6
15292.38	V	60.09	42.5	74.00	54.00	-13.91	-11.5
17997.39	V	64.99	48.3	74.00	54.00	-9.01	-5.7
12299.58	H	57.97	40.8	74.00	54.00	-16.03	-13.2
14656.24	H	59.23	41.5	74.00	54.00	-14.77	-12.5
17914.36	H	64.42	48.7	74.00	54.00	-9.58	-5.3

Test mode: 802.11ac

Frequency(MHz): 5200

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
11154.8	V	57.52	40.5	74.00	54.00	-16.48	-13.5
14423	V	59.7	41.7	74.00	54.00	-14.3	-12.3
17953.23	V	65.12	46.9	74.00	54.00	-8.88	-7.1
11071.29	H	57.57	40.5	74.00	54.00	-16.43	-13.5
14377.22	H	59.63	41.3	74.00	54.00	-14.37	-12.7
18000	H	65.12	47.8	74.00	54.00	-8.88	-6.2

Test mode: 802.11ac

Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
12290.69	V	57.77	40.9	74.00	54.00	-16.23	-13.1
14914.78	V	59.59	41.4	74.00	54.00	-14.41	-12.6
18000	V	65.28	48.6	74.00	54.00	-8.72	-5.4
11402.55	H	58.27	40.7	74.00	54.00	-15.73	-13.3
14410.5	H	59.8	41.5	74.00	54.00	-14.2	-12.5
17961.02	H	66.52	48.6	74.00	54.00	-7.48	-5.4

- Note:**
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 - (2) Emission Level= Reading Level+Correct Factor.
 - (3) Correct Factor= Ant_F + Cab_L - Preamp
 - (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11ac Frequency(MHz): 5180

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5148.505	H	62.51	-32.7	-27	Pass
5149.903	V	62.92	-32.3	-27	Pass

Test mode: 802.11ac Frequency(MHz): 5240

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5350.105	H	63.16	-32.1	-27	Pass
5352.227	V	62.9	-32.3	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3) EIRP[dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11ac Frequency(MHz): 5180

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5148.505	H	62.51	74	42.20	54
5149.903	V	62.92	74	42.70	54

Test mode: 802.11ac Frequency(MHz): 5240

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5350.105	H	63.16	74	43.40	54
5352.227	V	62.90	74	42.50	54

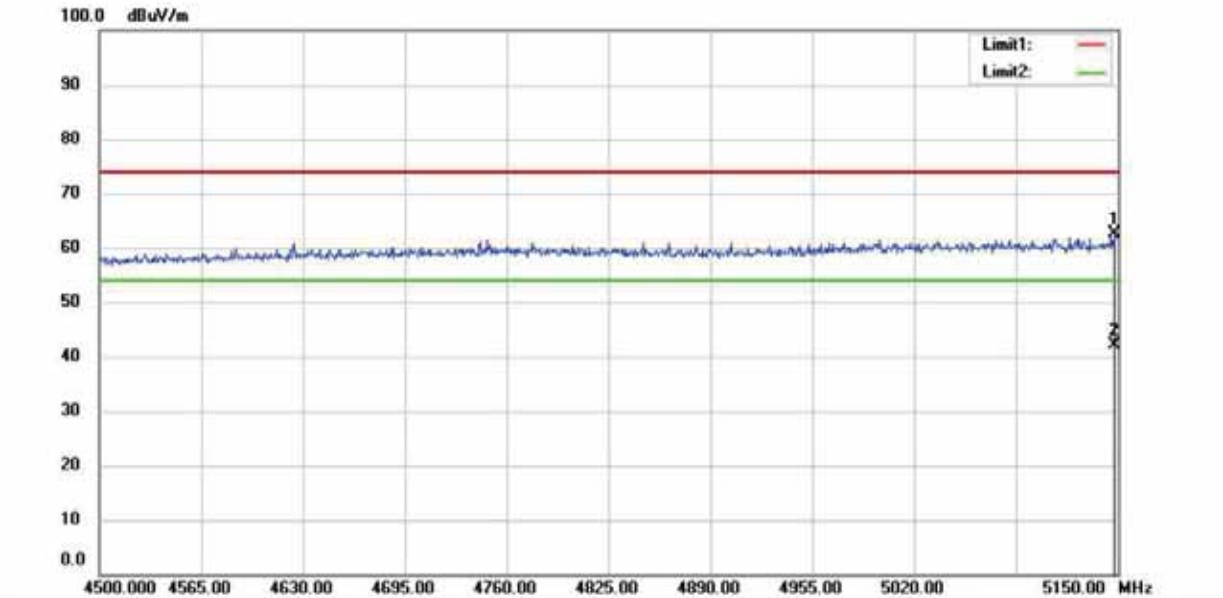
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11n(HT40)

5180 5200 5240 Ant.Pol H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C

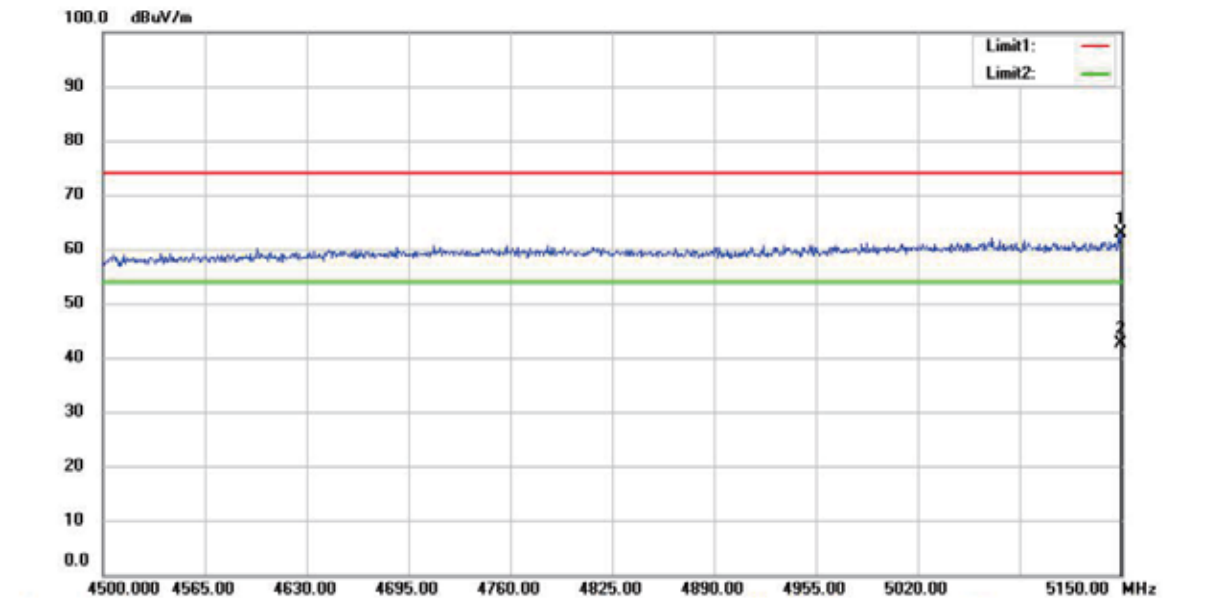
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11n(HT40)

5180 5200 5240 Ant.Pol V



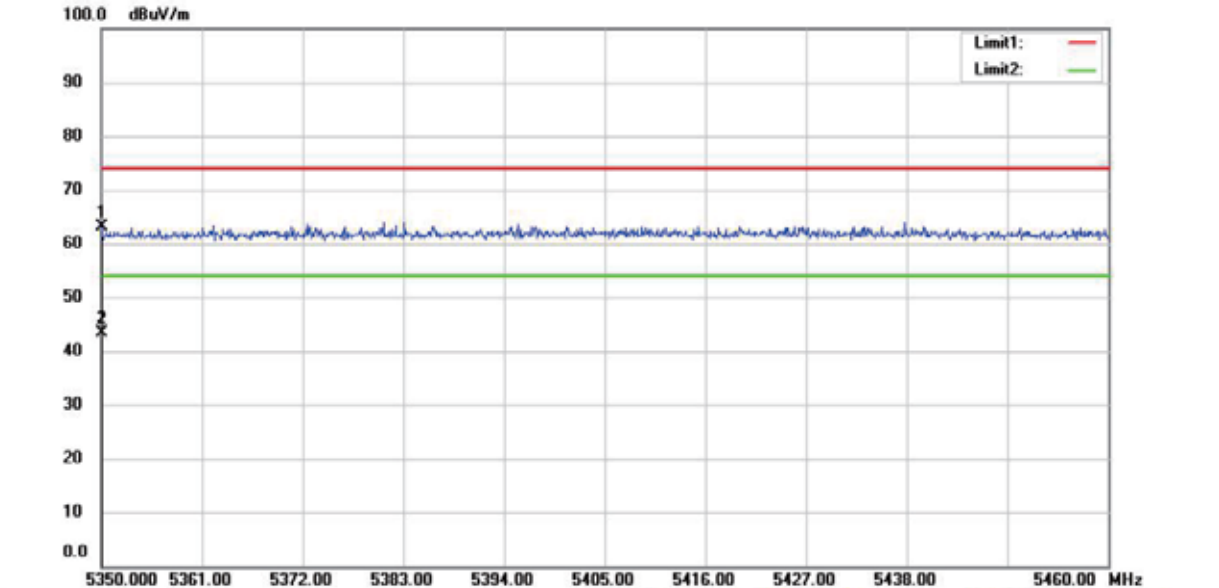
Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11n(HT40)
 5180 5200 5240 Ant.Pol H

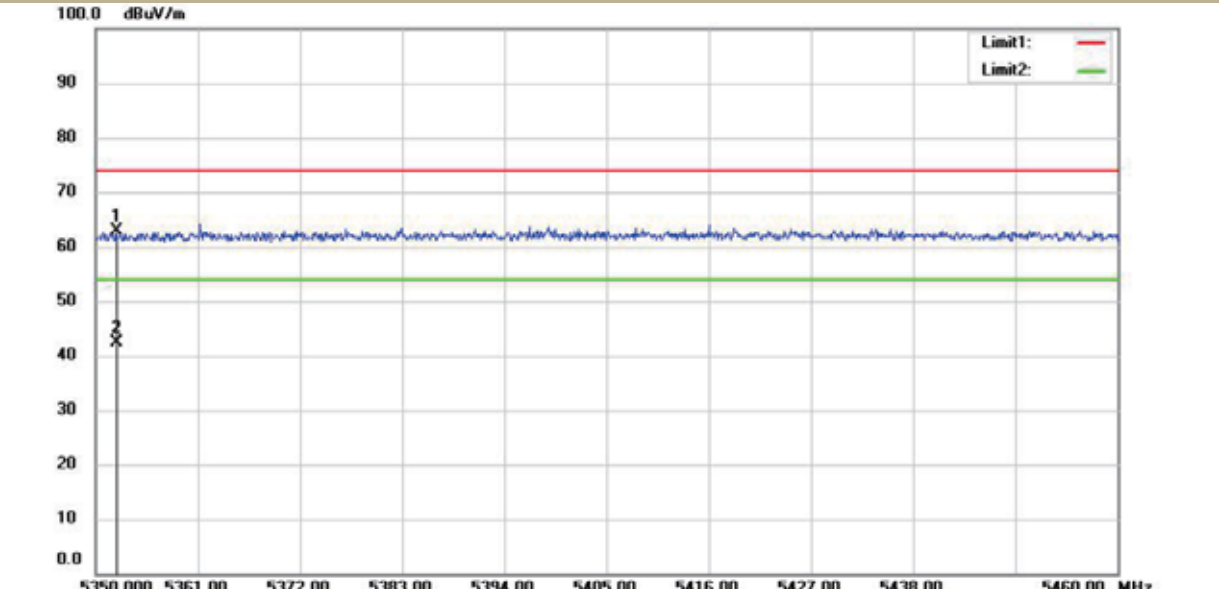


Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII - 1

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11n(HT40)
 5180 5200 5240 Ant.Pol V



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

- For Undesirable radiated Spurious Emission in U-NII -2A
- All the modes 802.11a/n/ac has been tested and the worst result antenna 1 802.11ac recorded as below:
- : Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11ac Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11725.07	V	57.54	-37.7	-27	-10.7
15118.78	V	59.13	-36.1	-27	-9.1
17831.7	V	65.77	-29.5	-27	-2.5
11114.58	H	58.3	-36.9	-27	-9.9
14858.84	H	59.94	-35.3	-27	-8.3
17955.83	H	65.41	-29.8	-27	-2.8

Test mode: 802.11ac Frequency(MHz): 5280

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10729.48	V	57.16	-38.1	-27	-11.1
15057.72	V	59.96	-35.3	-27	-8.3
17974	V	64.53	-30.7	-27	-3.7
11145.14	H	57.18	-38.1	-27	-11.1
15228.42	H	59.58	-35.7	-27	-8.7
18000	H	66.01	-29.2	-27	-2.2

Test mode: 802.11ac Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
12671.25	V	58.49	-36.7	-27	-9.7
15072.96	V	59.48	-35.8	-27	-8.8
18000	V	66.82	-28.4	-27	-1.4
11175.78	H	58.38	-36.9	-27	-9.9
15272.5	H	59.27	-36.0	-27	-9.0
17979.2	H	65.21	-30.0	-27	-3.0

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Frequency: 802.11ac

Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
11725.07	V	57.54	47.5	74.00	54.00	-16.46	-6.5
15118.78	V	59.13	48.2	74.00	54.00	-14.87	-5.8
17831.7	V	65.77	48.4	74.00	54.00	-8.23	-5.6
11114.58	H	58.3	40.7	74.00	54.00	-15.7	-13.3
14858.84	H	59.94	41.2	74.00	54.00	-14.06	-12.8
17955.83	H	65.41	47.5	74.00	54.00	-8.59	-6.5

Frequency: 802.11ac

Frequency(MHz): 5280

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
10729.48	V	57.16	40.2	74.00	54.00	-16.84	-13.8
15057.72	V	59.96	40.9	74.00	54.00	-14.04	-13.1
17974	V	64.53	47.6	74.00	54.00	-9.47	-6.4
11145.14	H	57.18	40.5	74.00	54.00	-16.82	-13.5
15228.42	H	59.58	41.3	74.00	54.00	-14.42	-12.7
18000	H	66.01	48.2	74.00	54.00	-7.99	-5.8

Frequency: 802.11ac

Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
12671.25	V	58.49	41.4	74.00	54.00	-15.51	-12.6
15072.96	V	59.48	42.6	74.00	54.00	-14.52	-11.4
18000	V	66.82	48.3	74.00	54.00	-7.18	-5.7
11175.78	H	58.38	41.2	74.00	54.00	-15.62	-12.8
15272.5	H	59.27	41.9	74.00	54.00	-14.73	-12.1
17979.2	H	65.21	48.3	74.00	54.00	-8.79	-5.7

- Note:**
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 - (2) Emission Level= Reading Level+Correct Factor.
 - (3) Correct Factor= Ant_F + Cab_L - Preamp
 - (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11ac Frequency(MHz): 5260

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5134.757	H	61.73	-33.5	-27	Pass
5123.448	V	61.87	-33.4	-27	Pass

Test mode: 802.11ac Frequency(MHz): 5320

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5352.464	H	63.16	-32.1	-27	Pass
5350.060	V	63.01	-32.2	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11ac Frequency(MHz): 5260

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5134.757	H	61.73	74	41.40	54
5123.448	V	61.87	74	41.60	54

Test mode: 802.11ac Frequency(MHz): 5320

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5352.464	H	63.16	74	43.20	54
5350.060	V	63.01	74	43.10	54

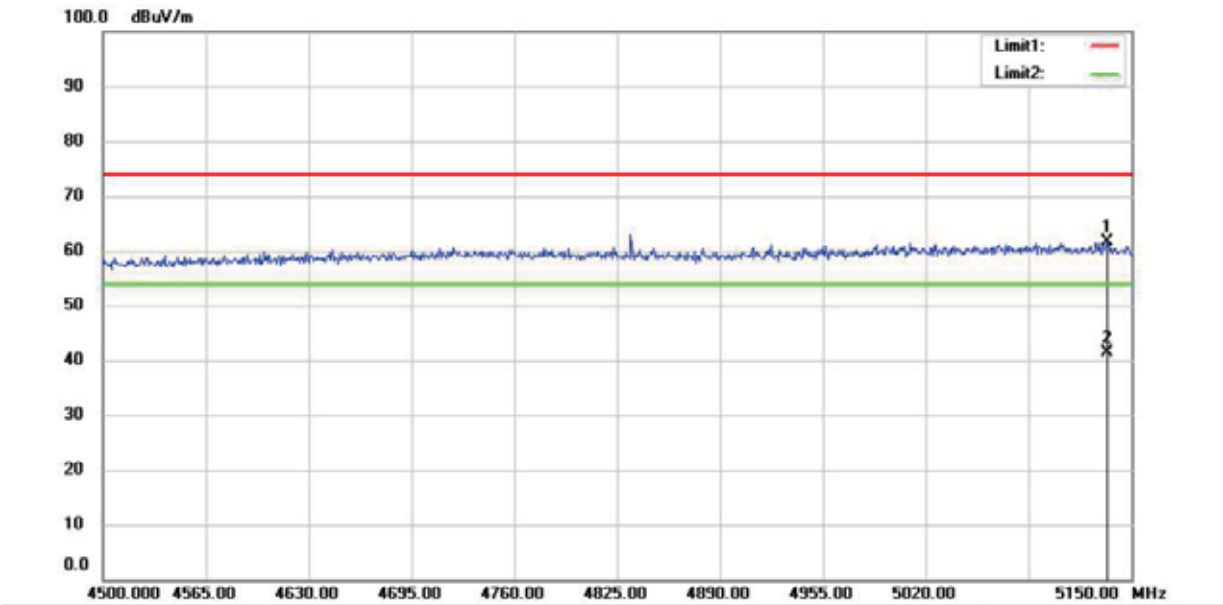
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5260 5300 5320 Ant.Pol H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C

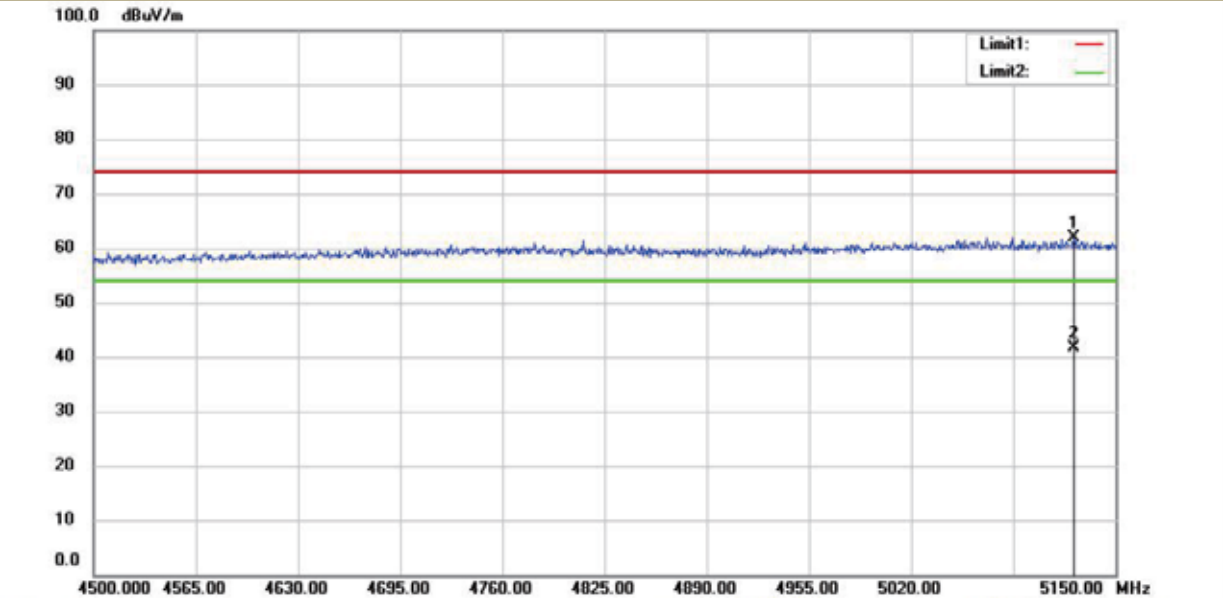
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5260 5300 5320 Ant.Pol V



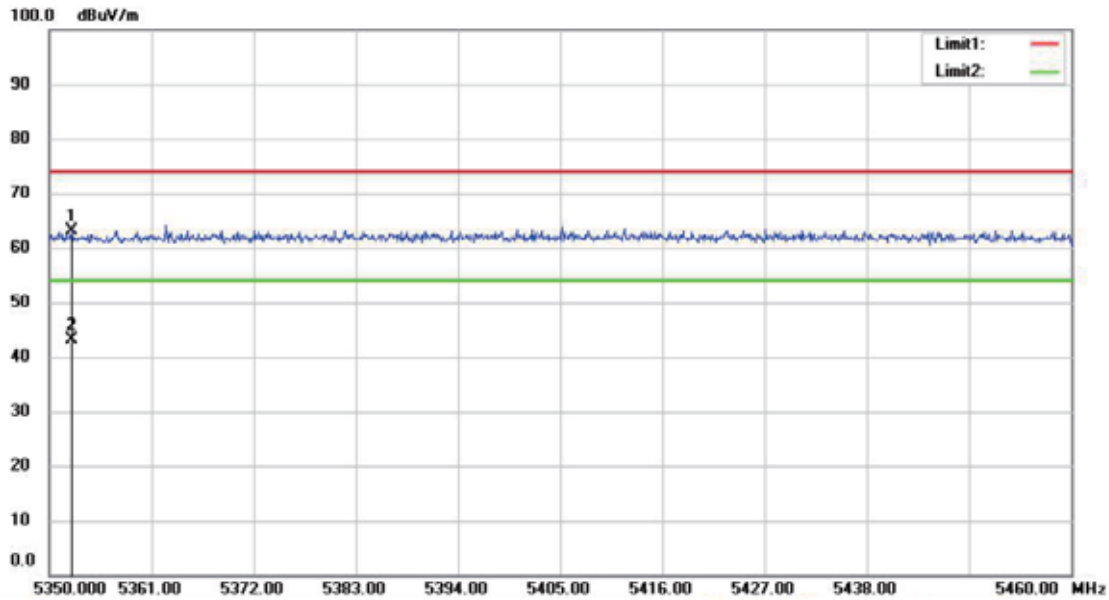
Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)
 5260 5300 5320 Ant.Pol H

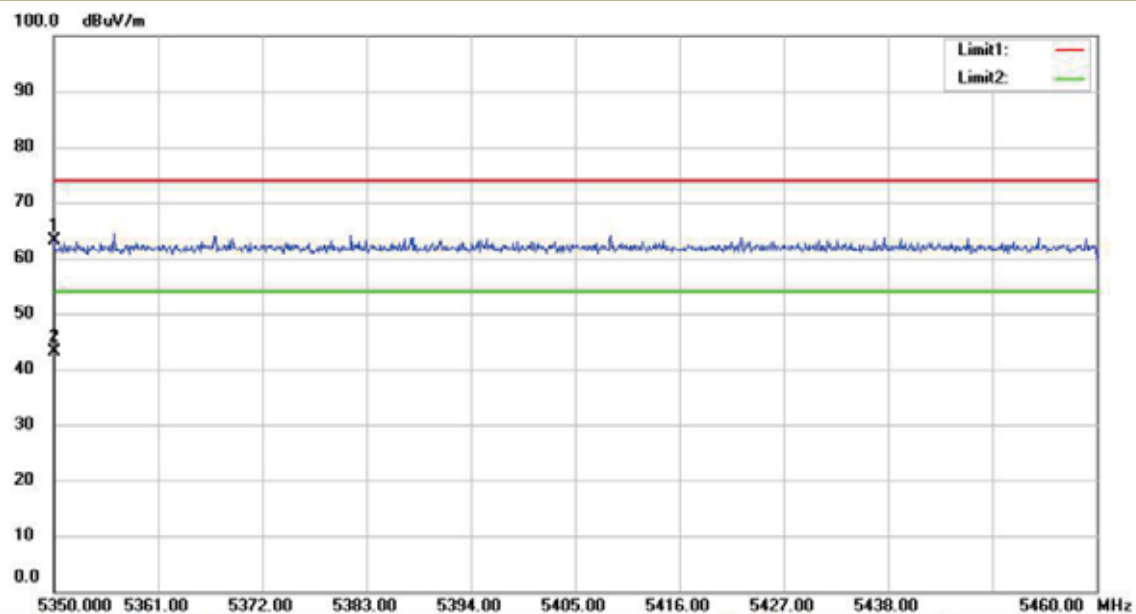


Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII -2A

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)
 5260 5300 5320 Ant.Pol V



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

- For Undesirable radiated Spurious Emission in U-NII -2C
- All the modes 802.11a/n/ac has been tested and the worst result antenna 1 802.11ac recorded as below:
- : Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11ac Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
12344.1	V	55.81	-39.4	-27	-12.4
15055.55	V	58.25	-37.0	-27	-10.0
17803.38	V	65.14	-30.1	-27	-3.1
11400.9	H	57.28	-38.0	-27	-11.0
14694.41	H	59.32	-35.9	-27	-8.9
17922.12	H	65.97	-29.3	-27	-2.3

Test mode: 802.11ac Frequency(MHz): 5600

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
11806.69	V	57.52	-37.7	-27	-10.7
15059.9	V	59.3	-35.9	-27	-8.9
17984.39	V	67.07	-28.2	-27	-1.2
11017.02	H	57.69	-37.5	-27	-10.5
14187.33	H	59.92	-35.3	-27	-8.3
17971.4	H	67.27	-28.0	-27	-1.0

Test mode: 802.11ac Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
6739.154	V	52.94	-42.3	-27	-15.3
14796.7	V	59.46	-35.8	-27	-8.8
17829.12	V	66.27	-29.0	-27	-2.0
12131.87	H	57.77	-37.5	-27	-10.5
14271.64	H	59.74	-35.5	-27	-8.5
18000	H	62.86	-32.4	-27	-5.4

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Frequency: 802.11ac

Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
12344.1	V	55.81	41.2	74.00	54.00	-18.19	-12.8
15055.55	V	58.25	42.5	74.00	54.00	-15.75	-11.5
17803.38	V	65.14	48.4	74.00	54.00	-8.86	-5.6
11400.9	H	57.28	40.6	74.00	54.00	-16.72	-13.4
14694.41	H	59.32	41.7	74.00	54.00	-14.68	-12.3
17922.12	H	65.97	48.3	74.00	54.00	-8.03	-5.7

Frequency: 802.11ac

Frequency(MHz): 5600

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
11806.69	V	57.52	40.5	74.00	54.00	-16.48	-13.5
15059.9	V	59.3	41.4	74.00	54.00	-14.7	-12.6
17984.39	V	67.07	47.6	74.00	54.00	-6.93	-6.4
11017.02	H	57.69	40.9	74.00	54.00	-16.31	-13.1
14187.33	H	59.92	41.5	74.00	54.00	-14.08	-12.5
17971.4	H	67.27	47.4	74.00	54.00	-6.73	-6.6

Frequency: 802.11ac

Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
6739.154	V	52.94	40.5	74.00	54.00	-21.06	-13.5
14796.7	V	59.46	41.6	74.00	54.00	-14.54	-12.4
17829.12	V	66.27	47.8	74.00	54.00	-7.73	-6.2
12131.87	H	57.77	40.9	74.00	54.00	-16.23	-13.1
14271.64	H	59.74	41.5	74.00	54.00	-14.26	-12.5
18000	H	62.86	47.8	74.00	54.00	-11.14	-6.2

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

● ☒ Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Test mode: 802.11ac Frequency(MHz): 5500

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5469.020	H	63.75	-31.5	-27	Pass
5468.998	V	61.77	-33.5	-27	Pass

Test mode: 802.11ac Frequency(MHz): 5700

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5725.773	H	61.97	-33.3	-27	Pass
5727.310	V	62.56	-32.7	-27	Pass

Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Test mode: 802.11ac Frequency(MHz): 5500

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5469.020	H	63.75	74	50.15	54
5468.998	V	61.77	74	48.10	54

Test mode: 802.11ac Frequency(MHz): 5700

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
5725.773	H	61.97	74	48.30	54
5727.310	V	62.56	74	49.10	54

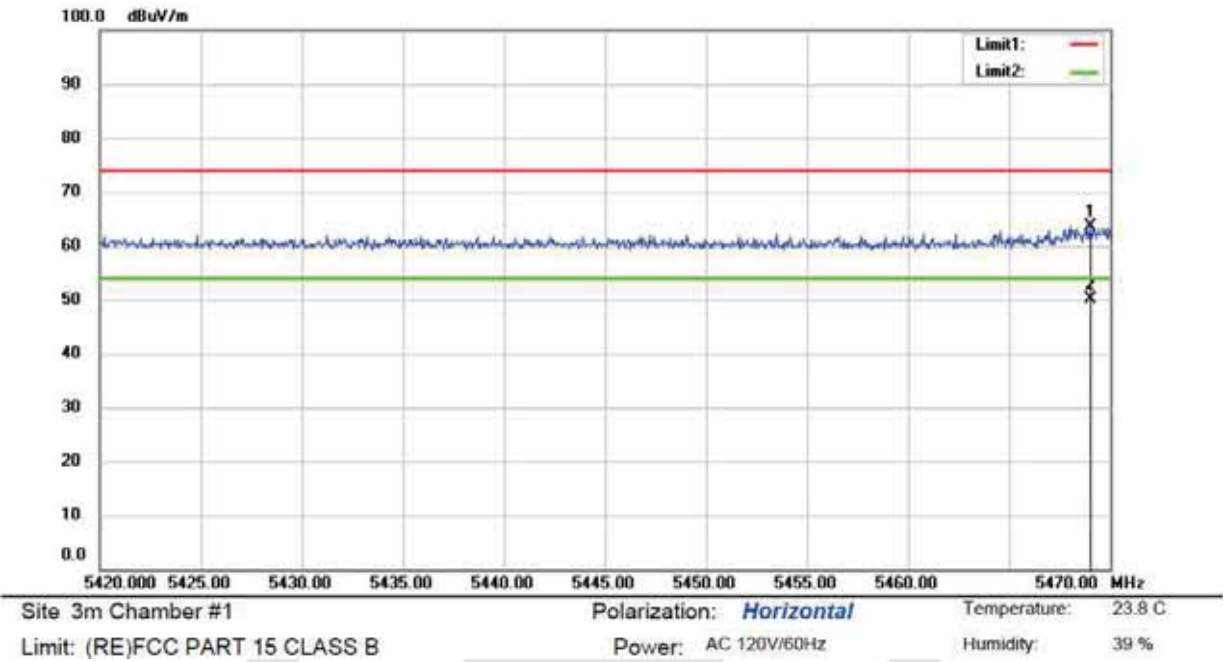
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5500 5580 5700 Ant.Pol H

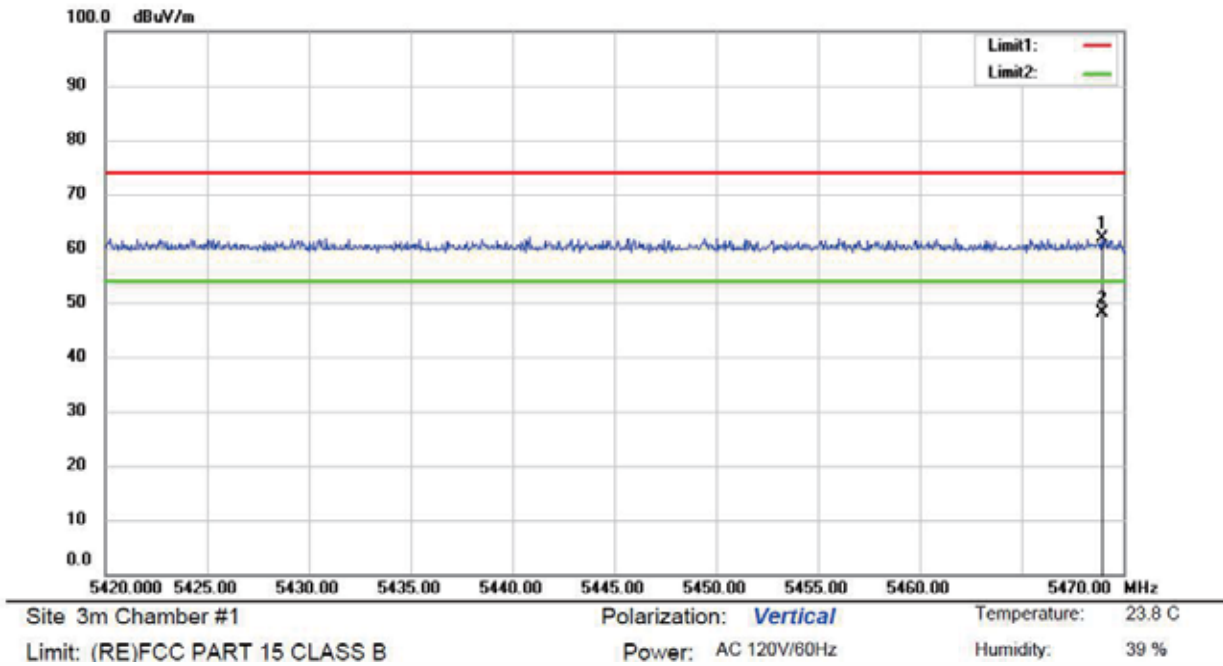


U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5500 5580 5700 Ant.Pol V

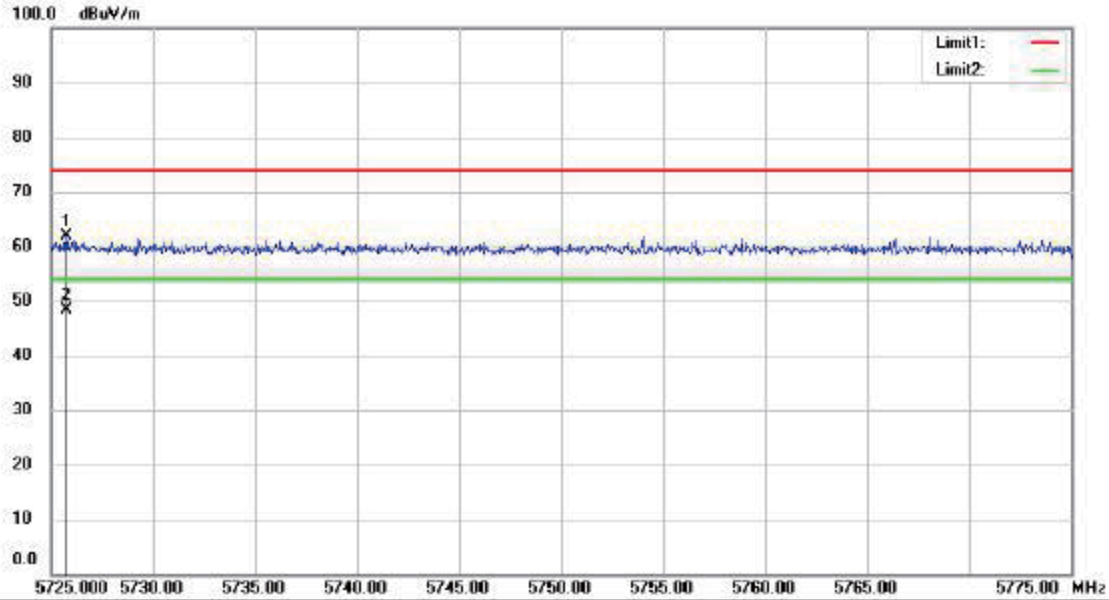


U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5500 5580 5700 Ant.Pol H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C

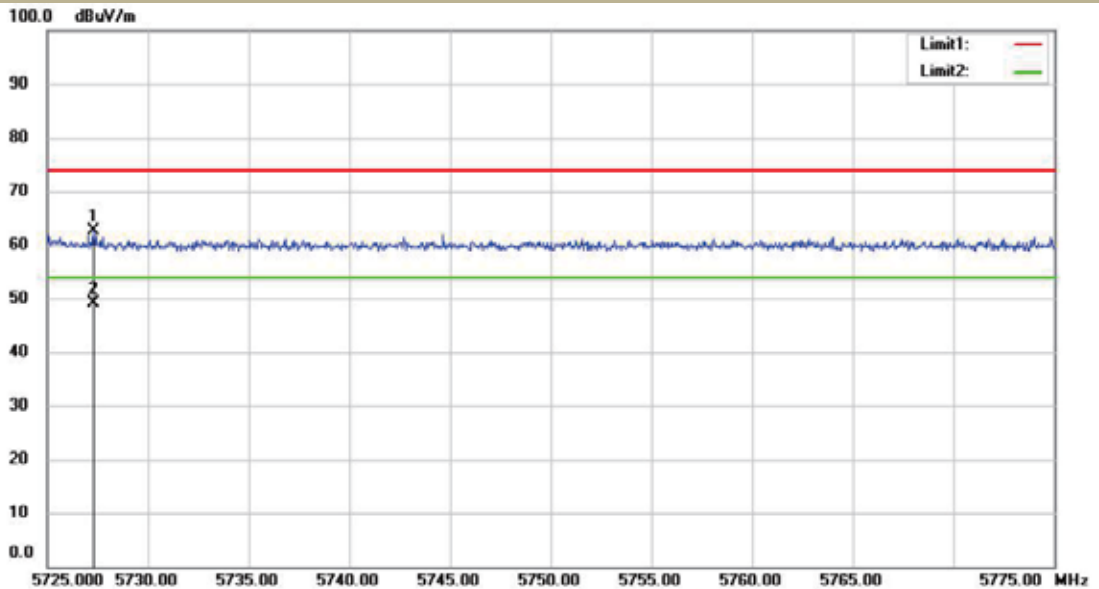
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

U-NII -2C

Test Model Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz)

802.11ac 802.11n(HT20) 802.11 ac (VHT20)

5500 5580 5700 Ant.Pol V



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %

- For Undesirable radiated Spurious Emission in U-NII -3
- All the modes 802.11a/n/ac has been tested and the worst result antenna 1 802.11ac recorded as below:
- Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Test mode: 802.11ac Frequency(MHz): 5745

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
10712.43	V	57.71	-37.5	-27	-10.5
15035.98	V	60.01	-35.2	-27	-8.2
17929.9	V	66.56	-28.7	-27	-1.7
11117.79	H	57.77	-37.5	-27	-10.5
15246.04	H	59.99	-35.2	-27	-8.2
17976.6	H	65.15	-30.1	-27	-3.1

Test mode: 802.11ac Frequency(MHz): 5785

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
12041.04	V	57.21	-38.0	-27	-11.0
14766.79	V	60.07	-35.2	-27	-8.2
17994.79	V	66.94	-28.3	-27	-1.3
12283.59	H	58.03	-37.2	-27	-10.2
14679.56	H	59.66	-35.6	-27	-8.6
18000	H	67.65	-27.6	-27	-0.6

Test mode: 802.11ac Frequency(MHz): 5825

Freq. (MHz)	Ant.Pol.	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
12662.1	V	57.69	-37.5	-27	-10.5
15055.55	V	59.26	-36.0	-27	-9.0
18000	V	65.33	-29.9	-27	-2.9
11852.85	H	57.46	-37.8	-27	-10.8
14618.16	H	59.31	-35.9	-27	-8.9
17979.2	H	63.86	-31.4	-27	-4.4

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3)EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

Frequency: 802.11ac

Frequency(MHz): 5745

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
10712.43	V	57.71	40.6	74.00	54.00	-16.29	-13.4
15035.98	V	60.01	42.1	74.00	54.00	-13.99	-11.9
17929.9	V	66.56	48.2	74.00	54.00	-7.44	-5.8
11117.79	H	57.77	41.6	74.00	54.00	-16.23	-12.4
15246.04	H	59.99	42.1	74.00	54.00	-14.01	-11.9
17976.6	H	65.15	48.3	74.00	54.00	-8.85	-5.7

Frequency: 802.11ac

Frequency(MHz): 5785

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
12041.04	V	57.21	41.2	74.00	54.00	-16.79	-12.8
14766.79	V	60.07	47.6	74.00	54.00	-13.93	-6.4
17994.79	V	66.94	48.2	74.00	54.00	-7.06	-5.8
12283.59	H	58.03	40.5	74.00	54.00	-15.97	-13.5
14679.56	H	59.66	41.3	74.00	54.00	-14.34	-12.7
18000	H	67.65	47.5	74.00	54.00	-6.35	-6.5

Frequency: 802.11ac

Frequency(MHz): 5825

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
12662.1	V	57.69	40.8	74.00	54.00	-16.31	-13.2
15055.55	V	59.26	41.2	74.00	54.00	-14.74	-12.8
18000	V	65.33	47.6	74.00	54.00	-8.67	-6.4
11852.85	H	57.46	41.5	74.00	54.00	-16.54	-12.5
14618.16	H	59.31	42.3	74.00	54.00	-14.69	-11.7
17979.2	H	63.86	46.8	74.00	54.00	-10.14	-7.2

- Note:**
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 - (2) Emission Level= Reading Level+Correct Factor.
 - (3) Correct Factor= Ant_F + Cab_L - Preamp
 - (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

- Undesirable radiated Spurious Emission in band edge

Test mode: 802.11ac Frequency: 5745

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5724.538	H	75.79	-19.4	-27	Pass
5724.813	V	76.27	-19.0	-27	Pass

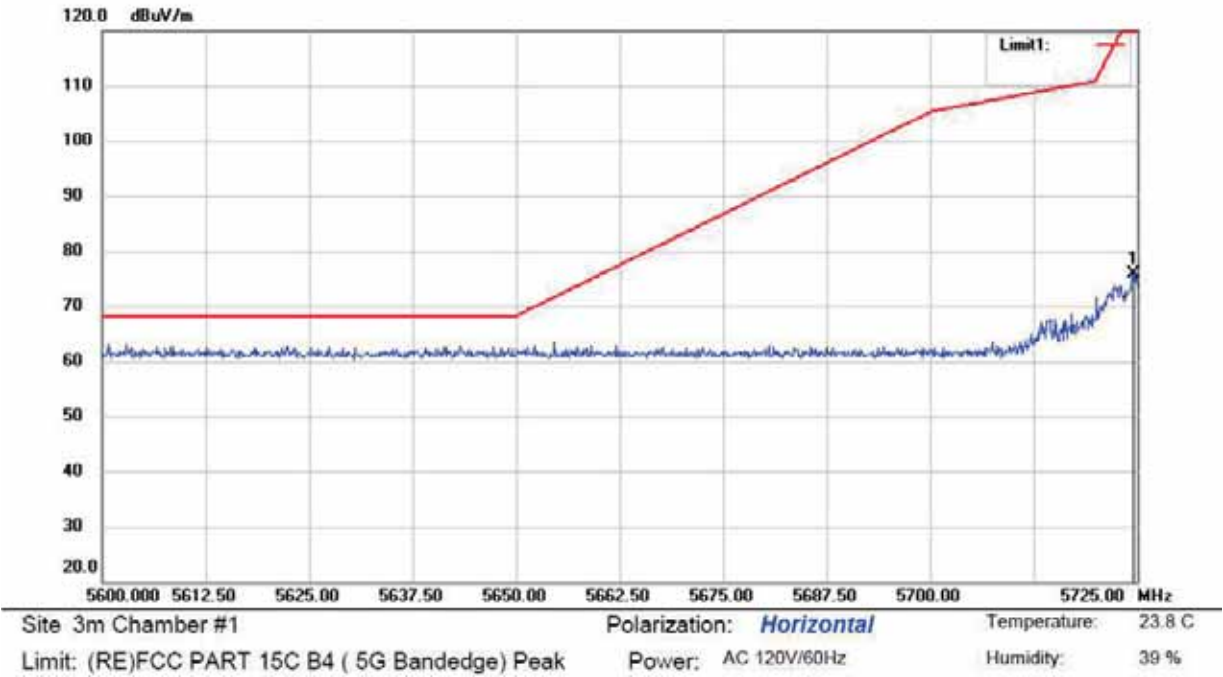
Test mode: 802.11ac Frequency: 5825

Freq. (MHz)	Ant.Pol.	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5852.731	H	66.83	-28.4	-27	Pass
5853.250	V	70.83	-24.4	-27	Pass

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 (3) EIRP [dBm] = E[dBuV/m] + 20 log(d[meters]) - 104.77
 d is the measurement distance in 3 meters

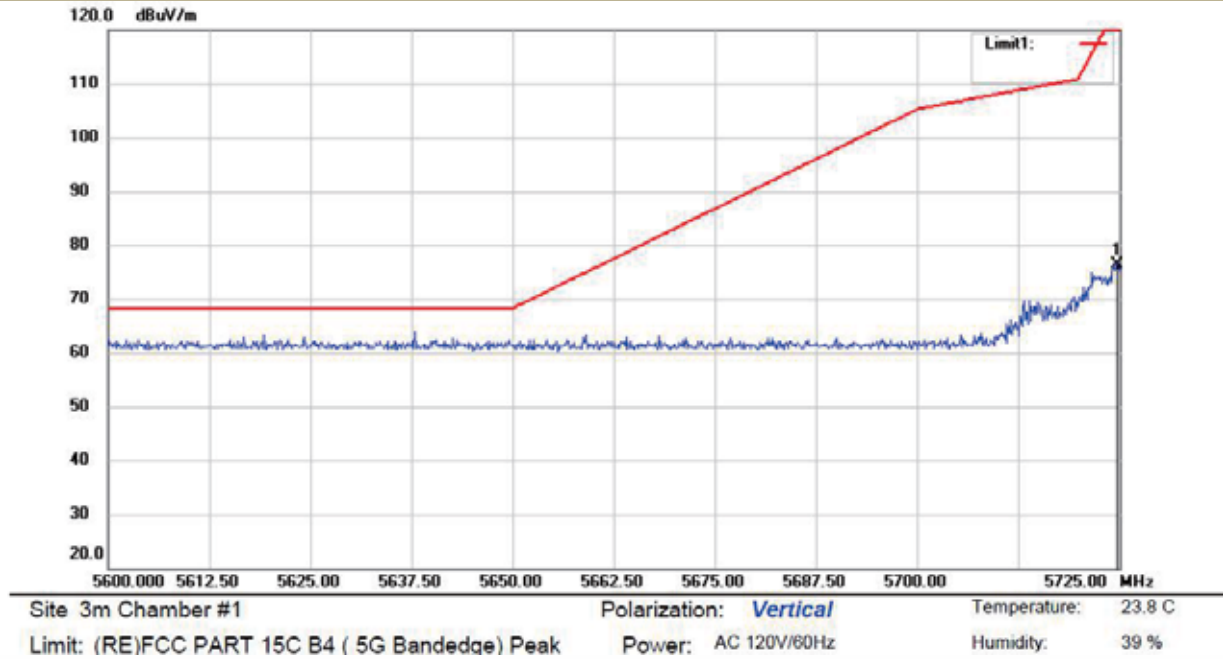
U-NII -3

Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input checked="" type="checkbox"/> 802.11ac	<input type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5745		Ant.Pol H



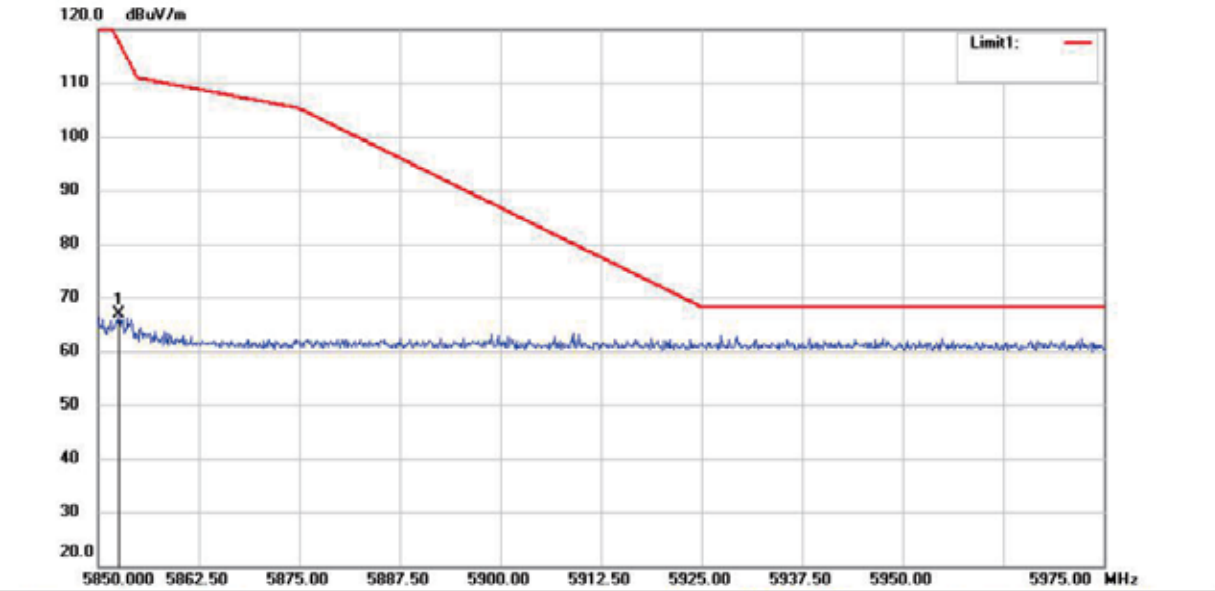
U-NII -3

Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input checked="" type="checkbox"/> 802.11ac	<input type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5745		Ant.Pol V



U-NII -3

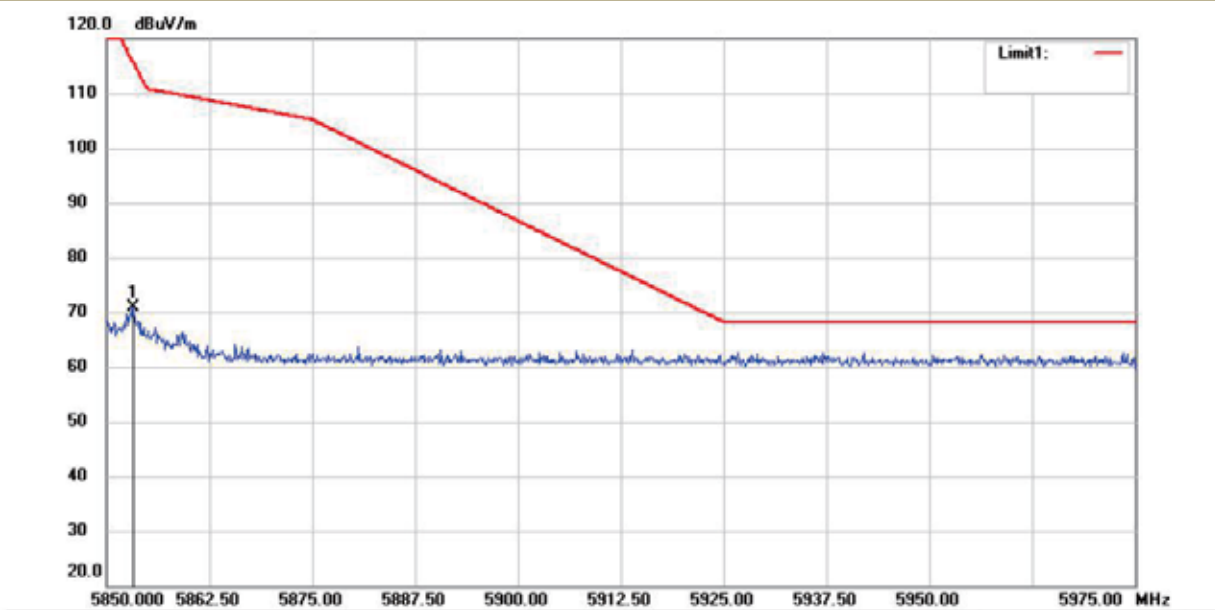
Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input checked="" type="checkbox"/> 802.11ac	<input type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5825		Ant.Pol H



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 23.8 C
 Limit: (RE)FCC PART 15C B4 (5G Bandedge) Peak Power: AC 120V/60Hz Humidity: 39 %

U-NII -3

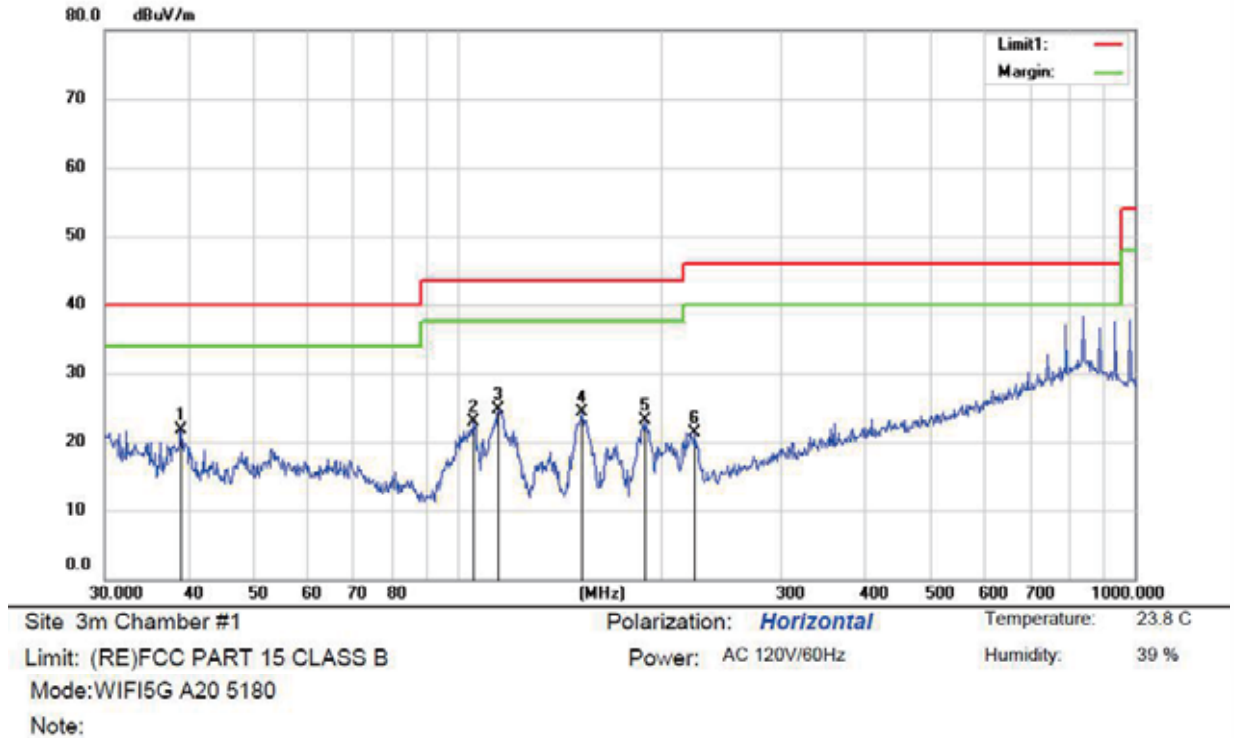
Test Model	Undesirable radiated	Undesirable radiated	Spurious Emission in Band Edge
	<input checked="" type="checkbox"/> 802.11ac	<input type="checkbox"/> 802.11n(HT20)	<input type="checkbox"/> 802.11n(HT40)
	<input checked="" type="checkbox"/> 5825		Ant.Pol V



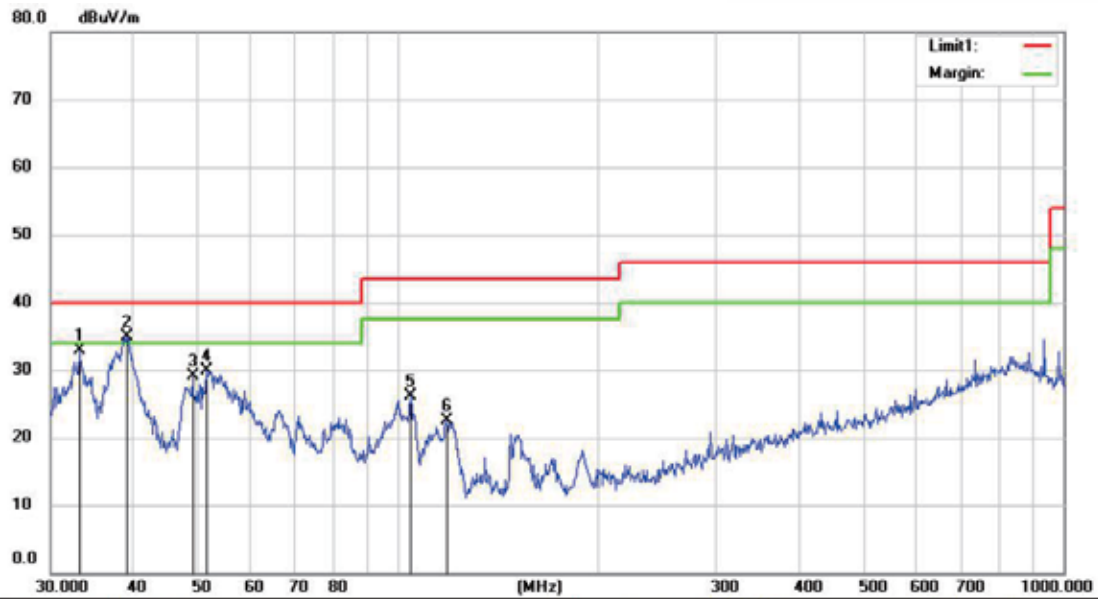
Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C
 Limit: (RE)FCC PART 15C B4 (5G Bandedge) Peak Power: AC 120V/60Hz Humidity: 39 %

Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)

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



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree		
1	*	39.0074	34.85	-13.10	21.75	40.00	-18.25			QP	
2		105.3180	37.22	-14.34	22.88	43.50	-20.62			QP	
3		114.8665	38.87	-14.22	24.65	43.50	-18.85			QP	
4		152.1964	38.14	-13.84	24.30	43.50	-19.20			QP	
5		188.5777	36.99	-13.82	23.17	43.50	-20.33			QP	
6		223.9296	34.26	-12.86	21.40	46.00	-24.60			QP	



Site 3m Chamber #1

Polarization: *Vertical*

Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B

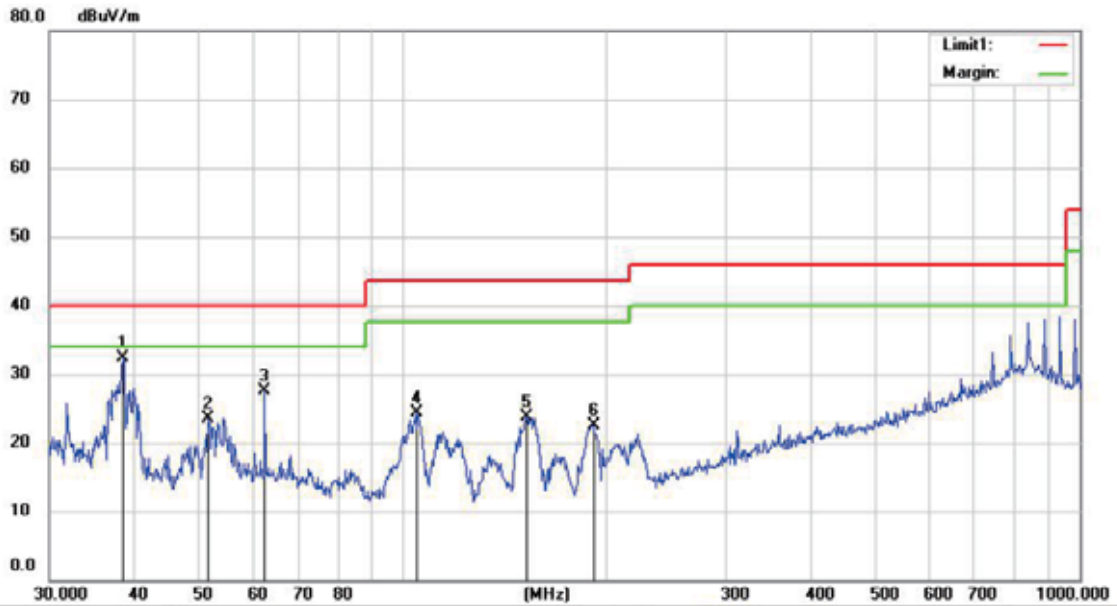
Power: AC 120V/60Hz

Humidity: 39 %

Mode:WIFI5G A20 5180

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		33.1240	47.15	-14.28	32.87	40.00	-7.13	QP		
2	*	39.1272	48.01	-13.07	34.94	40.00	-5.06	QP		
3		49.1651	41.28	-12.22	29.06	40.00	-10.94	QP		
4		51.5936	41.74	-11.82	29.92	40.00	-10.08	QP		
5		104.3987	40.40	-14.37	26.03	43.50	-17.47	QP		
6		118.3417	36.81	-14.30	22.51	43.50	-20.99	QP		



Site: 3m Chamber #1

Polarization: *Horizontal*

Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B

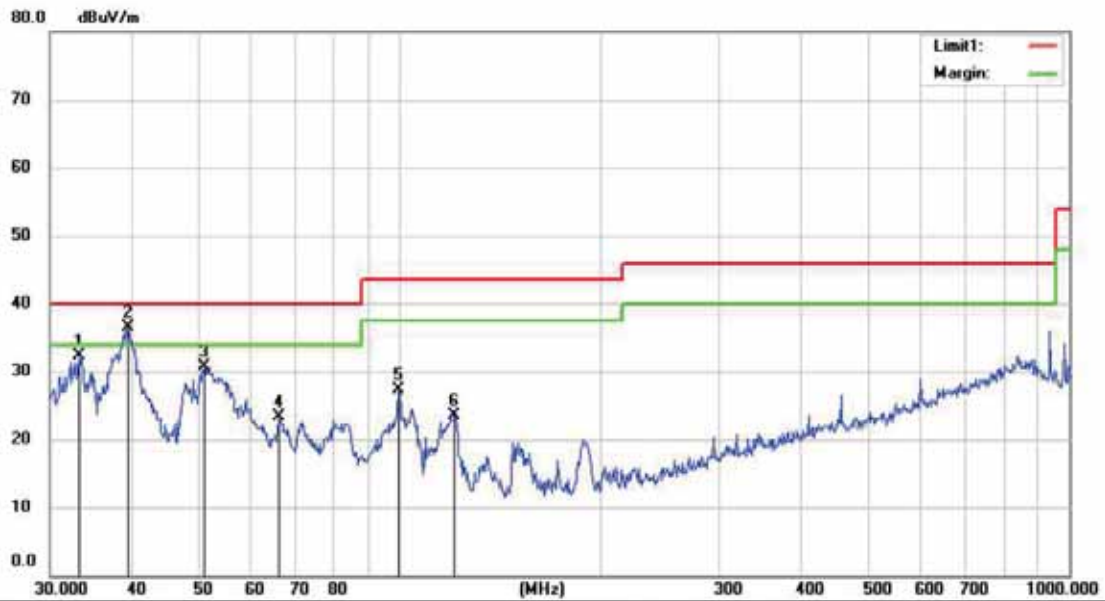
Power: AC 120V/60Hz

Humidity: 39 %

Mode: WIFI5G A20 5200

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	*	38.5485	45.44	-13.19	32.25	40.00	-7.75	QP			
2		51.5711	35.36	-11.82	23.54	40.00	-16.46	QP			
3		62.5410	39.59	-12.05	27.54	40.00	-12.46	QP			
4		105.2256	38.73	-14.33	24.40	43.50	-19.10	QP			
5		152.3967	37.48	-13.84	23.64	43.50	-19.86	QP			
6		191.3253	36.23	-13.78	22.45	43.50	-21.05	QP			



Site 3m Chamber #1

Polarization: *Vertical*

Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B

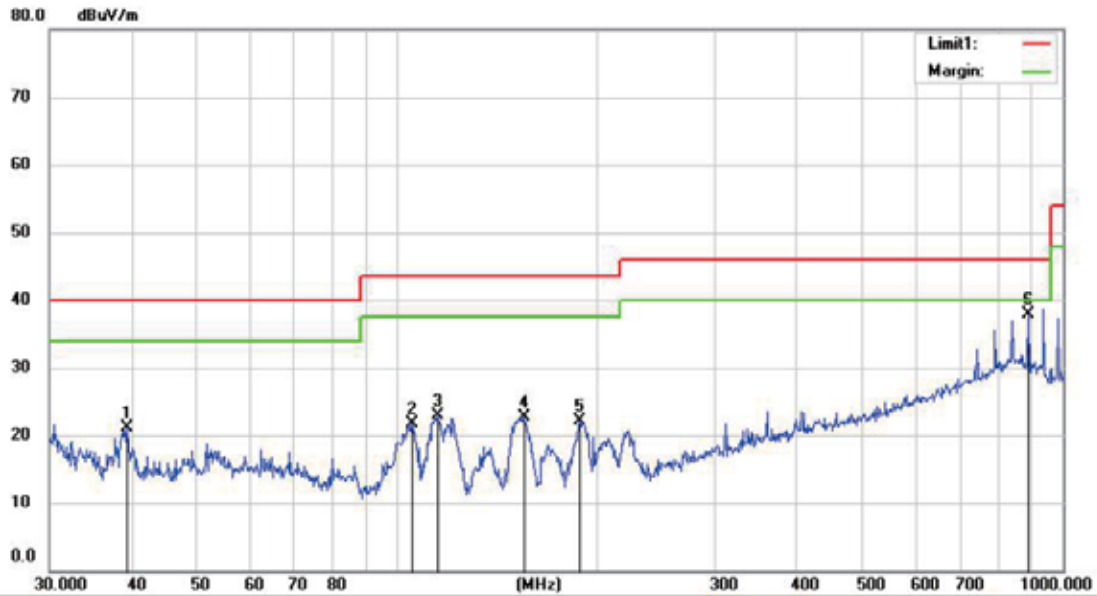
Power: AC 120V/60Hz

Humidity: 39 %

Mode: WIFI5G A20 5200

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1		33.1676	46.65	-14.27	32.38	40.00	-7.62			QP	
2	*	39.2820	49.49	-13.04	36.45	40.00	-3.55			QP	
3		51.0090	42.51	-11.89	30.62	40.00	-9.38			QP	
4		66.1791	35.61	-12.36	23.25	40.00	-16.75			QP	
5		99.7902	42.02	-14.76	27.26	43.50	-16.24			QP	
6		120.8580	37.91	-14.36	23.55	43.50	-19.95			QP	



Site 3m Chamber #1

Polarization: *Horizontal*

Temperature: 23.8 C

Limit: (RE)FCC PART 15 CLASS B

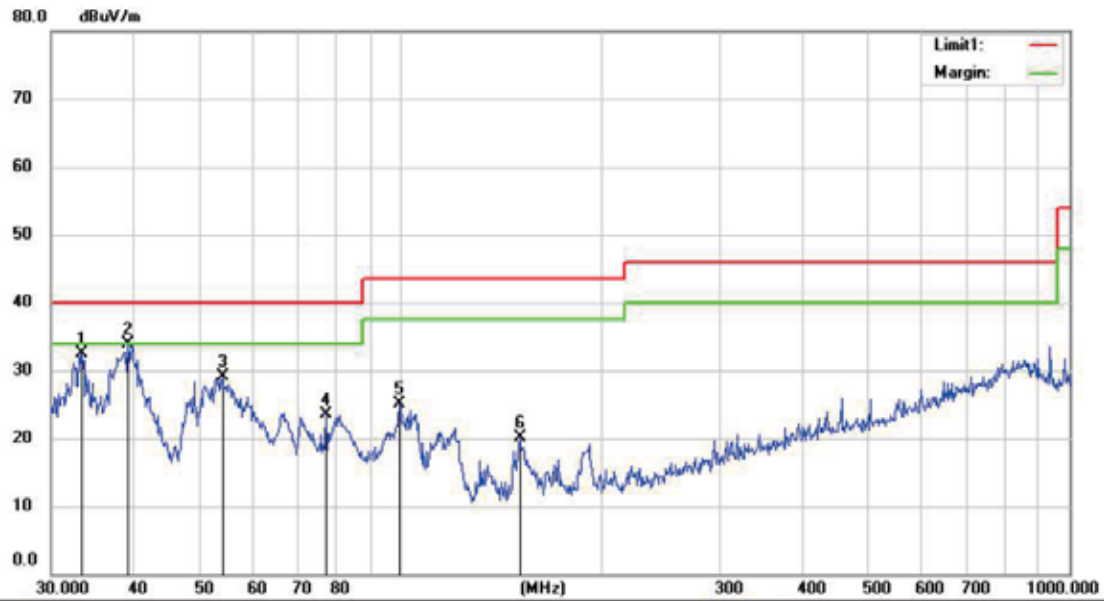
Power: AC 120V/60Hz

Humidity: 39 %

Mode:WIFI5G A20 5240

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		39.2820	34.15	-13.04	21.11	40.00	-18.89	QP		
2		105.4565	36.06	-14.35	21.71	43.50	-21.79	QP		
3		115.0177	37.03	-14.21	22.82	43.50	-20.68	QP		
4		154.8884	36.61	-13.92	22.69	43.50	-20.81	QP		
5		188.1650	35.81	-13.80	22.01	43.50	-21.49	QP		
6	*	887.9990	36.37	1.53	37.90	46.00	-8.10	QP		



Site 3m Chamber #1 Polarization: **Vertical** Temperature: 23.8 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 39 %
 Mode:WIFI5G A20 5240
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		33.3717	46.74	-14.24	32.50	40.00	-7.50	QP		
2	*	39.1272	46.88	-13.07	33.81	40.00	-6.19	QP		
3		54.1185	41.07	-11.96	29.11	40.00	-10.89	QP		
4		77.4570	38.14	-14.55	23.59	40.00	-16.41	QP		
5		99.7902	39.81	-14.76	25.05	43.50	-18.45	QP		
6		150.7360	33.81	-13.78	20.03	43.50	-23.47	QP		

8.6 POWER LINE CONDUCTED EMISSIONS

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Frequency(MHz)	Conducted Emission Limit	
	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

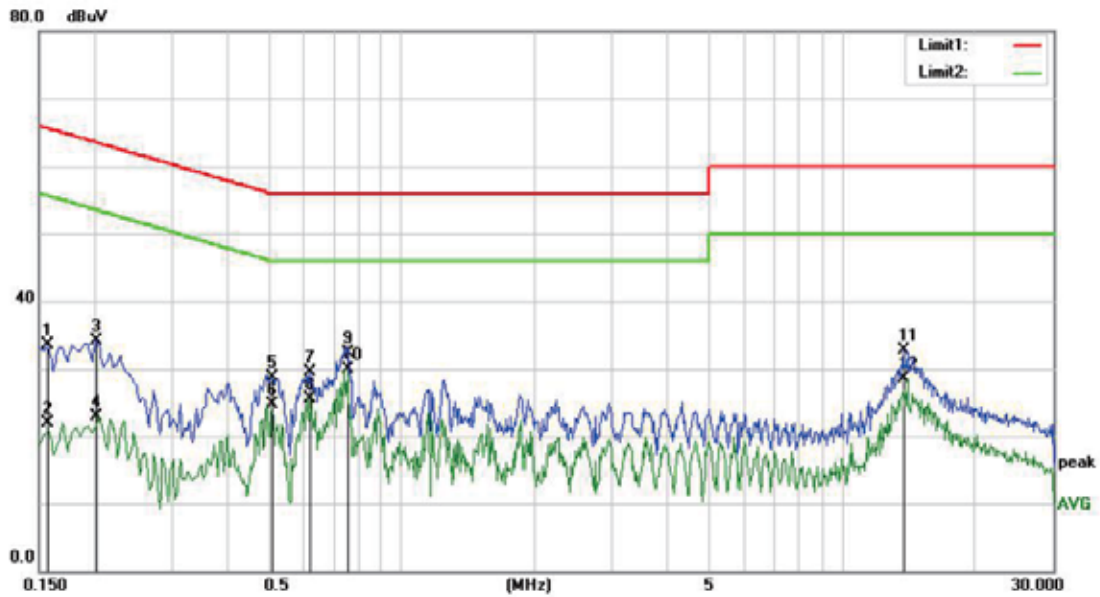
8.6.4 Test Procedure

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

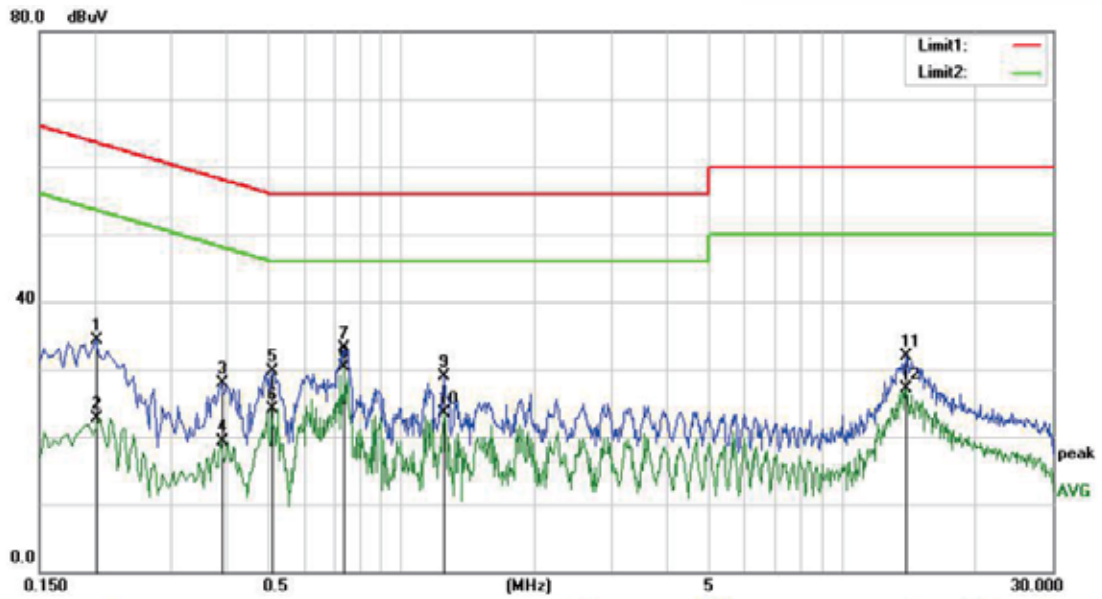
Pass

The AC120V &240V voltage have been tested, and the worst result recorded was report as below:



Site Conduction #1 Phase: **L1** Temperature: 22.8
 Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 48 %
 Mode: Wifi mode
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	24.01	9.44	33.45	65.57	-32.12	QP	
2		0.1580	12.51	9.44	21.95	55.57	-33.62	AVG	
3		0.2020	24.75	9.44	34.19	63.53	-29.34	QP	
4		0.2020	13.42	9.44	22.86	53.53	-30.67	AVG	
5		0.5100	19.34	9.27	28.61	56.00	-27.39	QP	
6		0.5100	15.38	9.27	24.65	46.00	-21.35	AVG	
7		0.6180	20.23	9.28	29.51	56.00	-26.49	QP	
8		0.6180	16.29	9.28	25.57	46.00	-20.43	AVG	
9		0.7580	22.84	9.38	32.22	56.00	-23.78	QP	
10	*	0.7580	20.44	9.38	29.82	46.00	-16.18	AVG	
11		13.7460	22.58	10.08	32.66	60.00	-27.34	QP	
12		13.7460	18.41	10.08	28.49	50.00	-21.51	AVG	



Site Conduction #1
 Limit: (CE)FCC PART 15 class B_QP
 Mode: Wifi mode
 Note:

Phase: N
 Power: AC 120V/60Hz

Temperature: 22.8
 Humidity: 48 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2020	24.81	9.44	34.25	63.53	-29.28	QP	
2		0.2020	13.23	9.44	22.67	53.53	-30.86	AVG	
3		0.3900	18.58	9.31	27.89	58.06	-30.17	QP	
4		0.3900	9.97	9.31	19.28	48.06	-28.78	AVG	
5		0.5100	20.42	9.27	29.69	56.00	-26.31	QP	
6		0.5100	14.85	9.27	24.12	46.00	-21.88	AVG	
7		0.7420	23.84	9.35	33.19	56.00	-22.81	QP	
8	*	0.7420	20.92	9.35	30.27	46.00	-15.73	AVG	
9		1.2460	19.21	9.77	28.98	56.00	-27.02	QP	
10		1.2460	13.69	9.77	23.46	46.00	-22.54	AVG	
11		13.9580	21.79	10.09	31.88	60.00	-28.12	QP	
12		13.9580	17.02	10.09	27.11	50.00	-22.89	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 Internal Antennas: antenna 1 gains are 1.84 dBi; antenna 2 gains are 2.18 dBi

- Note:
- Antennas 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)

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

Detail of factor for radiated emission

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	\	20.63
0.15	20.7	0.1	\	20.8
1	20.9	0.15	\	21.05
10	20.1	0.28	\	20.38
30	18.8	0.45	\	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5

----- END OF REPORT -----