



Conduction Band edge For U-NII-3

11a

Band edge-Left



Band edge-Right



11n20

Band edge-Left



Band edge-Right



11n40

Band edge-Left



Band edge-Right





11ac20

Band edge-Left



Band edge-Right



11ac40

Band edge-Left



Band edge-Right



11ac80

Band edge-Left



Band edge-Right





5.9 Radiated spurious emission

5.9.1 Radiated Emission Limits

1. For transmitters operating in the 5.15-5.25 GHz band:
All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.25-5.35 GHz band:
All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
3. For transmitters operating in the 5.47-5.725 GHz band:
All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
4. For transmitters operating in the 5.725-5.85 GHz band:

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

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



Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Frequency Range	RBW	VBW	Measurement
30MHz-1GHz	1MHz	3MHz	Peak
Above 1GHz	1MHz	10Hz ^{Note1}	Average
	1MHz	>1/T ^{Note2}	Average
Note1	When duty cycle is no less than 98%		
Note2	When duty cycle is less than 98%		

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

5.9.2 Test procedure

The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the floor on a support that is RF transparent for the frequencies of interest. Final measurements for the EUT require a measurement antenna height scan of 1 m to 4 m.

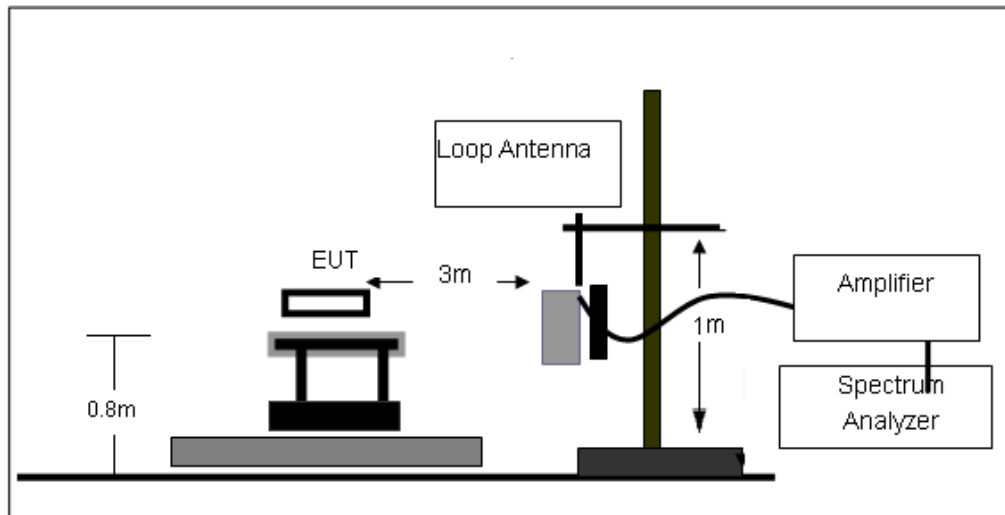
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. For the actual test configuration, please refer to the related Item –EUT Test Photos.

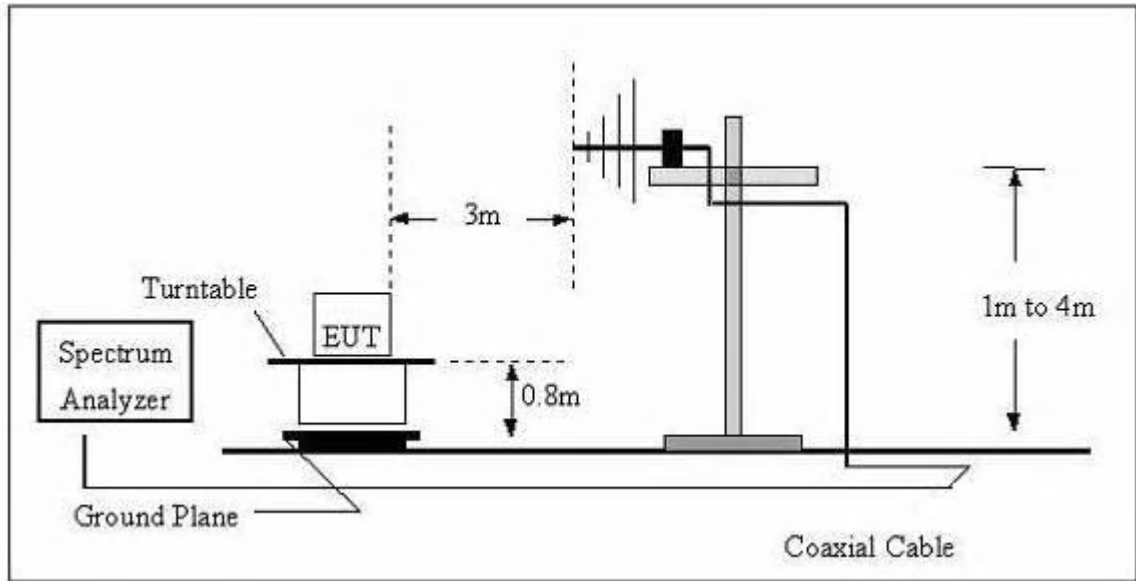
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.9.3 Test setup

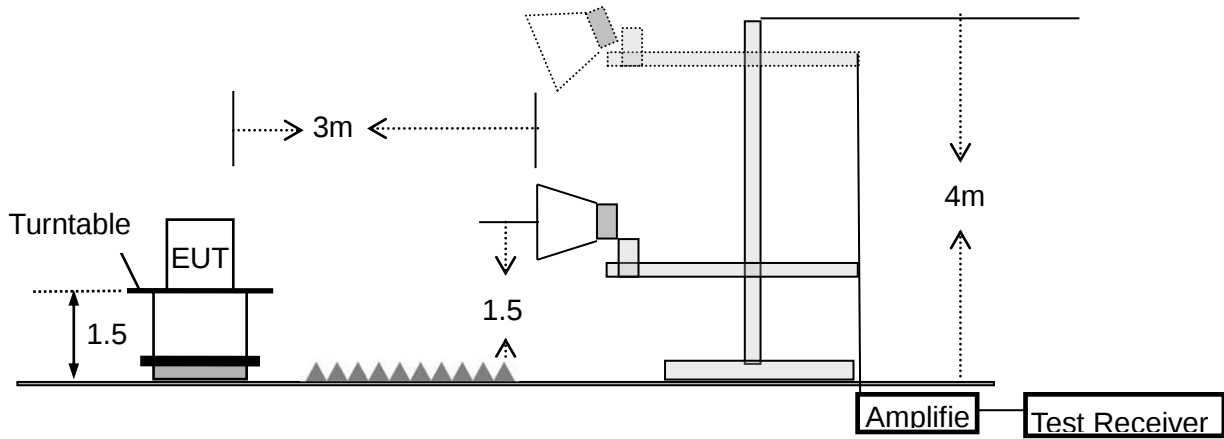
(A) Radiated Emission test-up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz





5.9.4 Test results

EUT:	Gaming tablet	Model Name:	MGS101-07
Pressure:	1010 hPa	Test Voltage:	DC 5V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization:	--

Below 30MHz

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

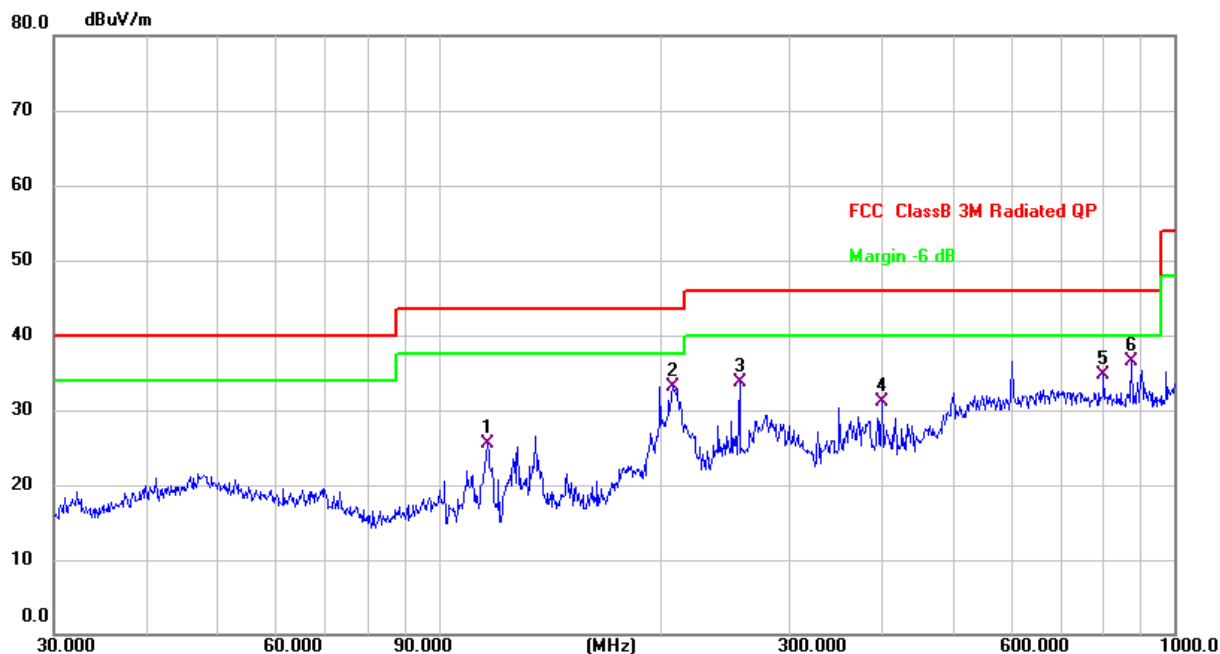
Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB); Limit line = specific limits (dBuV) + distance extrapolation factor.



Between 30MHz – 1GHz

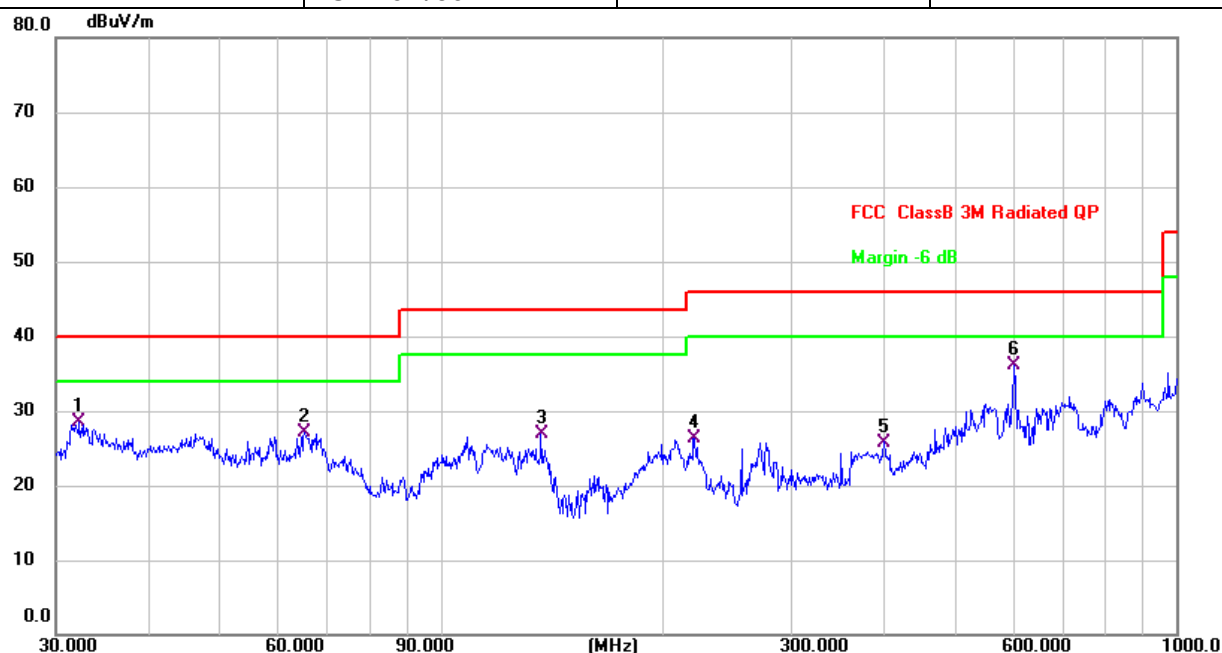
EUT:	Gaming tablet	Model Name:	MGS101-07
Pressure:	1010 hPa	Phase:	H
Test Voltage:	DC 5V from adapter AC 120V/60Hz	Mode:	Charging+TX



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	116.5400	33.54	-8.09	25.45	43.50	-18.05	QP
2	207.8500	39.43	-6.28	33.15	43.50	-10.35	QP
3	256.5210	38.77	-5.15	33.62	46.00	-12.38	QP
4	400.4318	33.01	-1.85	31.16	46.00	-14.84	QP
5	801.7862	28.72	6.00	34.72	46.00	-11.28	QP
6 *	875.2468	29.25	7.27	36.52	46.00	-9.48	QP



EUT:	Gaming tablet	Model Name:	MGS101-07
Pressure:	1010 hPa	Phase:	V
Test Voltage:	DC 5V from adapter AC 120V/60Hz	Mode:	Charging+TX



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	32.2924	37.73	-9.32	28.41	40.00	-11.59	QP
2	65.3431	35.55	-8.44	27.11	40.00	-12.89	QP
3	136.9389	37.13	-10.16	26.97	43.50	-16.53	QP
4	220.6169	32.10	-5.77	26.33	46.00	-19.67	QP
5	400.4318	27.65	-1.85	25.80	46.00	-20.20	QP
6 *	601.4265	33.07	3.10	36.17	46.00	-9.83	QP

Note:

1. All the mode has been tested for this test, the mode 11a CH36 is the worst mode. Just report the worst data.
2. Emission Level = Meter Reading + Factor, Margin= Emission Level- Limit, Factor = Antenna Factor + Cable Loss – Pre-amplifier.
3. The peak value is less than the AV value, AV value is not required Factor added by measurement software automatically.

1GHz-40GHz:

For U-NII-1

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11a - 5180 MHz TX mode							
10360.00	42.55	6.55	49.10	74.00	-24.90	Peak	V
10360.00	36.47	6.55	43.02	54.00	-10.98	AVG	V
15540.00	43.37	13.33	56.70	74.00	-17.30	Peak	V
15540.00	37.06	13.33	50.39	54.00	-3.61	AVG	V
10360.00	41.85	6.55	48.40	74.00	-25.60	Peak	V
10360.00	35.66	6.55	42.21	54.00	-11.79	AVG	V
15540.00	43.39	13.33	56.72	74.00	-17.28	Peak	H
15540.00	37.19	13.33	50.52	54.00	-3.48	AVG	H
802.11a - 5200 MHz TX mode							
10440.00	41.79	6.66	48.45	74.00	-25.55	Peak	V
10440.00	36.18	6.66	42.26	74.00	-11.28	AVG	V
15660.00	43.60	13.31	56.91	74.00	-17.09	Peak	V
15660.00	38.57	13.31	53.10	74.00	-7.63	AVG	V
10440.00	41.95	6.66	48.61	74.00	-25.39	Peak	V
10440.00	35.66	6.66	42.32	54.00	-11.68	AVG	V
15660.00	46.29	13.31	59.60	74.00	-14.40	Peak	H
15660.00	39.71	13.31	53.02	54.00	-3.52	AVG	H
802.11a - 5240 MHz TX mode							
10480.00	42.81	6.72	49.53	74.00	-24.47	Peak	V
10480.00	36.49	6.72	43.21	54.00	-10.79	AVG	V
15720.00	44.45	13.29	57.74	74.00	-16.26	Peak	V
15720.00	37.94	13.29	51.23	54.00	-2.77	AVG	V
10480.00	42.62	6.72	49.34	74.00	-24.66	Peak	V
10480.00	36.51	6.72	43.23	54.00	-10.77	AVG	V
15720.00	43.82	13.29	57.11	74.00	-16.89	Peak	H
15720.00	37.77	13.29	51.06	54.00	-2.94	AVG	H

Note: Both horizontal and vertical antenna polarities were tested and only the worst case (horizontal) emissions were reported.



For U-NII-3

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11a - 5745 MHz TX mode							
11490.00	43.42	8.80	52.22	74.00	-21.78	Peak	V
11490.00	37.35	8.80	46.15	54.00	-7.85	AVG	V
17235.00	44.41	13.72	58.13	74.00	-15.87	Peak	V
17235.00	38.39	13.72	52.11	54.00	-3.34	AVG	V
11490.00	41.85	8.80	50.65	74.00	-23.35	Peak	V
11490.00	35.51	8.80	44.31	54.00	-9.69	AVG	V
17235.00	43.84	13.72	57.56	74.00	-16.44	Peak	H
17235.00	37.52	13.72	51.24	54.00	-2.76	AVG	H
802.11a - 5785 MHz TX mode							
11560.00	44.93	8.99	53.92	74.00	-20.08	Peak	V
11560.00	38.33	8.99	47.32	54.00	-6.68	AVG	V
17355.00	43.68	13.82	57.50	74.00	-16.50	Peak	V
17355.00	37.44	13.82	51.26	54.00	-2.74	AVG	V
11568.00	42.49	9.00	51.49	74.00	-22.51	Peak	V
11568.00	36.21	9.00	45.21	54.00	-8.79	AVG	V
17355.00	43.52	13.82	57.34	74.00	-16.66	Peak	H
17355.00	37.38	13.82	51.20	54.00	-2.80	AVG	H
802.11a - 5825 MHz TX mode							
11650.00	43.89	9.23	53.12	74.00	-20.88	Peak	V
11650.00	37.79	9.23	47.02	54.00	-6.98	AVG	V
17475.00	42.96	13.93	56.89	74.00	-17.11	Peak	V
17475.00	36.28	13.93	50.21	54.00	-3.79	AVG	V
11650.00	42.52	9.23	51.75	74.00	-22.25	Peak	V
11650.00	36.13	9.23	45.36	54.00	-8.64	AVG	V
17475.00	44.52	13.93	58.45	74.00	-15.55	Peak	H
17475.00	38.21	13.93	52.14	54.00	-3.09	AVG	H

Band edge - radiated

For U-NII-1

For 802.11a mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11a – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.84	-0.59	46.25	74.00	-27.75	Peak	V
4500.000	36.47	-0.59	35.88	54.00	-18.12	AVG	V
5150.000	52.83	1.91	54.74	74.00	-19.26	Peak	V
5150.000	40.36	1.91	42.27	54.00	-11.73	AVG	V
4500.000	46.30	-0.59	45.71	74.00	-28.29	Peak	H
4500.000	36.40	-0.59	35.81	54.00	-18.19	AVG	H
5150.000	51.86	1.91	53.77	74.00	-20.23	Peak	H
5150.000	39.54	1.91	41.45	54.00	-12.55	AVG	H
802.11a – High band-edge							
5350.000	46.58	2.15	48.73	74.00	-25.27	Peak	V
5350.000	37.00	2.15	39.15	54.00	-14.85	AVG	V
5460.000	47.31	2.29	49.60	74.00	-24.40	Peak	V
5460.000	37.21	2.29	39.50	54.00	-14.50	AVG	V
5350.000	47.22	2.15	49.37	74.00	-24.63	Peak	H
5350.000	37.12	2.15	39.27	54.00	-14.73	AVG	H
5460.000	47.35	2.29	49.64	74.00	-24.36	Peak	H
5460.000	37.41	2.29	39.70	54.00	-14.30	AVG	H



For 802.11n-(HT20) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n-(HT20) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	45.97	-0.59	45.38	74.00	-28.62	Peak	V
4500.000	36.62	-0.59	36.03	54.00	-17.97	AVG	V
5150.000	50.63	1.91	52.54	74.00	-21.46	Peak	V
5150.000	39.31	1.91	41.22	54.00	-12.78	AVG	V
4500.000	45.03	-0.59	44.44	74.00	-29.56	Peak	H
4500.000	36.31	-0.59	35.72	54.00	-18.28	AVG	H
5150.000	48.30	1.91	50.21	74.00	-23.79	Peak	H
5150.000	38.04	1.91	39.95	54.00	-14.05	AVG	H
802.11n-(HT20) – High band-edge							
5350.000	46.55	2.15	48.70	74.00	-25.30	Peak	V
5350.000	37.02	2.15	39.17	54.00	-14.83	AVG	V
5460.000	46.30	2.29	48.59	74.00	-25.41	Peak	V
5460.000	37.32	2.29	39.61	54.00	-14.39	AVG	V
5350.000	45.65	2.15	47.80	74.00	-26.20	Peak	H
5350.000	36.93	2.15	39.08	54.00	-14.92	AVG	H
5460.000	47.02	2.29	49.31	74.00	-24.69	Peak	H
5460.000	37.18	2.29	39.47	54.00	-14.53	AVG	H



For 802.11n-(HT40) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n-(HT40) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.18	-0.59	45.59	74.00	-28.41	Peak	V
4500.000	36.47	-0.59	35.88	54.00	-18.12	AVG	V
5150.000	55.14	1.91	57.05	74.00	-16.95	Peak	V
5150.000	39.44	1.91	41.35	54.00	-12.65	AVG	V
4500.000	45.24	-0.59	44.65	74.00	-29.35	Peak	H
4500.000	36.24	-0.59	35.65	54.00	-18.35	AVG	H
5150.000	50.52	1.91	52.43	74.00	-21.57	Peak	H
5150.300	38.17	1.91	40.08	54.00	-13.92	AVG	H
802.11n-(HT40) – High band-edge							
5350.000	47.31	2.15	49.46	74.00	-24.54	Peak	V
5350.000	37.18	2.15	39.33	54.00	-14.67	AVG	V
5460.000	46.38	2.29	48.67	74.00	-25.33	Peak	V
5460.000	37.26	2.29	39.55	54.00	-14.45	AVG	V
5350.000	46.57	2.15	48.72	74.00	-25.28	Peak	H
5350.000	37.04	2.15	39.19	54.00	-14.81	AVG	H
5460.000	46.61	2.29	48.90	74.00	-25.10	Peak	H
5460.000	37.29	2.29	39.58	54.00	-14.42	AVG	H



For 802.11ac-(HT20) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT20) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	45.82	-0.59	45.23	74.00	-28.77	Peak	V
4500.000	36.69	-0.59	36.10	54.00	-17.90	AVG	V
5150.000	47.11	1.91	49.02	74.00	-24.98	Peak	V
5150.000	38.12	1.91	40.03	54.00	-13.97	AVG	V
4500.000	45.82	-0.59	45.23	74.00	-28.77	Peak	H
4500.000	36.30	-0.59	35.71	54.00	-18.29	AVG	H
5150.000	46.76	1.91	48.67	74.00	-25.33	Peak	H
5150.000	37.88	1.91	39.79	54.00	-14.21	AVG	H
802.11ac-(HT20) – High band-edge							
5350.000	46.39	2.15	48.54	74.00	-25.46	Peak	V
5350.000	36.89	2.15	39.04	54.00	-14.96	AVG	V
5460.000	47.58	2.29	49.87	74.00	-24.13	Peak	V
5460.000	37.30	2.29	39.59	54.00	-14.41	AVG	V
5350.000	46.77	2.15	48.92	74.00	-25.08	Peak	H
5350.000	36.85	2.15	39.00	54.00	-15.00	AVG	H
5460.000	46.72	2.29	49.01	74.00	-24.99	Peak	H
5460.000	37.45	2.29	39.74	54.00	-14.26	AVG	H



For 802.11ac-(HT40) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT40) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.20	-0.59	45.61	74.00	-28.39	Peak	V
4500.000	36.62	-0.59	36.03	54.00	-17.97	AVG	V
5150.000	47.98	1.91	49.89	74.00	-24.11	Peak	V
5150.000	38.14	1.91	40.05	54.00	-13.95	AVG	V
4500.000	46.35	-0.59	45.76	74.00	-28.24	Peak	H
4500.000	36.32	-0.59	35.73	54.00	-18.27	AVG	H
5150.000	47.66	1.91	49.57	74.00	-24.43	Peak	H
5150.000	38.00	1.91	39.91	54.00	-14.09	AVG	H
802.11ac-(HT40) – High band-edge							
5350.000	47.04	2.15	49.19	74.00	-24.81	Peak	V
5350.000	37.07	2.15	39.22	54.00	-14.78	AVG	V
5460.000	47.02	2.29	49.31	74.00	-24.69	Peak	V
5460.000	37.23	2.29	39.52	54.00	-14.48	AVG	V
5350.000	45.79	2.15	47.94	74.00	-26.06	Peak	H
5350.000	36.82	2.15	38.97	54.00	-15.03	AVG	H
5460.000	47.14	2.29	49.43	74.00	-24.57	Peak	H
5460.000	37.29	2.29	39.58	54.00	-14.42	AVG	H



For 802.11ac-(HT80) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT80) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.71	-0.59	46.12	74.00	-27.88	Peak	V
4500.000	36.33	-0.59	35.74	54.00	-18.26	AVG	V
5150.000	48.14	1.91	50.05	74.00	-23.95	Peak	V
5150.000	38.29	1.91	40.20	54.00	-13.80	AVG	V
4500.000	45.57	-0.59	44.98	74.00	-29.02	Peak	H
4500.000	36.43	-0.59	35.84	54.00	-18.16	AVG	H
5150.000	47.15	1.91	49.06	74.00	-24.94	Peak	H
5150.000	37.73	1.91	39.64	54.00	-14.36	AVG	H
802.11ac-(HT80) – High band-edge							
5350.000	47.41	2.15	49.56	74.00	-24.44	Peak	V
5350.000	37.15	2.15	39.30	54.00	-14.70	AVG	V
5460.000	46.10	2.29	48.39	74.00	-25.61	Peak	V
5460.000	37.24	2.29	39.53	54.00	-14.47	AVG	V
5350.000	47.26	2.15	49.41	74.00	-24.59	Peak	H
5350.000	36.93	2.15	39.08	54.00	-14.92	AVG	H
5460.000	49.15	2.29	51.44	74.00	-22.56	Peak	H
5460.000	37.29	2.29	39.58	54.00	-14.42	AVG	H

For U-NII-3

For 802.11a mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11a – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	46.75	2.12	48.87	68.20	-19.33	Peak	V
5700.000	60.93	2.04	62.97	105.2	-42.23	AVG	V
5720.000	72.36	2.02	74.38	110.8	-36.42	Peak	V
5725.000	77.73	2.00	79.73	122.2	-42.47	AVG	V
5650.000	46.51	2.12	48.63	68.20	-19.57	Peak	H
5700.000	59.16	2.04	61.20	105.2	-44.00	AVG	H
5720.000	68.64	2.02	70.66	110.8	-40.14	Peak	H
5725.000	75.80	2.00	77.80	122.2	-44.40	AVG	H
802.11a – High band-edge							
5850.000	73.90	1.82	75.72	122.2	-46.48	Peak	V
5855.000	68.08	1.81	69.89	110.8	-40.91	AVG	V
5875.000	56.18	1.77	57.95	105.2	-47.25	Peak	V
5925.000	47.71	1.70	49.41	68.20	-18.79	AVG	V
5850.000	65.34	1.82	67.16	122.2	-55.04	Peak	H
5855.000	62.01	1.81	63.82	110.8	-46.98	AVG	H
5875.000	48.18	1.77	49.95	105.2	-55.25	Peak	H
5925.000	46.92	1.70	48.62	68.20	-19.58	AVG	H



For 802.11n-(HT20) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n-(HT20) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	46.48	2.12	48.60	68.20	-19.60	Peak	V
5700.000	63.29	2.04	65.33	105.2	-39.87	AVG	V
5720.000	72.76	2.02	74.78	110.8	-36.02	Peak	V
5725.000	80.56	2.00	82.56	122.2	-39.64	AVG	V
5650.000	47.56	2.12	49.68	68.20	-18.52	Peak	H
5700.000	59.71	2.04	61.75	105.2	-43.45	AVG	H
5720.000	69.18	2.02	71.20	110.8	-39.60	Peak	H
5725.000	75.89	2.00	77.89	122.2	-44.31	AVG	H
802.11n-(HT20) – High band-edge							
5850.000	72.68	1.82	74.50	122.2	-47.70	Peak	V
5855.000	68.22	1.81	70.03	110.8	-40.77	AVG	V
5875.000	57.20	1.77	58.97	105.2	-46.23	Peak	V
5925.000	47.65	1.70	49.35	68.20	-18.85	AVG	V
5850.000	63.21	1.82	65.03	122.2	-57.17	Peak	H
5855.000	59.54	1.81	61.35	110.8	-49.45	AVG	H
5875.000	47.39	1.77	49.16	105.2	-56.04	Peak	H
5925.000	47.32	1.70	49.02	68.20	-19.18	AVG	H



For 802.11n-(HT40) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n-(HT40) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	52.12	2.12	54.24	68.20	-13.96	Peak	V
5700.000	66.91	2.04	68.95	105.2	-36.25	AVG	V
5720.000	79.30	2.02	81.32	110.8	-29.48	Peak	V
5725.000	80.60	2.00	82.60	122.2	-39.60	AVG	V
5650.000	50.27	2.12	52.39	68.20	-15.81	Peak	H
5700.000	63.06	2.04	65.10	105.2	-40.10	AVG	H
5720.000	73.34	2.02	75.36	110.8	-35.44	Peak	H
5725.000	76.27	2.00	78.27	122.2	-43.93	AVG	H
802.11n-(HT40) – High band-edge							
5850.000	64.87	1.82	66.69	122.2	-55.51	Peak	V
5855.000	65.60	1.81	67.41	110.8	-43.39	AVG	V
5875.000	55.32	1.77	57.09	105.2	-48.11	Peak	V
5925.000	48.00	1.70	49.70	68.20	-18.50	AVG	V
5850.000	58.34	1.82	60.16	122.2	-62.04	Peak	H
5855.000	55.27	1.81	57.08	110.8	-53.72	AVG	H
5875.000	47.33	1.77	49.10	105.2	-56.10	Peak	H
5925.000	46.99	1.70	48.69	68.20	-19.51	AVG	H



For 802.11ac-(HT20) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT20) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	45.75	2.12	47.87	68.20	-20.33	Peak	V
5700.000	57.84	2.04	59.88	105.2	-45.32	AVG	V
5720.000	68.98	2.02	71.00	110.8	-39.80	Peak	V
5725.000	74.64	2.00	76.64	122.2	-45.56	AVG	V
5650.000	45.69	2.12	47.81	68.20	-20.39	Peak	H
5700.000	55.45	2.04	57.49	105.2	-47.71	AVG	H
5720.000	62.34	2.02	64.36	110.8	-46.44	Peak	H
5725.000	69.56	2.00	71.56	122.2	-50.64	AVG	H
802.11ac-(HT20) – High band-edge							
5850.000	65.89	1.82	67.71	122.2	-54.49	Peak	V
5855.000	63.51	1.81	65.32	110.8	-45.48	AVG	V
5875.000	52.54	1.77	54.31	105.2	-50.89	Peak	V
5925.000	46.34	1.70	48.04	68.20	-20.16	AVG	V
5850.000	56.21	1.82	58.03	122.2	-64.17	Peak	H
5855.000	55.48	1.81	57.29	110.8	-53.51	AVG	H
5875.000	46.94	1.77	48.71	105.2	-56.49	Peak	H
5925.000	46.83	1.70	48.53	68.20	-19.67	AVG	H



For 802.11ac-(HT40) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT40) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	48.17	2.12	50.29	68.20	-17.91	Peak	V
5700.000	61.80	2.04	63.84	105.2	-41.36	AVG	V
5720.000	68.96	2.02	70.98	110.8	-39.82	Peak	V
5725.000	71.53	2.00	73.53	122.2	-48.67	AVG	V
5650.000	47.94	2.12	50.06	68.20	-18.14	Peak	H
5700.000	57.65	2.04	59.69	105.2	-45.51	AVG	H
5720.000	64.02	2.02	66.04	110.8	-44.76	Peak	H
5725.000	65.20	2.00	67.20	122.2	-55.00	AVG	H
802.11ac-(HT40) – High band-edge							
5850.000	56.43	1.82	58.25	122.2	-63.95	Peak	V
5855.000	58.81	1.81	60.62	110.8	-50.18	AVG	V
5875.000	51.68	1.77	53.45	105.2	-51.75	Peak	V
5925.000	47.63	1.70	49.33	68.20	-18.87	AVG	V
5850.000	49.28	1.82	51.10	122.2	-71.10	Peak	H
5855.000	50.93	1.81	52.74	110.8	-58.06	AVG	H
5875.000	46.88	1.77	48.65	105.2	-56.55	Peak	H
5925.000	46.78	1.70	48.48	68.20	-19.72	AVG	H



For 802.11 ac -(80) mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac-(HT80) – Low band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	50.85	2.12	52.97	68.20	-15.23	Peak	V
5700.000	62.16	2.04	64.20	105.2	-41.00	AVG	V
5720.000	66.44	2.02	68.46	110.8	-42.34	Peak	V
5725.000	66.91	2.00	68.91	122.2	-53.29	AVG	V
5650.000	49.06	2.12	51.18	68.20	-17.02	Peak	H
5700.000	58.45	2.04	60.49	105.2	-44.71	AVG	H
5720.000	62.74	2.02	64.76	110.8	-46.04	Peak	H
5725.000	62.21	2.00	64.21	122.2	-57.99	AVG	H
802.11ac-(HT80) – High band-edge							
5850.000	65.04	1.82	66.86	122.2	-55.34	Peak	V
5855.000	63.28	1.81	65.09	110.8	-45.71	AVG	V
5875.000	54.47	1.77	56.24	105.2	-48.96	Peak	V
5925.000	48.08	1.70	49.78	68.20	-18.42	AVG	V
5850.000	56.35	1.82	58.17	122.2	-64.03	Peak	H
5855.000	54.08	1.81	55.89	110.8	-54.91	AVG	H
5875.000	47.23	1.77	49.00	105.2	-56.20	Peak	H
5925.000	46.87	1.70	48.57	68.20	-19.63	AVG	H

5.10 Power spectral density

5.10.1 Limit

For the band 5.15-5.25 GHz

For client devices in the 5.15-5.25 GHz band, 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, 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 5.25-5.35 GHz and 5.47-5.725 GHz

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, 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

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

5.10.2 Test procedure

For U-NII-1

1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW $\geq 1\text{MHz}$.
3. Set the VBW $\geq 3 \times \text{RBW}$.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

For U-NII-3

1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW $\geq 510\text{kHz}$.
3. Set the VBW $\geq 3 \times \text{RBW}$.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.



5.10.3 Test setup



5.10.4 Test results

For U-NII-1

Mode	Channel/ Frequency (MHz)	Power spectral density (dBm/MHz)			Limit (dBm/MHz)
		Meas PSD	Duty Cycle Factor	Corr'd PSD	
11a	CH36 (5180)	5.4	1.919	7.319	11
11a	CH44 (5220)	6.35	1.919	8.269	11
11a	CH48 (5240)	6.18	1.919	8.099	11
11n(HT20)	CH36 (5180)	5.12	2.272	7.392	11
11n(HT20)	CH44 (5220)	5.9	2.272	8.172	11
11n(HT20)	CH48 (5240)	5.29	2.272	7.562	11
11n(HT40)	CH38 (5190)	1.48	3.118	4.598	11
11n(HT40)	CH46(5230)	2.69	3.118	5.808	11
11ac(HT20)	CH36 (5180)	4.47	2.518	6.988	11
11ac (HT20)	CH40 (5200)	5.91	2.518	8.428	11
11ac (HT20)	CH48 (5240)	5.23	2.518	7.748	11
11ac (HT40)	CH38(5190)	1.63	3.245	4.875	11
11ac (HT40)	CH46 (5230)	2.45	3.245	5.695	11
11ac (HT80)	CH42(5210)	-0.76	4.046	3.286	11

Remak: Corr'd PSD = Meas PSD + Duty Cycle Factor

For U-NII-3

Mode	Channel/ Frequency (MHz)	Power spectral density (dBm/500kHz)				Limit (dBm/500kHz)
		Meas PSD (dBm/510kHz)	Meas PSD (dBm/500kHz)	Duty Cycle Factor	Corr'd PSD	
11a	CH149 (5745)	4.71	4.624	1.919	6.543	30
11a	CH157 (5785)	4.89	4.80	1.919	6.719	30
11a	CH165 (5825)	5.13	5.044	1.919	6.963	30
11n20	CH149 (5745)	4.31	4.224	2.272	6.496	30
11n20	CH157 (5785)	4.44	4.354	2.272	6.626	30
11n20	CH165 (5825)	4.52	4.434	2.272	6.706	30
11n40	CH151 (5755)	1.71	1.624	3.118	4.742	30
11n40	CH159 (5795)	1.52	1.434	3.118	4.552	30
11ac20	CH149 (5745)	4.63	4.544	2.518	7.062	30
11ac20	CH157 (5785)	4.43	4.344	2.518	6.862	30
11ac20	CH165 (5825)	4.63	4.544	2.518	7.062	30
11ac40	CH151 (5755)	1.66	1.574	3.245	4.819	30
11ac40	CH159 (5795)	1.88	1.794	3.245	5.039	30
11ac80	CH155 (5775)	-1.67	-1.756	4.046	2.29	30
Note: If the measurement is X dBm/510kHz, thus X dBm/510kHz = $(10^{X/10}) \cdot (500 / 510) \text{ mW/500kHz} = 10 \cdot \lg 10 \{ (10^{X/10}) \cdot (500 / 510) \} \text{ dBm/500kHz}$						

Remak: Corr'd PSD = Meas PSD + Duty Cycle Factor

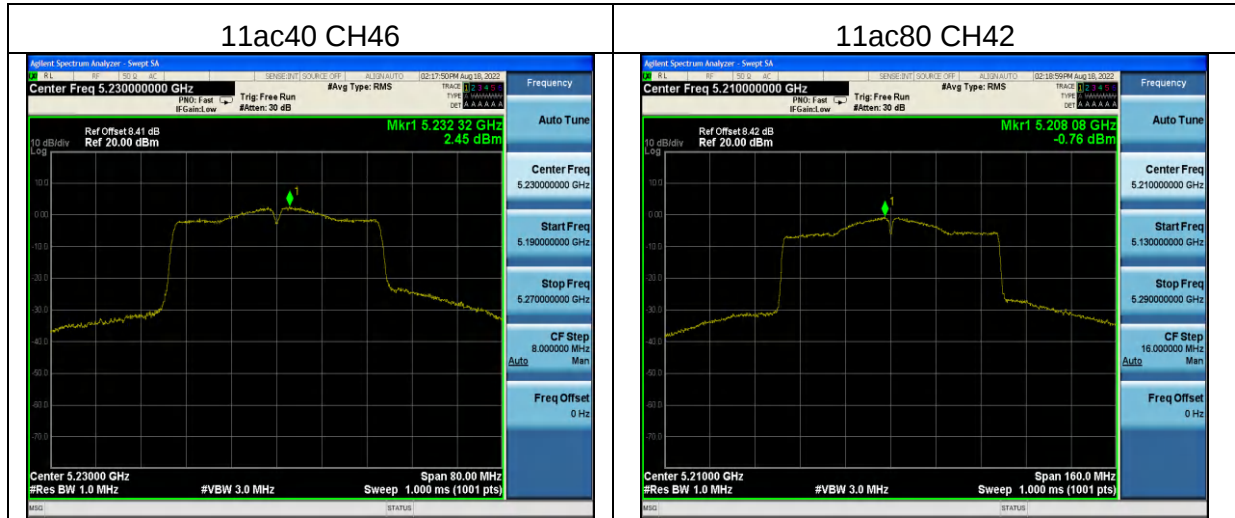


Test plots

For U-NII-1



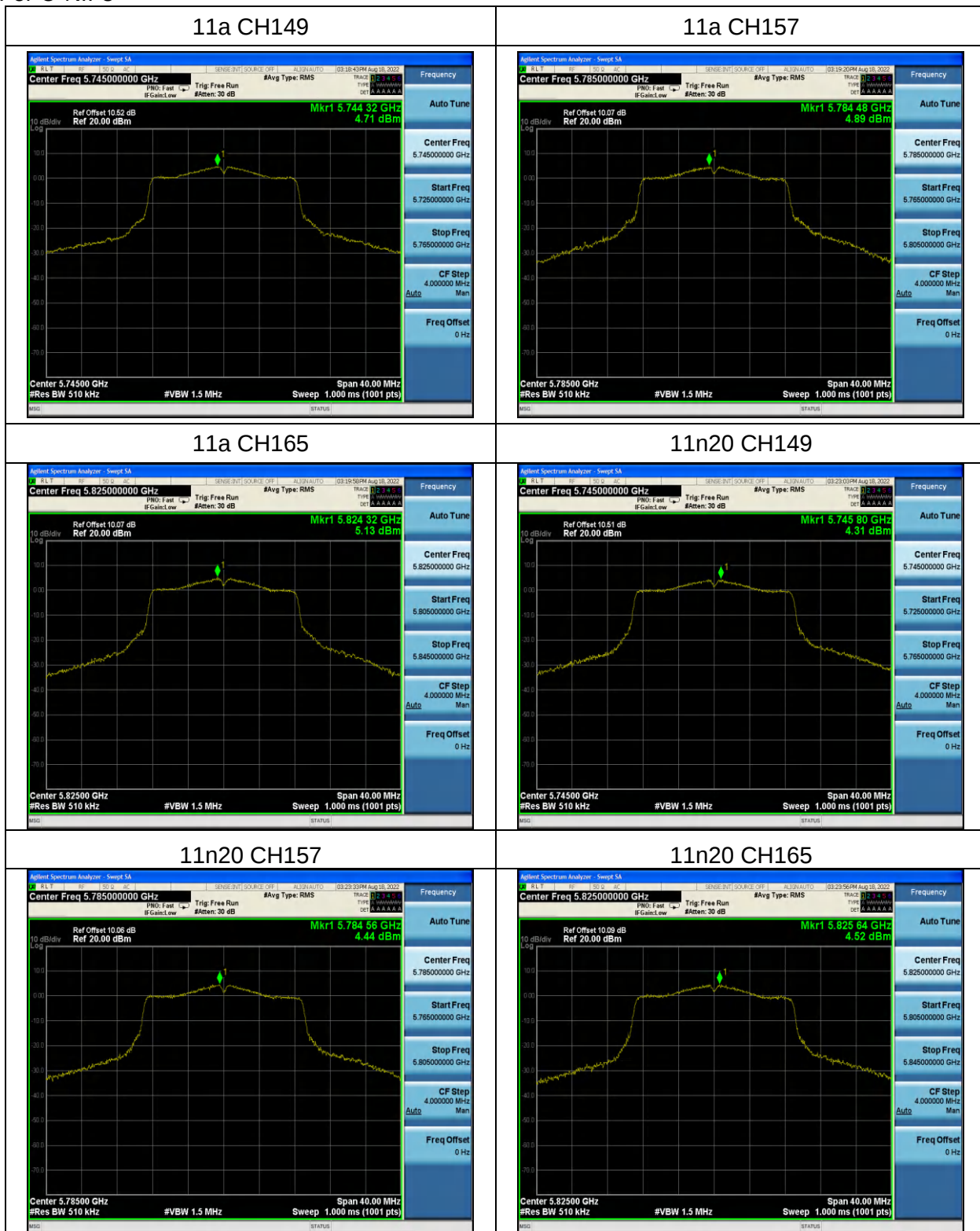






Test plots

For U-NII-3





11n40 CH151



11n40 CH159



11ac20 CH149



11ac20 CH157



11ac20 CH165

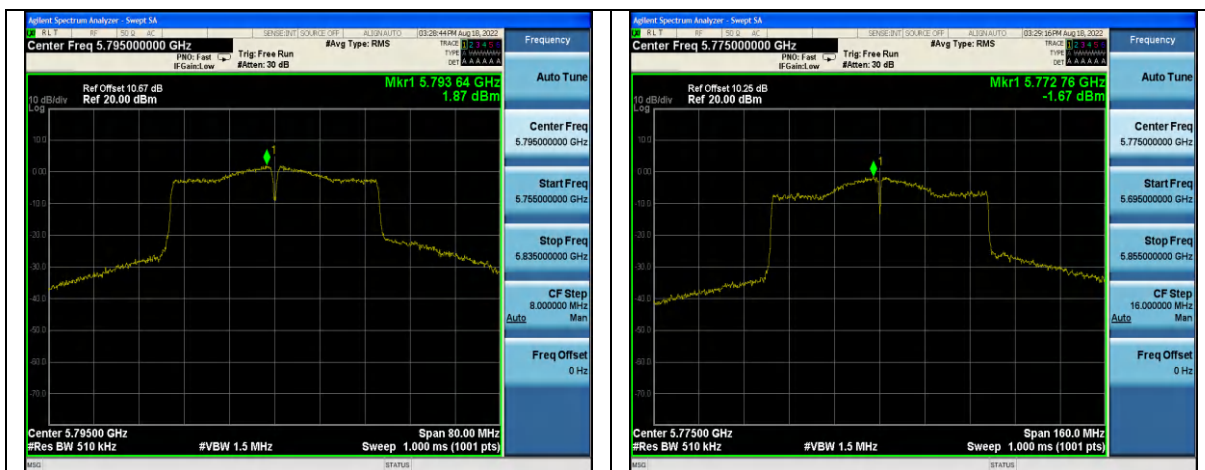


11ac40 CH151



11ac40 CH159

11ac80 CH155





5.11 Frequency Stability Measurement

5.11.1 Test Results

For U-NII-1

Voltage vs. Frequency Stability

Test conditions				Reference Frequency:5180			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5180.0185	5180	0.0185	-3.5714
		V max (V)	4.26	5180.0177	5180	0.0177	-3.4170
		V min (V)	3.15	5180.0169	5180	0.0169	-3.2625
Limit				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5180			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5180.0165	5180	0.0165	-3.1853
		T (°C)	-10	5180.0151	5180	0.0151	-2.9151
		T (°C)	0	5180.0136	5180	0.0136	-2.6255
		T (°C)	10	5180.0144	5180	0.0144	-2.7799
		T (°C)	20	5180.0152	5180	0.0152	-2.9344
		T (°C)	30	5180.0136	5180	0.0136	-2.6255
		T (°C)	40	5180.0152	5180	0.0152	-2.9344
		T (°C)	50	5180.0115	5180	0.0114	-2.2104
		T (°C)	60	5180.0133	5180	0.0133	-2.5676
		T (°C)	70	5180.0147	5180	0.0147	-2.8378
Limit				Within 5150-5250MHz			
Result				Complies			



Voltage vs. Frequency Stability

Test conditions				Reference Frequency:5200			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5200.0159	5200	0.0159	-3.0577
		V max (V)	4.26	5200.0161	5200	0.0161	-3.0962
		V min (V)	3.15	5200.0163	5200	0.0163	-3.1346
Limit				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5200			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5200.0178	5200	0.0178	-3.4231
		T (°C)	-10	5200.0166	5200	0.0166	-3.1923
		T (°C)	0	5200.0159	5200	0.0159	-3.0577
		T (°C)	10	5200.0155	5200	0.0155	-2.9808
		T (°C)	20	5200.0167	5200	0.0167	-3.2115
		T (°C)	30	5200.0171	5200	0.0171	-3.2885
		T (°C)	40	5200.0188	5200	0.0188	-3.6154
		T (°C)	50	5200.0174	5200	0.0174	-3.3462
		T (°C)	60	5200.0169	5200	0.0169	-3.2500
		T (°C)	70	5200.0165	5200	0.0165	-3.1731
Limit				Within 5150-5250MHz			
Result				Complies			



Voltage vs. Frequency Stability

Test conditions				Reference Frequency:5240			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5240.0187	5240	0.0187	-3.5687
		V max (V)	4.26	5240.0175	5240	0.0175	-3.3397
		V min (V)	3.15	5240.0159	5240	0.0159	-3.0344
Limit				Within 5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5240			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5240.0165	5240	0.0165	-3.1489
		T (°C)	-10	5240.0174	5240	0.0174	-3.3206
		T (°C)	0	5240.0162	5240	0.0162	-3.0916
		T (°C)	10	5240.0171	5240	0.0171	-3.2634
		T (°C)	20	5240.0168	5240	0.0168	-3.2061
		T (°C)	30	5240.0164	5240	0.0164	-3.1298
		T (°C)	40	5240.0161	5240	0.0161	-3.0725
		T (°C)	50	5240.0162	5240	0.0162	-3.0916
		T (°C)	60	5240.0159	5240	0.0159	-3.0344
		T (°C)	70	5240.0164	5240	0.0164	-3.1298
Limit				Within 5150-5250MHz			
Result				Complies			



For U-NII-3

Test conditions				Reference Frequency:5745			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5745.0175	5745	0.01750	-3.0461
		V max (V)	4.26	5745.0164	5745	0.01640	-2.8547
		V min (V)	3.15	5745.0196	5745	0.01955	-3.4030
Limit				Within 5725-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5745			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5745.0168	5745	0.01680	-2.9243
		T (°C)	-10	5745.0162	5745	0.01620	-2.8198
		T (°C)	0	5745.0171	5745	0.01710	-2.9765
		T (°C)	10	5745.0159	5745	0.01590	-2.7676
		T (°C)	20	5745.0158	5745	0.01580	-2.7502
		T (°C)	30	5745.0167	5745	0.01670	-2.9069
		T (°C)	40	5745.0164	5745	0.01640	-2.8547
		T (°C)	50	5745.0155	5745	0.01550	-2.6980
		T (°C)	60	5745.0188	5745	0.01880	-3.2724
		T (°C)	70	5745.0165	5745	0.01650	-2.8721
Limit				Within 5725-5850MHz			
Result				Complies			

Voltage vs. Frequency Stability

Test conditions				Reference Frequency:5785			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5785.01533	5785	0.01533	-2.6500
		V max (V)	4.26	5785.01781	5785	0.01781	-3.0787
		V min (V)	3.15	5785.01701	5785	0.01701	-2.9404
Limit				Within 5725-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5785			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5785.0156	5785	0.01564	-2.7035
		T (°C)	-10	5785.0177	5785	0.01765	-3.0510
		T (°C)	0	5785.0162	5785	0.01620	-2.8003
		T (°C)	10	5785.0157	5785	0.01570	-2.7139
		T (°C)	20	5785.0159	5785	0.01590	-2.7485
		T (°C)	30	5785.0168	5785	0.01680	-2.9041
		T (°C)	40	5785.0169	5785	0.01690	-2.9213
		T (°C)	50	5785.0159	5785	0.01590	-2.7485
		T (°C)	60	5785.0161	5785	0.01610	-2.7831
		T (°C)	70	5785.0165	5785	0.01650	-2.8522
Limit				Within 5725-5850MHz			
Result				Complies			



Voltage vs. Frequency Stability

Test conditions				Reference Frequency:5825			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5825.0133	5825	0.01330	-2.2833
		V max (V)	4.26	5825.0164	5825	0.01640	-2.8155
		V min (V)	3.15	5825.0155	5825	0.01550	-2.6609
Limit				Within 5725-5850MHz			
Result				Complies			

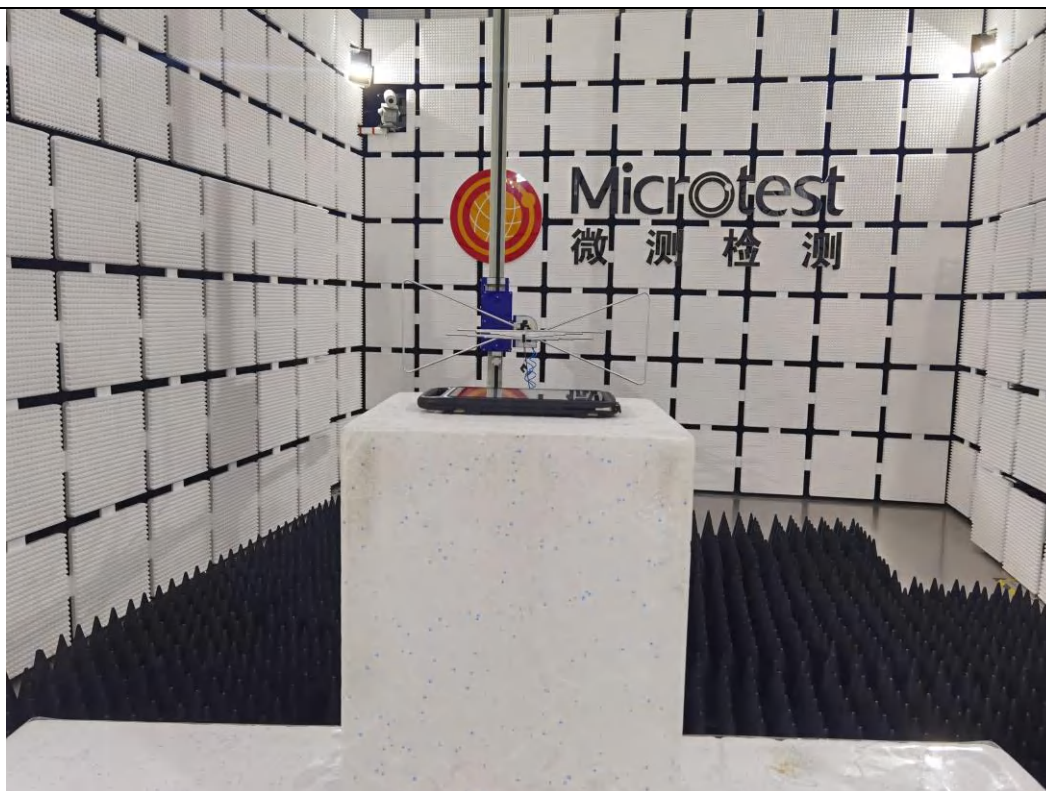
Temperature vs. Frequency Stability

Test conditions				Reference Frequency:5825			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	T (°C)	-20	5825.0162	5825	0.01620	-2.7811
		T (°C)	-10	5825.0159	5825	0.01590	-2.7296
		T (°C)	0	5825.0171	5825	0.01710	-2.9356
		T (°C)	10	5825.0167	5825	0.01670	-2.8670
		T (°C)	20	5825.0162	5825	0.01620	-2.7811
		T (°C)	30	5825.0158	5825	0.01580	-2.7124
		T (°C)	40	5825.0163	5825	0.01630	-2.7983
		T (°C)	50	5825.0174	5825	0.01740	-2.9871
		T (°C)	60	5825.0159	5825	0.01590	-2.7296
		T (°C)	70	5825.0162	5825	0.01620	-2.7811
Limit				Within 5725-5850MHz			
Result				Complies			



Photographs of the Test Setup

Radiated emission



Conducted emission





Photographs of the EUT

See the Appendix - EUT Photos.

----END OF REPORT----