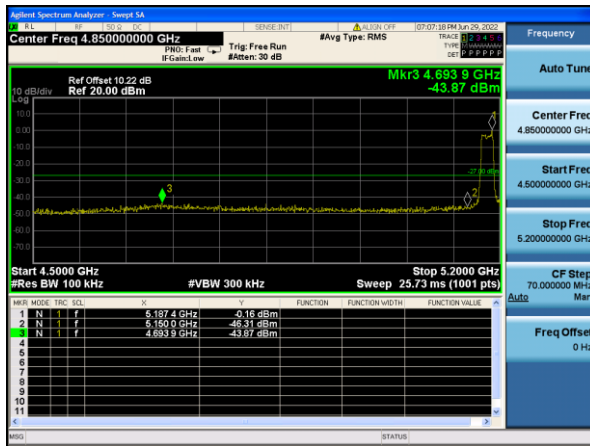


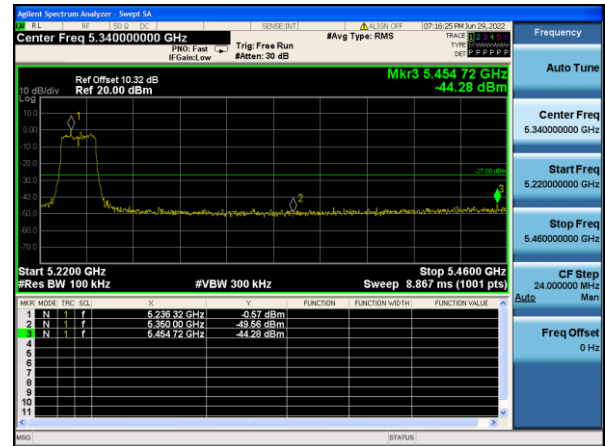


11ac20

Band edge-Left

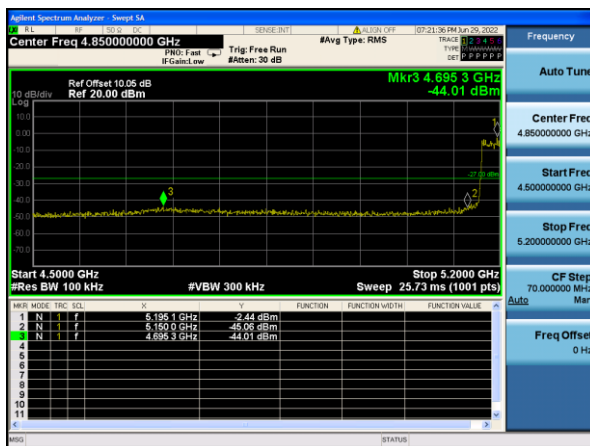


Band edge-Right

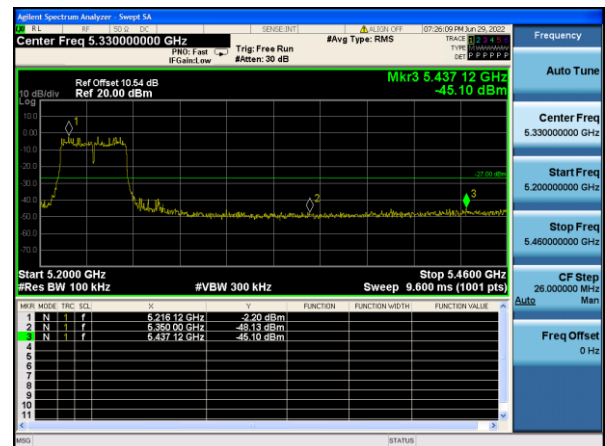


11ac40

Band edge-Left

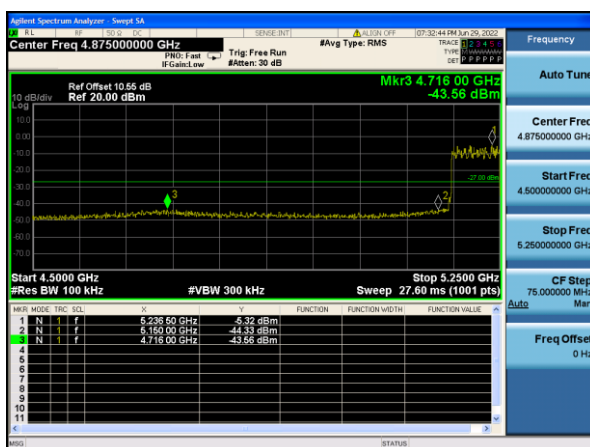


Band edge-Right

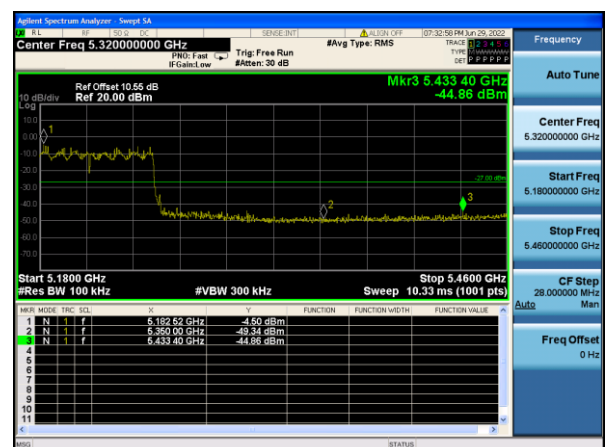


11ac80

Band edge-Left



Band edge-Right

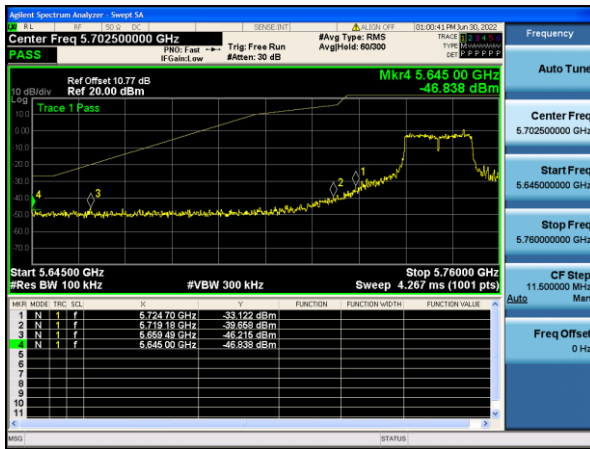




Conduction Band edge For U-NII-3

11a

Band edge-Left

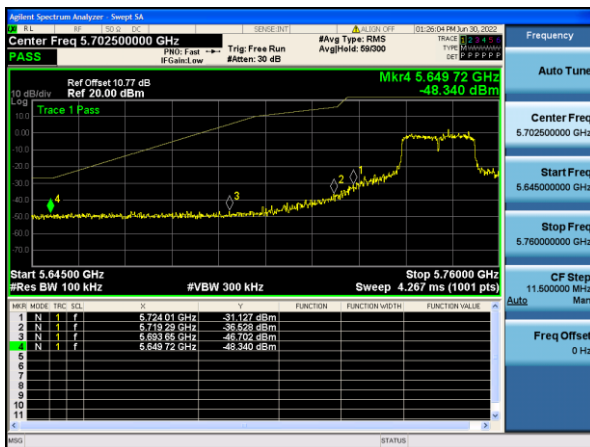


Band edge-Right



11n20

Band edge-Left



Band edge-Right

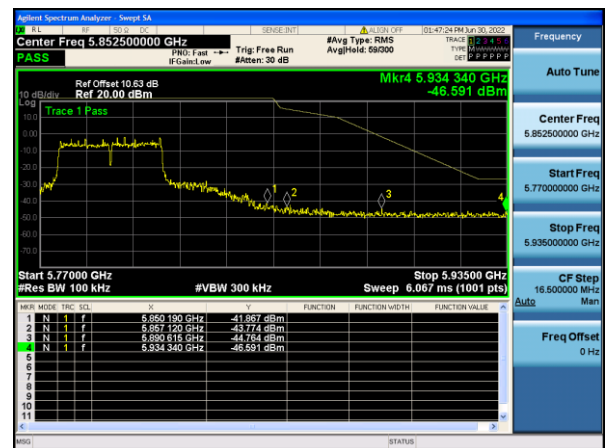


11n40

Band edge-Left



Band edge-Right





11ac20

Band edge-Left



Band edge-Right

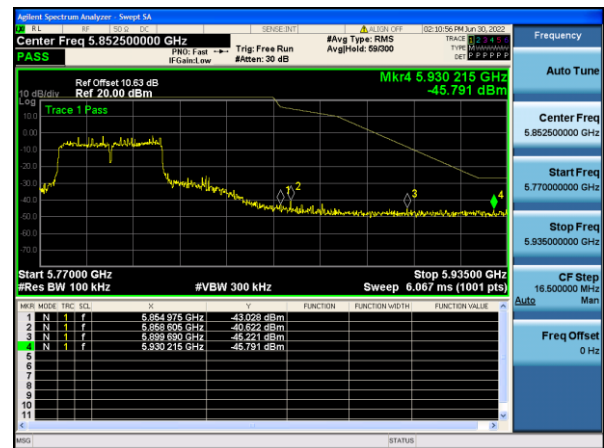


11ac40

Band edge-Left

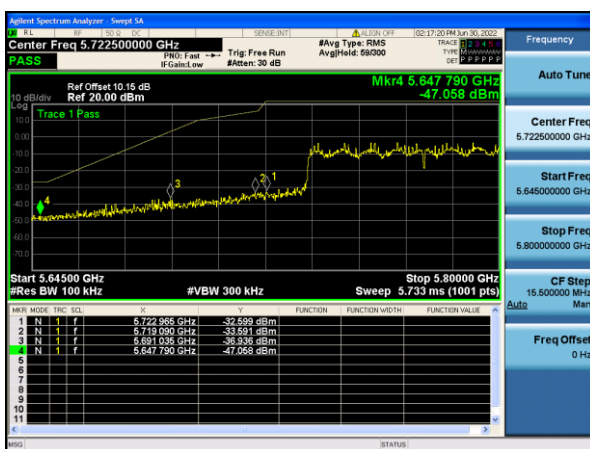


Band edge-Right



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.

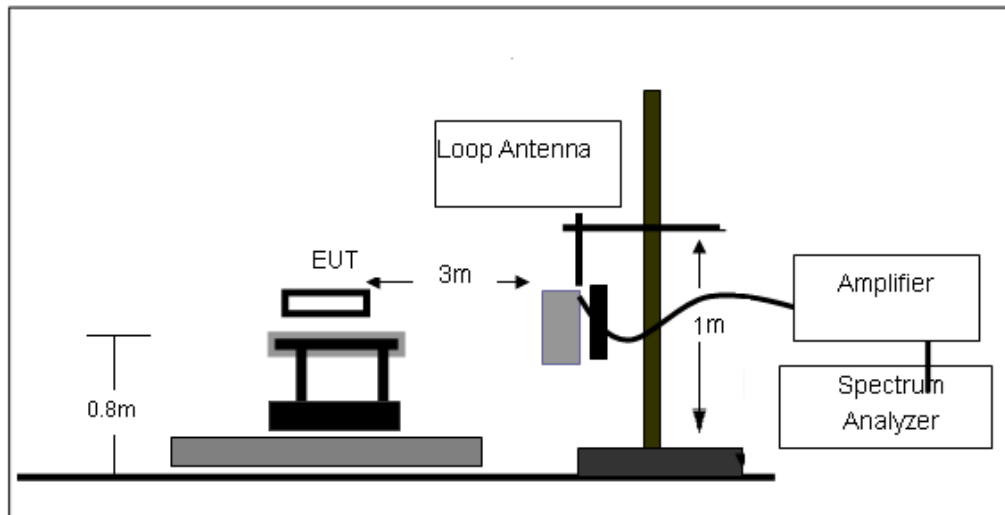
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

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.

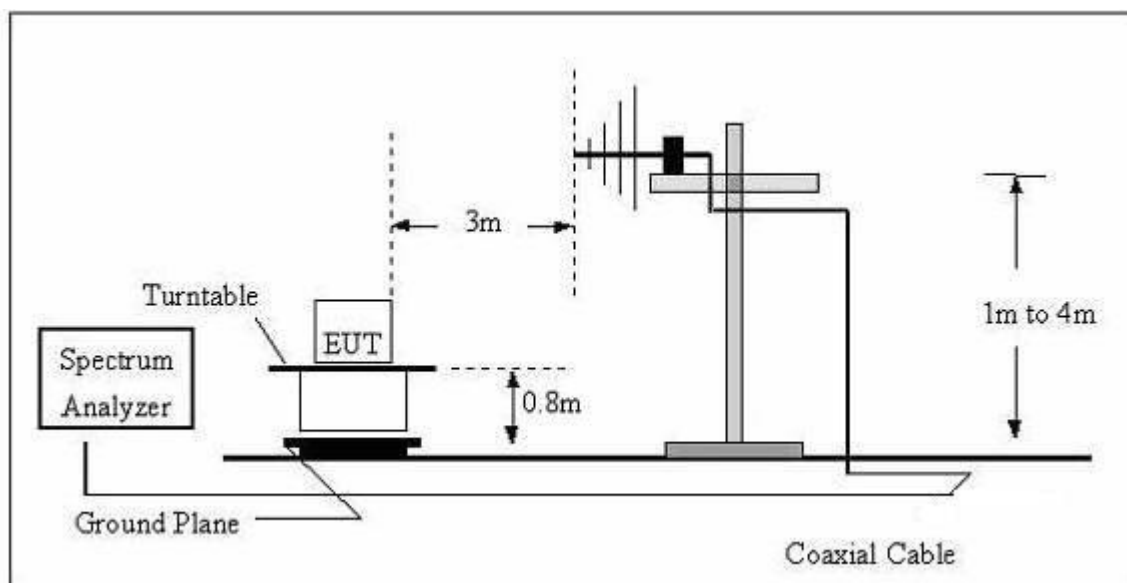
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.9.3 Test setup

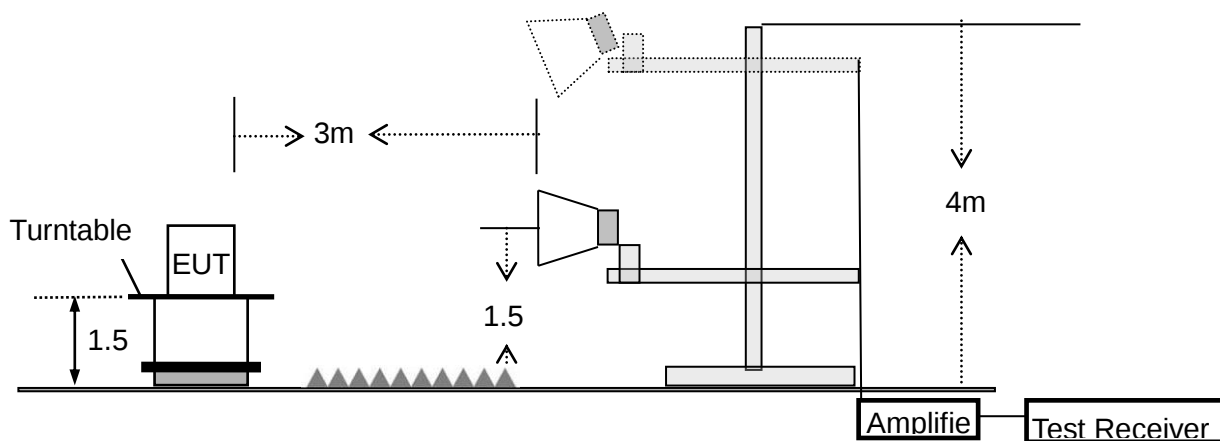
(A) Radiated Emission test-up Frequency Below 30MHz



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



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





5.9.4 Test results

EUT:	Tesla instrument display	Model Name:	T3
Pressure:	1010 hPa	Test Voltage:	DC 12V
Test Mode:	TX	Polarization:	--

Below 30MHz

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

Note:

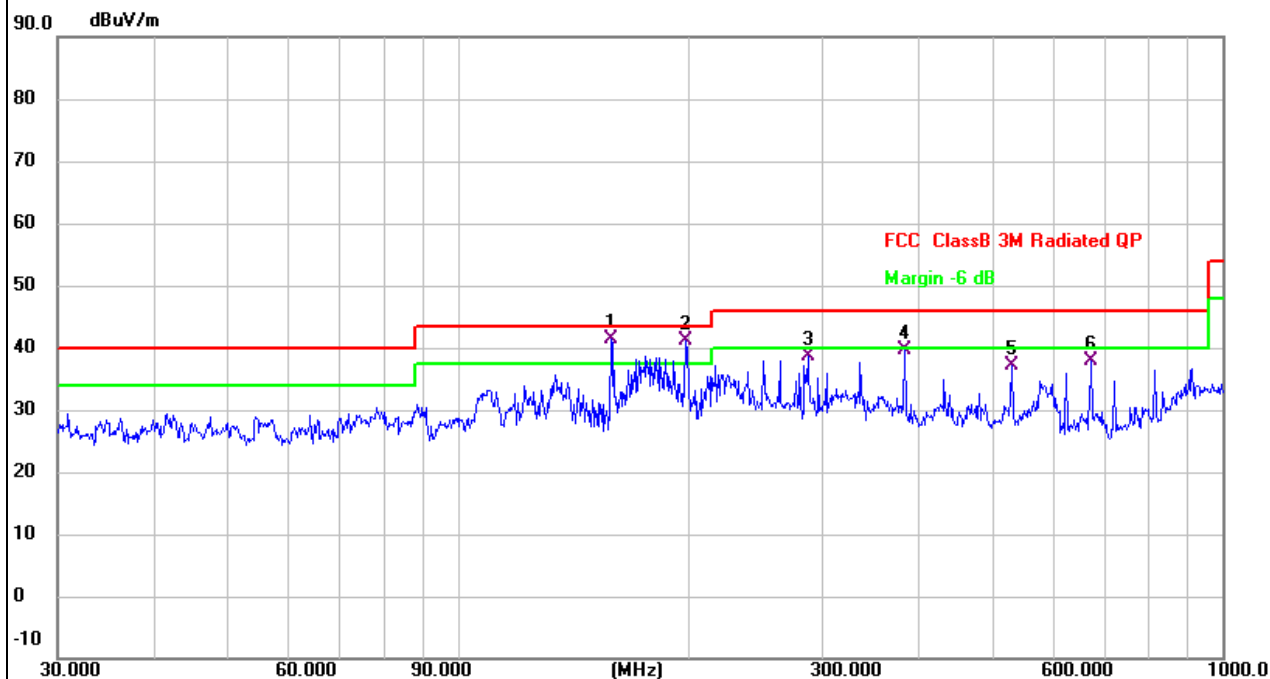
1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB); Limit line = specific limits (dBuV) + distance extrapolation factor.



Between 30MHz – 1GHz

Main model:

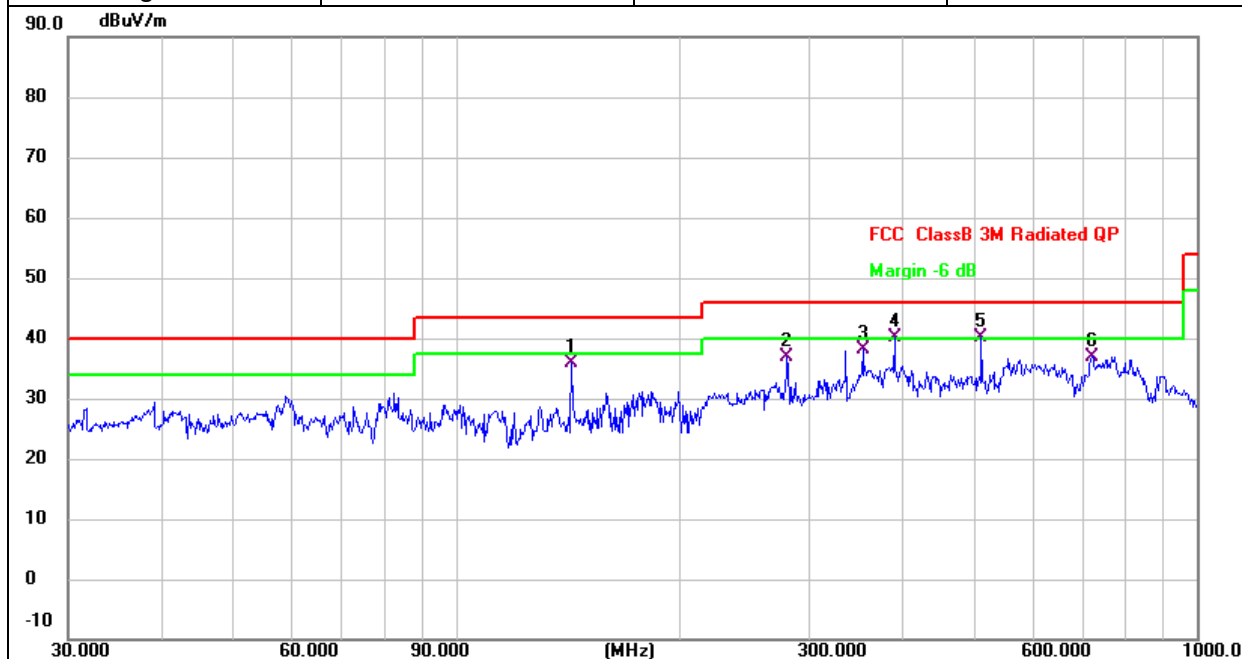
EUT:	Tesla instrument display	Model Name:	T3
Pressure:	1010 hPa	Phase:	H
Test Voltage:	DC 12V	Mode:	TX



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	158.6673	53.44	-11.94	41.50	43.50	-2.00	QP
2 !	198.5877	51.07	-9.90	41.17	43.50	-2.33	QP
3	286.9823	46.80	-8.06	38.74	46.00	-7.26	QP
4	383.9318	46.60	-6.99	39.61	46.00	-6.39	QP
5	530.1013	41.99	-4.88	37.11	46.00	-8.89	QP
6	672.8442	41.14	-3.27	37.87	46.00	-8.13	QP

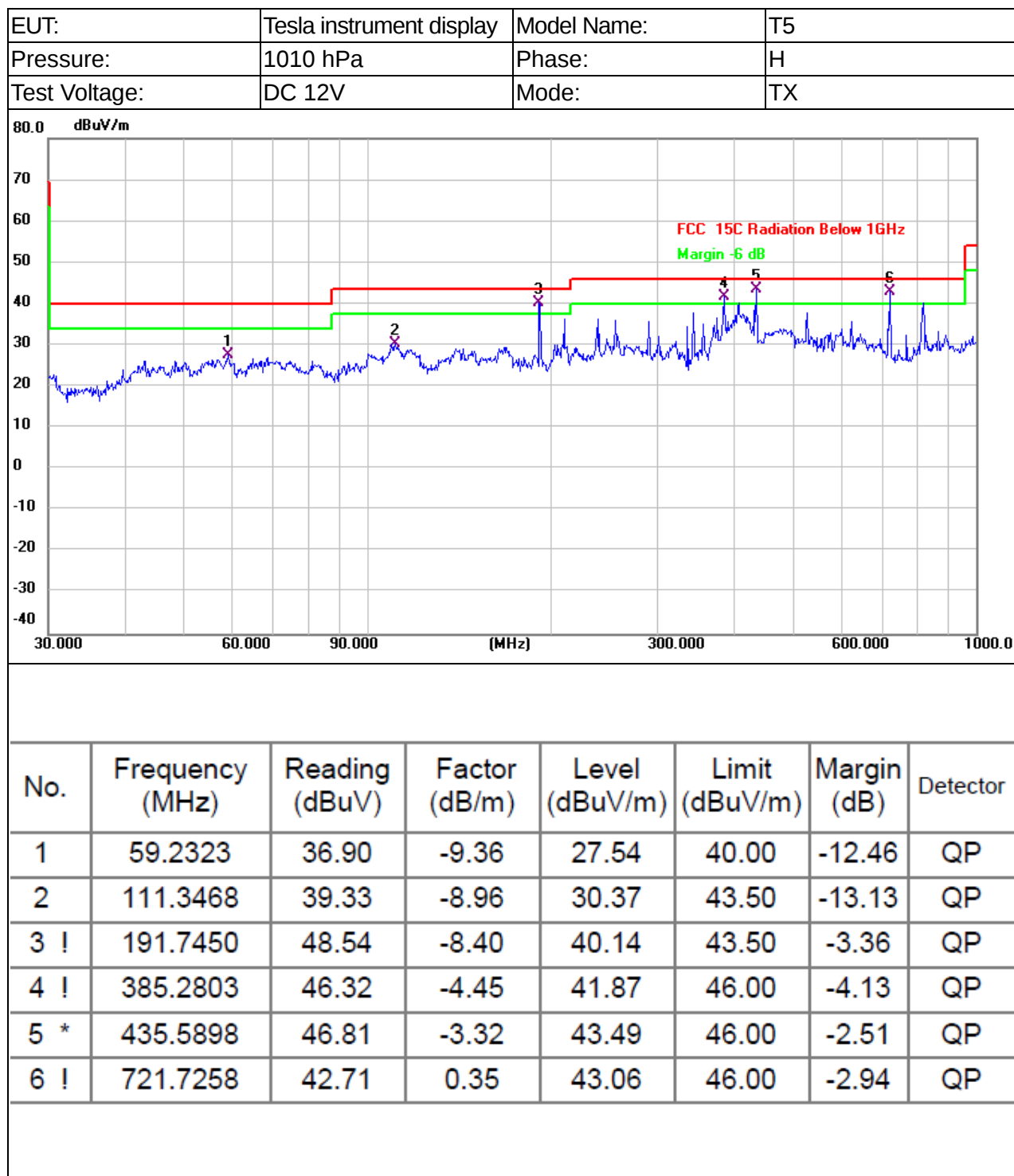


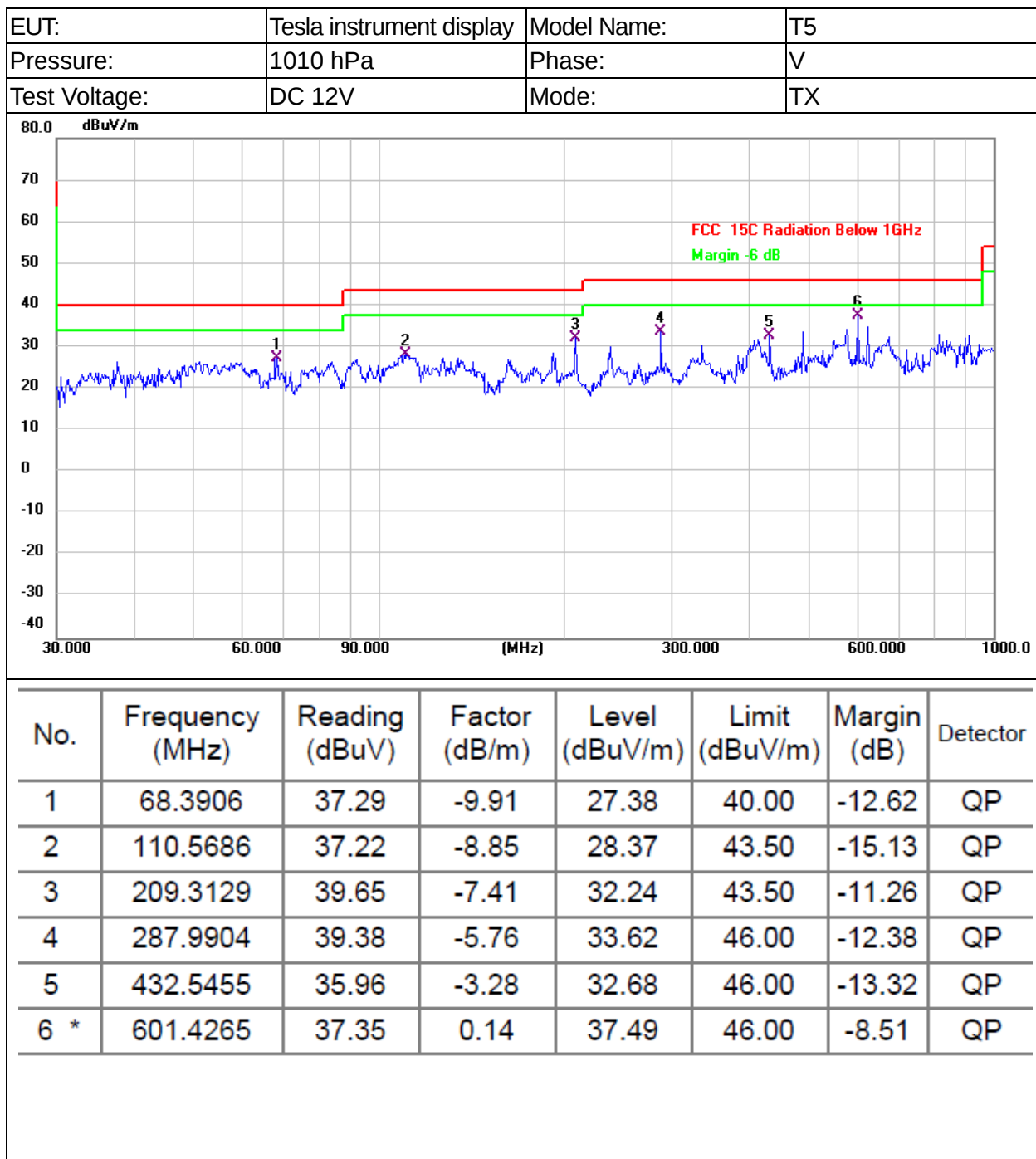
EUT:	Tesla instrument display	Model Name:	T3
Pressure:	1010 hPa	Phase:	V
Test Voltage:	DC 12V	Mode:	TX



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	143.3257	48.62	-12.71	35.91	43.50	-7.59	QP
2	280.0237	44.81	-7.97	36.84	46.00	-9.16	QP
3	354.1831	45.20	-7.11	38.09	46.00	-7.91	QP
4 !	390.7225	47.07	-6.99	40.08	46.00	-5.92	QP
5 *	511.8351	45.13	-4.99	40.14	46.00	-5.86	QP
6	721.7258	39.66	-2.72	36.94	46.00	-9.06	QP

Serial model:





Note:

1. All the mode has been tested for this test, the mode 11ac80 CH42 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

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
(5210 MHz)-Above 1G									
Vertical	4434.723	55.74	5.94	35.40	44.00	53.08	74.00	-20.92	Pk
Vertical	4434.859	43.97	5.94	35.40	44.00	41.31	54.00	-12.69	AV
Vertical	10370.551	58.65	8.46	39.75	44.50	62.36	68.20	-5.84	Pk
Vertical	10370.673	44.87	8.46	39.75	44.50	48.58	54.00	-5.42	AV
Vertical	15540.346	56.92	10.12	38.80	44.10	61.74	68.20	-6.46	Pk
Vertical	15540.942	42.40	10.12	38.80	42.70	48.62	54.00	-5.38	AV
Horizontal	4434.871	57.76	5.94	35.18	44.00	54.88	74.00	-19.12	Pk
Horizontal	4435.566	43.64	5.94	35.18	44.00	40.76	54.00	-13.24	AV
Horizontal	10371.762	60.04	8.46	38.71	44.50	62.71	68.20	-5.49	Pk
Horizontal	10371.775	45.36	8.46	38.71	44.50	48.03	54.00	-5.97	AV
Horizontal	15541.847	56.34	10.12	38.38	44.10	60.74	68.20	-7.46	Pk
Horizontal	15541.829	42.74	10.12	38.38	44.10	47.14	54.00	-6.86	AV

Note: All the mode has been tested for this test, the mode 11ac80 CH42 is the worst mode. Just report the worst data.



For U-NII-3

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
11a Low Channel (5745 MHz)-Above 1G									
Vertical	4679.284	57.72	5.94	35.40	44.00	55.06	74.00	-18.94	Pk
Vertical	4679.936	46.49	5.94	35.40	44.00	43.83	54.00	-10.17	AV
Vertical	11491.276	54.94	8.46	39.75	44.50	58.65	74.00	-15.35	Pk
Vertical	11491.276	40.53	8.46	39.75	44.50	44.24	54.00	-9.76	AV
Vertical	17235.881	40.75	10.12	38.80	42.70	46.97	68.20	-21.23	Pk
Vertical	17235.315	43.88	10.12	38.80	44.10	48.70	54.00	-5.30	AV
Horizontal	4679.304	58.39	5.94	35.18	44.00	55.51	74.00	-18.49	Pk
Horizontal	4680.903	45.42	5.94	35.18	44.00	42.54	54.00	-11.46	AV
Horizontal	11491.203	60.11	8.46	38.71	44.50	62.78	74.00	-11.22	Pk
Horizontal	11491.221	45.42	8.46	38.71	44.50	48.09	54.00	-5.91	AV
Horizontal	17236.231	53.71	10.12	38.38	44.10	58.11	68.20	-10.09	Pk
Horizontal	17236.540	43.12	10.12	38.38	44.10	47.52	54.00	-6.48	AV
11a middle Channel (5785 MHz)-Above 1G									
Vertical	4593.204	58.65	6.48	36.35	44.05	57.43	74.00	-16.57	Pk
Vertical	4593.402	43.44	6.48	36.35	44.05	42.22	54.00	-11.78	AV
Vertical	11571.492	61.15	8.47	37.88	44.51	62.99	74.00	-11.01	Pk
Vertical	11571.406	46.26	8.47	37.88	44.51	48.10	54.00	-5.90	AV
Vertical	17357.088	58.56	10.12	38.8	44.10	63.38	68.20	-4.80	Pk
Vertical	17355.489	40.57	10.12	38.8	42.70	46.79	54.00	-7.21	AV
Horizontal	4592.705	60.11	6.48	36.37	44.05	58.91	74.00	-15.09	Pk
Horizontal	4593.360	43.80	6.48	36.37	44.05	42.60	54.00	-11.40	AV
Horizontal	11570.442	47.62	8.47	38.64	44.50	50.23	74.00	-23.77	Pk
Horizontal	17357.146	59.88	10.12	38.38	44.10	64.28	68.20	-3.92	Pk
Horizontal	17355.967	44.71	10.12	38.38	44.10	49.11	54.00	-4.89	AV
11a High Channel (5825 MHz)-Above 1G									
Vertical	5039.382	61.55	7.10	37.24	43.50	62.39	74.00	-11.61	Pk
Vertical	5040.685	47.98	7.10	37.24	43.50	48.82	54.00	-5.18	AV
Vertical	11650.793	55.29	8.46	37.68	44.50	56.93	74.00	-17.07	Pk
Vertical	11650.681	41.66	8.46	37.68	44.50	43.30	54.00	-10.70	AV
Vertical	17476.555	59.26	10.12	38.8	44.10	64.08	68.20	-4.12	Pk
Vertical	17476.606	40.01	10.12	38.8	42.70	46.23	54.00	-7.77	AV
Horizontal	5040.620	67.11	7.10	37.24	43.50	67.95	74.00	-6.05	Pk



Horizontal	5040.832	42.99	7.10	37.24	43.50	43.83	54.00	-10.17	AV
Horizontal	11650.570	45.42	8.46	38.57	44.50	47.95	74.00	-26.05	Pk
Horizontal	17477.026	59.60	10.12	38.38	44.10	64.00	68.20	-4.82	Pk
Horizontal	17476.427	46.29	10.12	38.38	44.10	50.69	54.00	-3.31	AV

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 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.93	0.91	47.84	74.00	-26.16	Peak	V
4500.000	36.42	0.91	37.33	54.00	-16.67	AVG	V
5150.000	48.71	2.41	51.12	74.00	-22.88	Peak	V
5150.000	38.92	2.41	41.33	54.00	-12.67	AVG	V
4500.000	47.30	0.91	48.21	74.00	-25.79	Peak	H
4500.000	36.46	0.91	37.37	54.00	-16.63	AVG	H
5150.000	48.34	2.41	50.75	74.00	-23.25	Peak	H
5150.000	38.26	2.41	40.67	54.00	-13.33	AVG	H
802.11a – Right band-edge							
5350.000	48.08	3.05	51.13	74.00	-22.87	Peak	V
5350.000	37.48	3.05	40.53	54.00	-13.47	AVG	V
5460.000	47.42	3.41	50.83	74.00	-23.17	Peak	V
5460.000	37.75	3.41	41.16	54.00	-12.84	AVG	V
5350.000	47.23	3.05	50.28	74.00	-23.72	Peak	H
5350.000	37.02	3.05	40.07	54.00	-13.93	AVG	H
5460.000	47.10	3.41	50.51	74.00	-23.49	Peak	H
5460.000	37.33	3.41	40.74	54.00	-13.26	AVG	H



For 802.11n20 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n20 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.43	0.91	47.34	74.00	-26.66	Peak	V
4500.000	36.48	0.91	37.39	54.00	-16.61	AVG	V
5150.000	48.54	2.41	50.95	74.00	-23.05	Peak	V
5150.000	38.79	2.41	41.20	54.00	-12.80	AVG	V
4500.000	47.30	0.91	48.21	74.00	-25.79	Peak	H
4500.000	36.62	0.91	37.53	54.00	-16.47	AVG	H
5150.000	49.70	2.41	52.11	74.00	-21.89	Peak	H
5150.000	38.84	2.41	41.25	54.00	-12.75	AVG	H
802.11n20 – Right band-edge							
5350.000	46.44	3.05	49.49	74.00	-24.51	Peak	V
5350.000	37.56	3.05	40.61	54.00	-13.39	AVG	V
5460.000	47.70	3.41	51.11	74.00	-22.89	Peak	V
5460.000	37.42	3.41	40.83	54.00	-13.17	AVG	V
5350.000	45.94	3.05	48.99	74.00	-25.01	Peak	H
5350.000	37.12	3.05	40.17	54.00	-13.83	AVG	H
5460.000	46.32	3.41	49.73	74.00	-24.27	Peak	H
5460.000	37.36	3.41	40.77	54.00	-13.23	AVG	H



For 802.11n40 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n40 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.83	0.91	47.74	74.00	-26.26	Peak	V
4500.000	36.39	0.91	37.30	54.00	-16.70	AVG	V
5150.000	56.00	2.41	58.41	74.00	-15.59	Peak	V
5150.000	42.12	2.41	44.53	54.00	-9.47	AVG	V
4500.000	46.18	0.91	47.09	74.00	-26.91	Peak	H
4500.000	36.53	0.91	37.44	54.00	-16.56	AVG	H
5150.000	50.18	2.41	52.59	74.00	-21.41	Peak	H
5150.000	39.96	2.41	42.37	54.00	-11.63	AVG	H
802.11n40 – Right band-edge							
5350.000	47.93	3.05	50.98	74.00	-23.02	Peak	V
5350.000	37.56	3.05	40.61	54.00	-13.39	AVG	V
5460.000	47.03	3.41	50.44	74.00	-23.56	Peak	V
5460.000	37.56	3.41	40.97	54.00	-13.03	AVG	V
5350.000	45.91	3.05	48.96	74.00	-25.04	Peak	H
5350.000	36.98	3.05	40.03	54.00	-13.97	AVG	H
5460.000	47.37	3.41	50.78	74.00	-23.22	Peak	H
5460.000	37.59	3.41	41.00	54.00	-13.00	AVG	H



For 802.11ac20 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac20 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	45.11	0.91	46.02	74.00	-27.98	Peak	V
4500.000	36.47	0.91	37.38	54.00	-16.62	AVG	V
5150.000	48.90	2.41	51.31	74.00	-22.69	Peak	V
5150.000	38.63	2.41	41.04	54.00	-12.96	AVG	V
4500.000	46.74	0.91	47.65	74.00	-26.35	Peak	H
4500.000	36.47	0.91	37.38	54.00	-16.62	AVG	H
5150.000	47.42	2.41	49.83	74.00	-24.17	Peak	H
5150.000	38.12	2.41	40.53	54.00	-13.47	AVG	H
802.11ac20 – Right band-edge							
5350.000	48.03	3.05	51.08	74.00	-22.92	Peak	V
5350.000	37.30	3.05	40.35	54.00	-13.65	AVG	V
5460.000	47.66	3.41	51.07	74.00	-22.93	Peak	V
5460.000	37.55	3.41	40.96	54.00	-13.04	AVG	V
5350.000	47.17	3.05	50.22	74.00	-23.78	Peak	H
5350.000	36.89	3.05	39.94	54.00	-14.06	AVG	H
5460.000	47.54	3.41	50.95	74.00	-23.05	Peak	H
5460.000	37.50	3.41	40.91	54.00	-13.09	AVG	H



For 802.11ac40 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac40 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	46.81	0.91	47.72	74.00	-26.28	Peak	V
4500.000	36.38	0.91	37.29	54.00	-16.71	AVG	V
5150.000	53.74	2.41	56.15	74.00	-17.85	Peak	V
5150.000	41.46	2.41	43.87	54.00	-10.13	AVG	V
4500.000	46.18	0.91	47.09	74.00	-26.91	Peak	H
4500.000	36.32	0.91	37.23	54.00	-16.77	AVG	H
5150.000	49.51	2.41	51.92	74.00	-22.08	Peak	H
5150.000	39.31	2.41	41.72	54.00	-12.28	AVG	H
802.11ac40 – Right band-edge							
5350.000	47.56	3.05	50.61	74.00	-23.39	Peak	V
5350.000	37.79	3.05	40.84	54.00	-13.16	AVG	V
5460.000	47.02	3.41	50.43	74.00	-23.57	Peak	V
5460.000	37.66	3.41	41.07	54.00	-12.93	AVG	V
5350.000	46.00	3.05	49.05	74.00	-24.95	Peak	H
5350.000	37.06	3.05	40.11	54.00	-13.89	AVG	H
5460.000	46.66	3.41	50.07	74.00	-23.93	Peak	H
5460.000	37.48	3.41	40.89	54.00	-13.11	AVG	H



For 802.11ac80 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac80 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
4500.000	45.61	0.91	46.52	74.00	-27.48	Peak	V
4500.000	36.39	0.91	37.30	54.00	-16.70	AVG	V
5150.000	60.21	2.41	62.62	74.00	-11.38	Peak	V
5150.000	48.29	2.41	50.70	54.00	-3.30	AVG	V
4500.000	45.51	0.91	46.42	74.00	-27.58	Peak	H
4500.000	36.44	0.91	37.35	54.00	-16.65	AVG	H
5150.000	55.22	2.41	57.63	74.00	-16.37	Peak	H
5150.000	44.08	2.41	46.49	54.00	-7.51	AVG	H
802.11ac80 – Right band-edge							
5350.000	46.96	3.05	50.01	74.00	-23.99	Peak	V
5350.000	37.78	3.05	40.83	54.00	-13.17	AVG	V
5460.000	47.55	3.41	50.96	74.00	-23.04	Peak	V
5460.000	38.11	3.41	41.52	54.00	-12.48	AVG	V
5350.000	47.21	3.05	50.26	74.00	-23.74	Peak	H
5350.000	37.29	3.05	40.34	54.00	-13.66	AVG	H
5460.000	48.13	3.41	51.54	74.00	-22.46	Peak	H
5460.000	37.52	3.41	40.93	54.00	-13.07	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 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	46.38	3.95	50.33	68.20	-17.87	Peak	V
5700.000	50.88	4.08	54.96	105.2	-50.24	Peak	V
5720.000	58.76	4.14	62.90	110.8	-47.90	Peak	V
5725.000	62.39	4.15	66.54	122.2	-55.66	Peak	V
5650.000	46.44	3.95	50.39	68.20	-17.81	Peak	H
5700.000	45.76	4.08	49.84	105.2	-55.36	Peak	H
5720.000	52.02	4.14	56.16	110.8	-54.64	Peak	H
5725.000	56.72	4.15	60.87	122.2	-61.33	Peak	H
802.11a – Right band-edge							
5850.000	61.13	4.49	65.62	122.2	-56.58	Peak	V
5855.000	57.41	4.50	61.91	110.8	-48.89	Peak	V
5875.000	47.43	4.55	51.98	105.2	-53.22	Peak	V
5925.000	47.15	4.69	51.84	68.20	-16.36	Peak	V
5850.000	55.83	4.49	60.32	122.2	-61.88	Peak	H
5855.000	52.60	4.50	57.10	110.8	-53.70	Peak	H
5875.000	47.55	4.55	52.10	105.2	-53.10	Peak	H
5925.000	47.37	4.69	52.06	68.20	-16.14	Peak	H



For 802.11n20 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n20 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	47.39	3.95	51.34	68.20	-16.86	Peak	V
5700.000	49.19	4.08	53.27	105.2	-51.93	Peak	V
5720.000	59.40	4.14	63.54	110.8	-47.26	Peak	V
5725.000	62.49	4.15	66.64	122.2	-55.56	Peak	V
5650.000	46.02	3.95	49.97	68.20	-18.23	Peak	H
5700.000	45.88	4.08	49.96	105.2	-55.24	Peak	H
5720.000	52.60	4.14	56.74	110.8	-54.06	Peak	H
5725.000	56.49	4.15	60.64	122.2	-61.56	Peak	H
802.11n20 – Right band-edge							
5850.000	60.22	4.49	64.71	122.2	-57.49	Peak	V
5855.000	58.07	4.50	62.57	110.8	-48.23	Peak	V
5875.000	47.03	4.55	51.58	105.2	-53.62	Peak	V
5925.000	46.93	4.69	51.62	68.20	-16.58	Peak	V
5850.000	55.82	4.49	60.31	122.2	-61.89	Peak	H
5855.000	52.44	4.50	56.94	110.8	-53.86	Peak	H
5875.000	47.22	4.55	51.77	105.2	-53.43	Peak	H
5925.000	47.79	4.69	52.48	68.20	-15.72	Peak	H



For 802.11n40 mode:

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11n40 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	47.75	3.95	51.70	68.20	-16.50	Peak	V
5700.000	58.23	4.08	62.31	105.2	-42.89	Peak	V
5720.000	67.00	4.14	71.14	110.8	-39.66	Peak	V
5725.000	74.64	4.15	78.79	122.2	-43.41	Peak	V
5650.000	45.83	3.95	49.78	68.20	-18.42	Peak	H
5700.000	52.42	4.08	56.50	105.2	-48.70	Peak	H
5720.000	60.02	4.14	64.16	110.8	-46.64	Peak	H
5725.000	68.40	4.15	72.55	122.2	-49.65	Peak	H
802.11n40 – Right band-edge							
5850.000	60.95	4.49	65.44	122.2	-56.76	Peak	V
5855.000	58.55	4.50	63.05	110.8	-47.75	Peak	V
5875.000	52.36	4.55	56.91	105.2	-48.29	Peak	V
5925.000	48.10	4.69	52.79	68.20	-15.41	Peak	V
5850.000	54.79	4.49	59.28	122.2	-62.92	Peak	H
5855.000	53.01	4.50	57.51	110.8	-53.29	Peak	H
5875.000	49.84	4.55	54.39	105.2	-50.81	Peak	H
5925.000	48.06	4.69	52.75	68.20	-15.45	Peak	H



For 802.11ac20 mode: (CH155 5775MHz)

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac20 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	46.62	3.95	50.57	68.20	-17.63	Peak	V
5700.000	49.60	4.08	53.68	105.2	-51.52	Peak	V
5720.000	56.73	4.14	60.87	110.8	-49.93	Peak	V
5725.000	61.71	4.15	65.86	122.2	-56.34	Peak	V
5650.000	46.66	3.95	50.61	68.20	-17.59	Peak	H
5700.000	46.24	4.08	50.32	105.2	-54.88	Peak	H
5720.000	51.50	4.14	55.64	110.8	-55.16	Peak	H
5725.000	56.58	4.15	60.73	122.2	-61.47	Peak	H
802.11ac20 – Right band-edge							
5850.000	60.74	4.49	65.23	122.2	-56.97	Peak	V
5855.000	57.28	4.50	61.78	110.8	-49.02	Peak	V
5875.000	47.47	4.55	52.02	105.2	-53.18	Peak	V
5925.000	47.24	4.69	51.93	68.20	-16.27	Peak	V
5850.000	55.03	4.49	59.52	122.2	-62.68	Peak	H
5855.000	53.40	4.50	57.90	110.8	-52.90	Peak	H
5875.000	47.77	4.55	52.32	105.2	-52.88	Peak	H
5925.000	46.64	4.69	51.33	68.20	-16.87	Peak	H



For 802.11ac40 mode: (CH155 5775MHz)

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac40 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	46.57	3.95	50.52	68.20	-17.68	Peak	V
5700.000	56.34	4.08	60.42	105.2	-44.78	Peak	V
5720.000	65.98	4.14	70.12	110.8	-40.68	Peak	V
5725.000	73.42	4.15	77.57	122.2	-44.63	Peak	V
5650.000	45.98	3.95	49.93	68.20	-18.27	Peak	H
5700.000	49.63	4.08	53.71	105.2	-51.49	Peak	H
5720.000	59.22	4.14	63.36	110.8	-47.44	Peak	H
5725.000	67.25	4.15	71.40	122.2	-50.80	Peak	H
802.11ac40 – Right band-edge							
5850.000	59.52	4.49	64.01	122.2	-58.19	Peak	V
5855.000	57.37	4.50	61.87	110.8	-48.93	Peak	V
5875.000	50.42	4.55	54.97	105.2	-50.23	Peak	V
5925.000	47.14	4.69	51.83	68.20	-16.37	Peak	V
5850.000	53.84	4.49	58.33	122.2	-63.87	Peak	H
5855.000	51.59	4.50	56.09	110.8	-54.71	Peak	H
5875.000	47.25	4.55	51.80	105.2	-53.40	Peak	H
5925.000	47.07	4.69	51.76	68.20	-16.44	Peak	H

For 802.11ac80 mode: (CH155 5775MHz)

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
802.11ac40 – Left band-edge							
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
5650.000	54.69	3.95	58.64	68.20	-9.56	Peak	V
5700.000	64.94	4.08	69.02	105.2	-36.18	Peak	V
5720.000	70.58	4.14	74.72	110.8	-36.08	Peak	V
5725.000	70.45	4.15	74.60	122.2	-47.60	Peak	V
5650.000	49.78	3.95	53.73	68.20	-14.47	Peak	H
5700.000	58.45	4.08	62.53	105.2	-42.67	Peak	H
5720.000	63.56	4.14	67.70	110.8	-43.10	Peak	H
5725.000	64.30	4.15	68.45	122.2	-53.75	Peak	H
802.11ac40 – Right band-edge							
5850.000	70.14	4.49	74.63	122.2	-47.57	Peak	V
5855.000	67.96	4.50	72.46	110.8	-38.34	Peak	V
5875.000	62.76	4.55	67.31	105.2	-37.89	Peak	V
5925.000	53.26	4.69	57.95	68.20	-10.25	Peak	V
5850.000	64.68	4.49	69.17	122.2	-53.03	Peak	H
5855.000	62.56	4.50	67.06	110.8	-43.74	Peak	H
5875.000	57.75	4.55	62.30	105.2	-42.90	Peak	H
5925.000	48.10	4.69	52.79	68.20	-15.41	Peak	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)	6.45	0.267	6.717	11
11a	CH44 (5220)	6.91	0.267	7.177	11
11a	CH48 (5240)	6.55	0.267	6.817	11
11n(HT20)	CH36 (5180)	6.57	0.134	6.704	11
11n(HT20)	CH44 (5220)	6.97	0.134	7.104	11
11n(HT20)	CH48 (5240)	6.29	0.134	6.424	11
11n(HT40)	CH38 (5190)	3.28	0.643	3.923	11
11n(HT40)	CH46(5230)	3.54	0.643	4.183	11
11ac(HT20)	CH36 (5180)	6.29	0.262	6.552	11
11ac (HT20)	CH40 (5200)	6.34	0.262	6.602	11
11ac (HT20)	CH48 (5240)	6.6	0.262	6.862	11
11ac (HT40)	CH38(5190)	3.47	0.715	4.185	11
11ac (HT40)	CH46 (5230)	4.03	0.715	4.745	11
11ac (HT80)	CH42(5210)	1.79	1.444	3.234	11

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



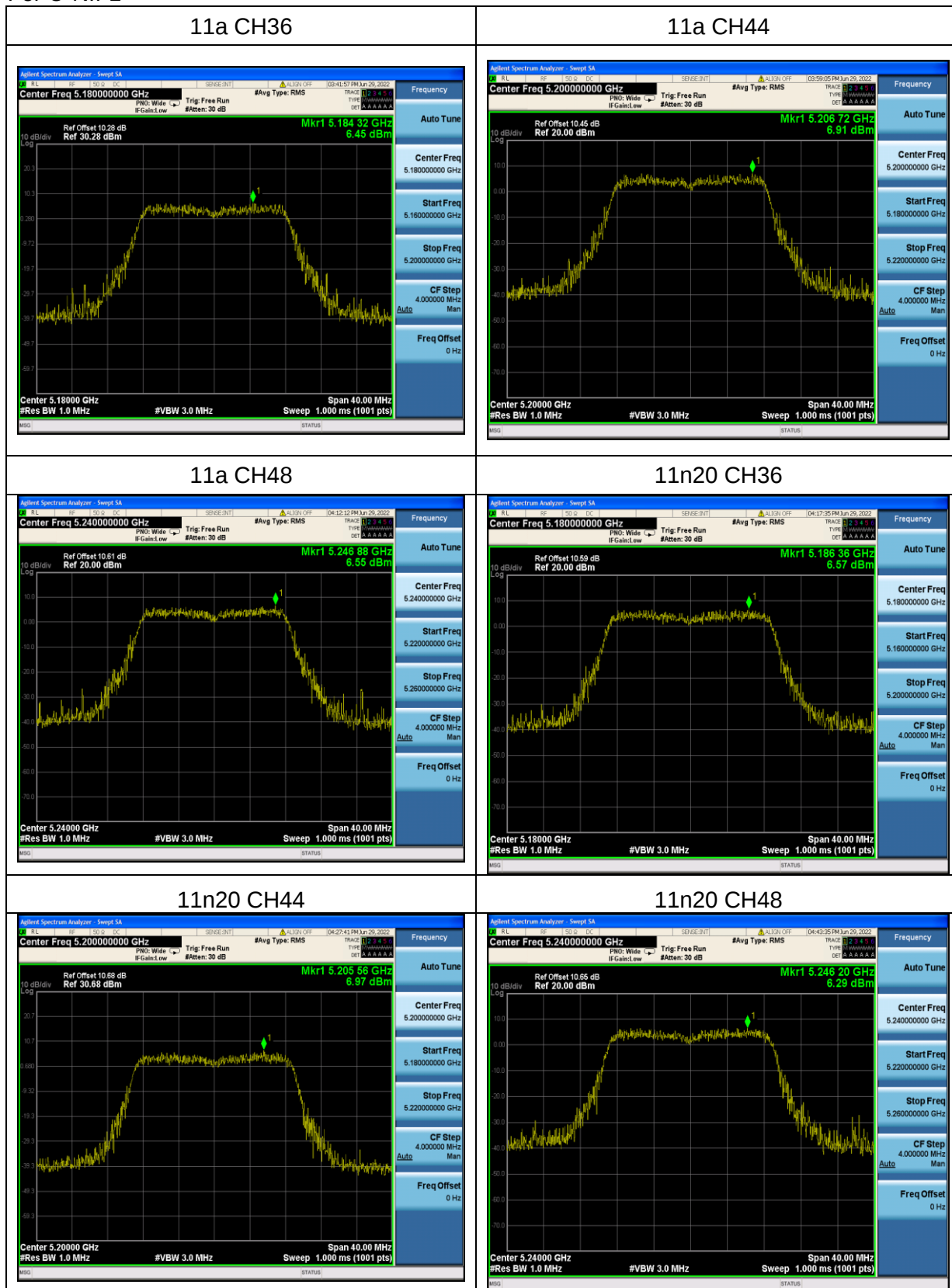
For U-NII-3

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)	4.39	4.304	0.267	4.571	30
11a	CH157 (5785)	4.26	4.175	0.267	4.442	30
11a	CH165 (5825)	4.45	4.363	0.267	4.63	30
11n20	CH149 (5745)	4.7	4.613	0.134	4.747	30
11n20	CH157 (5785)	4.26	4.175	0.134	4.309	30
11n20	CH165 (5825)	4.49	4.404	0.134	4.538	30
11n40	CH151 (5755)	1.82	1.735	0.643	2.378	30
11n40	CH159 (5795)	1.44	1.355	0.643	1.998	30
11ac20	CH149 (5745)	4.28	4.195	0.262	4.457	30
11ac20	CH157 (5785)	3.36	3.274	0.262	3.536	30
11ac20	CH165 (5825)	4.12	4.035	0.262	4.297	30
11ac40	CH151 (5755)	1.35	1.265	0.715	1.98	30
11ac40	CH159 (5795)	1.42	1.335	0.715	2.05	30
11ac80	CH155 (5775)	-0.02	-0.106	1.444	1.338	30
Note: If the measurement is X dBm/510kHz, thus X dBm/510kHz = $(10^{X/10}) \times (500 / 510) \text{ mW/500kHz} = 10 \times \lg 10 \{ (10^{X/10}) \times (500 / 510) \} \text{ dBm/500kHz}$						

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

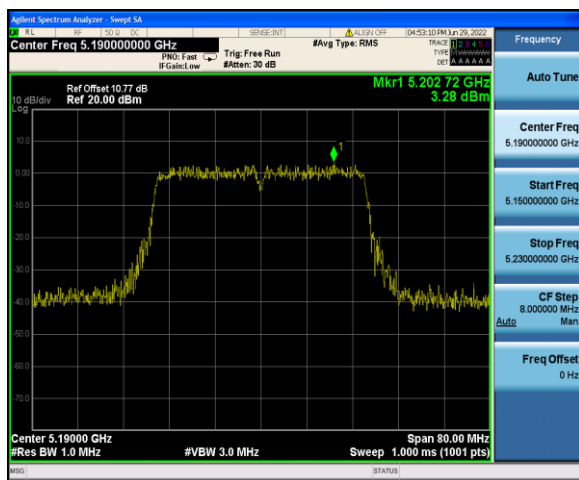
Test plots

For U-NII-1

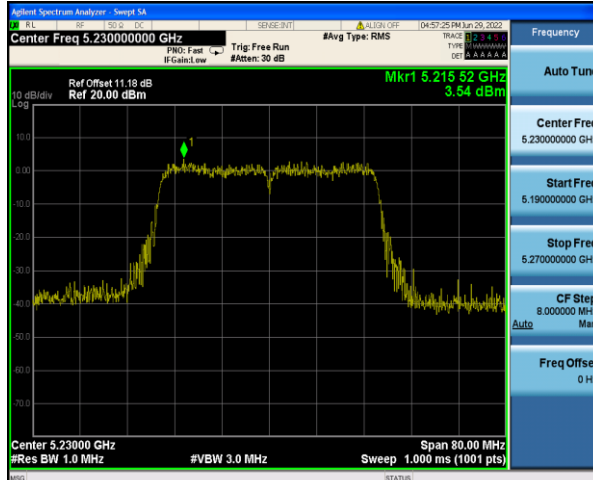




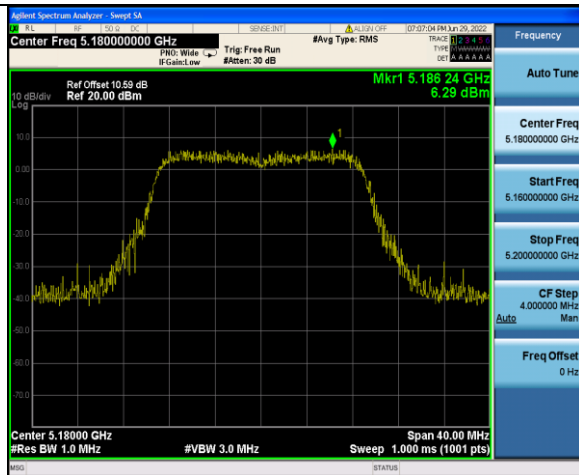
11n40 CH38



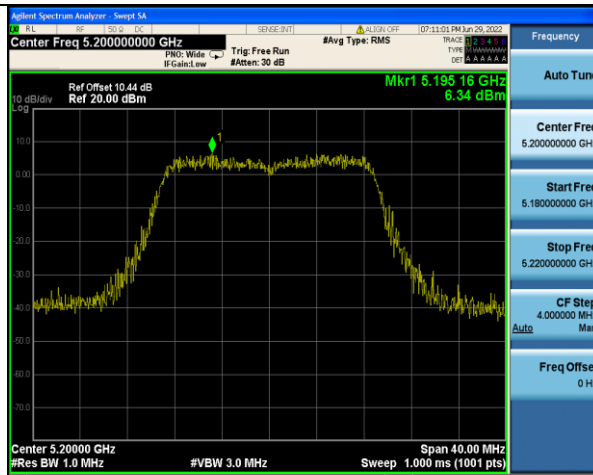
11n40 CH46



11ac20 CH36



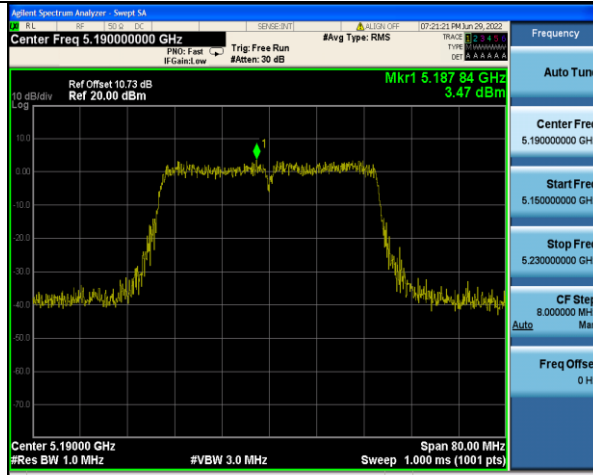
11ac20 CH40

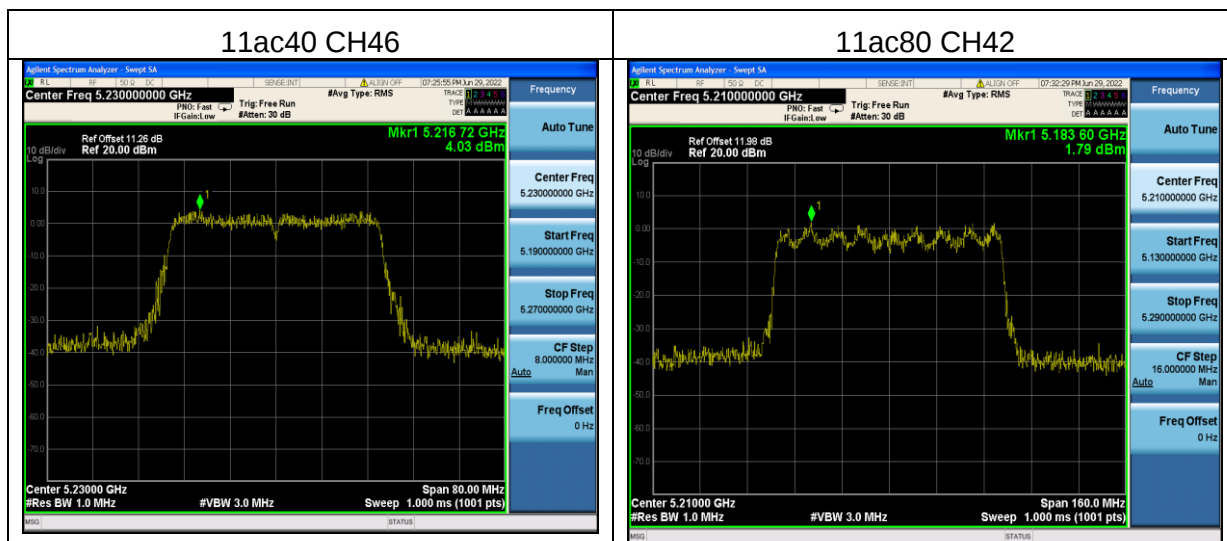


11ac20 CH48



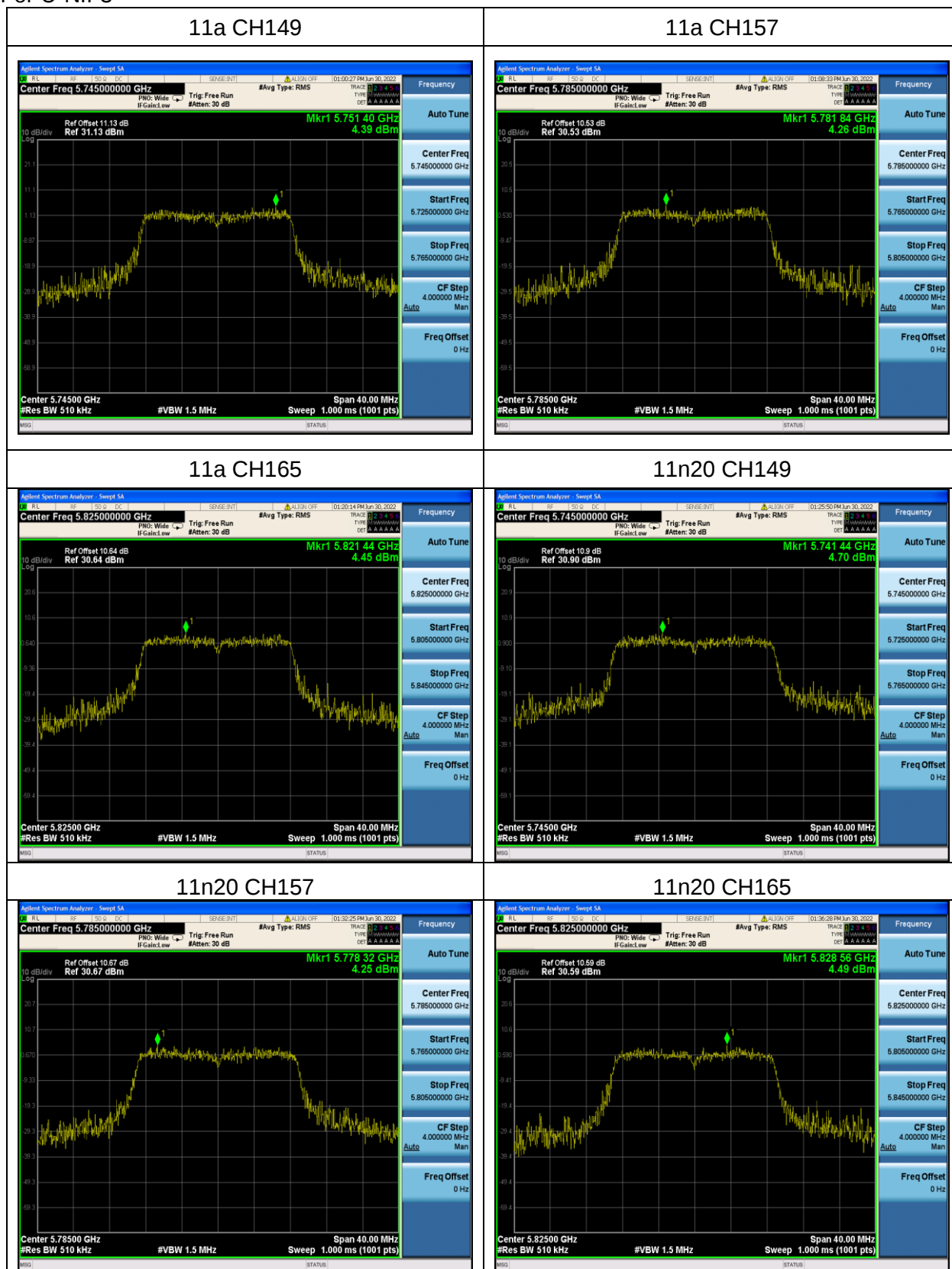
11ac40 CH38

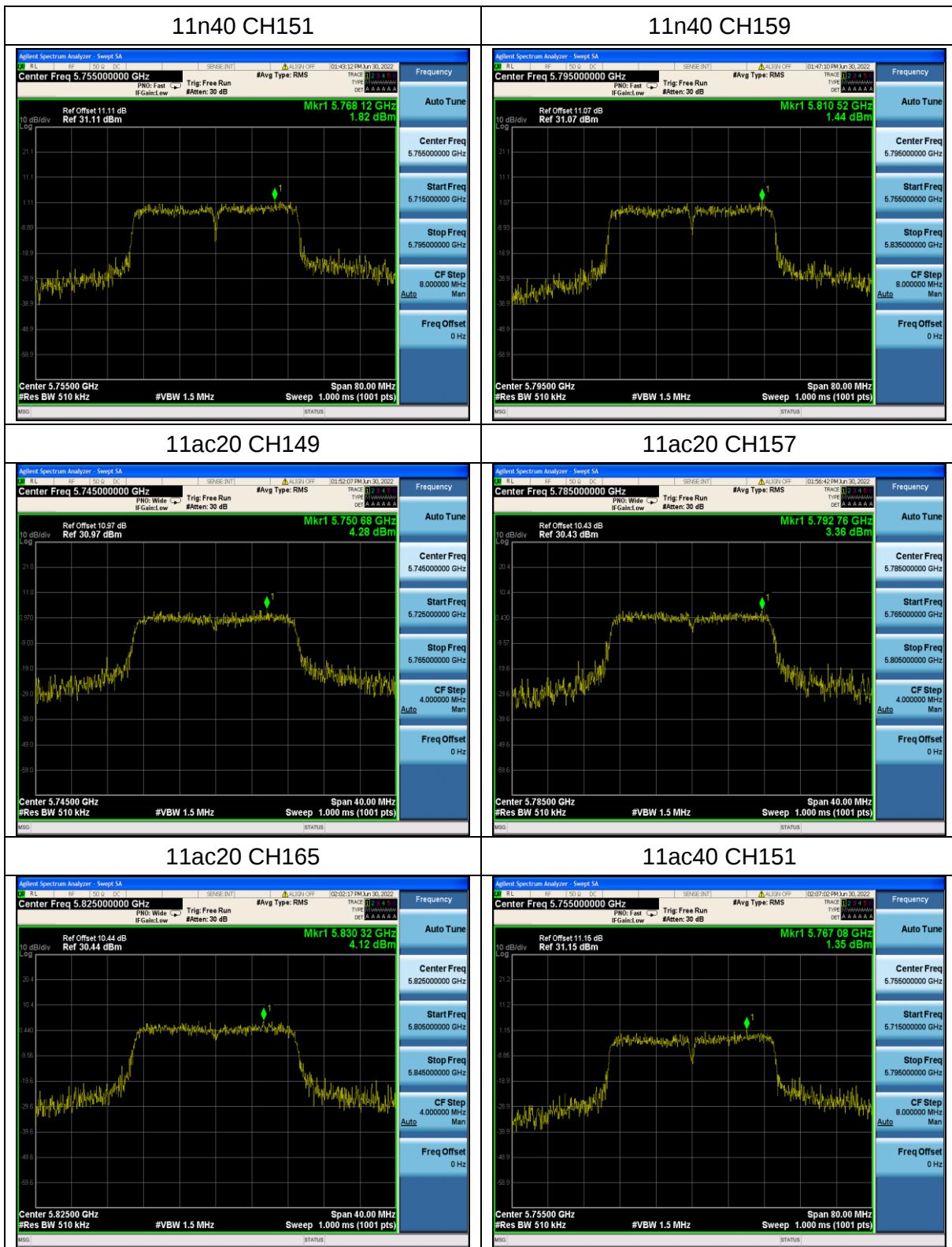


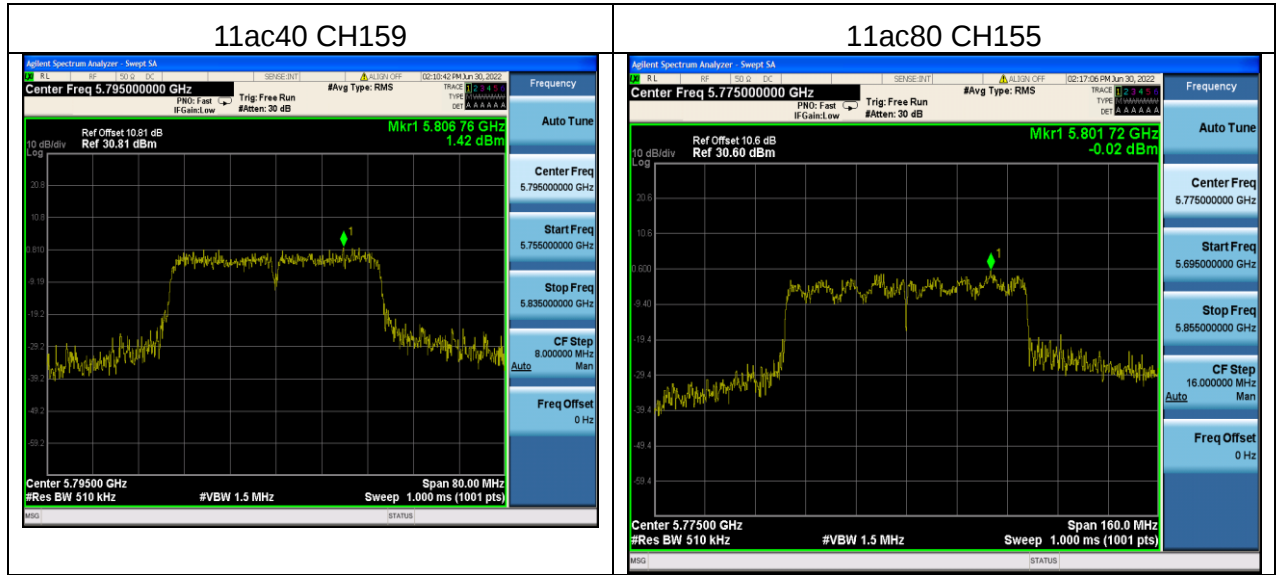


Test plots

For U-NII-3









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)	12.00	5180.0185	5180	0.0185	-3.5714
		V max (V)	13.80	5180.0177	5180	0.0177	-3.4170
		V min (V)	10.20	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)	12.00	5200.0159	5200	0.0159	-3.0577
		V max (V)	13.80	5200.0161	5200	0.0161	-3.0962
		V min (V)	10.20	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)	12.00	5240.0187	5240	0.0187	-3.5687
		V max (V)	13.80	5240.0175	5240	0.0175	-3.3397
		V min (V)	10.20	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)	12.00	5745.0175	5745	0.01750	-3.0461
		V max (V)	13.80	5745.0164	5745	0.01640	-2.8547
		V min (V)	10.20	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)	12.00	5785.01533	5785	0.01533	-2.6500
		V max (V)	13.80	5785.01781	5785	0.01781	-3.0787
		V min (V)	10.20	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)	12.00	5825.0133	5825	0.01330	-2.2833
		V max (V)	13.80	5825.0164	5825	0.01640	-2.8155
		V min (V)	10.20	5825.0155	5825	0.01550	-2.6609
Limit				Within 5725-5850MHz			
Result				Complies			

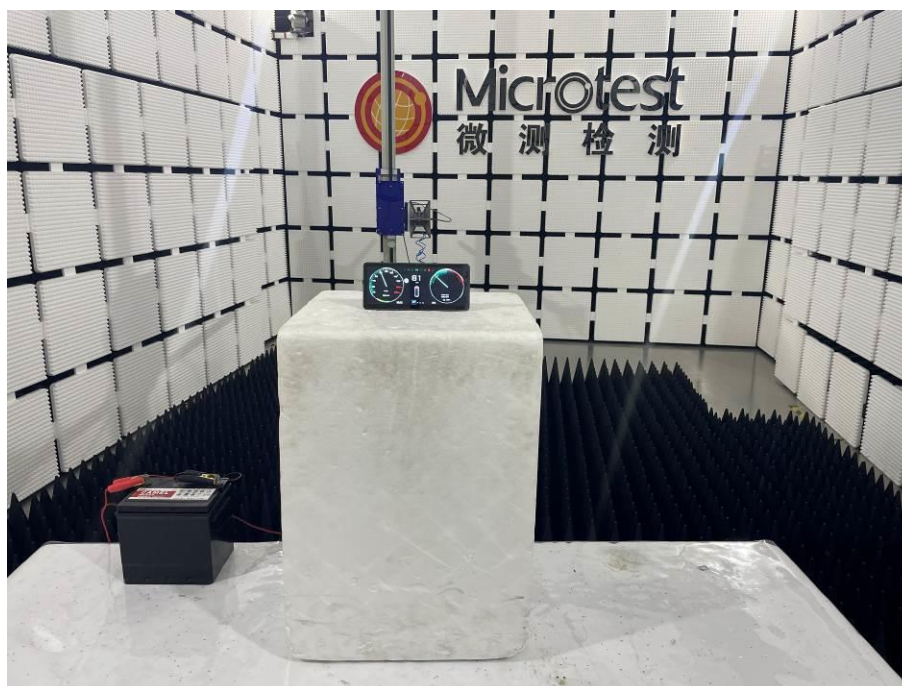
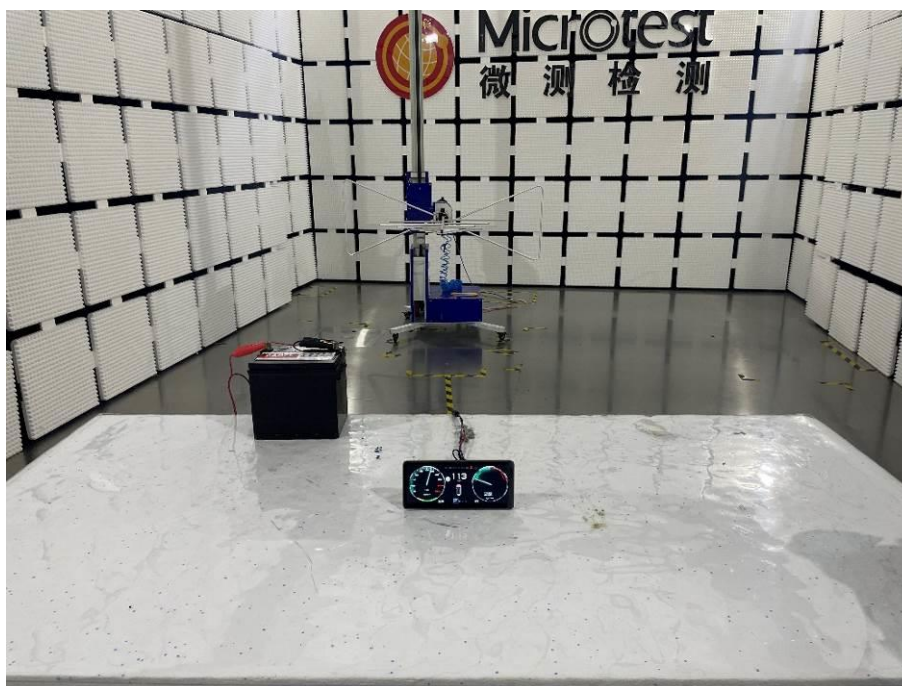
Temperature vs. Frequency Stability

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





Photographs of the EUT

See the Appendix - EUT Photos.

----END OF REPORT----