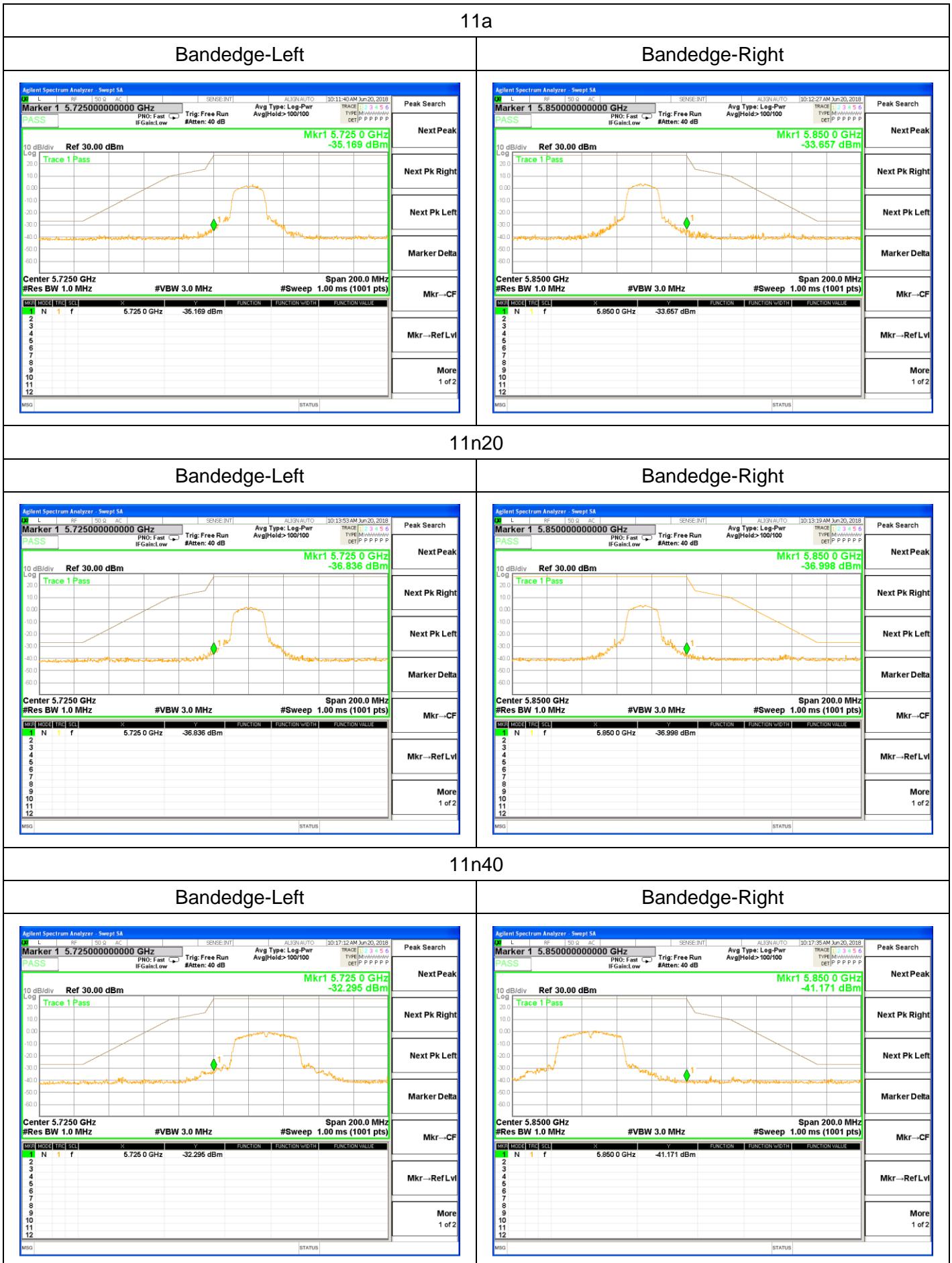
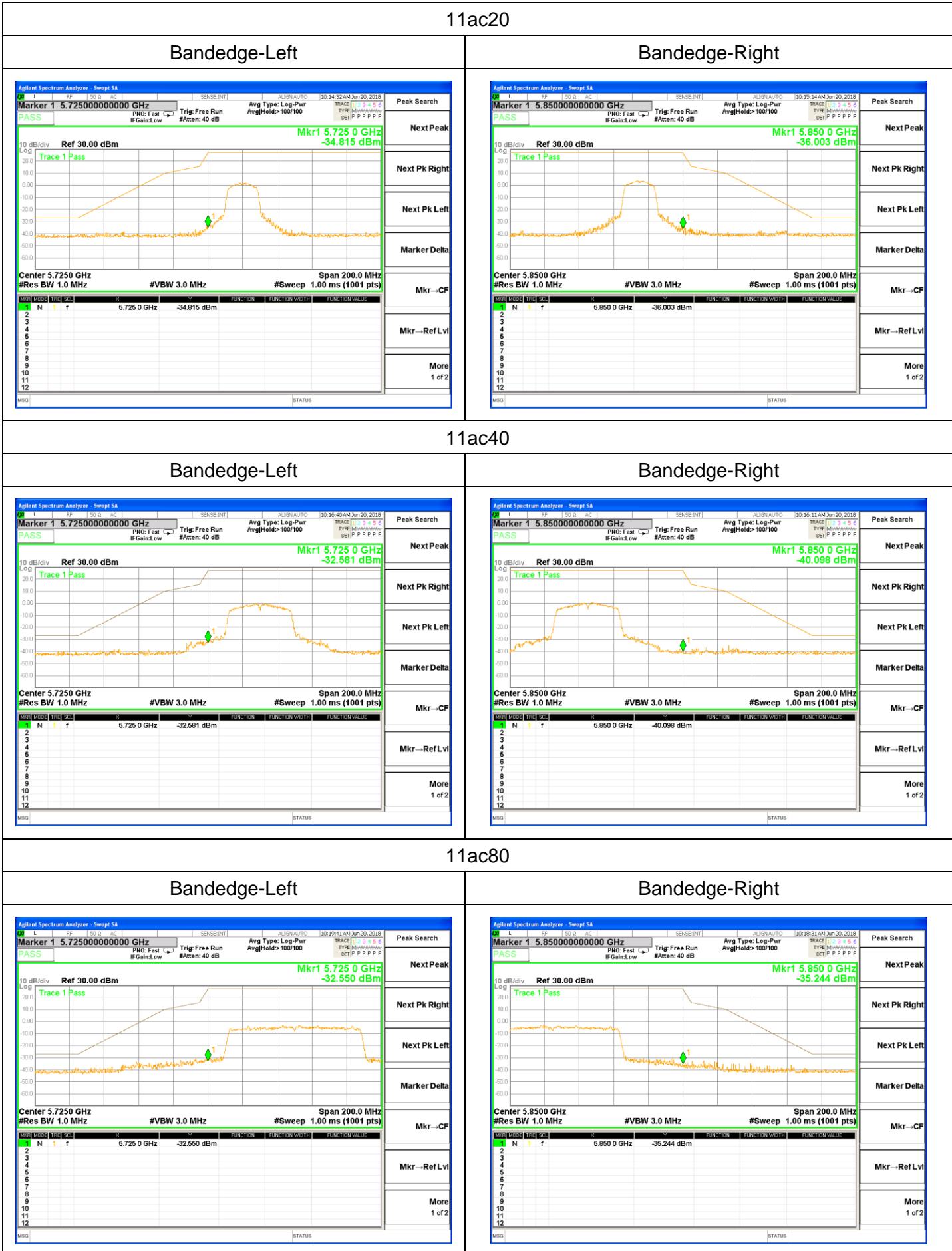


For band IV





5.8 Conduction spurious emission

5.8.1 Limits

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

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	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.

5.8.2 Test setup



5.8.3 Test procedure

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

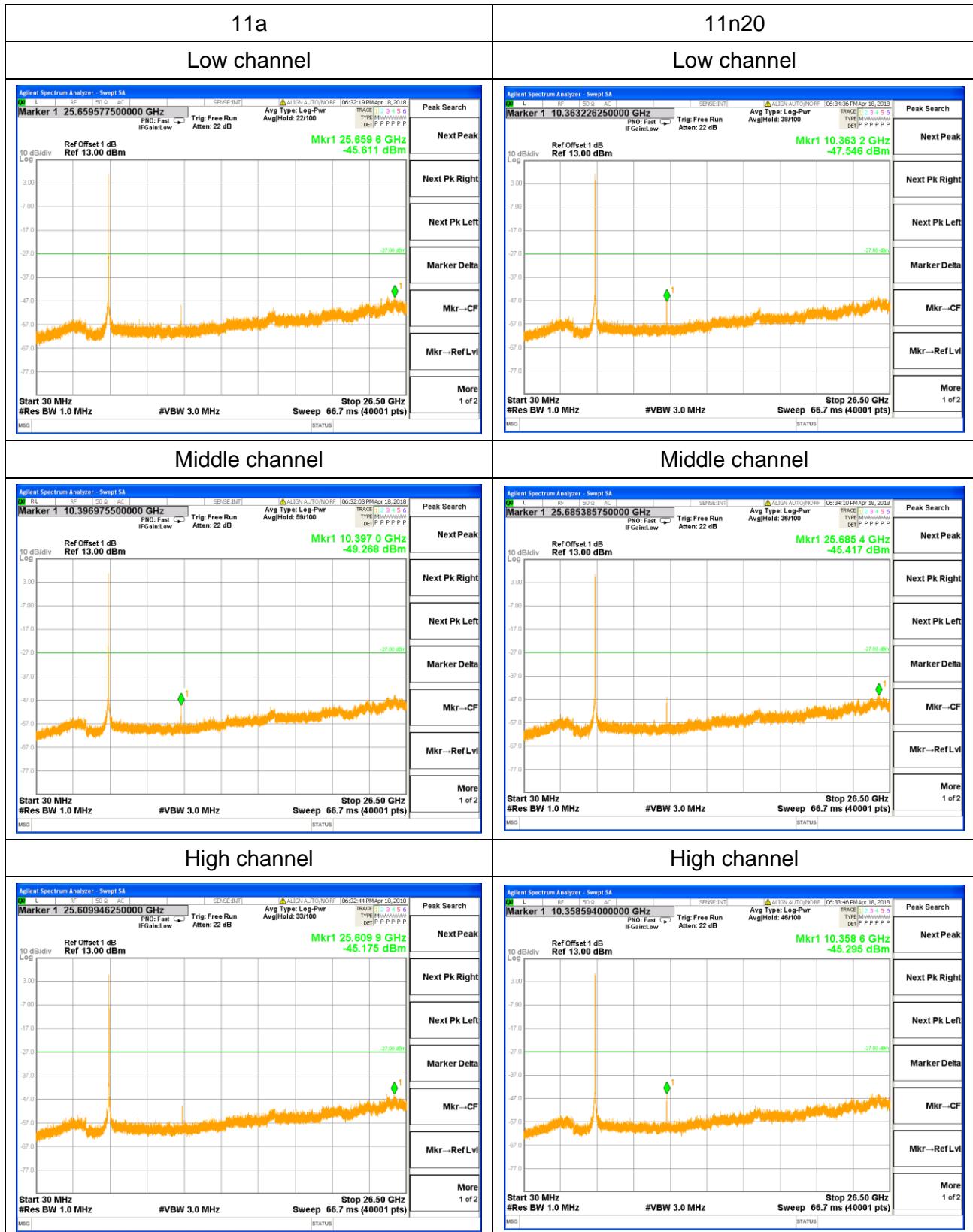
Detector function = peak

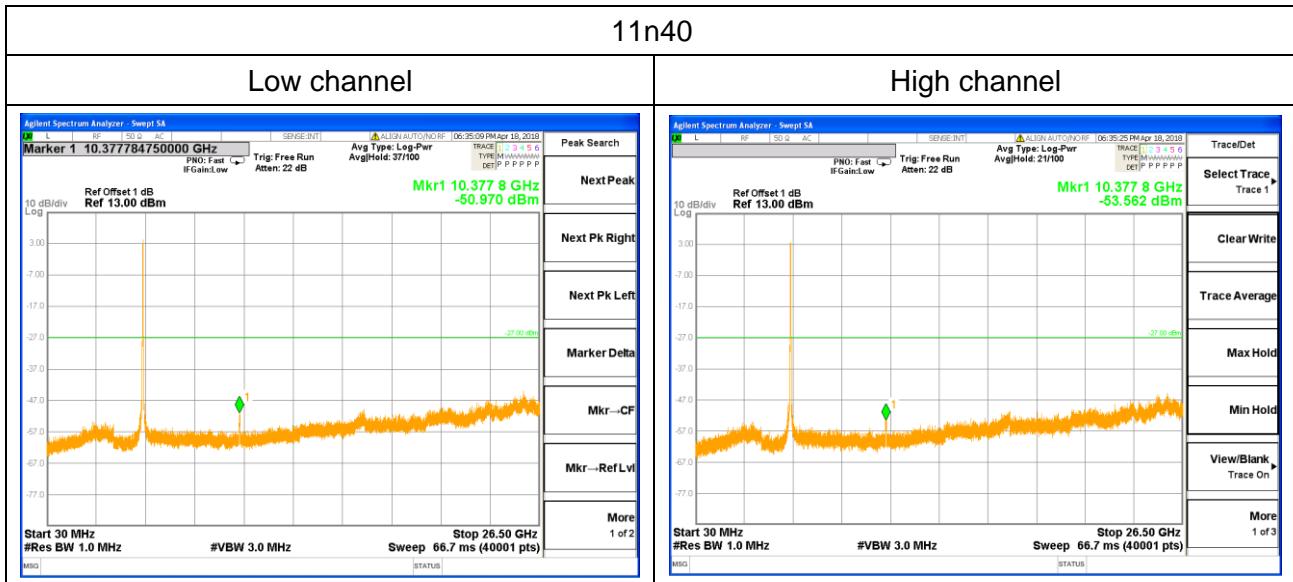
Trace = max hold

Allow the trace to stabilize

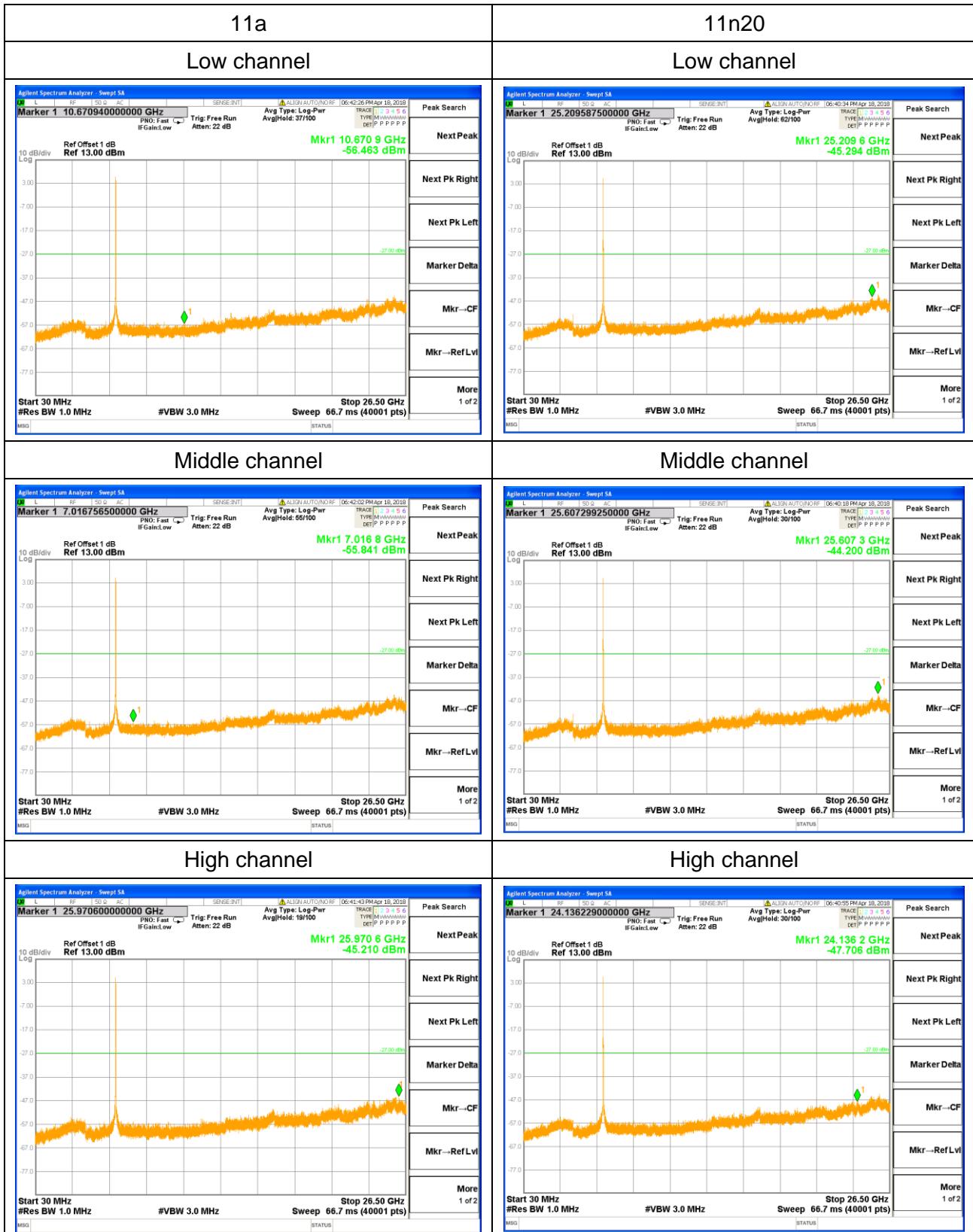
5.8.4 Test results

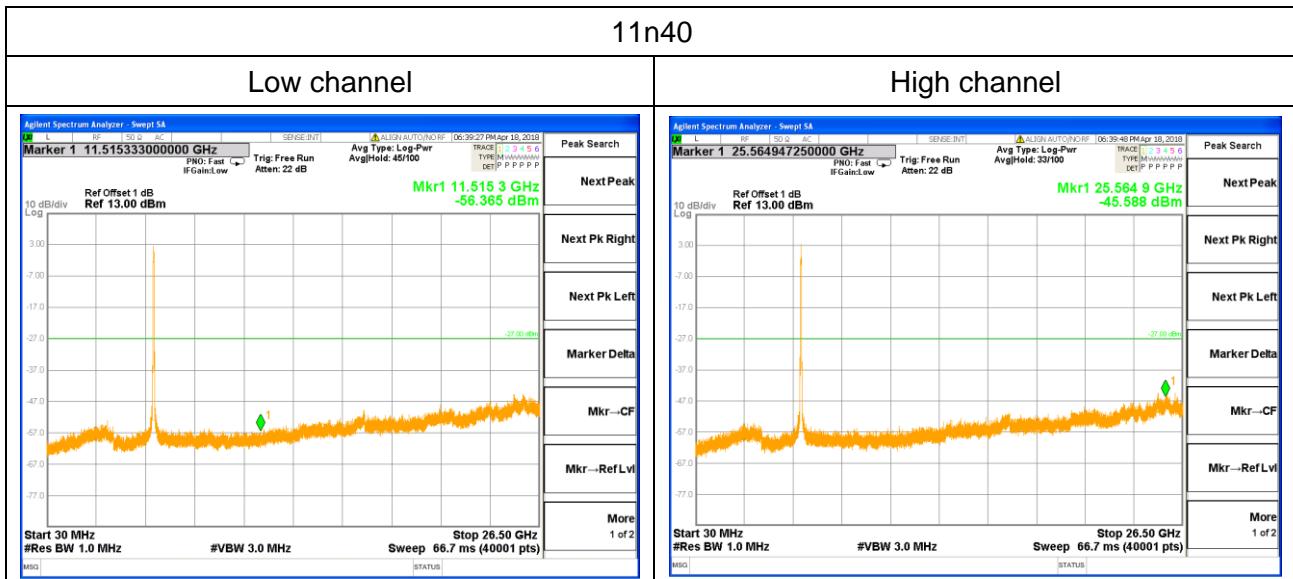
For band I



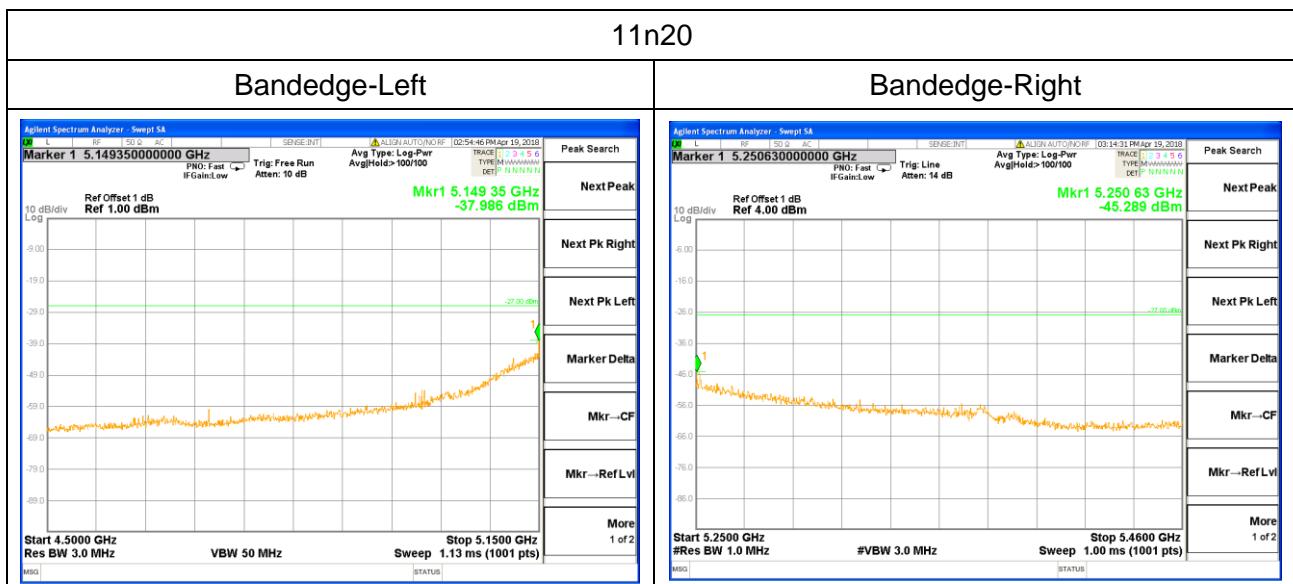
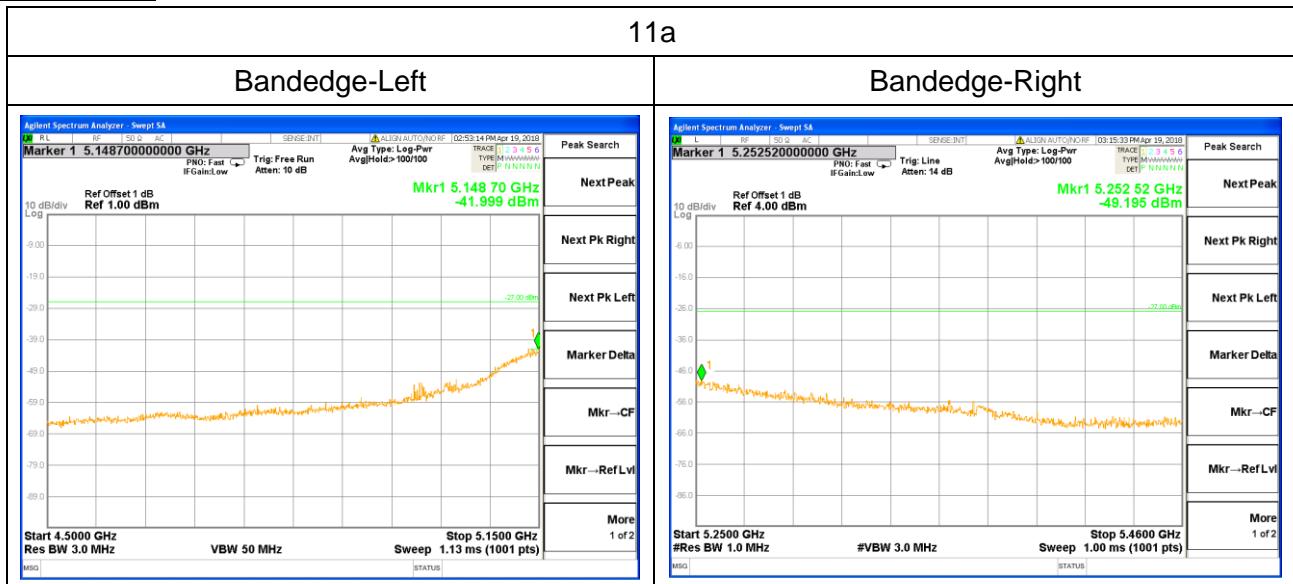


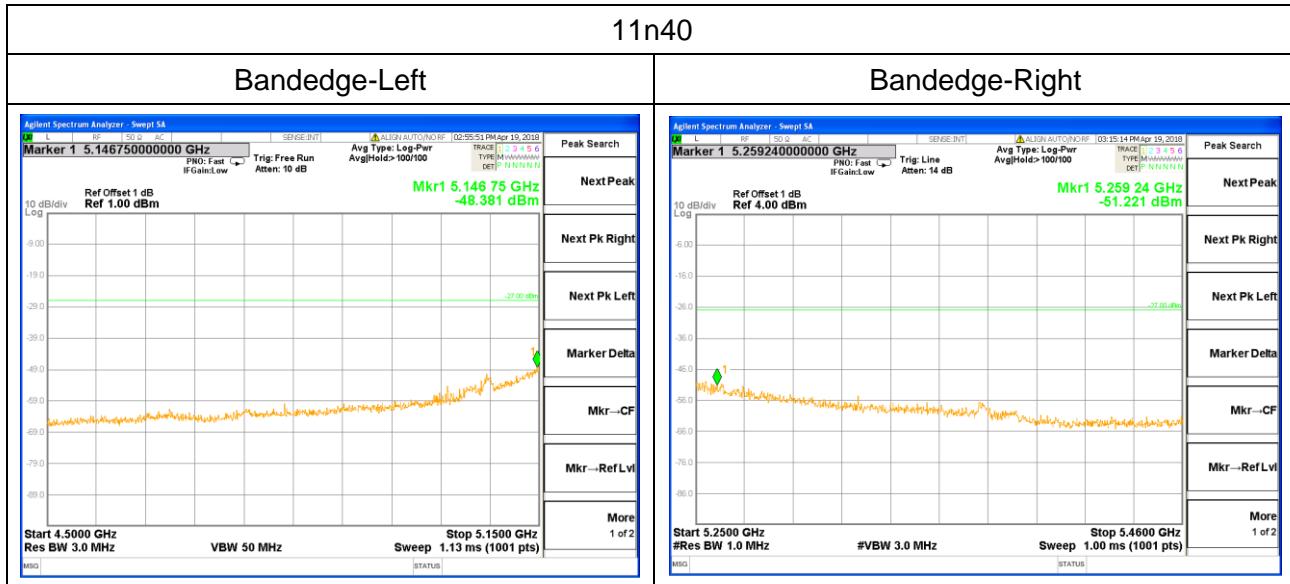
For band IV



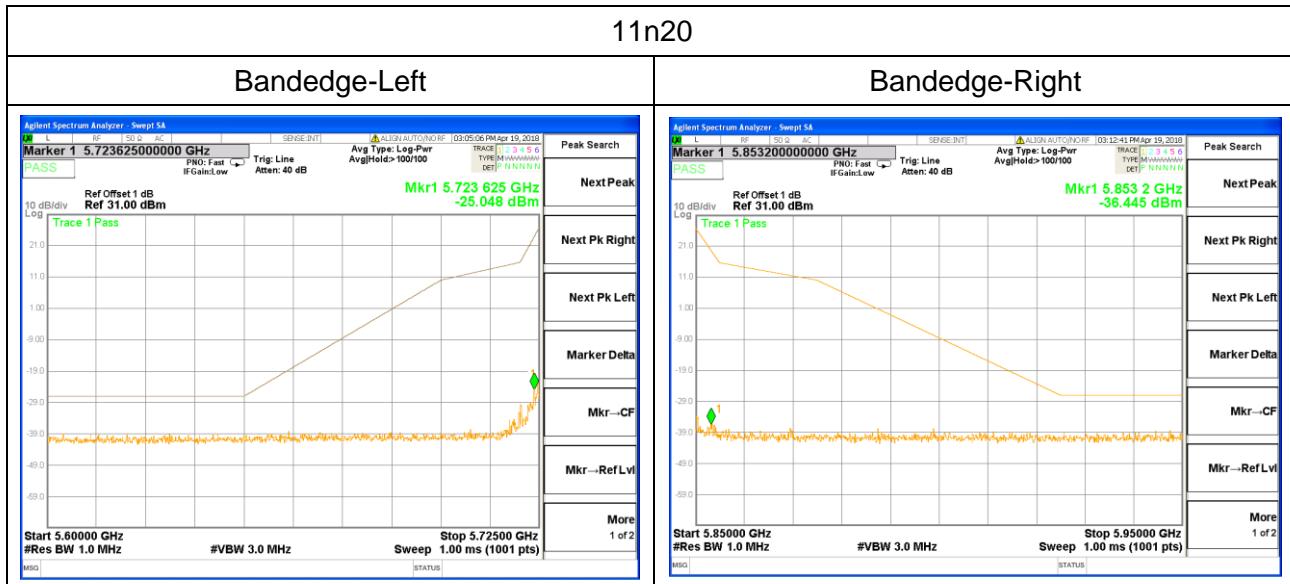
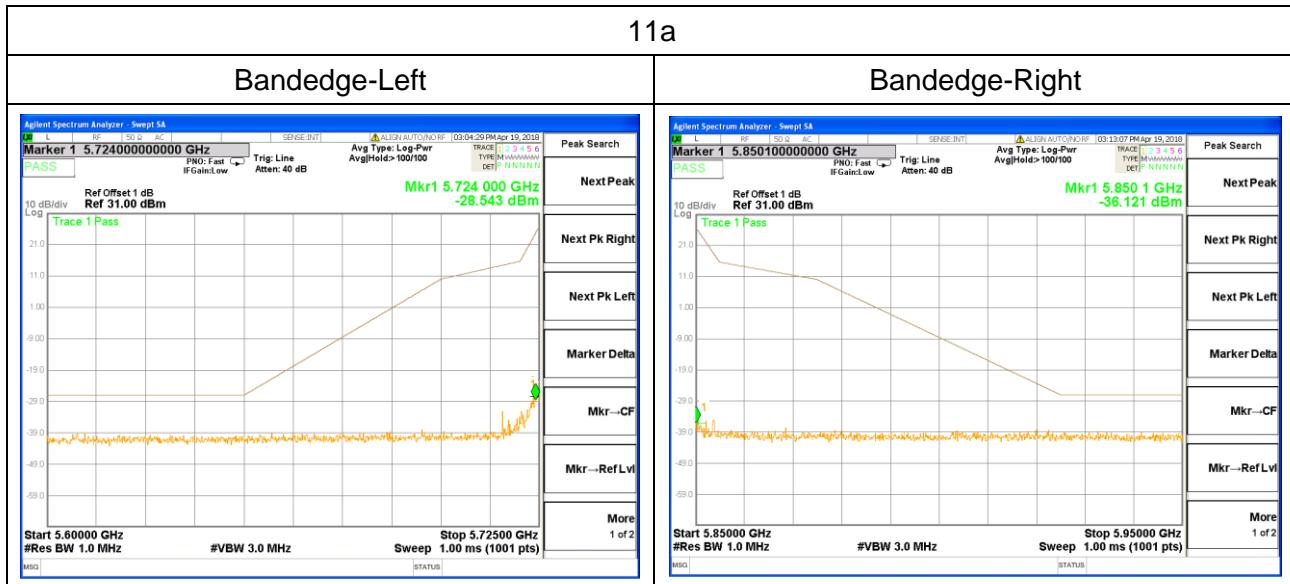


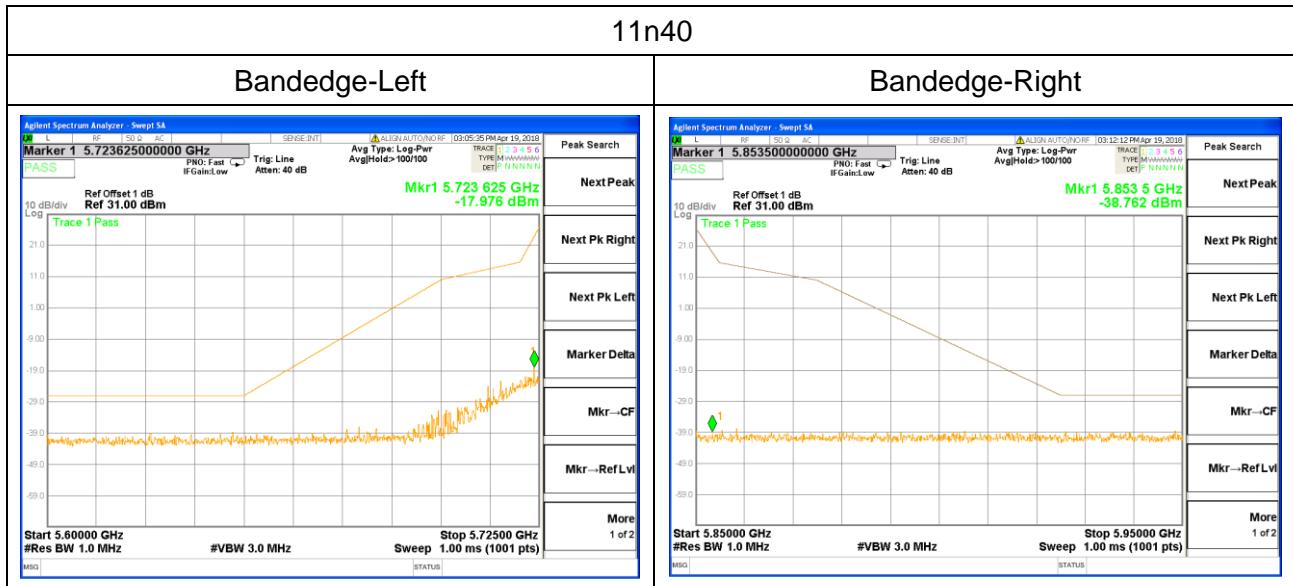
Band-edge





For band IV





5.9 Power spectral density

5.9.1 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.

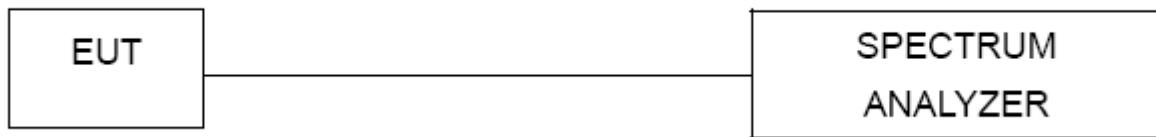
5.9.2 Test procedure

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 $\geq 1/T$, 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.

5.9.3 Test setup



5.9.4 Test results

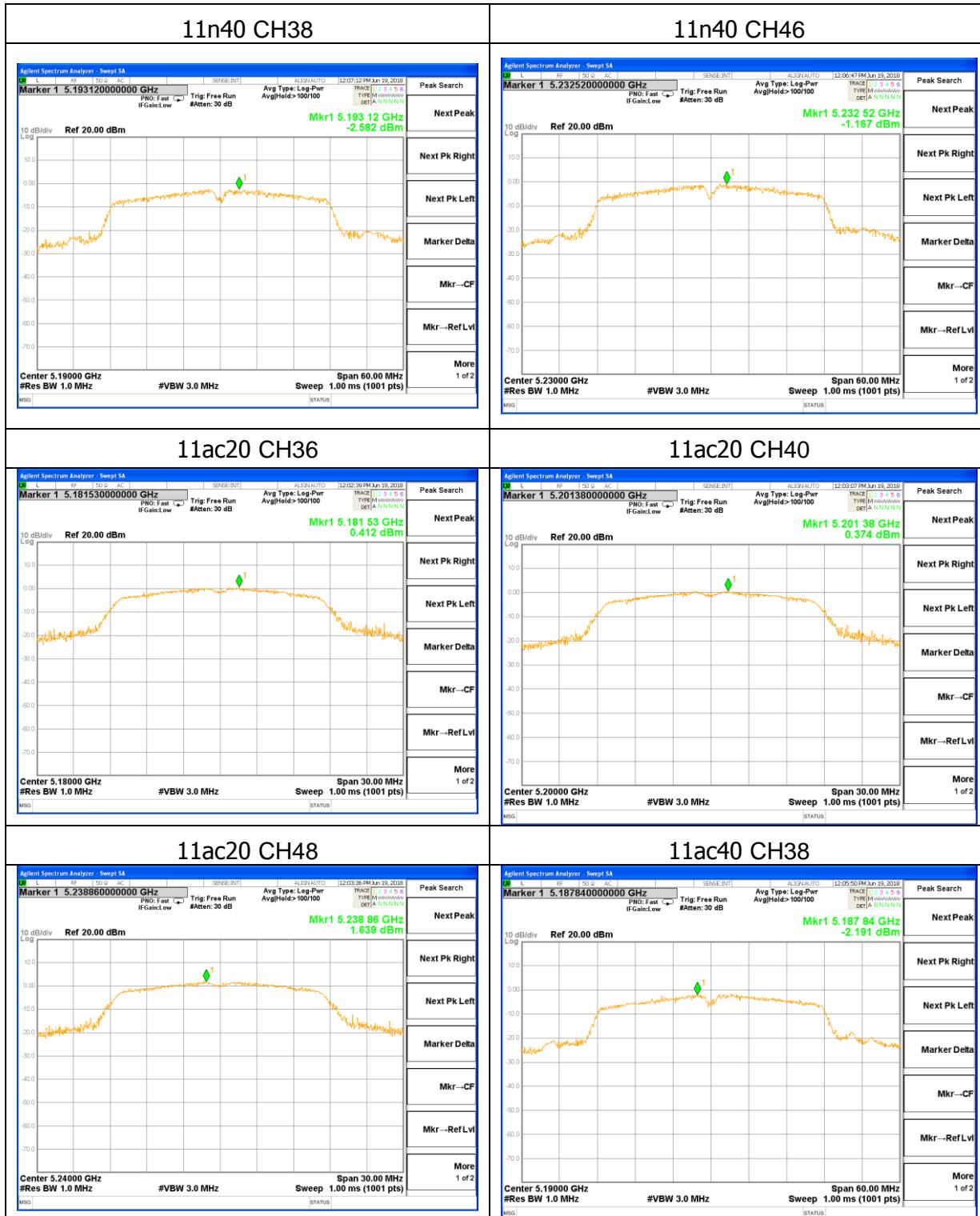
For Band I

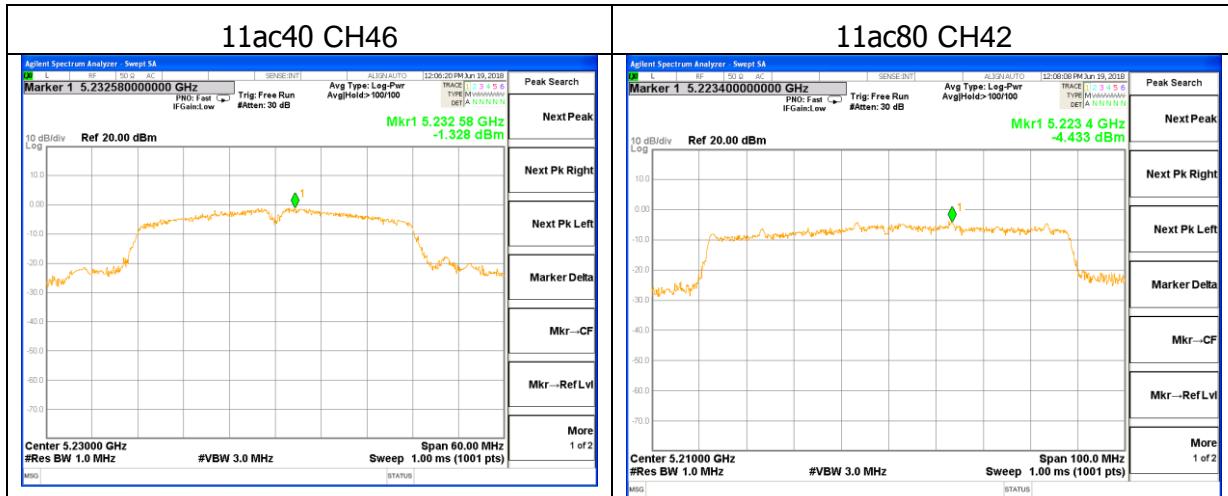
Mode	Channel	Frequency(MHz)	Measurement PSD (dBm/MHz)	Limit (dBm/MHz)	Result
11a	CH36	5180	0.253	11	Pass
11a	CH44	5220	1.447	11	Pass
11a	CH48	5240	1.677	11	Pass
11n(HT20)	CH36	5180	-0.124	11	Pass
11n(HT20)	CH44	5220	0.786	11	Pass
11n(HT20)	CH48	5240	1.307	11	Pass
11n(HT40)	CH38	5190	-2.582	11	Pass
11n(HT40)	CH46	5230	-1.167	11	Pass
11ac(HT20)	CH36	5180	0.412	11	Pass
11ac (HT20)	CH40	5200	0.374	11	Pass
11ac (HT20)	CH48	5240	1.639	11	Pass
11ac (HT40)	CH38	5190	-2.191	11	Pass
11ac (HT40)	CH46	5230	-1.328	11	Pass
11ac (HT80)	CH42	5210	-4.438	11	Pass

Test plots

For Band I







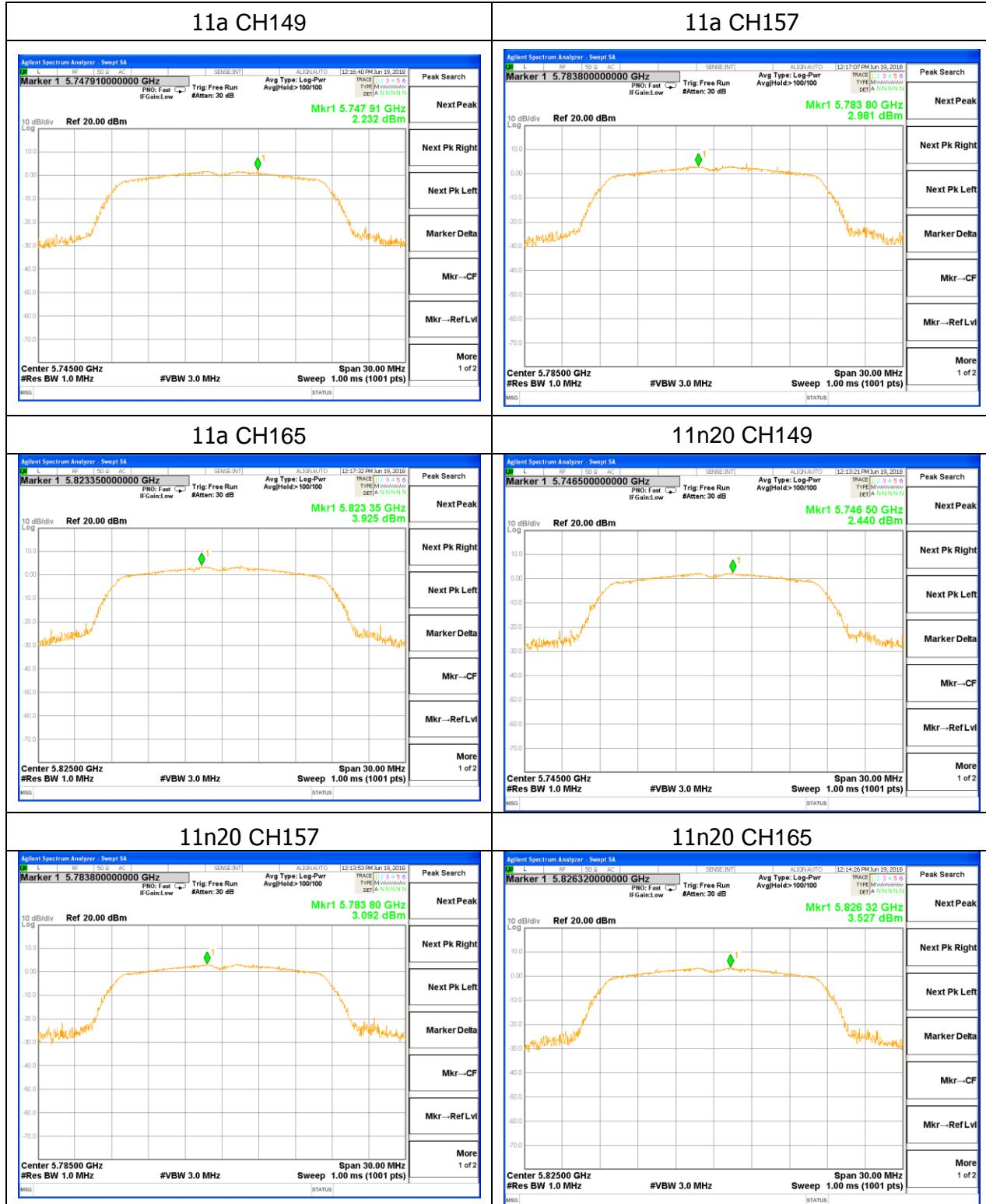
For Band IV

Mode	Channel	Frequency(MHz)	PSD (dBm/510kHz)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
11a	CH149	5745	2.232	2.146	30	Pass
11a	CH157	5785	2.981	2.895	30	Pass
11a	CH165	5825	3.925	3.839	30	Pass
11n20	CH149	5745	2.440	2.354	30	Pass
11n20	CH157	5785	3.092	3.006	30	Pass
11n20	CH165	5825	3.527	3.441	30	Pass
11n40	CH151	5755	-0.637	-0.723	30	Pass
11n40	CH159	5795	0.960	0.874	30	Pass
11ac20	CH149	5745	2.380	2.294	30	Pass
11ac20	CH157	5785	3.266	3.180	30	Pass
11ac20	CH165	5825	4.240	4.154	30	Pass
11ac40	CH151	5755	0.060	-0.026	30	Pass
11ac40	CH159	5795	1.047	0.961	30	Pass
11ac80	CH155	5775	-2.799	-2.885	30	Pass

Note: If the measurement is X dBm/510kHz, thus X dBm/510kHz = $(10^{X/10}) * (500 / 510)$ dBm/500kHz

Test plots

For Band IV







5.10 Frequency Stability

5.10.1 Limit

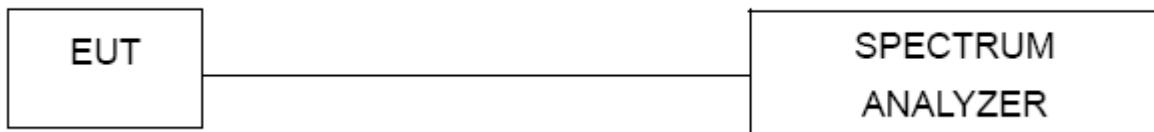
15.407g: Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

5.10.2 Test procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/fc \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -20°C~70°C.

5.10.3 Test setup



5.10.4 Test results

EUT :	Tablet PC	Model Name. :	Hi9 Air-CWI546
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.8V
Test Mode :	TX Frequency Band I		

Voltage vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5180MHz					
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)		
T nom (°C)	20	V nom (V)	3.80	5180.0521	5180	0.0521	-10.0579	
		V max (V)	4.37	5180.0326	5180	0.0326	-6.2934	
		V min (V)	3.23	5180.0241	5180	0.0241	-4.6525	
Limits			± 20 ppm					
Result			Complies					

Temperature vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5180MHz					
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)		
V nom (V)	3.8	T (°C)	-20	5180.0059	5180	0.0059	-1.1390	
		T (°C)	-10	5180.0107	5180	0.0107	-2.0656	
		T (°C)	0	5180.0325	5180	0.0325	-6.2741	
		T (°C)	10	5180.0385	5180	0.0385	-7.4324	
		T (°C)	20	5180.0298	5180	0.0298	-5.7529	
		T (°C)	30	5180.0213	5180	0.0213	-4.1120	
		T (°C)	40	5180.0123	5180	0.0123	-2.3745	
		T (°C)	50	5180.0097	5180	0.0097	-1.8726	
		T (°C)	60	5180.0417	5180	0.0417	-8.0502	
		T (°C)	70	5180.0695	5180	0.0695	-13.4170	
Limits			± 20 ppm					
Result			Complies					

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz				
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
T nom (°C)	20	V nom (V)	3.80	5200.0251	5200	0.0251	-4.8269	
		V max (V)	4.37	5200.0425	5200	0.0425	-8.1731	
		V min (V)	3.23	5200.0694	5200	0.0694	-13.3462	
Limits				± 20 ppm				
Result				Complies				

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz				
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
V nom (V)	3.8	T (°C)	-20	5200.0632	5200	0.0632	-12.1538	
		T (°C)	-10	5200.0529	5200	0.0529	-10.1731	
		T (°C)	0	5200.0437	5200	0.0437	-8.4038	
		T (°C)	10	5200.0923	5200	0.0923	-17.7500	
		T (°C)	20	5200.0633	5200	0.0633	-12.1731	
		T (°C)	30	5200.0124	5200	0.0124	-2.3846	
		T (°C)	40	5200.0739	5200	0.0739	-14.2115	
		T (°C)	50	5200.0418	5200	0.0418	-8.0385	
		T (°C)	60	5200.0326	5200	0.0326	-6.2692	
		T (°C)	70	5200.0421	5200	0.0421	-8.0962	
Limits				± 20 ppm				
Result				Complies				

Voltage vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5240MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
T nom (°C)	20	V nom (V)	3.80	5240.0132	5240	0.0132	-2.5191
		V max (V)	4.37	5240.0417	5240	0.0417	-7.9580
		V min (V)	3.23	5240.0095	5240	0.0095	-1.8130
Limits			± 20 ppm				
Result			Complies				

Temperature vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5240MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
V nom (V)	3.8	T (°C)	-20	5240.0092	5240	0.0092	-1.7557
		T (°C)	-10	5240.0034	5240	0.0034	-0.6489
		T (°C)	0	5240.0147	5240	0.0147	-2.8053
		T (°C)	10	5240.0852	5240	0.0852	-16.2595
		T (°C)	20	5240.0111	5240	0.0111	-2.1183
		T (°C)	30	5240.0126	5240	0.0126	-2.4046
		T (°C)	40	5240.0069	5240	0.0069	-1.3168
		T (°C)	50	5240.0074	5240	0.0074	-1.4122
		T (°C)	60	5240.0058	5240	0.0058	-1.1069
		T (°C)	70	5240.0100	5240	0.0100	-1.9084
Limits			± 20 ppm				
Result			Complies				

EUT :	Tablet PC	Model Name. :	Hi9 Air-CWI546
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.8V
Test Mode :	TX Frequency Band IV		

TEST CONDITIONS			Reference Frequency: 5745MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
T nom (°C)	20	V nom (V)	3.80	5745.00070	5745	0.00070	-0.1213
		V max (V)	4.37	5745.00750	5745	0.00750	-1.3048
		V min (V)	3.23	5745.01105	5745	0.01105	-1.9228
Limits			± 20 ppm				
Result			Complies				

Voltage vs. Frequency Stability

Temperature vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5745MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
V nom (V)	3.8	T (°C)	-20	5745.00438	5745	0.00438	-0.7629
		T (°C)	-10	5745.00136	5745	0.00136	-0.2361
		T (°C)	0	5745.00469	5745	0.00469	-0.8170
		T (°C)	10	5745.00822	5745	0.00822	-1.4301
		T (°C)	20	5745.00483	5745	0.00483	-0.8403
		T (°C)	30	5745.00759	5745	0.00759	-1.3217
		T (°C)	40	5745.00941	5745	0.00941	-1.6374
		T (°C)	50	5745.00343	5745	0.00343	-0.5979
		T (°C)	60	5745.00155	5745	0.00155	-0.2699
		T (°C)	70	5745.00323	5745	0.00323	-0.5631
Limits			± 20 ppm				
Result			Complies				

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz				
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
T nom (°C)	20	V nom (V)	3.80	5785.00424	5785	0.00424	-0.7337	
		V max (V)	4.37	5785.01165	5785	0.01165	-2.0134	
		V min (V)	3.23	5785.01144	5785	0.01144	-1.9775	
Limits				± 20 ppm				
Result				Complies				

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz				
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
V nom (V)	3.8	T (°C)	-20	5785.00861	5785	0.00861	-1.4876	
		T (°C)	-10	5785.00073	5785	0.00073	-0.1256	
		T (°C)	0	5785.00371	5785	0.00371	-0.6415	
		T (°C)	10	5785.00011	5785	0.00011	-0.0195	
		T (°C)	20	5785.00670	5785	0.00670	-1.1586	
		T (°C)	30	5785.00877	5785	0.00877	-1.5162	
		T (°C)	40	5785.00908	5785	0.00908	-1.5697	
		T (°C)	50	5785.00541	5785	0.00541	-0.9355	
		T (°C)	60	5785.01147	5785	0.01147	-1.9828	
		T (°C)	70	5785.01044	5785	0.01044	-1.8051	
Limits				± 20 ppm				
Result				Complies				

Voltage vs. Frequency Stability

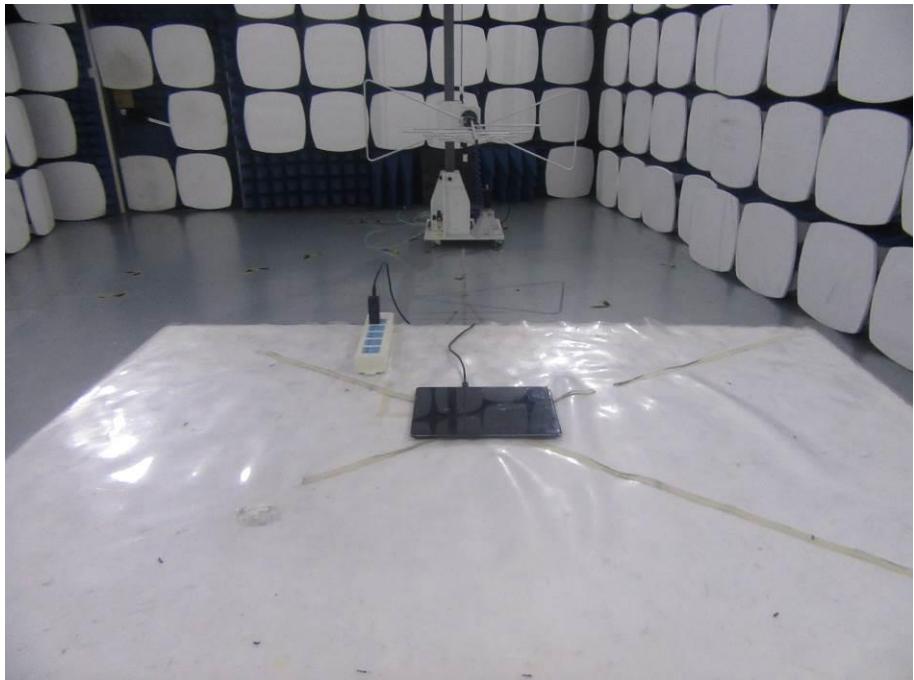
TEST CONDITIONS			Reference Frequency: 5825MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
T nom (°C)	20	V nom (V)	3.80	5825.00633	5825	0.00633	-1.0868
		V max (V)	4.37	5825.00506	5825	0.00506	-0.8689
		V min (V)	3.23	5825.01110	5825	0.01110	-1.9060
Limits			± 20 ppm				
Result			Complies				

Temperature vs. Frequency Stability

TEST CONDITIONS			Reference Frequency: 5825MHz				
			f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)	
V nom (V)	3.8	T (°C)	-20	5825.00464	5825	0.00464	-0.7972
		T (°C)	-10	5825.00970	5825	0.00970	-1.6651
		T (°C)	0	5825.00673	5825	0.00673	-1.1553
		T (°C)	10	5825.01291	5825	0.01291	-2.2170
		T (°C)	20	5825.00635	5825	0.00635	-1.0897
		T (°C)	30	5825.00562	5825	0.00562	-0.9643
		T (°C)	40	5825.00093	5825	0.00093	-0.1602
		T (°C)	50	5825.01012	5825	0.01012	-1.7368
		T (°C)	60	5825.00825	5825	0.00825	-1.4156
		T (°C)	70	5825.00537	5825	0.00537	-0.9217
Limits			± 20 ppm				
Result			Complies				

Photographs of the Test Setup

Radiated emission



Conducted emission



Photographs of the EUT

See the APPENDIX 1: EUT PHOTO in the report No.: MTi180724E135-1.

----END OF REPORT----