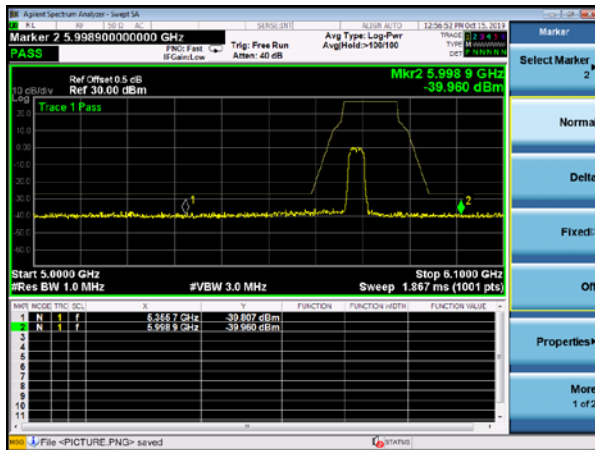


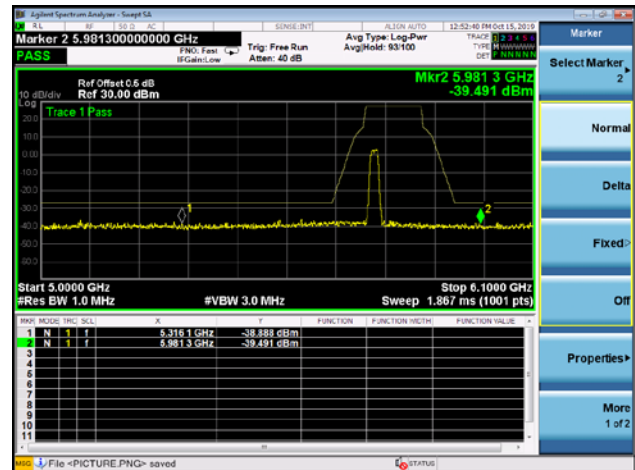


5.75~5.85 GHz

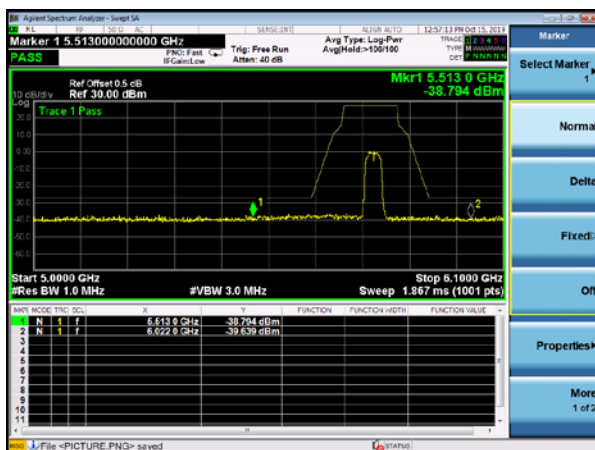
(802.11n40) Band Edge, Left Side



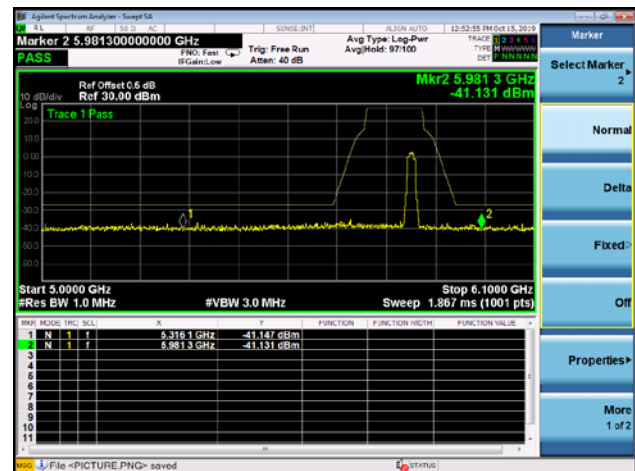
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Right Side



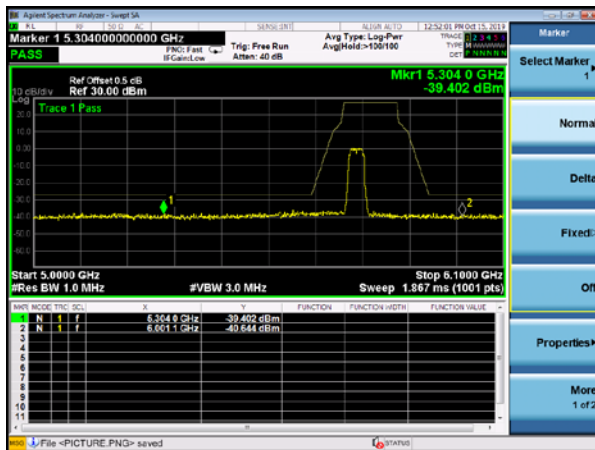
(802.11ac20) Band Edge, Right Side



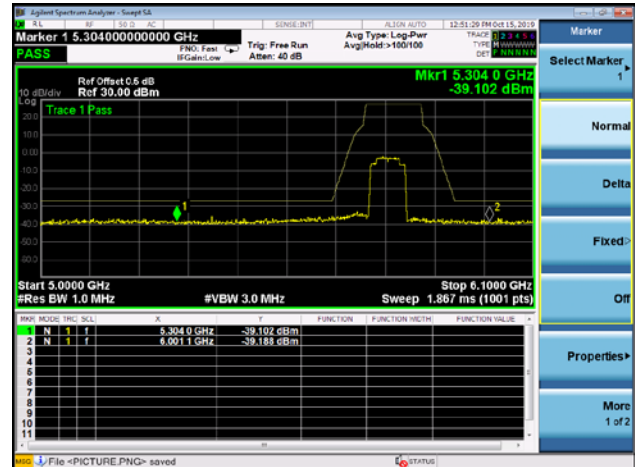


5.75~5.83 GHz

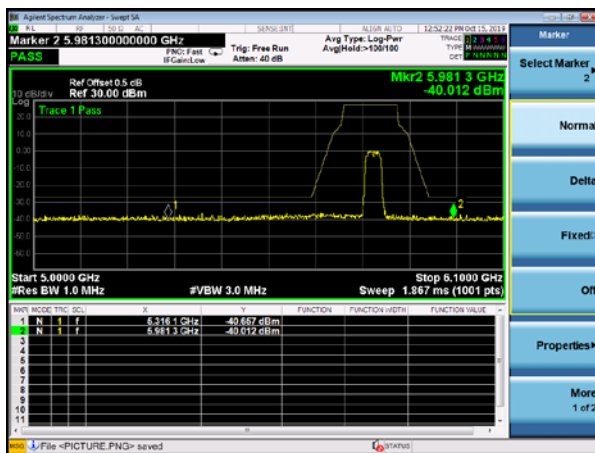
(802.11ac40) Band Edge, Left Side



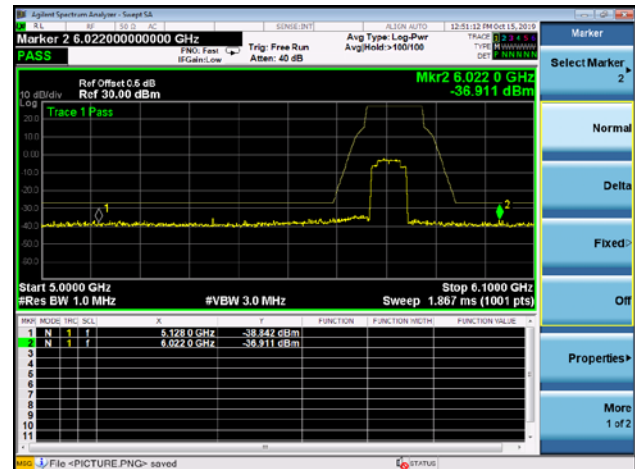
(802.11ac80) Band Edge, Left Side



(802.11ac40) Band Edge, Right Side



(802.11ac80) Band Edge, Right Side

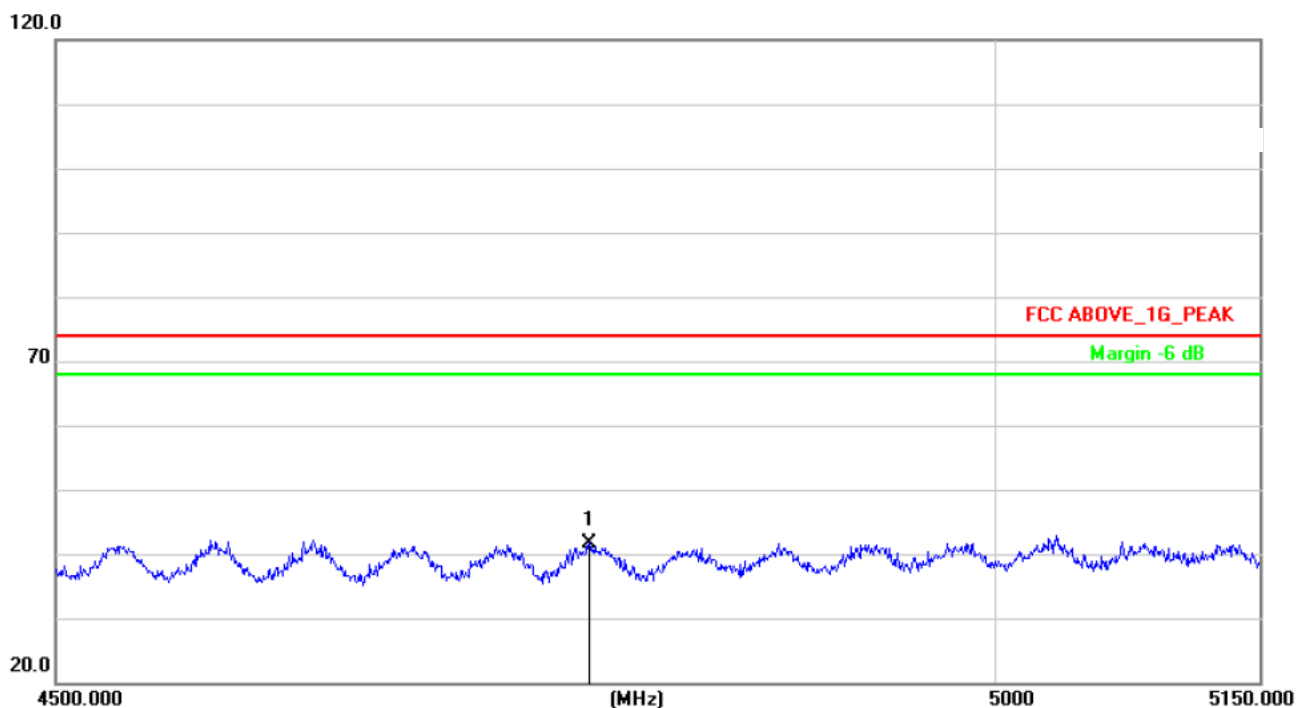




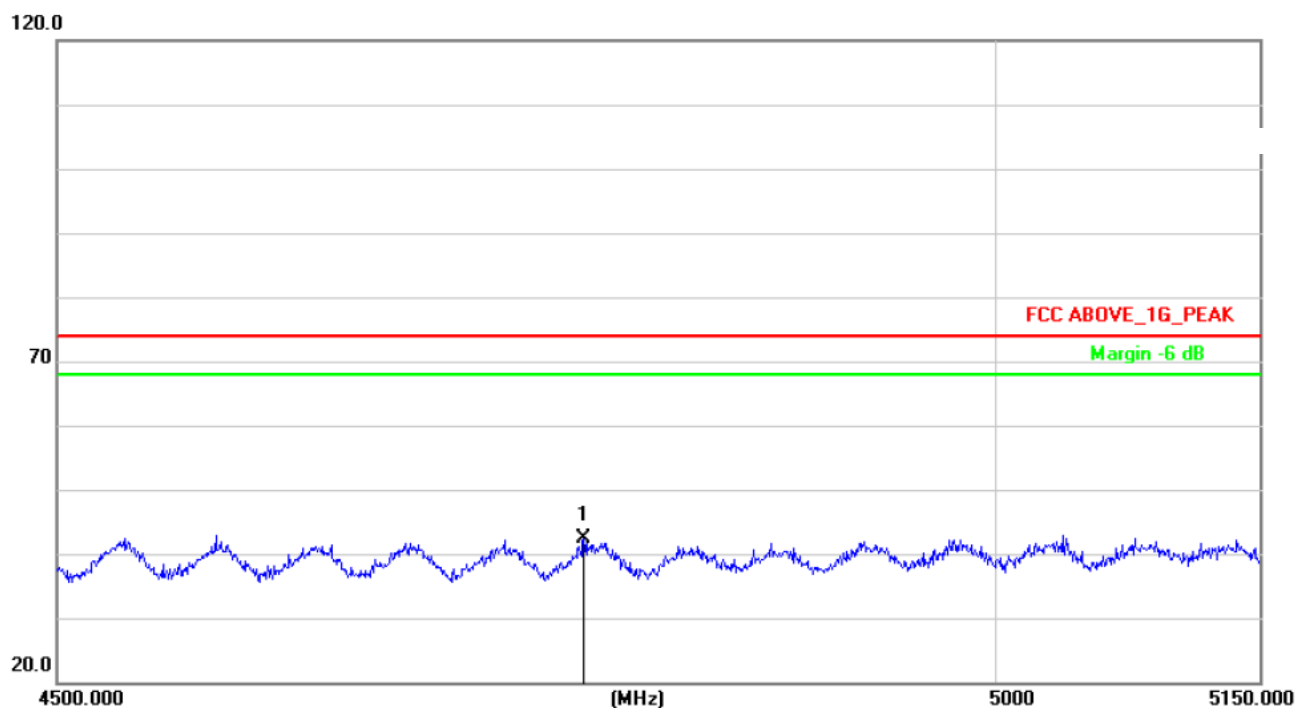
Radiated bandedge

802.11 a

For the frequency band 5150-5250MHz



Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Polarization
4777.550	42.20	-0.45	41.75	74.00	-32.25	PK	Horizontal
Remark: Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier							

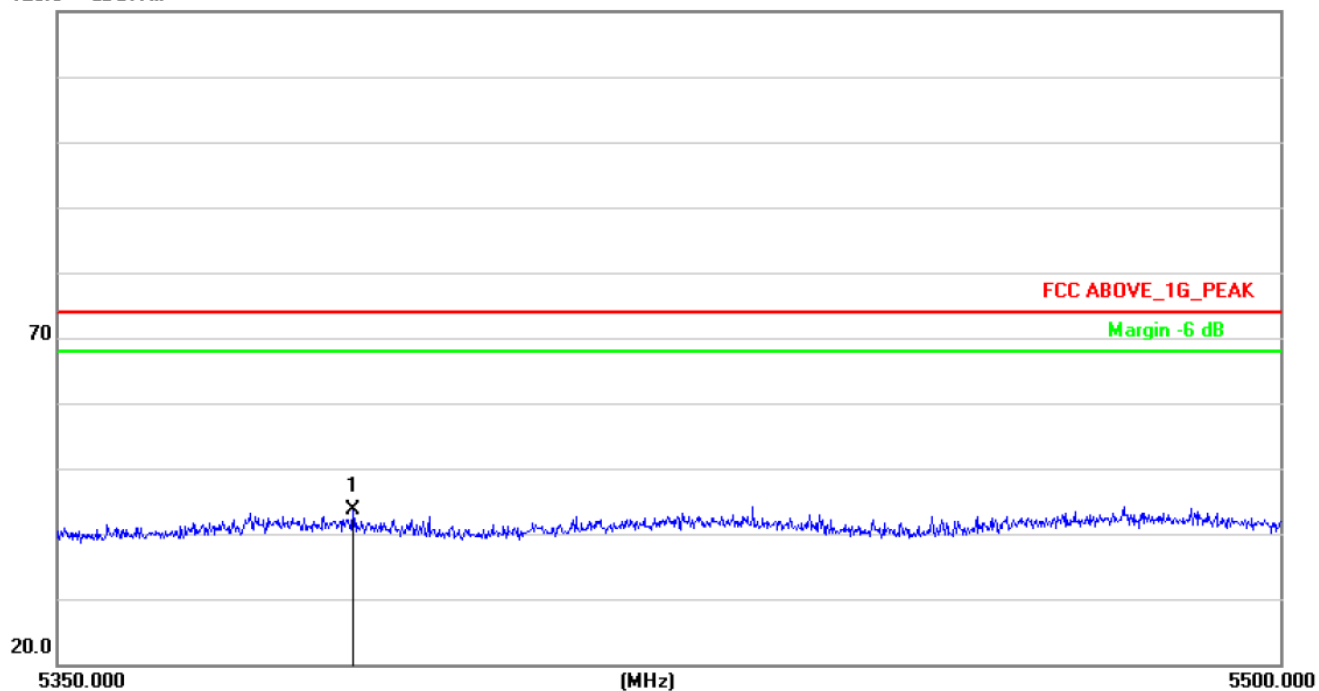


Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Polarization
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
4774.300	42.94	-0.45	42.49	74.00	-31.51	PK	Vertical

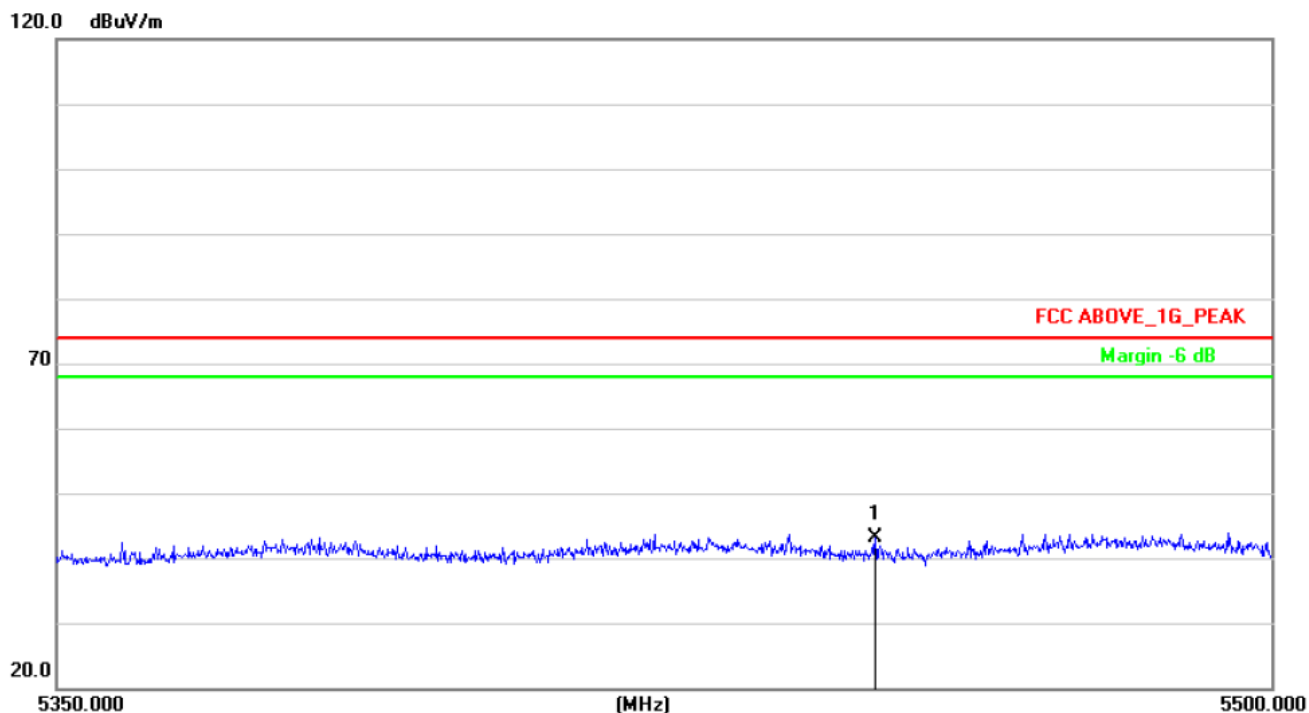
Remark:
Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier



120.0 dB μ V/m



Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Polarization
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)		
5386.000	42.27	1.35	43.62	74.00	-30.38	PK	Horizontal
Remark: Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier							



Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Polarization
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)		
5450.650	41.53	1.63	43.16	74.00	-30.84	PK	Vertical
Remark: Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier							

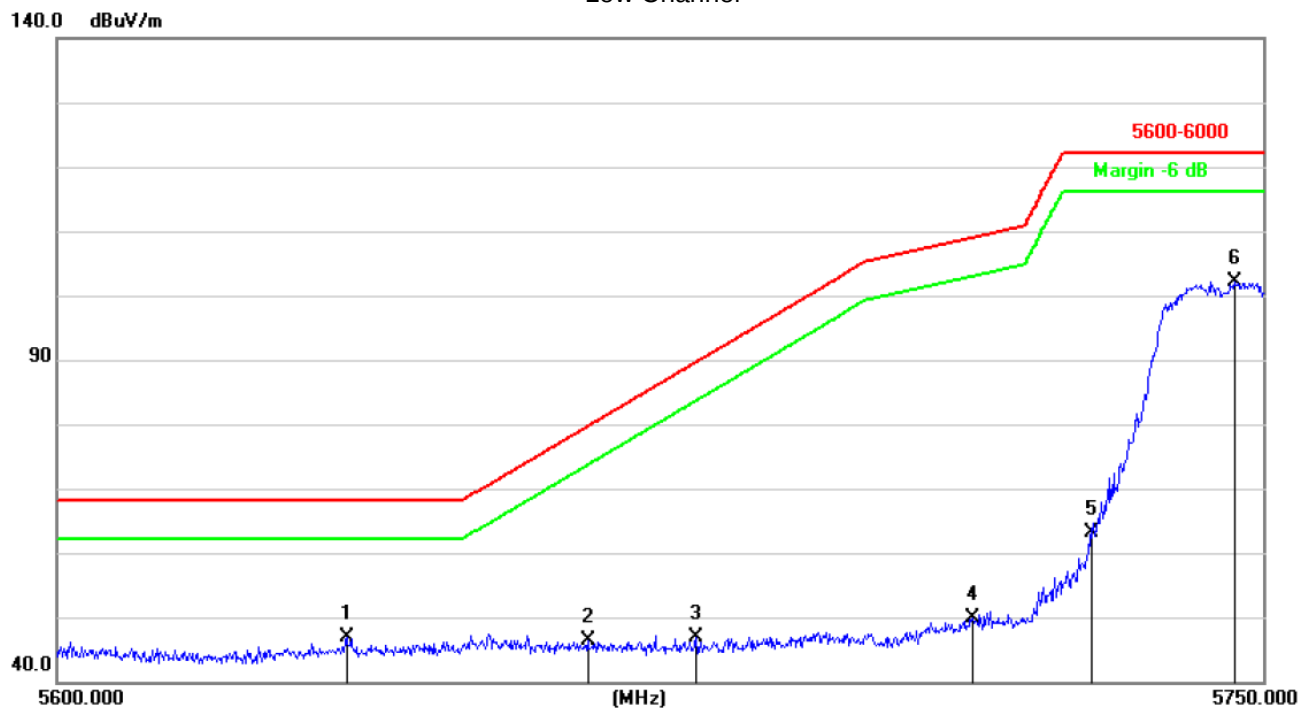
Note:

1. This EUT was tested in 802.11a/n(HT20), n(HT40), ac20, ac40,AC80 mode and 802.11a the worst case position data was reported.

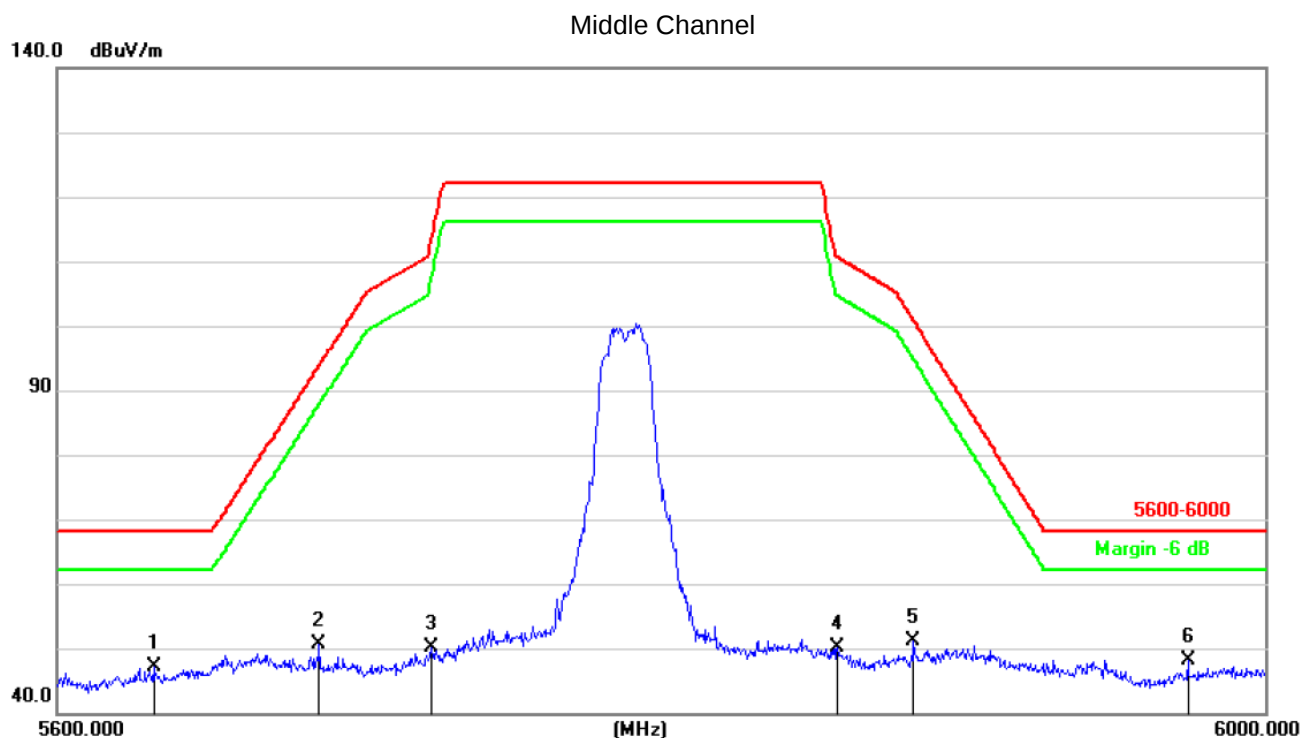


802.11n(HT20)
For the frequency band 5725-5850MHz

Low Channel



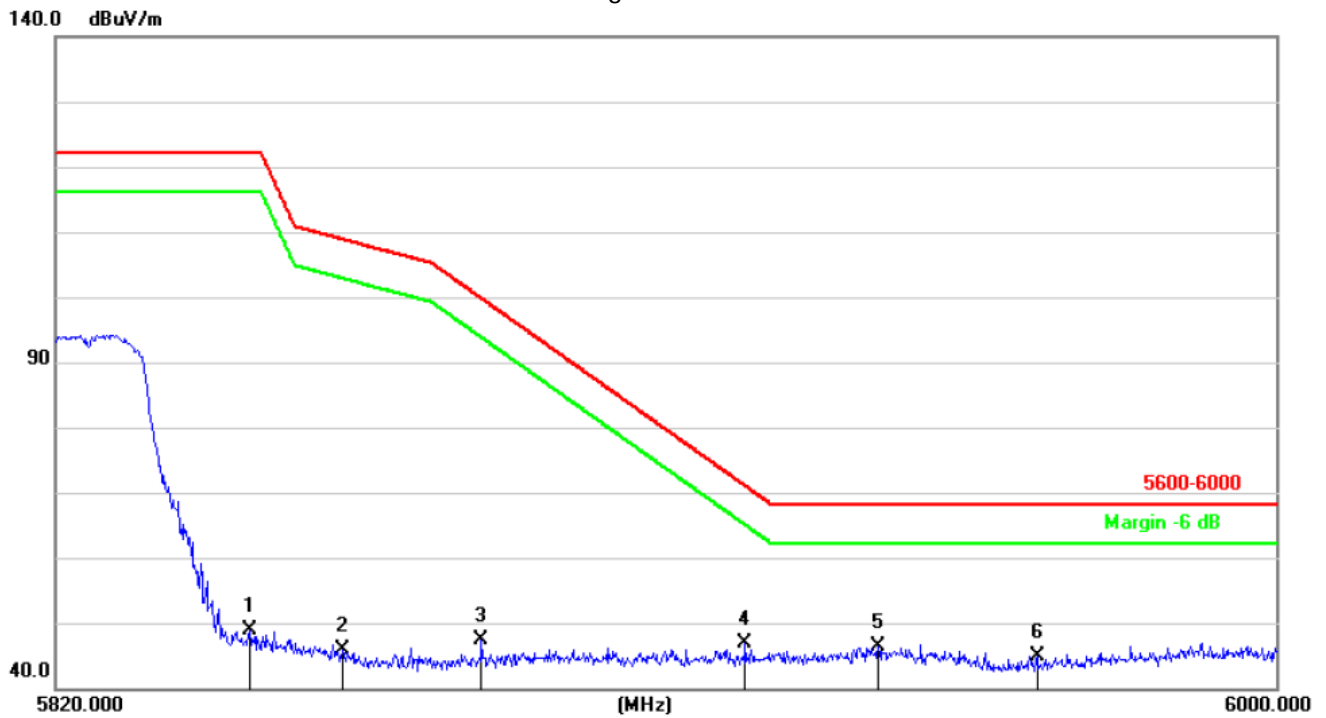
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5635.700	44.55	2.41	46.96	68.20	-21.24	peak
2	5665.550	43.83	2.54	46.37	79.74	-33.37	peak
3	5679.050	44.38	2.60	46.98	89.74	-42.76	peak
4	5713.550	47.14	2.74	49.88	109.00	-59.12	peak
5	5728.550	60.29	2.81	63.10	122.20	-59.10	peak
6	5746.400	99.15	2.88	102.03	122.20	-20.17	peak



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5631.200	44.63	2.39	47.02	68.20	-21.18	peak
2	5684.800	47.95	2.62	50.57	93.99	-43.42	peak
3	5721.200	47.41	2.78	50.19	113.54	-63.35	peak
4	5855.600	46.69	3.35	50.04	110.63	-60.59	peak
5	5880.800	47.67	3.45	51.12	100.89	-49.77	peak
6	5973.600	44.18	3.85	48.03	68.20	-20.17	peak



High Channel



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5848.260	45.52	3.32	48.84	122.20	-73.36	peak
2	5861.940	42.57	3.37	45.94	108.85	-62.91	peak
3	5882.280	43.98	3.46	47.44	99.79	-52.35	peak
4	5921.160	43.16	3.62	46.78	71.03	-24.25	peak
5	5940.780	42.69	3.71	46.40	68.20	-21.80	peak
6	5964.360	41.16	3.81	44.97	68.20	-23.23	peak

Note:

1. This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11n(HT20) the worst case position data was reported.



8.SPURIOUS RF CONDUCTED EMISSIONS

8.1CONFORMANCE LIMIT

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.

8.2MEASURING INSTRUMENTS

The Measuring equipment is listed in the section 6.3 of this test report.

8.3TEST SETUP

Please refer to Section 6.1 of this test report.

8.4TEST PROCEDURE

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance 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. Set RBW=100kHz and VBW= 300KHz to measure the peak field strength , and measure frequency range from 9KHz to 26.5GHz.

8.5TEST RESULTS

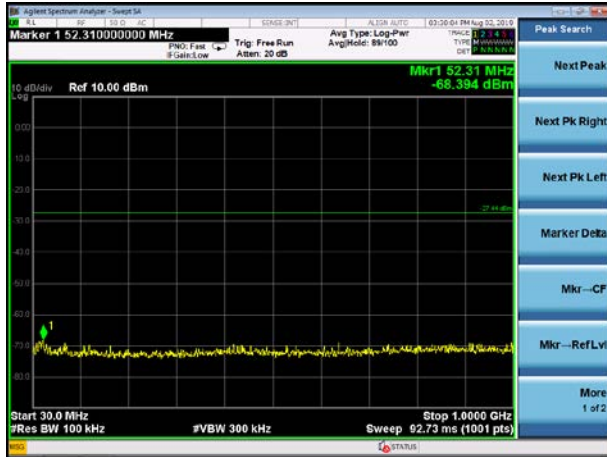
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.



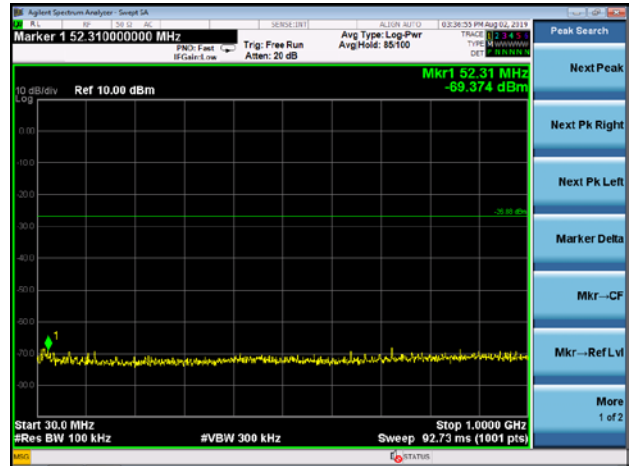
5.2G

Test Plot

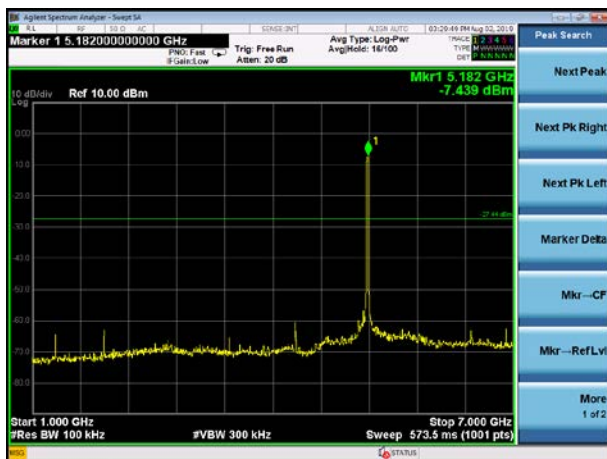
802.11a on channel 36



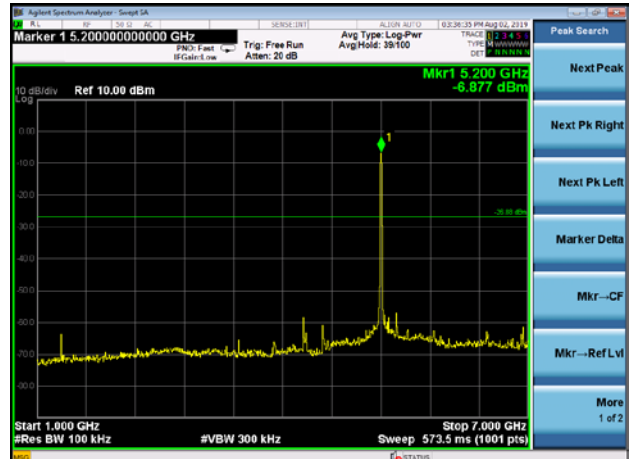
802.11a on channel 40



802.11a on channel 36



802.11a on channel 40



802.11a on channel 36



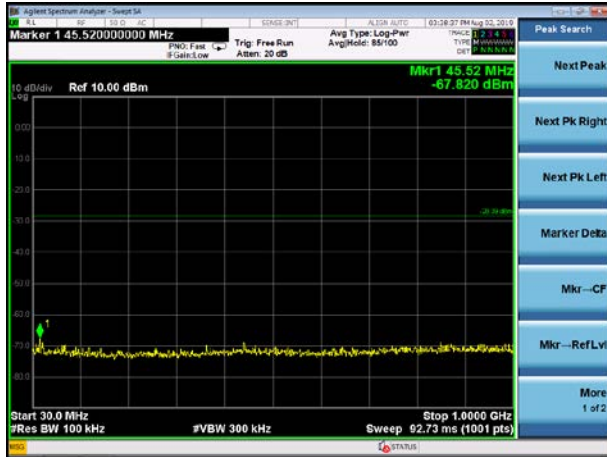
802.11a on channel 40



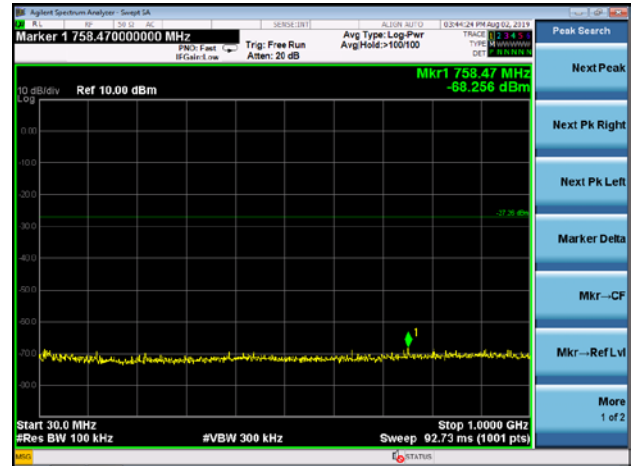


Test Plot

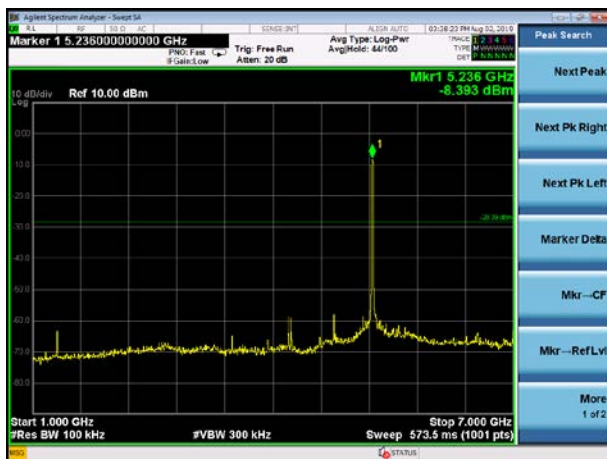
802.11a on channel 48



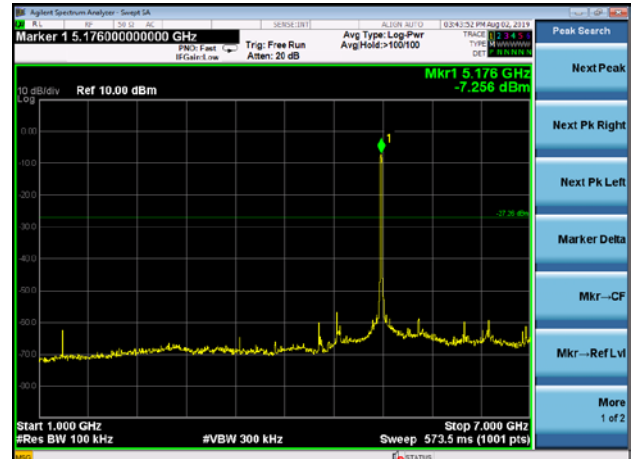
802.11n20 on channel 36



802.11a on channel 48



802.11n20 on channel 36



802.11a on channel 48



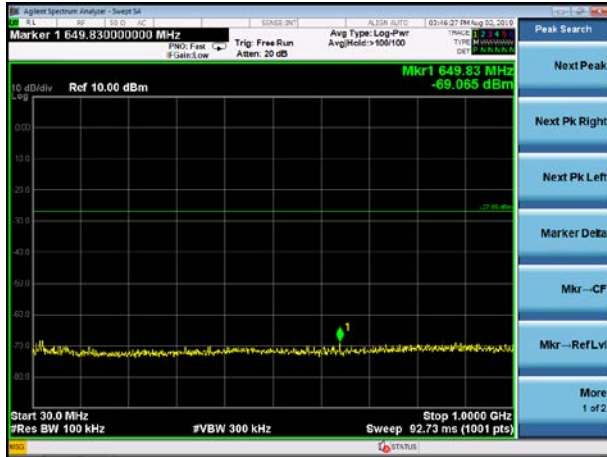
802.11n20 on channel 36



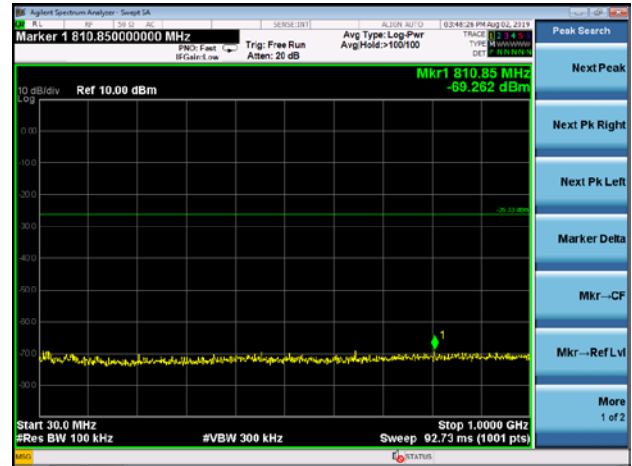


Test Plot

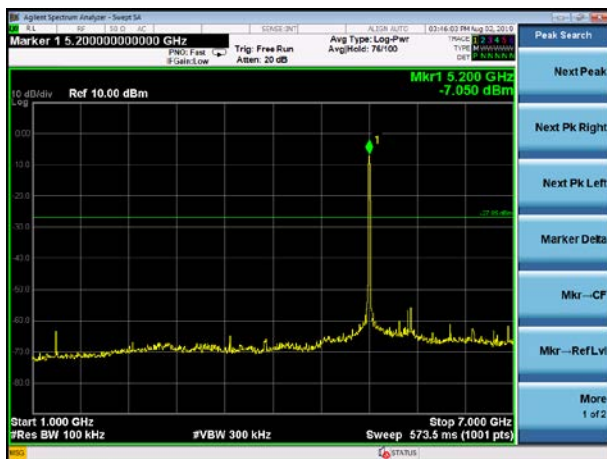
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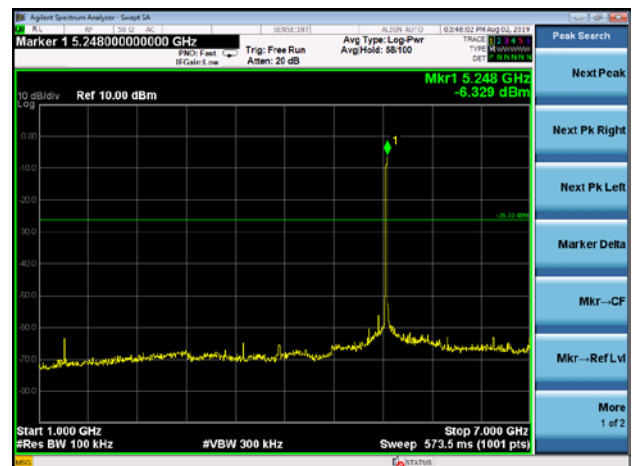
802.11n20 on channel 48



802.11n20 on channel 40



802.11n20 on channel 48



802.11n20 on channel 40



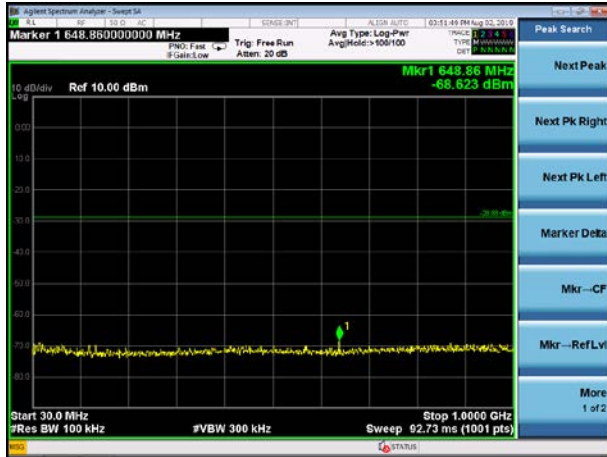
802.11n20 on channel 48



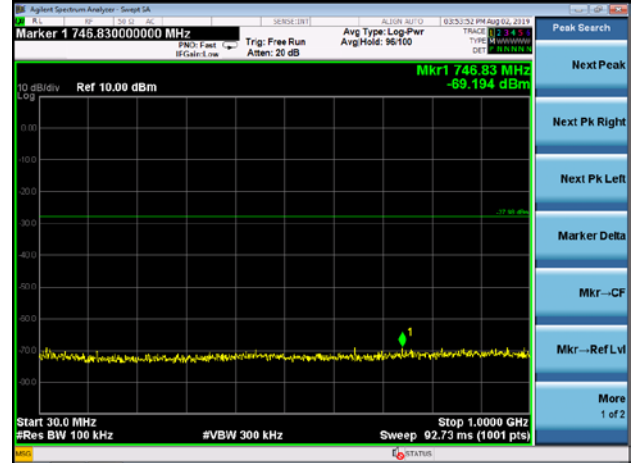


Test Plot

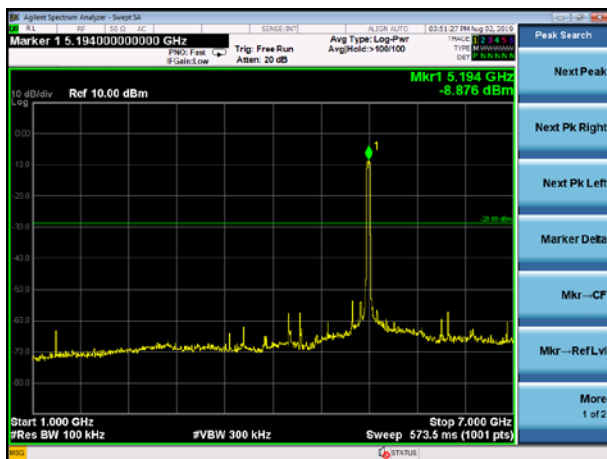
802.11n40 on channel 38



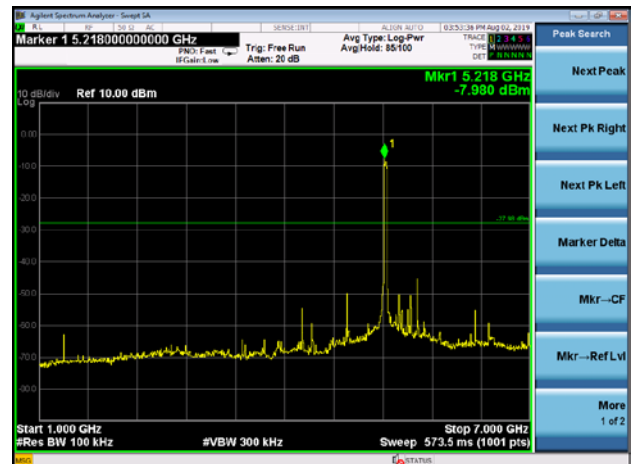
802.11n40 on channel 46



802.11n40 on channel 38



802.11n40 on channel 46



802.11n40 on channel 38



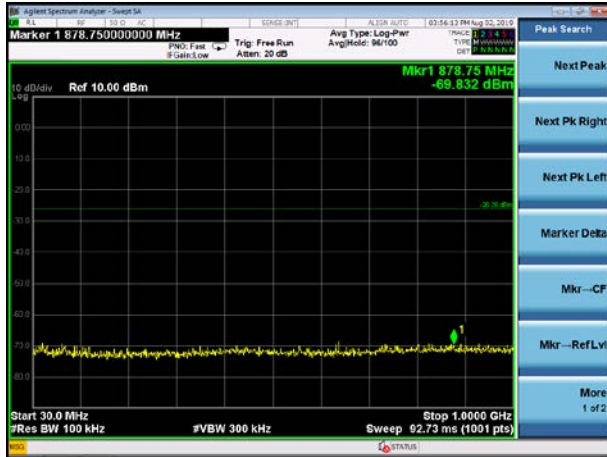
802.11n40 on channel 46



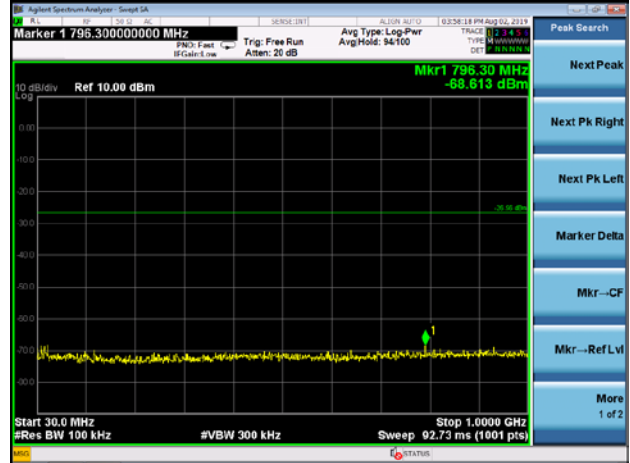


Test Plot

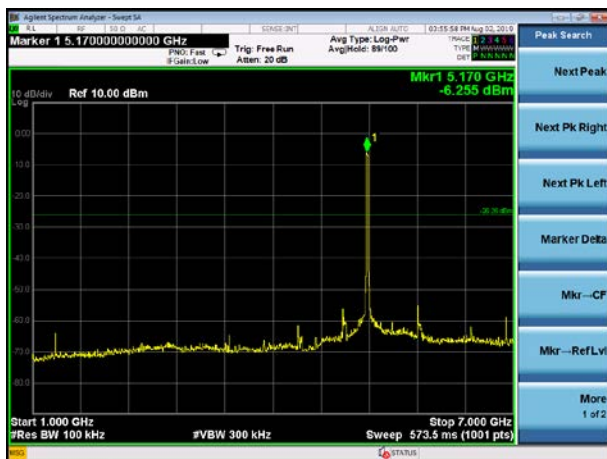
802.11ac20 on channel 36



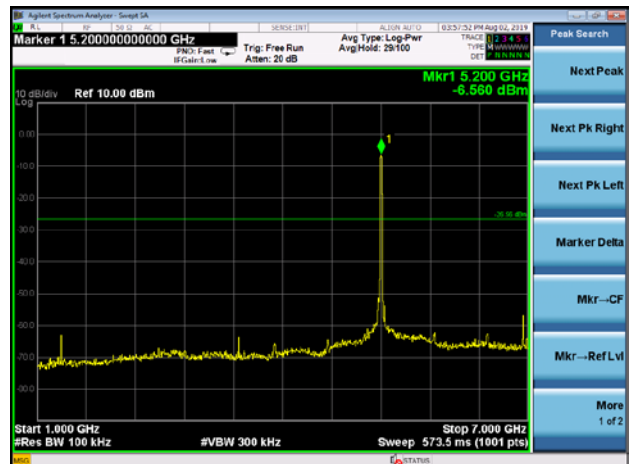
802.11ac20 on channel 40



802.11ac20 on channel 36



802.11ac20 on channel 40



802.11ac20 on channel 36



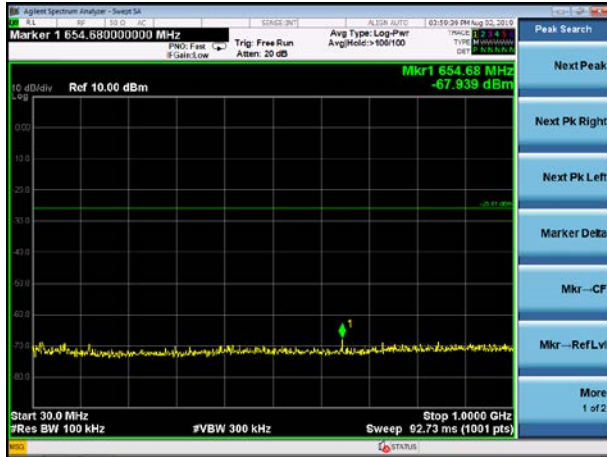
802.11ac20 on channel 40



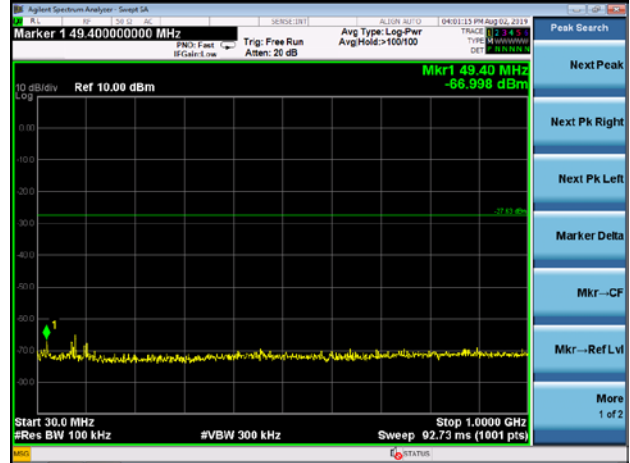


Test Plot

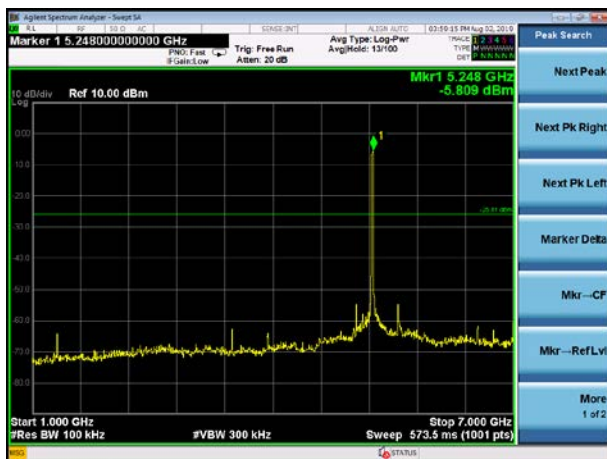
802.11ac20 on channel 48



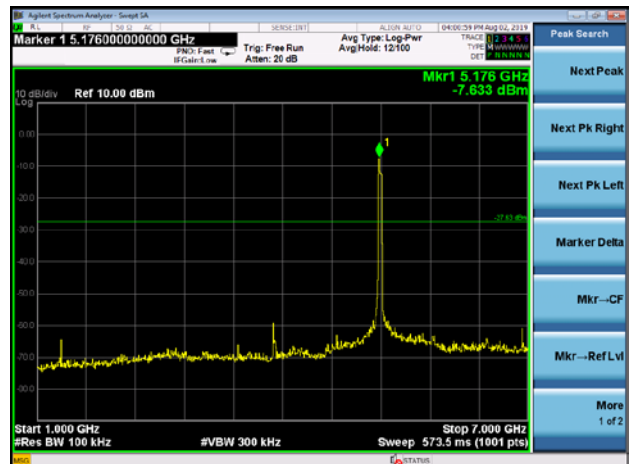
802.11ac40 on channel 38



802.11ac20 on channel 48



802.11ac40 on channel 38



802.11ac20 on channel 48



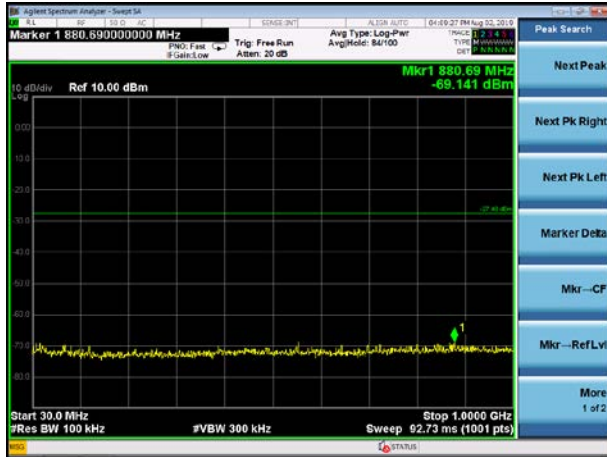
802.11ac40 on channel 38



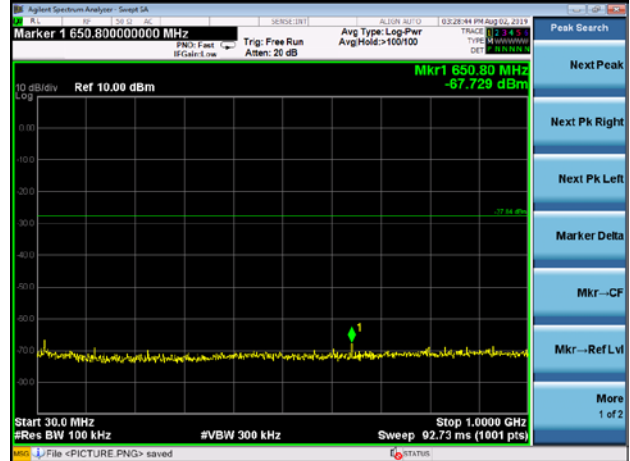


Test Plot

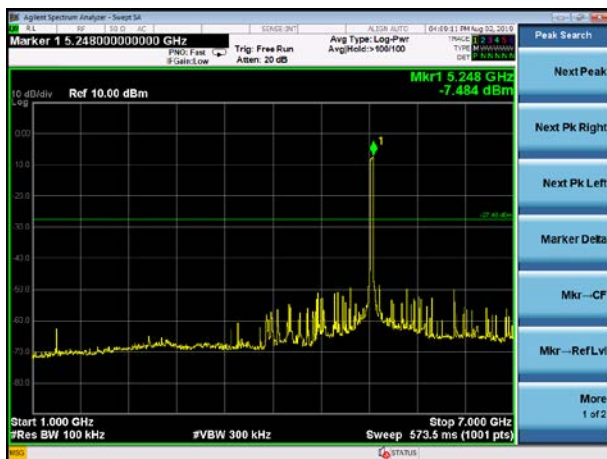
802.11ac40 on channel 46



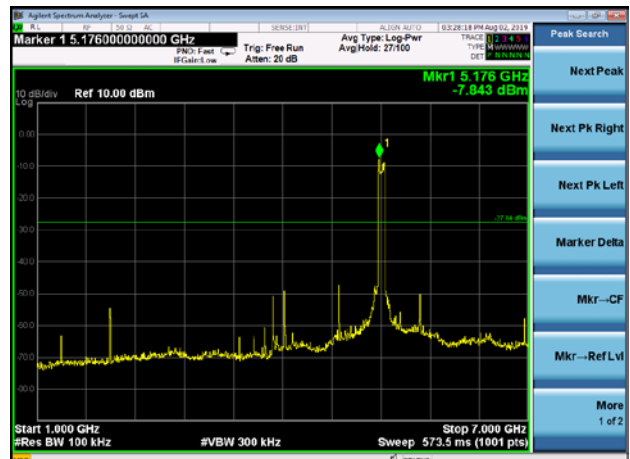
802.11ac80 on channel 42



802.11 ac40 on channel 46



802.11 ac80 on channel 42



802.11 ac40 on channel 46



802.11 ac80 on channel 42

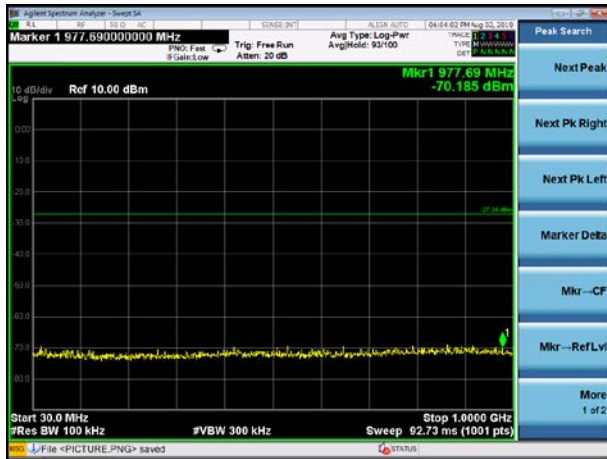




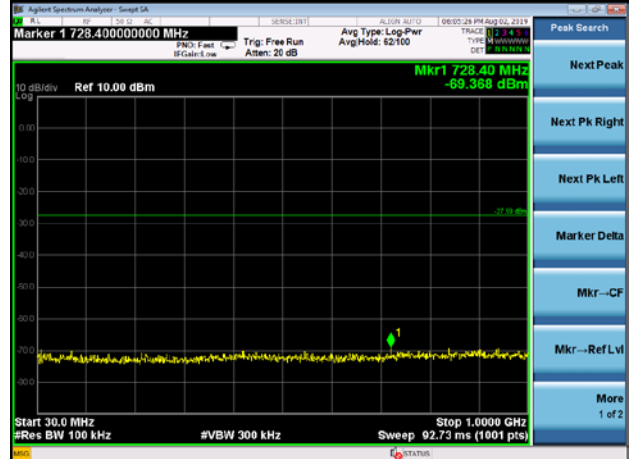
5.8G

Test Plot

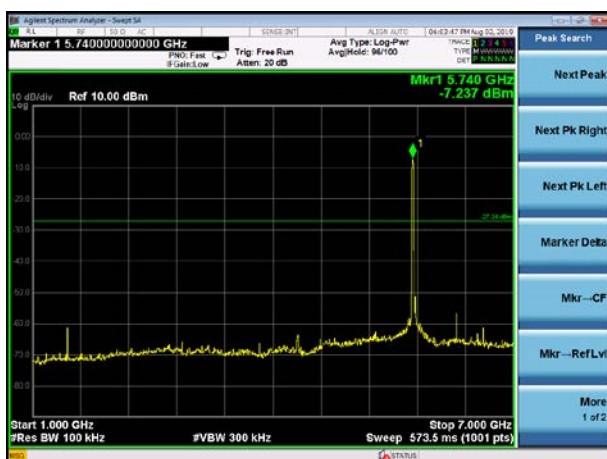
802.11a on channel 149



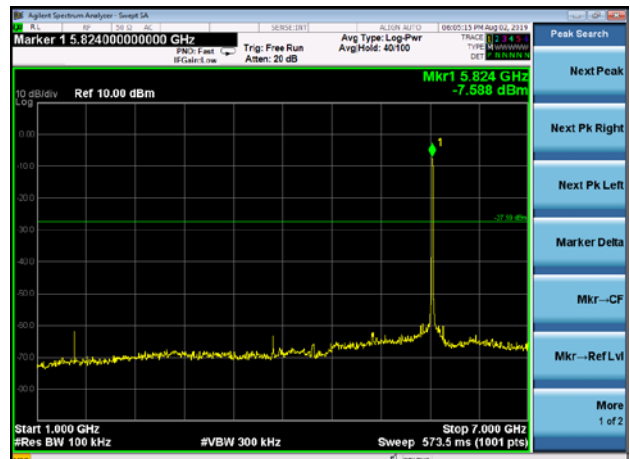
802.11a on channel 157



802.11a on channel 149



802.11a on channel 157



802.11a on channel 149



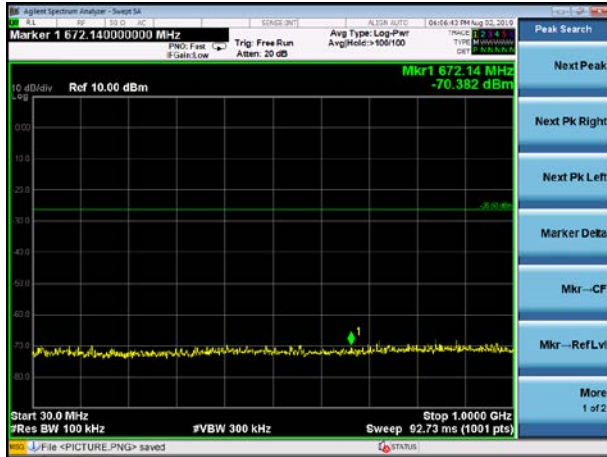
802.11a on channel 157



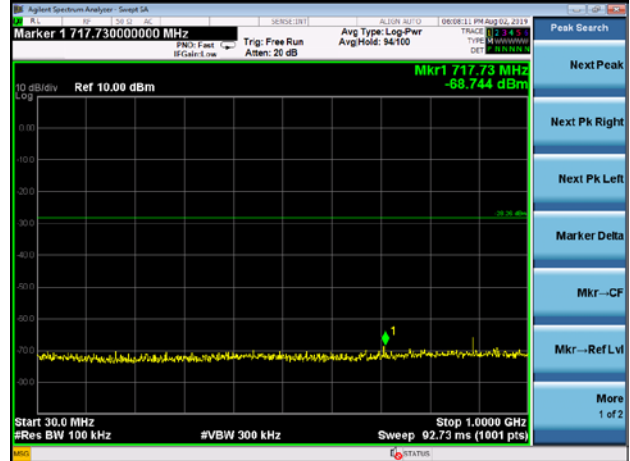


Test Plot

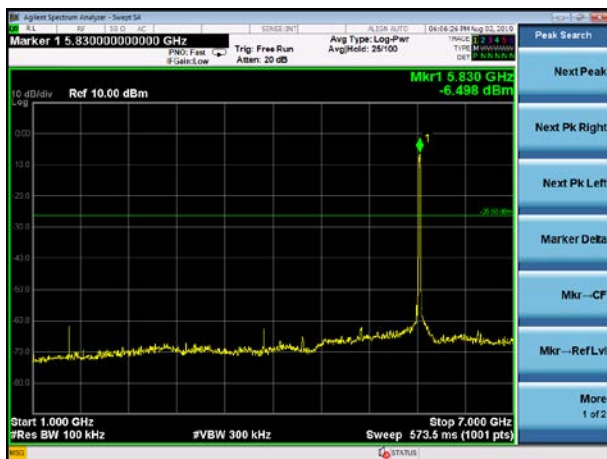
802.11a on channel 165



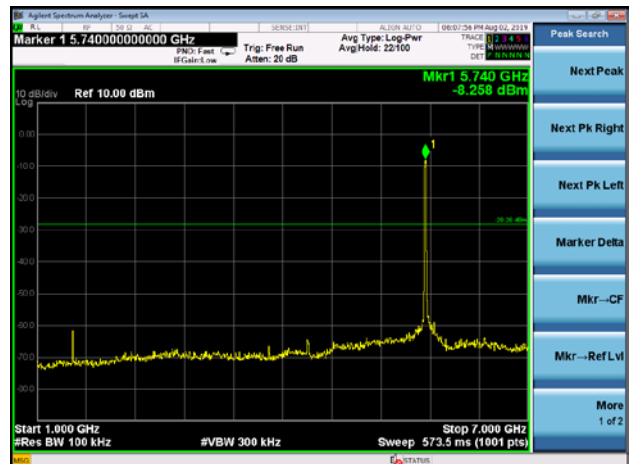
802.11n20 on channel 149



802.11a on channel 165



802.11n20 on channel 149



802.11a on channel 165



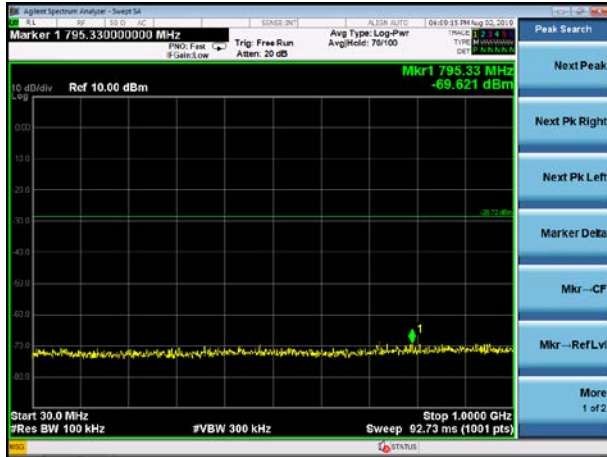
802.11n20 on channel 149



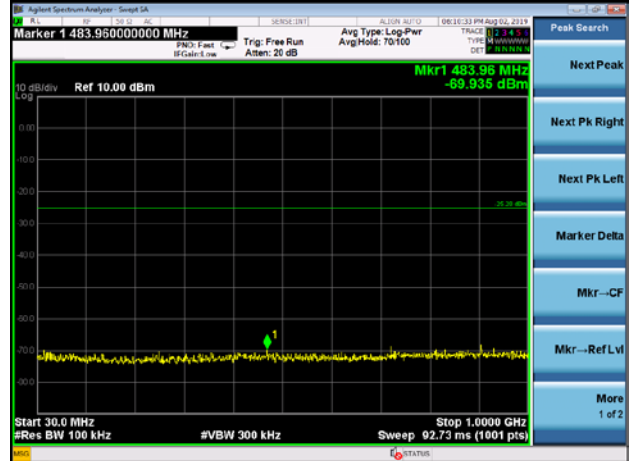


Test Plot

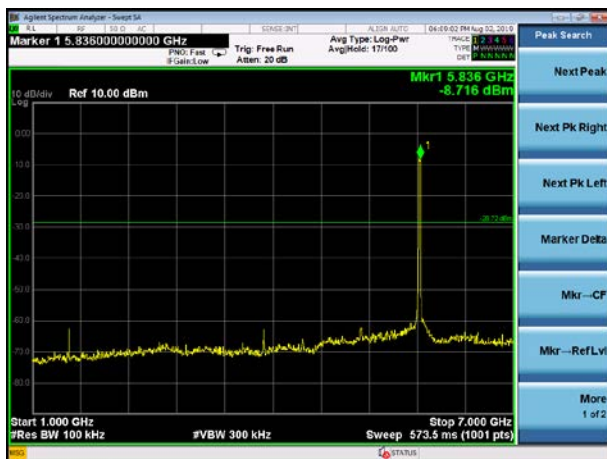
802.11n20 on channel 157



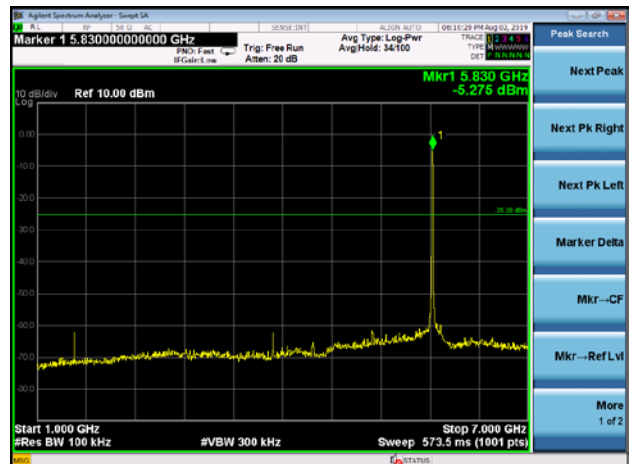
802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157



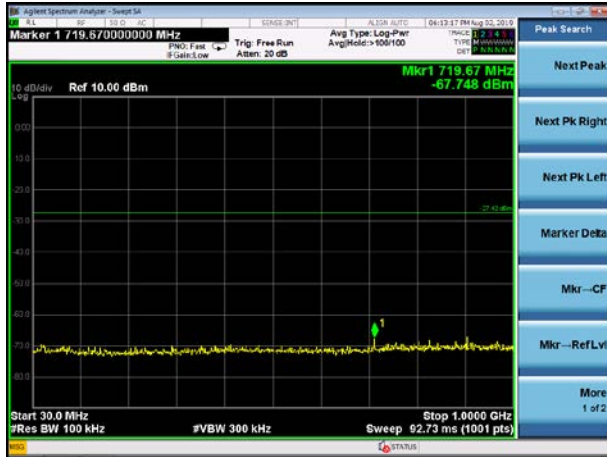
802.11n20 on channel 165



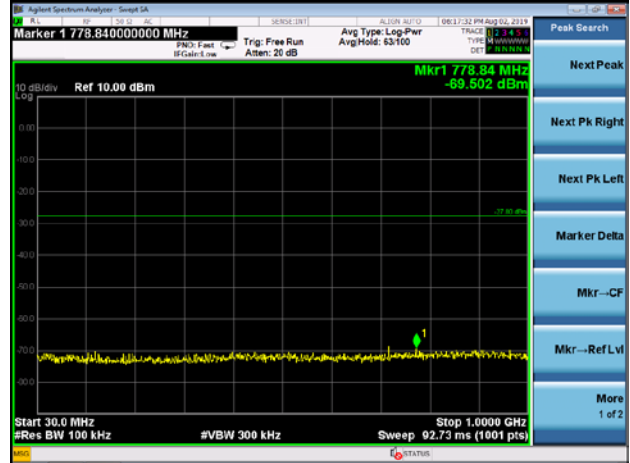


Test Plot

802.11n40 on channel 151



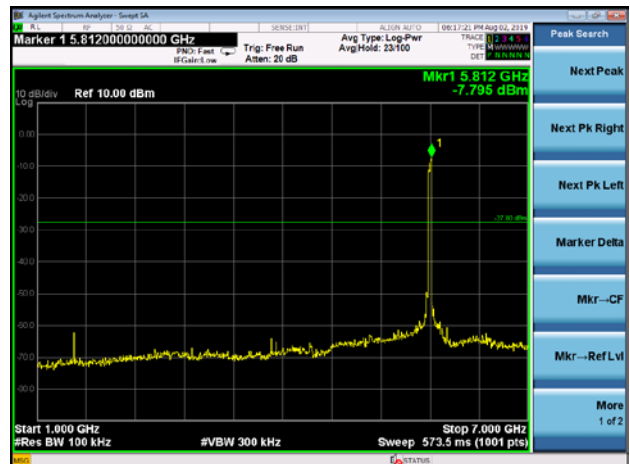
802.11n40 on channel 159



802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151



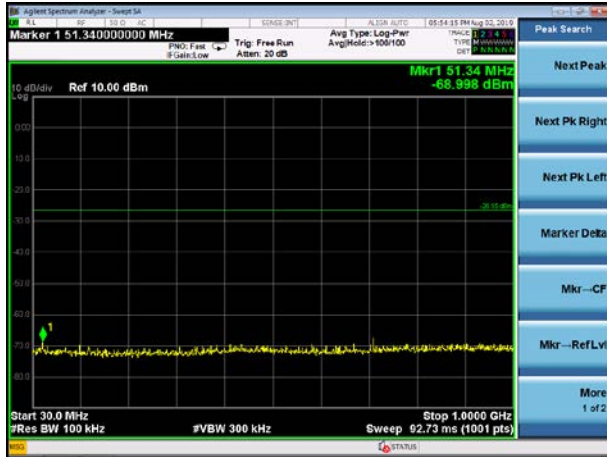
802.11n40 on channel 159



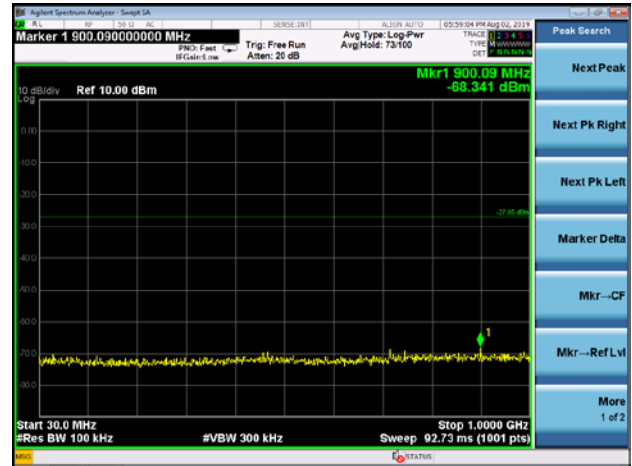


Test Plot

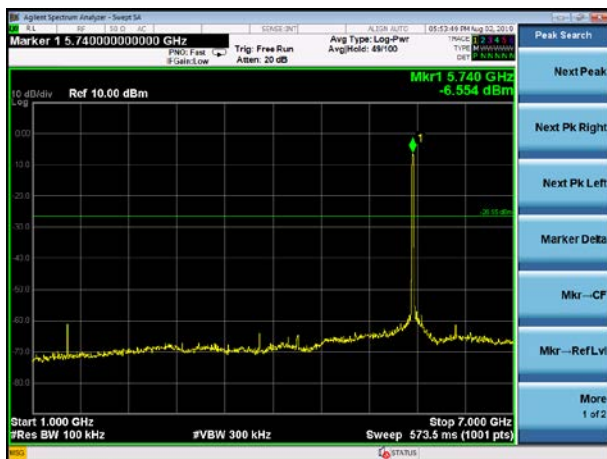
802.11ac20 on channel 149



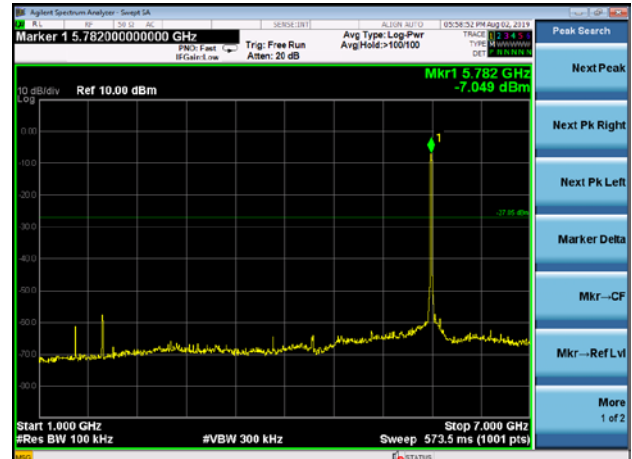
802.11ac20 on channel 157



802.11ac20 on channel 149



802.11ac20 on channel 157



802.11ac20 on channel 149



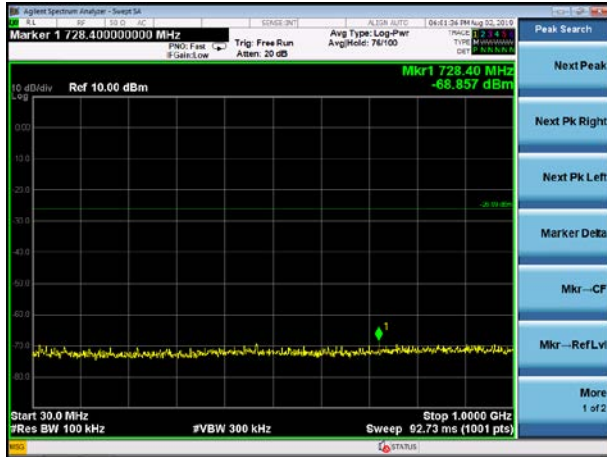
802.11ac20 on channel 157



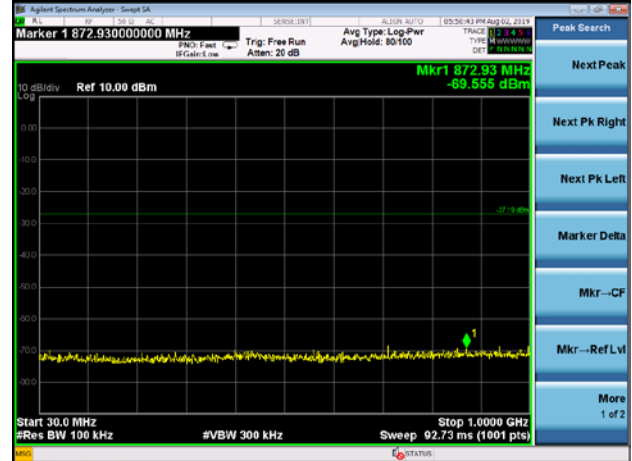


Test Plot

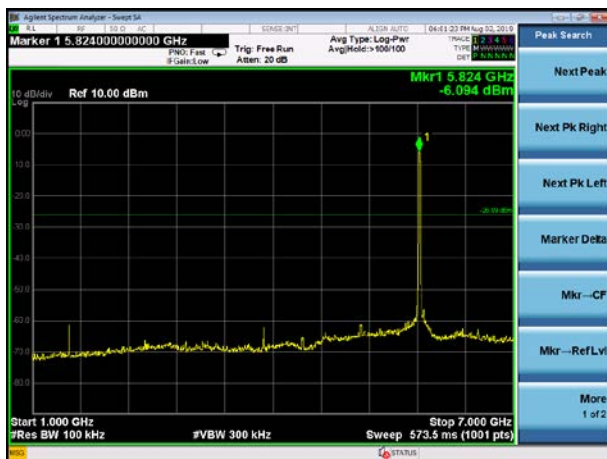
802.11ac20 on channel 165



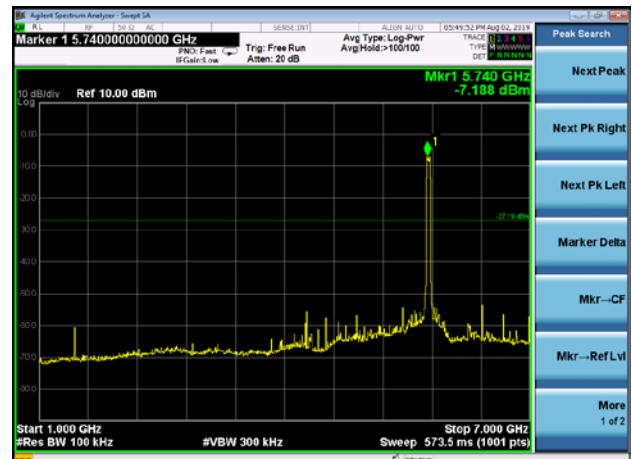
802.11ac40 on channel 151



802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165



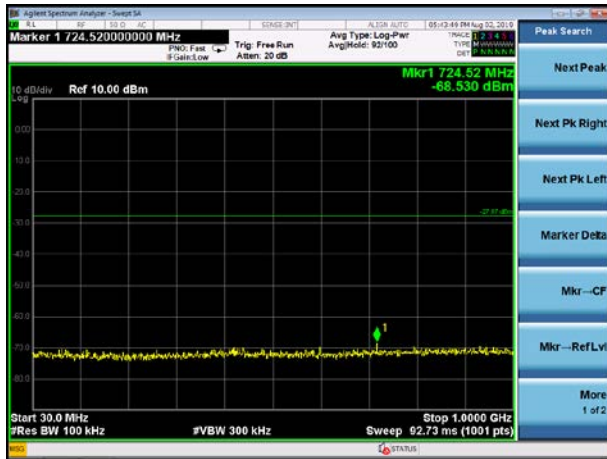
802.11ac40 on channel 151



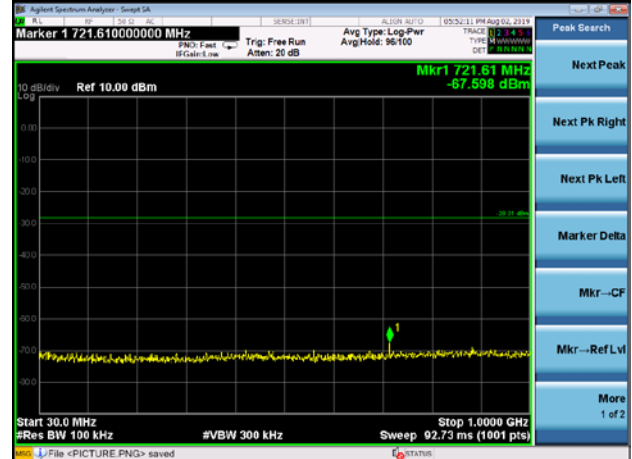


Test Plot

802.11ac40 on channel 159



802.11ac80 on channel 155



802.11 ac40 on channel 159



802.11 ac80 on channel 155



802.11 ac40 on channel 159



802.11 ac80 on channel 155



9. Frequency Stability Measurement

9.1 LIMIT

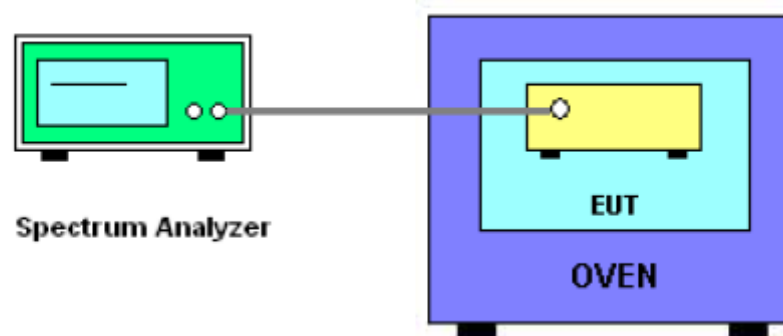
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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

9.2 TEST PROCEDURES

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. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ 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 $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$.

9.3 TEST SETUP LAYOUT



10.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.



9.5 TEST RESULTS

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX Frequency Band I (5150-5250MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5180.0522	5180	0.0522	-10.0772
		V max (V)	138.00	5180.0328	5180	0.0328	-6.3320
		V min (V)	102.00	5180.0241	5180	0.0241	-4.6525
Limits Range (MHz)				5150-5250			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5180.0056	5180	0.0056	-1.0811
		T (°C)	-10	5180.0103	5180	0.0103	-1.9884
		T (°C)	0	5180.0329	5180	0.0329	-6.3514
		T (°C)	10	5180.0382	5180	0.0382	-7.3745
		T (°C)	20	5180.0292	5180	0.0292	-5.6371
		T (°C)	30	5180.0211	5180	0.0211	-4.0734
		T (°C)	40	5180.0128	5180	0.0128	-2.4710
		T (°C)	50	5180.0091	5180	0.0091	-1.7568
		T (°C)	60	5180.0415	5180	0.0415	-8.0116
		T (°C)	70	5180.0690	5180	0.0690	-13.3205
Limits Range (MHz)				5150-5250			
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)	120.00	5200.0254	5200	0.0254	-4.8846
		V max (V)	138.00	5200.0427	5200	0.0427	-8.2115
		V min (V)	102.00	5200.0699	5200	0.0699	-13.4423
Limits Range (MHz)				5150-5250			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5200.0631	5200	0.0631	-12.1346
		T (°C)	-10	5200.0527	5200	0.0527	-10.1346
		T (°C)	0	5200.0433	5200	0.0433	-8.3269
		T (°C)	10	5200.0926	5200	0.0926	-17.8077
		T (°C)	20	5200.0631	5200	0.0631	-12.1346
		T (°C)	30	5200.0128	5200	0.0128	-2.4615
		T (°C)	40	5200.0732	5200	0.0732	-14.0769
		T (°C)	50	5200.0418	5200	0.0418	-8.0385
		T (°C)	60	5200.0321	5200	0.0321	-6.1731
		T (°C)	70	5200.0421	5200	0.0421	-8.0962
Limits Range (MHz)				5150-5250			
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)	120.00	5240.0133	5240	0.0133	-2.5382
		V max (V)	138.00	5240.0415	5240	0.0415	-7.9198
		V min (V)	102.00	5240.0091	5240	0.0091	-1.7366
Limit Range (MHz)				5150-5250			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5240.0093	5240	0.0093	-1.7748
		T (°C)	-10	5240.0036	5240	0.0036	-0.6870
		T (°C)	0	5240.0145	5240	0.0145	-2.7672
		T (°C)	10	5240.0857	5240	0.0857	-16.3550
		T (°C)	20	5240.0116	5240	0.0116	-2.2137
		T (°C)	30	5240.0124	5240	0.0124	-2.3664
		T (°C)	40	5240.0062	5240	0.0062	-1.1832
		T (°C)	50	5240.0074	5240	0.0074	-1.4122
		T (°C)	60	5240.0054	5240	0.0054	-1.0305
		T (°C)	70	5240.0106	5240	0.0106	-2.0229
Limits Range (MHz)				5150-5250			
Result				Complies			



Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX Frequency(5725-5850MHz)		

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5745.00435	5745	0.00435	-0.7572
		V max (V)	138.00	5745.00298	5745	0.00298	-0.5190
		V min (V)	102.00	5745.00169	5745	0.00169	-0.2944
Limits Range (MHz)				5725-5850			
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)	120	T (°C)	-20	5745.00215	5745	0.00215	-0.3746
		T (°C)	-10	5745.00426	5745	0.00426	-0.7423
		T (°C)	0	5745.00361	5745	0.00361	-0.6288
		T (°C)	10	5745.01261	5745	0.01261	-2.1953
		T (°C)	20	5745.00665	5745	0.00665	-1.1579
		T (°C)	30	5745.01209	5745	0.01209	-2.1040
		T (°C)	40	5745.00950	5745	0.00950	-1.6541
		T (°C)	50	5745.00319	5745	0.00319	-0.5558
		T (°C)	60	5745.01294	5745	0.01294	-2.2516
		T (°C)	70	5745.01217	5745	0.01217	-2.1187
Limits Range (MHz)				5725–5850			
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)	120.00	5785.01106	5785	0.01106	-1.9120
		V max (V)	138.00	5785.00986	5785	0.00986	-1.7051
		V min (V)	102.00	5785.01159	5785	0.01159	-2.0038
Limits Range (MHz)				5725-5850			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5785.00877	5785	0.00877	-1.5159
		T (°C)	-10	5785.00920	5785	0.00920	-1.5909
		T (°C)	0	5785.01246	5785	0.01246	-2.1542
		T (°C)	10	5785.01075	5785	0.01075	-1.8581
		T (°C)	20	5785.00256	5785	0.00256	-0.4423
		T (°C)	30	5785.00133	5785	0.00133	-0.2299
		T (°C)	40	5785.00443	5785	0.00443	-0.7650
		T (°C)	50	5785.01085	5785	0.01085	-1.8753
		T (°C)	60	5785.00432	5785	0.00432	-0.7466
		T (°C)	70	5785.01296	5785	0.01296	-2.2400
Limits Range (MHz)				5725-5850			
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)	120.00	5825.00881	5825	0.00881	-1.5121
		V max (V)	138.00	5825.01110	5825	0.01110	-1.9057
		V min (V)	102.00	5825.00832	5825	0.00832	-1.4284
Limits Range (MHz)				5725-5850			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5825.00508	5825	0.00508	-0.8714
		T (°C)	-10	5825.00420	5825	0.00420	-0.7205
		T (°C)	0	5825.00798	5825	0.00798	-1.3696
		T (°C)	10	5825.00447	5825	0.00447	-0.7682
		T (°C)	20	5825.00355	5825	0.00355	-0.6095
		T (°C)	30	5825.01225	5825	0.01225	-2.1023
		T (°C)	40	5825.01270	5825	0.01270	-2.1801
		T (°C)	50	5825.01198	5825	0.01198	-2.0562
		T (°C)	60	5825.00410	5825	0.00410	-0.7040
		T (°C)	70	5825.00949	5825	0.00949	-1.6300
Limits Range (MHz)				5725-5850			
Result				Complies			



10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

10.2 EUT ANTENNA

The EUT antenna is FPCB antenna(antenna gain:0dBi). It comply with the standard requirement.



11. EUT TEST PHOTO

Conducted Measurement Photos



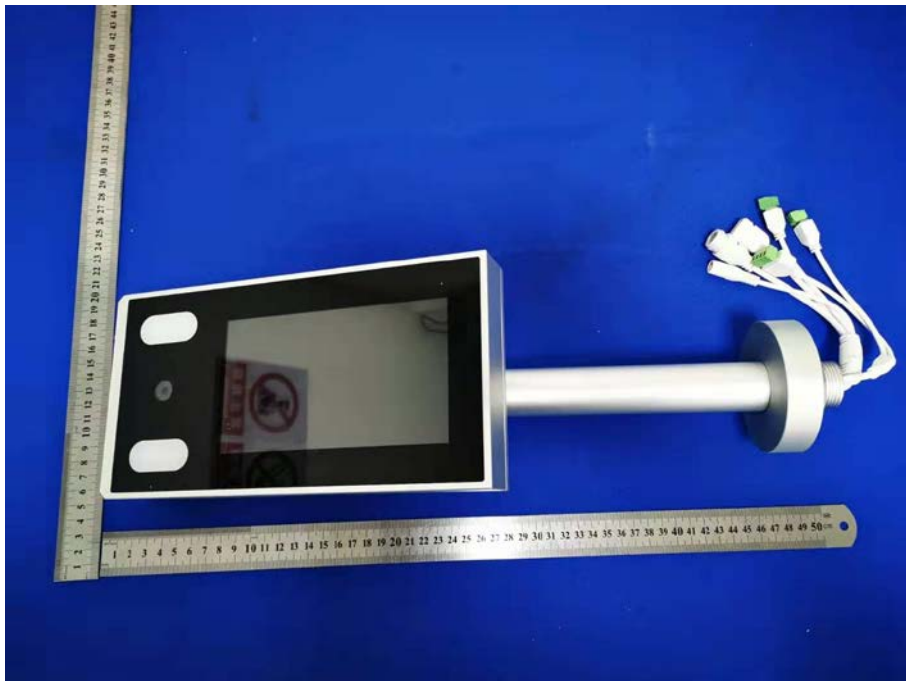


Radiated Measurement Photos





12. EUT PHOTO



***** END OF REPORT *****