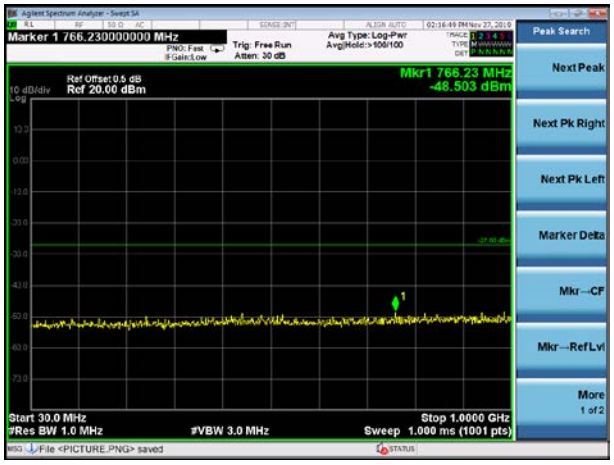
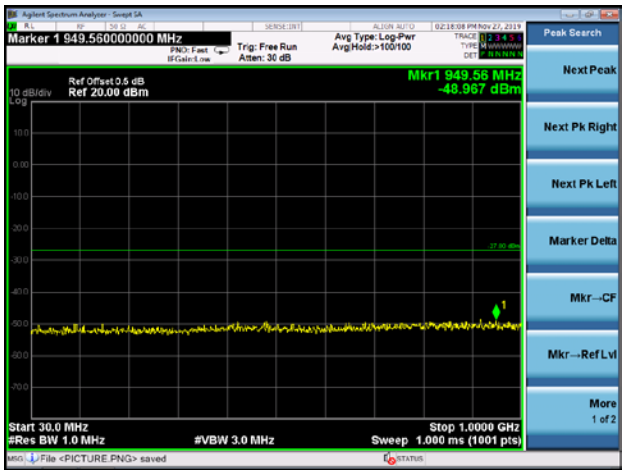
Test Plot

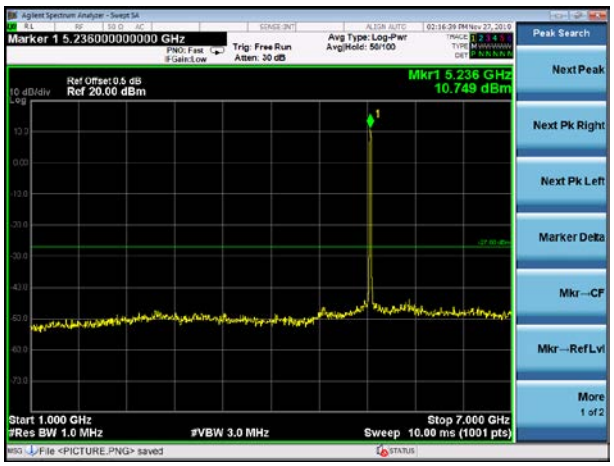
802.11a on channel 48



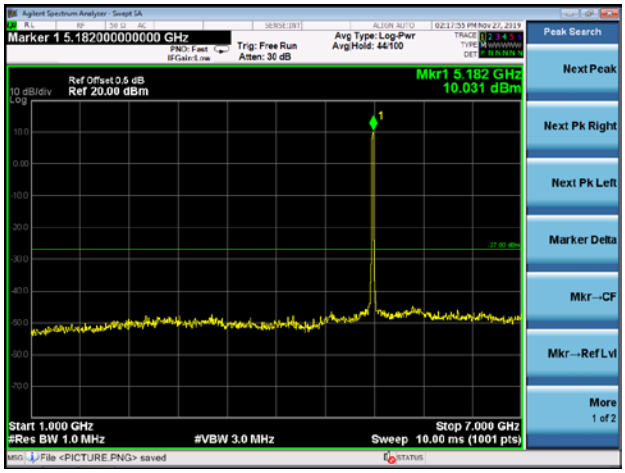
802.11n20 on channel 36



802.11a on channel 48



802.11n20 on channel 36

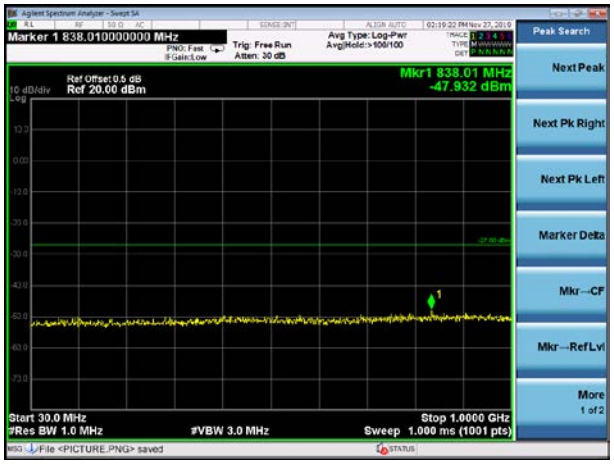


802.11a on channel 48

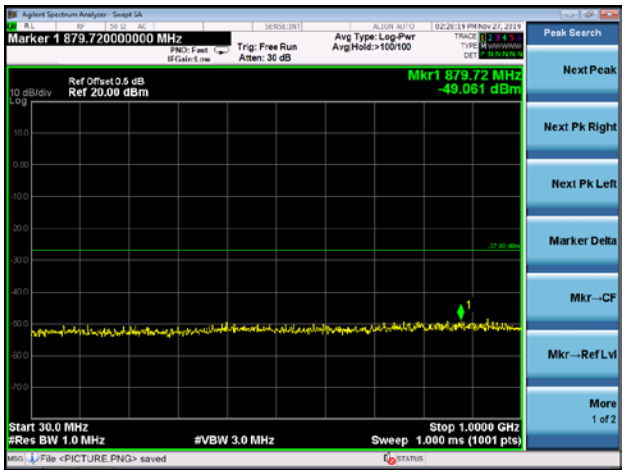
802.11n20 on channel 36

Test Plot

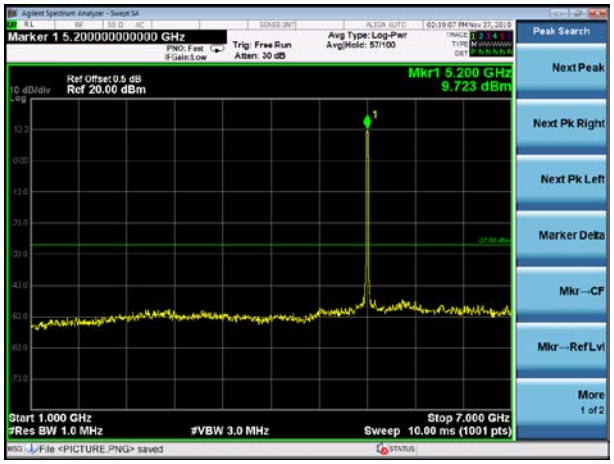
802.11n20 on channel 40



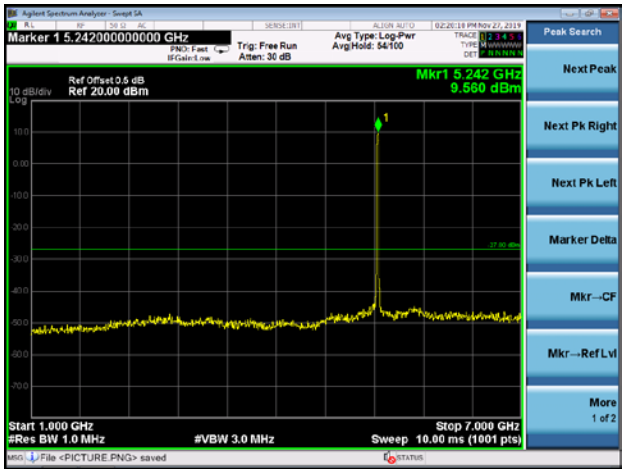
802.11n20 on channel 48



802.11n20 on channel 40



802.11n20 on channel 48

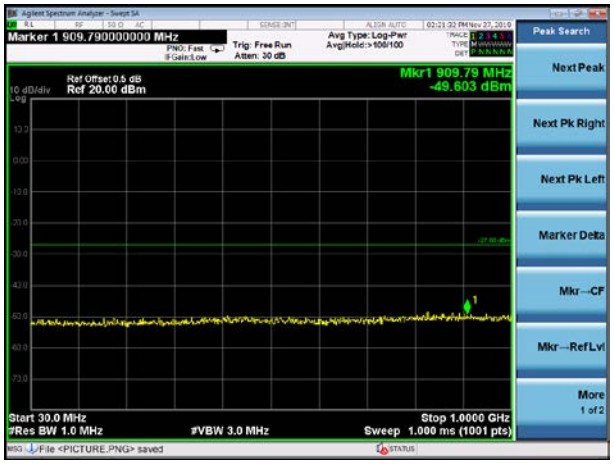


802.11n20 on channel 40

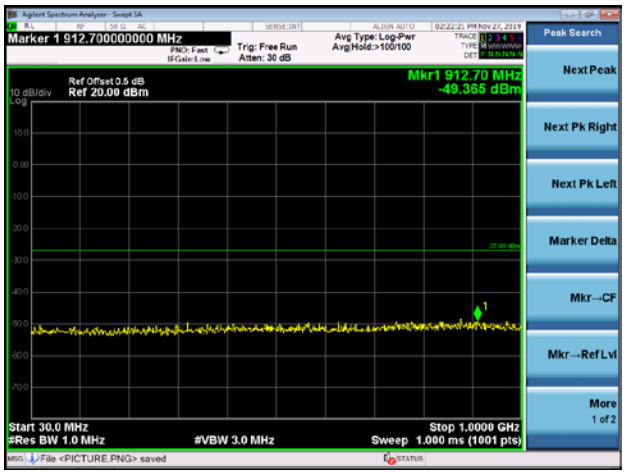
802.11n20 on channel 48

Test Plot

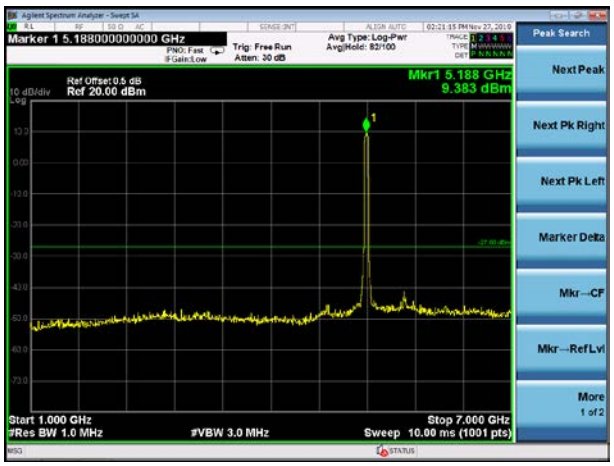
802.11n40 on channel 38



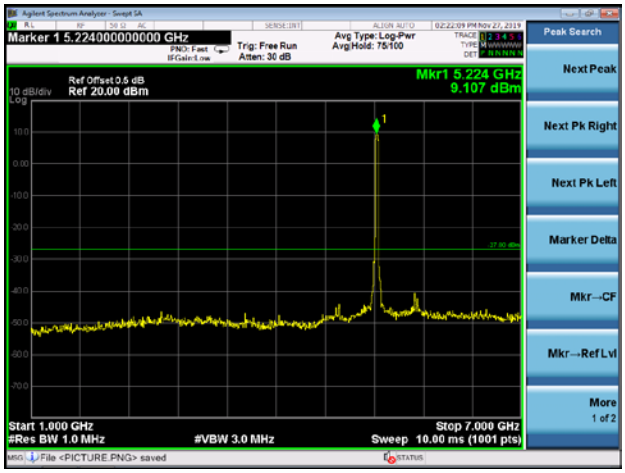
802.11n40 on channel 46



802.11n40 on channel 38



802.11n40 on channel 46

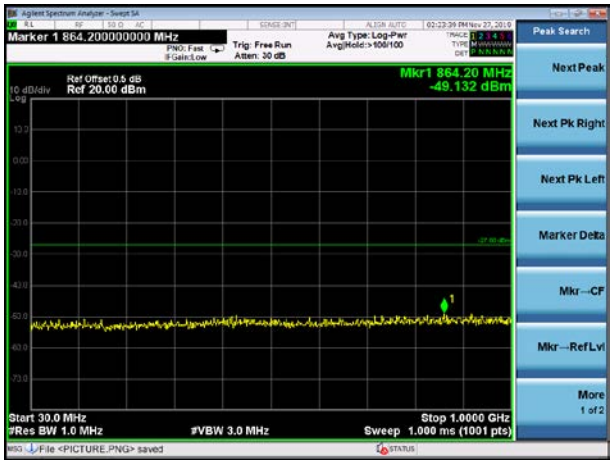


802.11n40 on channel 38

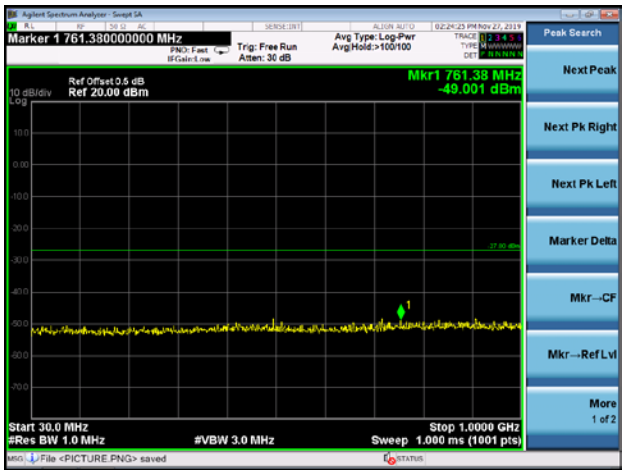
802.11n40 on channel 46

Test Plot

802.11ac20 on channel 36

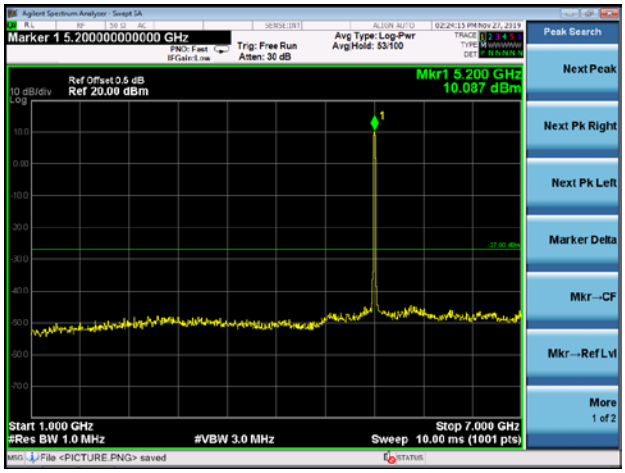


802.11ac20 on channel 40



802.11ac20 on channel 36

802.11ac20 on channel 40

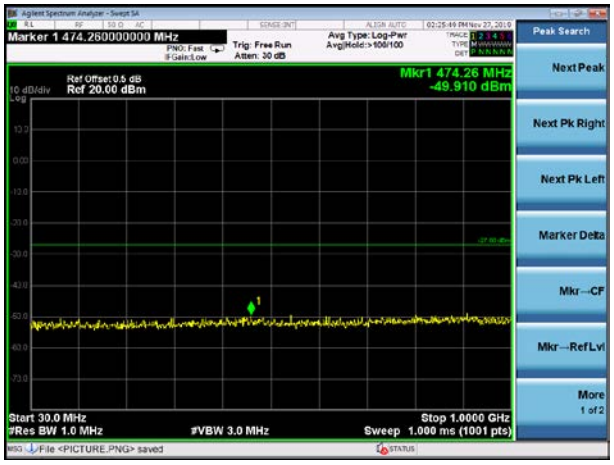


802.11ac20 on channel 36

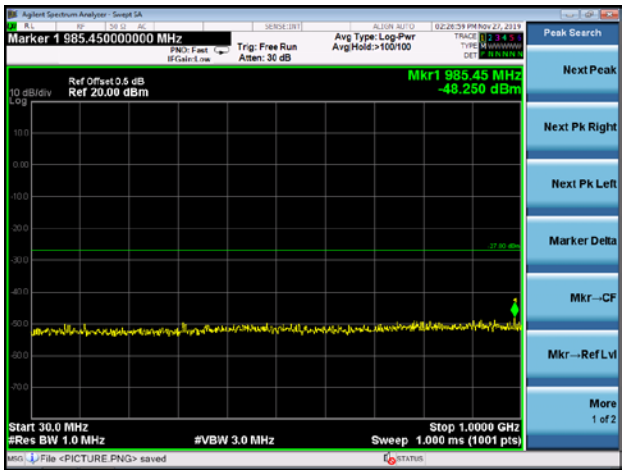
802.11ac20 on channel 40

Test Plot

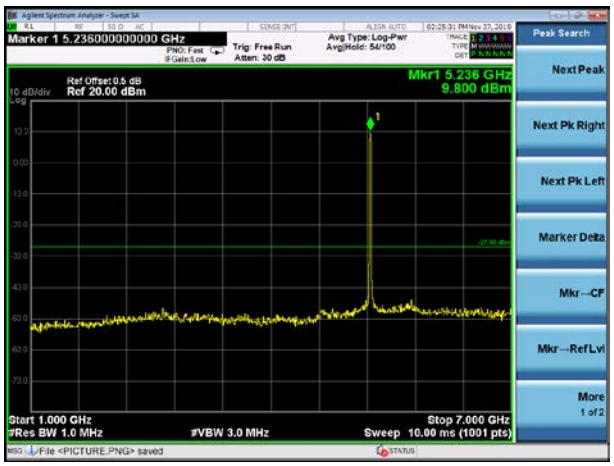
802.11ac20 on channel 48



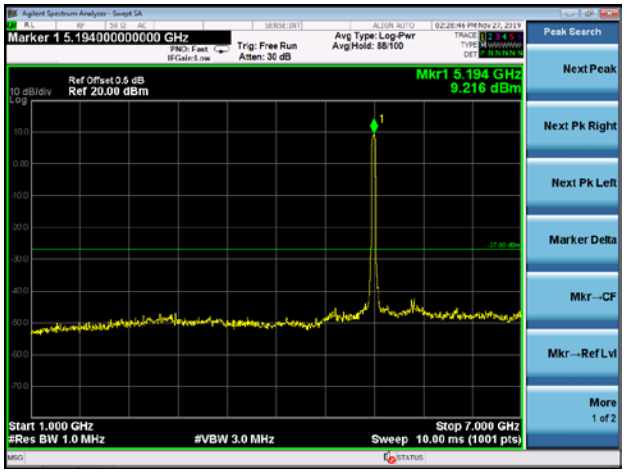
802.11ac40 on channel 38



802.11ac20 on channel 48



802.11ac40 on channel 38

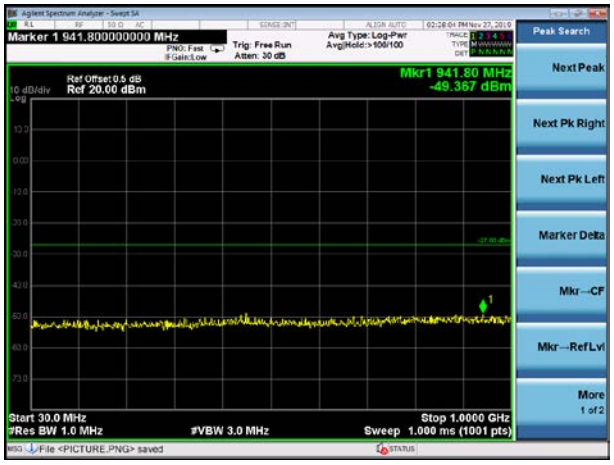


802.11ac20 on channel 48

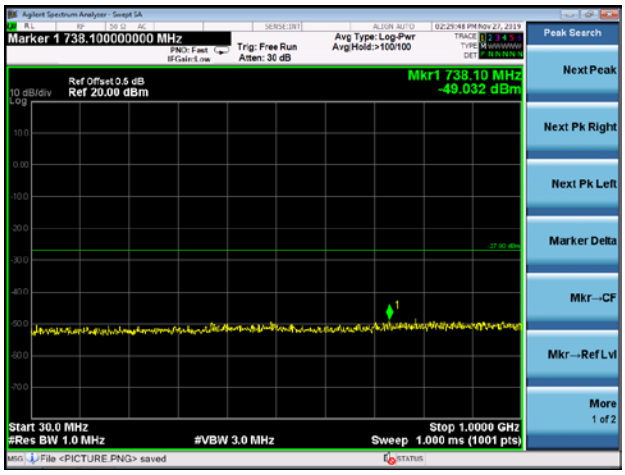
802.11ac40 on channel 38

Test Plot

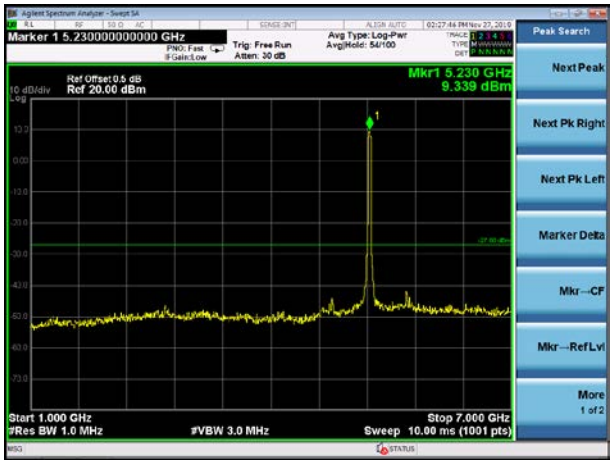
802.11ac40 on channel 46



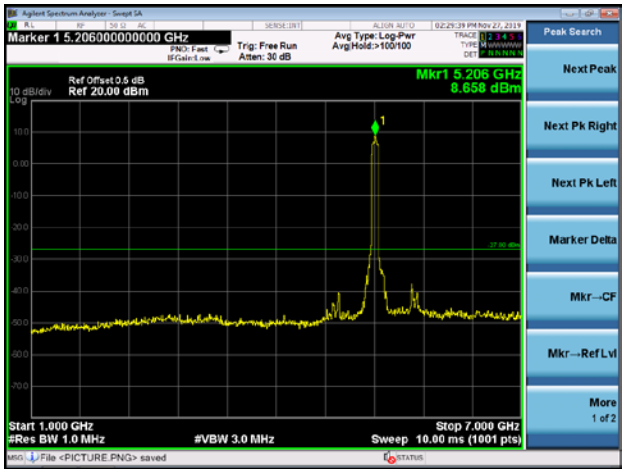
802.11ac80 on channel 42



802.11 ac40 on channel 46



802.11 ac80 on channel 42



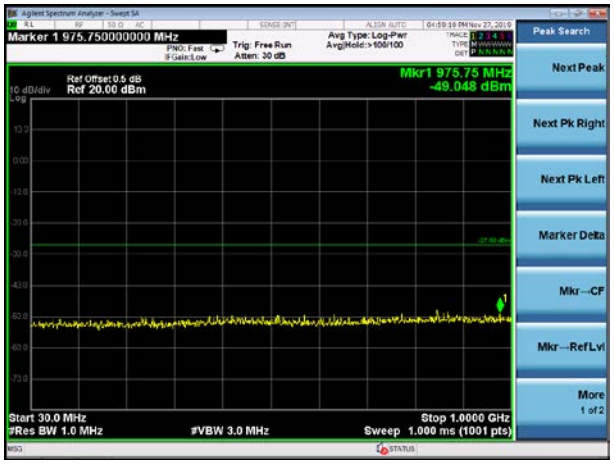
802.11 ac40 on channel 46

802.11 ac80 on channel 42

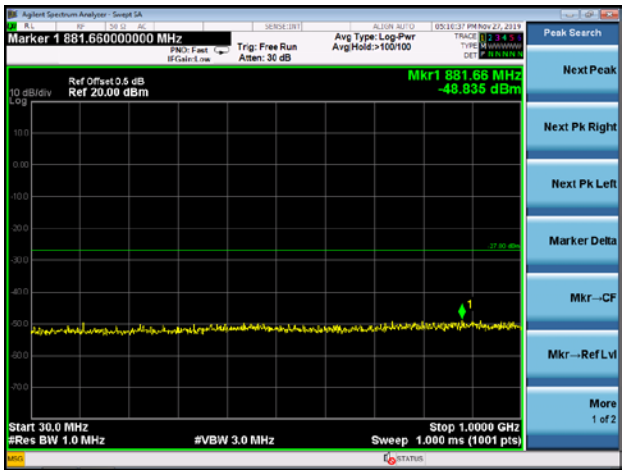
5.8G

Test Plot

802.11a on channel 149



802.11a on channel 157



802.11a on channel 149

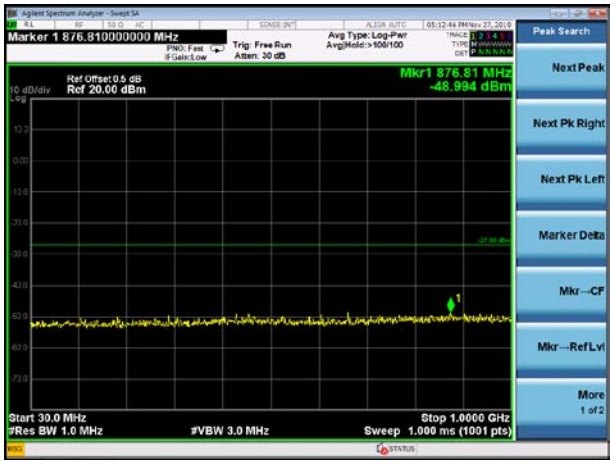
802.11a on channel 157

802.11a on channel 149

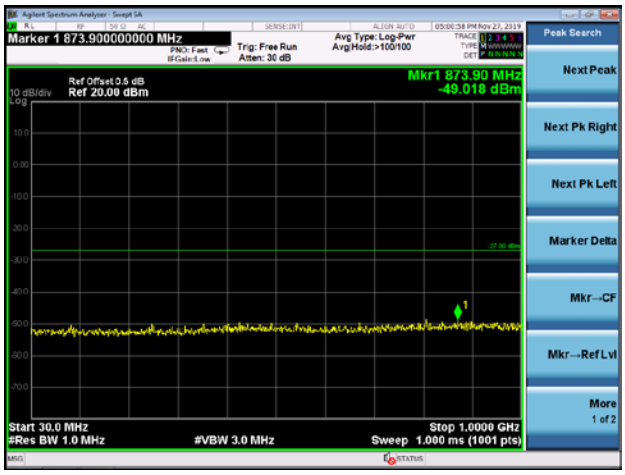
802.11a on channel 157

Test Plot

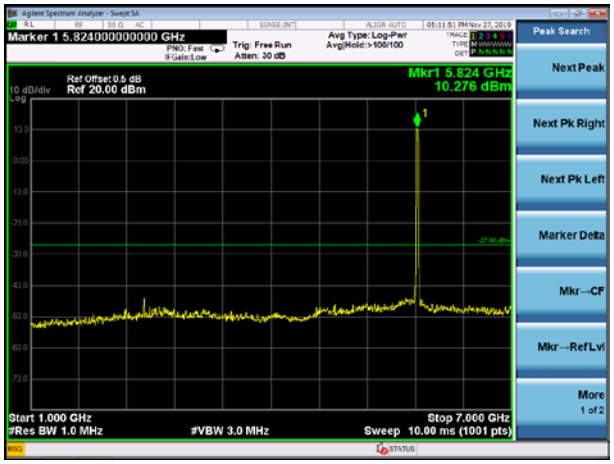
802.11a on channel 165



802.11n20 on channel 149



802.11a on channel 165



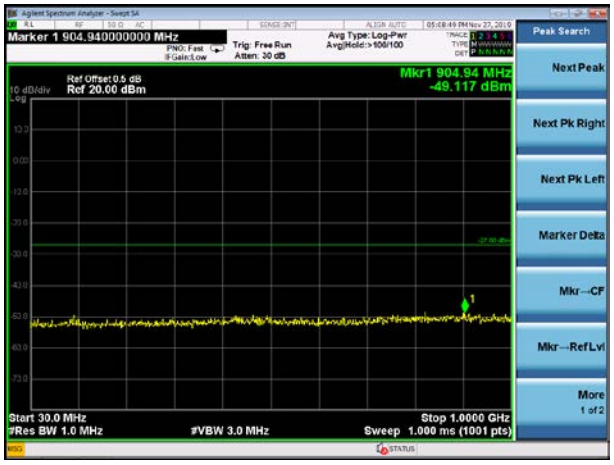
802.11n20 on channel 149

802.11a on channel 165

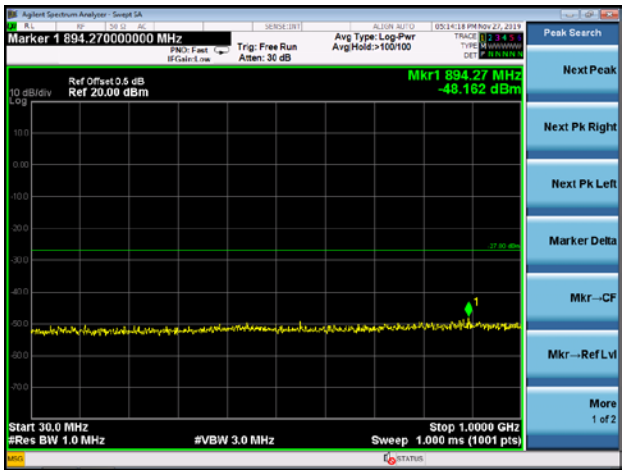
802.11n20 on channel 149

Test Plot

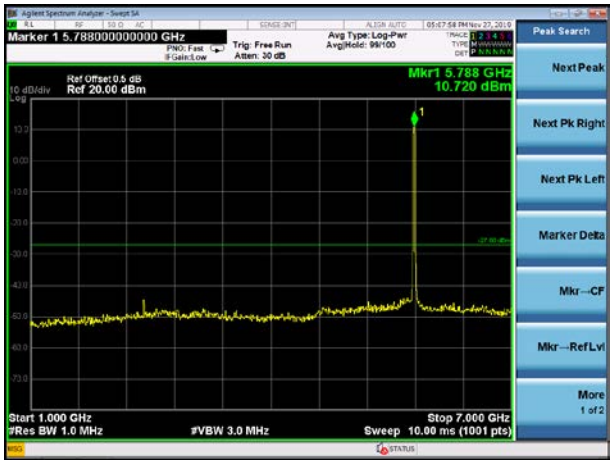
802.11n20 on channel 157



802.11n20 on channel 165



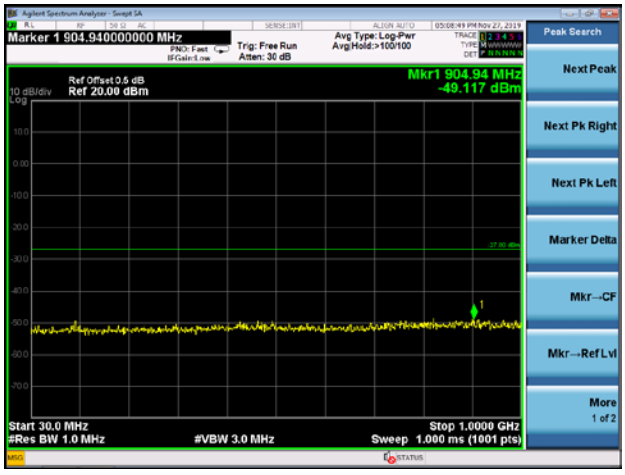
802.11n20 on channel 157



802.11n20 on channel 165

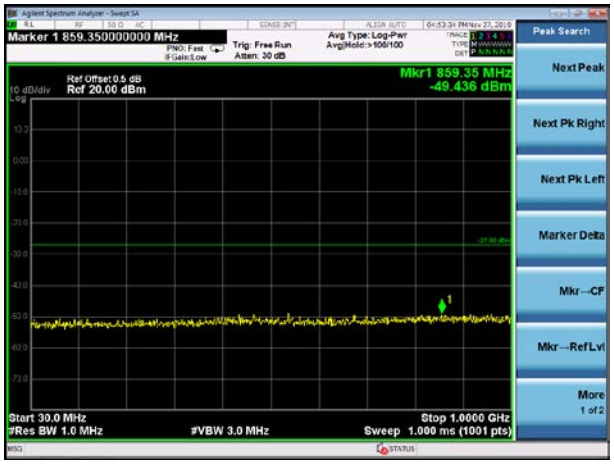
802.11n20 on channel 157

802.11n20 on channel 165

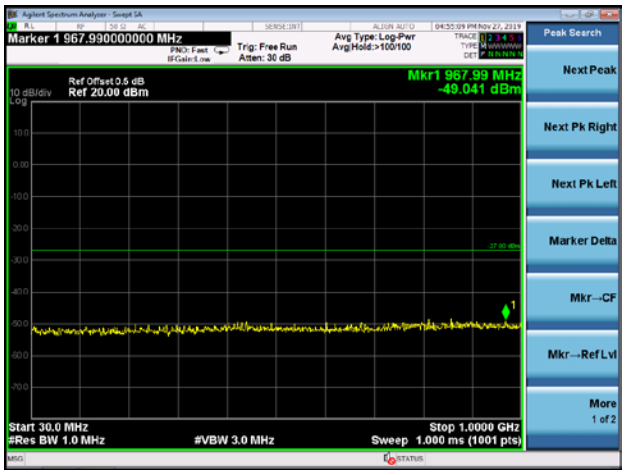


Test Plot

802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151

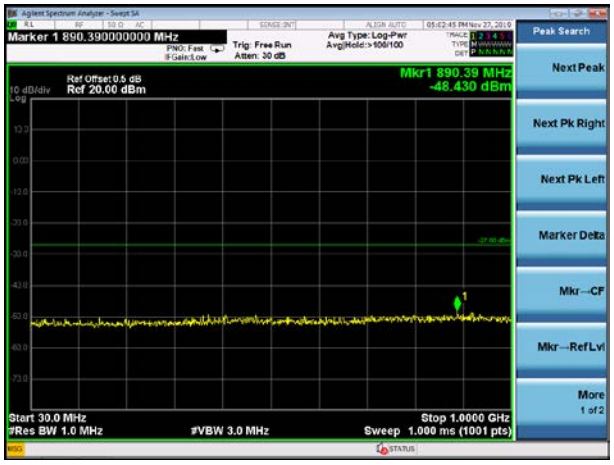
802.11n40 on channel 159

802.11n40 on channel 151

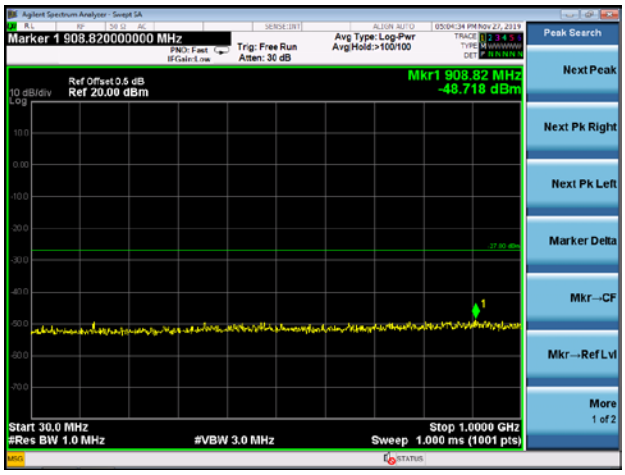
802.11n40 on channel 159

Test Plot

802.11ac20 on channel 149



802.11ac20 on channel 157



802.11ac20 on channel 149

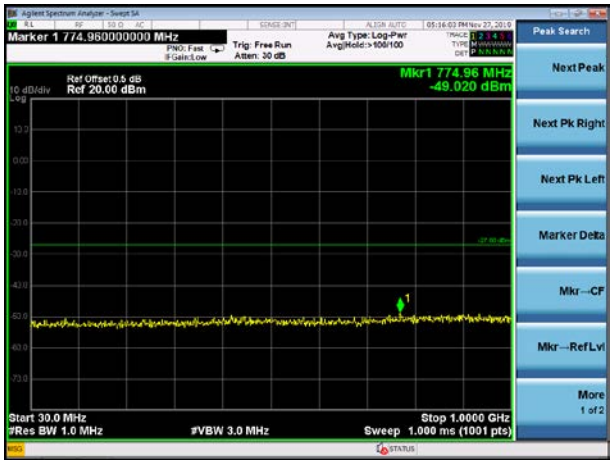
802.11ac20 on channel 157

802.11ac20 on channel 149

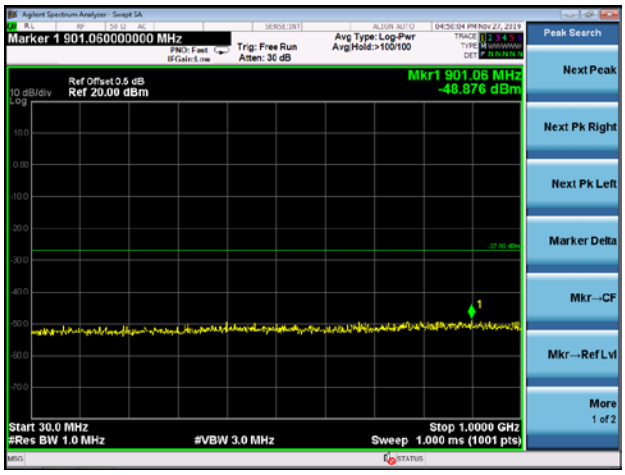
802.11ac20 on channel 157

Test Plot

802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165

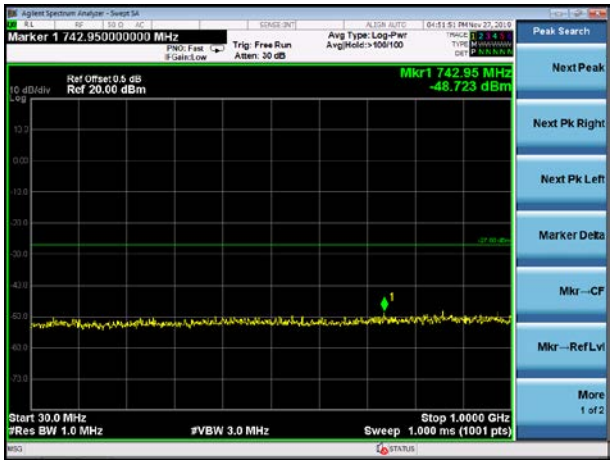
802.11ac40 on channel 151

802.11ac20 on channel 165

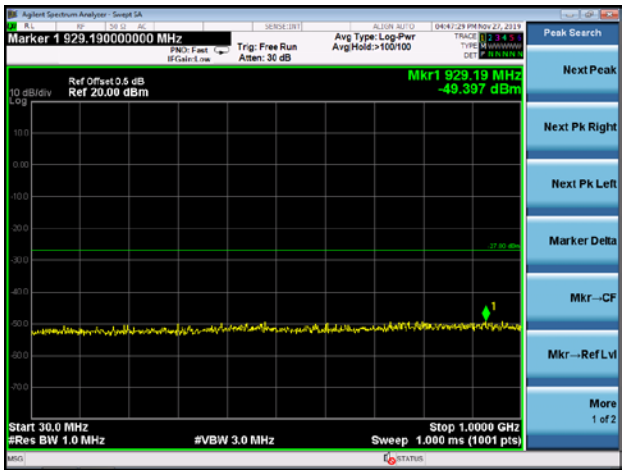
802.11ac40 on channel 151

Test Plot

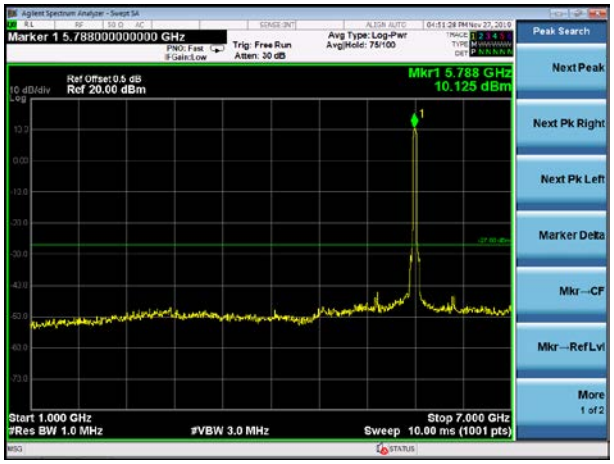
802.11ac40 on channel 159



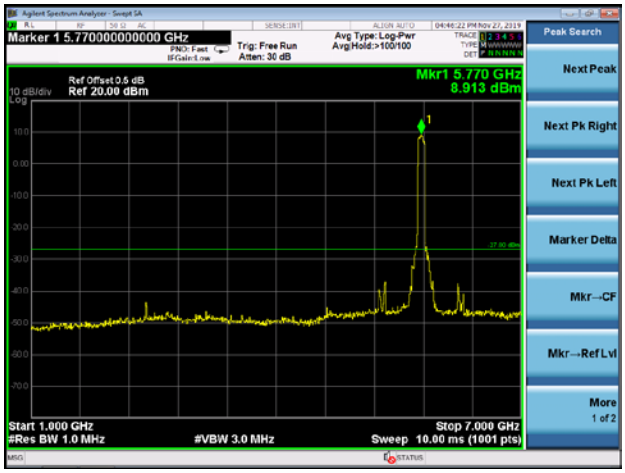
802.11ac80 on channel 155



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

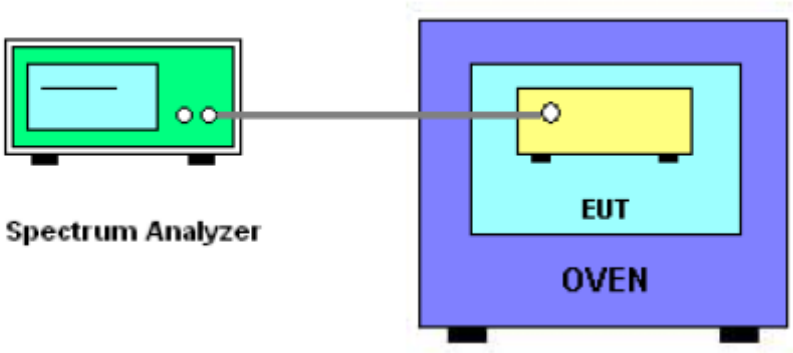
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10_6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
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.

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 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC3.7V
Test Mode ：	TX Frequency Band I (5180-5240MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5180.0525	5180	0.0525	-10.1351
		V max (V)	4.26	5180.0327	5180	0.0327	-6.3127
		V min (V)	3.15	5180.0243	5180	0.0243	-4.6911
Limits				5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5180.0057	5180	0.0057	-1.1004
		T (°C)	-10	5180.0102	5180	0.0102	-1.9691
		T (°C)	0	5180.0327	5180	0.0327	-6.3127
		T (°C)	10	5180.0388	5180	0.0388	-7.4903
		T (°C)	20	5180.0294	5180	0.0294	-5.6757
		T (°C)	30	5180.0212	5180	0.0212	-4.0927
		T (°C)	40	5180.0124	5180	0.0124	-2.3938
		T (°C)	50	5180.0098	5180	0.0098	-1.8919
		T (°C)	60	5180.0413	5180	0.0413	-7.9730
		T (°C)	70	5180.0691	5180	0.0691	-13.3398
Limits				5150-5250MHz			
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)	3.70	5200.0257	5200	0.0257	-4.9423
		V max (V)	4.26	5200.0422	5200	0.0422	-8.1154
		V min (V)	3.15	5200.0697	5200	0.0697	-13.4038
Limits				5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5200.0635	5200	0.0635	-12.2115
		T (°C)	-10	5200.0524	5200	0.0524	-10.0769
		T (°C)	0	5200.0435	5200	0.0435	-8.3654
		T (°C)	10	5200.0927	5200	0.0927	-17.8269
		T (°C)	20	5200.0632	5200	0.0632	-12.1538
		T (°C)	30	5200.0124	5200	0.0124	-2.3846
		T (°C)	40	5200.0736	5200	0.0736	-14.1538
		T (°C)	50	5200.0417	5200	0.0417	-8.0192
		T (°C)	60	5200.0324	5200	0.0324	-6.2308
		T (°C)	70	5200.0423	5200	0.0423	-8.1346
Limits				5150-5250MHz			
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)	3.70	5240.0137	5240	0.0137	-2.6145
		V max (V)	4.26	5240.0418	5240	0.0418	-7.9771
		V min (V)	3.15	5240.0092	5240	0.0092	-1.7557
Limits				5150-5250MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5240.0097	5240	0.0097	-1.8511
		T (°C)	-10	5240.0035	5240	0.0035	-0.6679
		T (°C)	0	5240.0143	5240	0.0143	-2.7290
		T (°C)	10	5240.0854	5240	0.0854	-16.2977
		T (°C)	20	5240.0115	5240	0.0115	-2.1947
		T (°C)	30	5240.0121	5240	0.0121	-2.3092
		T (°C)	40	5240.0068	5240	0.0068	-1.2977
		T (°C)	50	5240.0074	5240	0.0074	-1.4122
		T (°C)	60	5240.0056	5240	0.0056	-1.0687
		T (°C)	70	5240.0107	5240	0.0107	-2.0420
Limits				5150-5250MHz			
Result				Complies			

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC3.7
Test Mode ：	TX Frequency(5745-5825MHz)		

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5745.00365	5745	0.00365	-0.6361
		V max (V)	4.26	5745.00904	5745	0.00904	-1.5734
		V min (V)	3.15	5745.00887	5745	0.00887	-1.5433
Limits				5725-5850MHz			
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)	3.7	T (°C)	-20	5745.01347	5745	0.01347	-2.3439
		T (°C)	-10	5745.00908	5745	0.00908	-1.5814
		T (°C)	0	5745.00197	5745	0.00197	-0.3436
		T (°C)	10	5745.00994	5745	0.00994	-1.7304
		T (°C)	20	5745.00964	5745	0.00964	-1.6787
		T (°C)	30	5745.00302	5745	0.00302	-0.5249
		T (°C)	40	5745.00364	5745	0.00364	-0.6340
		T (°C)	50	5745.00774	5745	0.00774	-1.3465
		T (°C)	60	5745.00016	5745	0.00016	-0.0277
		T (°C)	70	5745.00805	5745	0.00805	-1.4018
Limits				5725-5850MHz			
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)	3.70	5785.00261	5785	0.00261	-0.4507
		V max (V)	4.26	5785.00421	5785	0.00421	-0.7272
		V min (V)	3.15	5785.00407	5785	0.00407	-0.7039
Limits				5725-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5785.00951	5785	0.00951	-1.6440
		T (°C)	-10	5785.00497	5785	0.00497	-0.8593
		T (°C)	0	5785.00413	5785	0.00413	-0.7143
		T (°C)	10	5785.00181	5785	0.00181	-0.3130
		T (°C)	20	5785.00359	5785	0.00359	-0.6211
		T (°C)	30	5785.00448	5785	0.00448	-0.7747
		T (°C)	40	5785.00756	5785	0.00756	-1.3073
		T (°C)	50	5785.00766	5785	0.00766	-1.3245
		T (°C)	60	5785.00549	5785	0.00549	-0.9487
		T (°C)	70	5785.01070	5785	0.01070	-1.8493
Limits				5725-5850MHz			
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)	3.70	5825.00464	5825	0.00464	-0.7967
		V max (V)	4.26	5825.00353	5825	0.00353	-0.6055
		V min (V)	3.15	5825.00377	5825	0.00377	-0.6479
Limits				5725-5850MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5825.00353	5825	0.00353	-0.6067
		T (°C)	-10	5825.00287	5825	0.00287	-0.4926
		T (°C)	0	5825.00717	5825	0.00717	-1.2308
		T (°C)	10	5825.01106	5825	0.01106	-1.8991
		T (°C)	20	5825.00927	5825	0.00927	-1.5921
		T (°C)	30	5825.01286	5825	0.01286	-2.2081
		T (°C)	40	5825.00405	5825	0.00405	-0.6953
		T (°C)	50	5825.00499	5825	0.00499	-0.8559
		T (°C)	60	5825.00234	5825	0.00234	-0.4019
		T (°C)	70	5825.00138	5825	0.00138	-0.2361
Limits				5725-5850MHz			
Result				Complies			

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

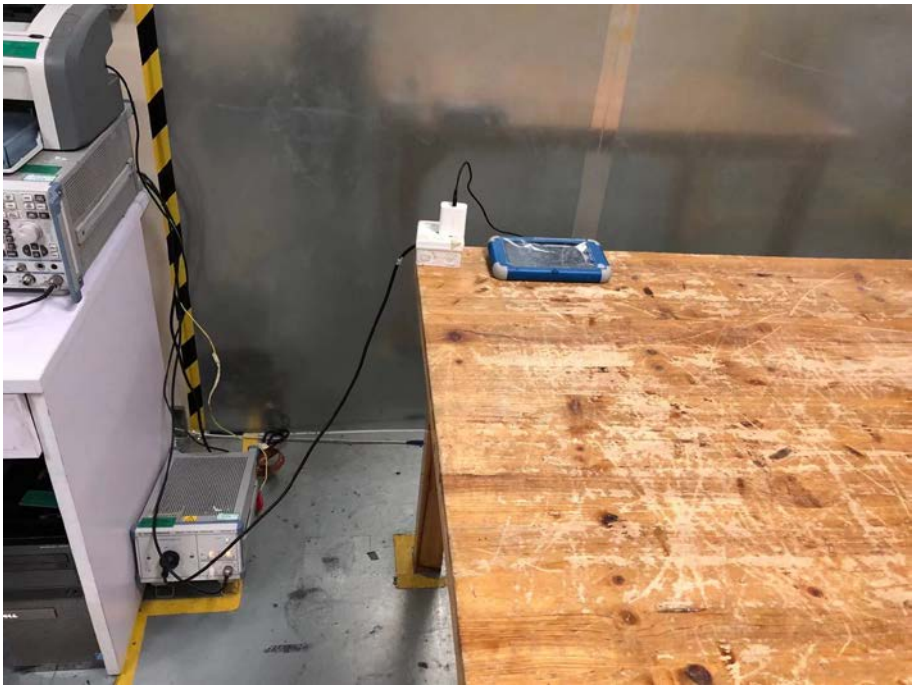
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2 EUT ANTENNA

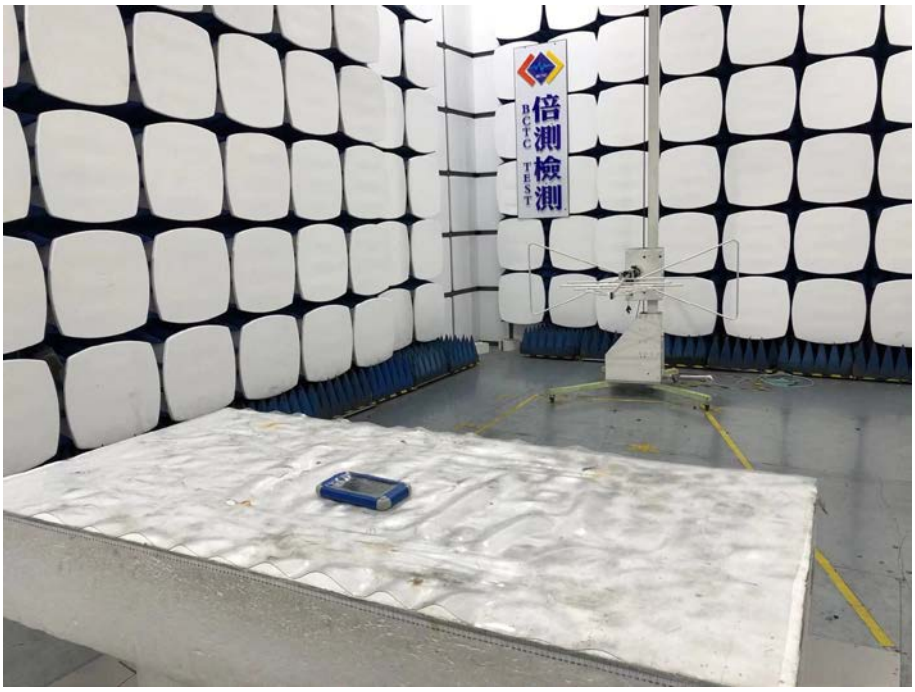
The EUT antenna is Internal Antenna (antenna gain:3.45dBi). It comply with the standard requirement.

11. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos

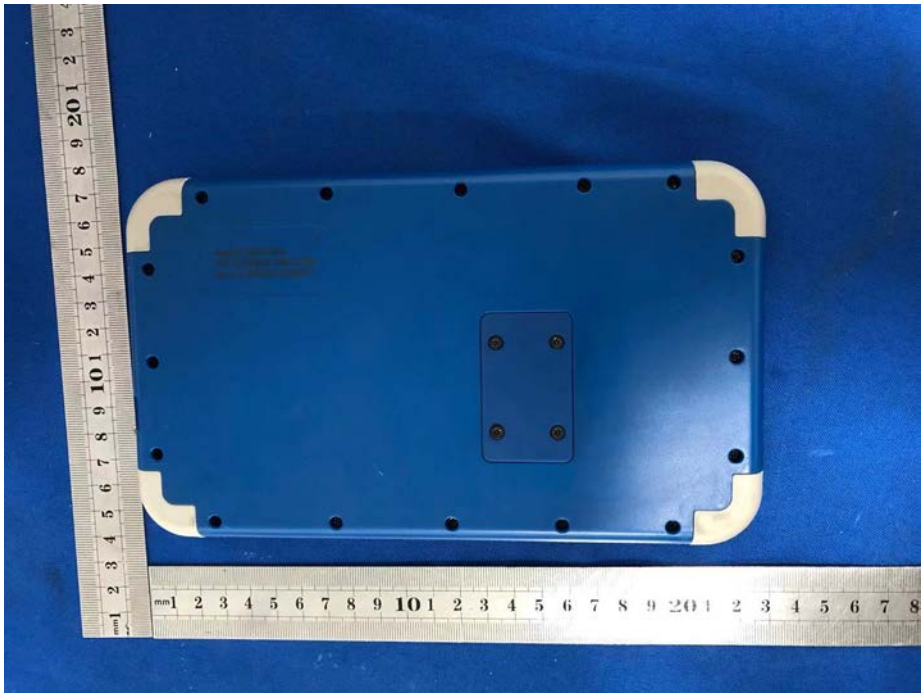



倍测检测
BCTC TEST

12. EUT PHOTO

EUT Photo 1

EUT Photo 2



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