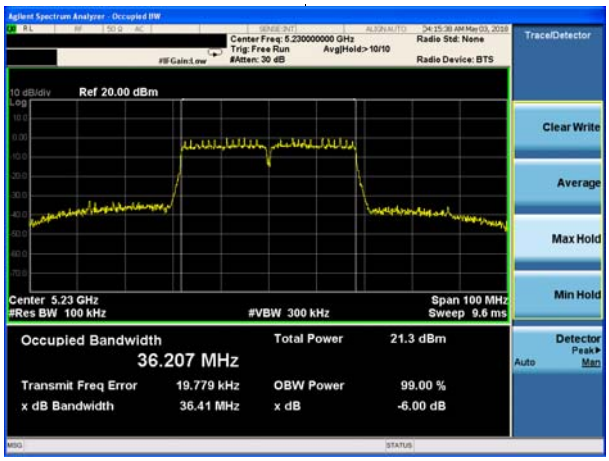
Test plot

(802.11 n40) 6dB Bandwidth plot on channel 38

(802.11 ac20) 6dB Bandwidth plot on channel 36

(802.11 n40) 6dB Bandwidth plot on channel 46

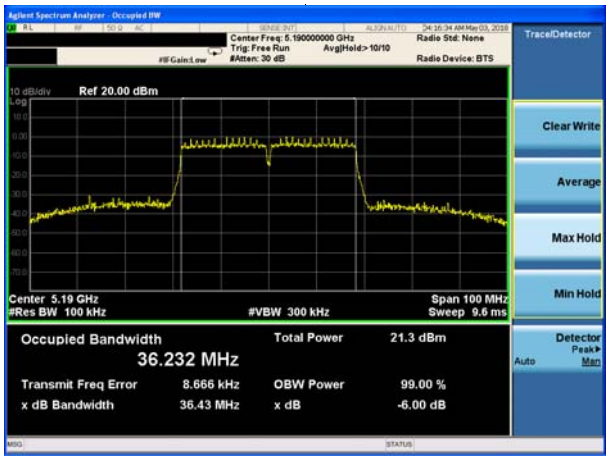


(802.11 ac20) 6dB Bandwidth plot on channel 40

(802.11 ac20) 6dB Bandwidth plot on channel 48

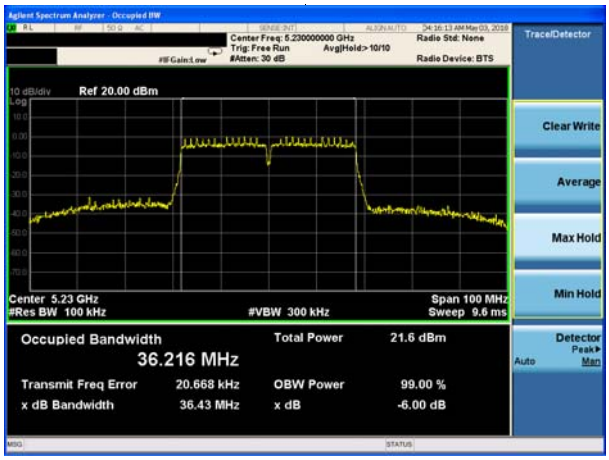
Test plot

(802.11 ac40) 6dB Bandwidth plot on channel 38



(802.11 ac80) 6dB Bandwidth plot on channel 42

(802.11 ac40) 6dB Bandwidth plot on channel 46



EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 19V
Test Mode ：	TX (5G) Mode Frequency Band IV (5725-5825MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B Plot.

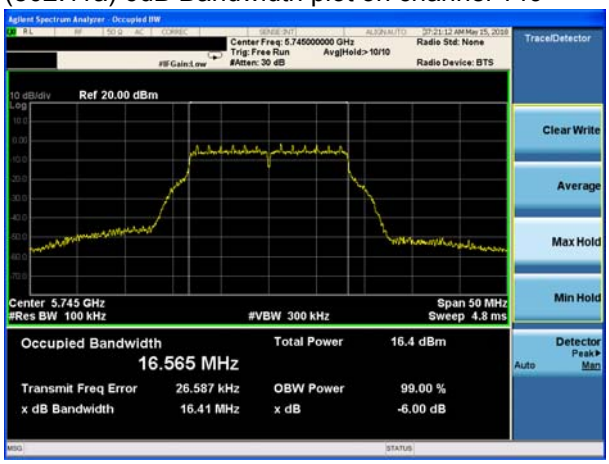
EUT has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1Tx, 2Rx
802.11n/ac	1Tx /2Tx, 2Rx

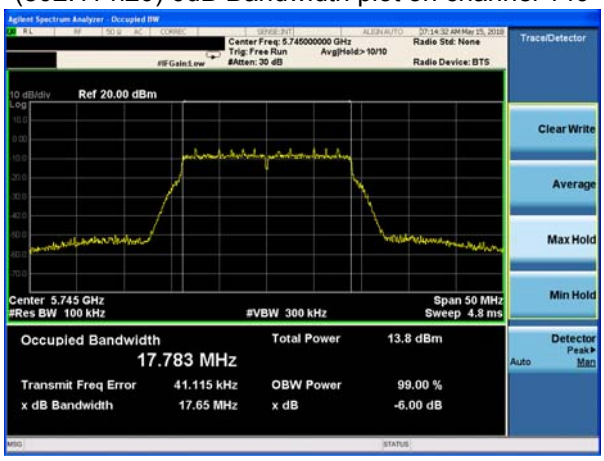
Mode	Channel	Frequency (MHz)	-6dB bandwidth (MHz)	-6dB bandwidth (MHz)	Limit (KHz)	Result
			Antenna A	Antenna B		
802.11a	149	5745	16.40	16.41	≧500	Pass
	157	5785	16.41	16.43	≧500	Pass
	165	5825	16.41	16.44	≧500	Pass
802.11 n20	149	5745	17.60	17.65	≧500	Pass
	157	5785	17.64	17.63	≧500	Pass
	165	5825	17.63	17.63	≧500	Pass
802.11 n40	151	5755	36.41	36.43	≧500	Pass
	159	5795	36.38	36.40	≧500	Pass
802.11 ac20	149	5745	17.62	17.62	≧500	Pass
	157	5785	17.64	17.62	≧500	Pass
	165	5825	17.64	17.67	≧500	Pass
802.11 ac40	149	5745	36.41	36.43	≧500	Pass
	157	5785	36.40	36.39	≧500	Pass
802.11 ac80	155	5775	75.95	75.88	≧500	Pass

Test plot

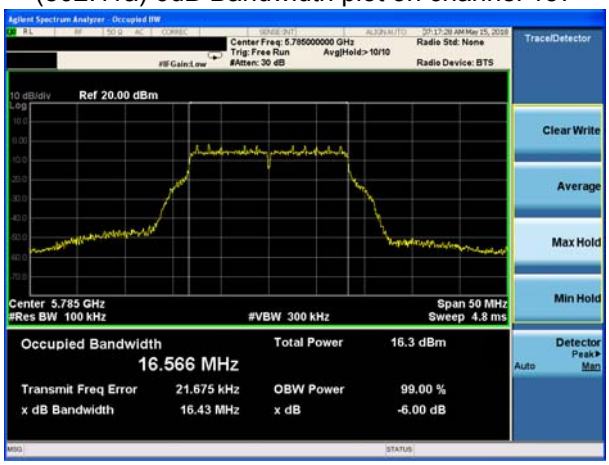
(802.11a) 6dB Bandwidth plot on channel 149



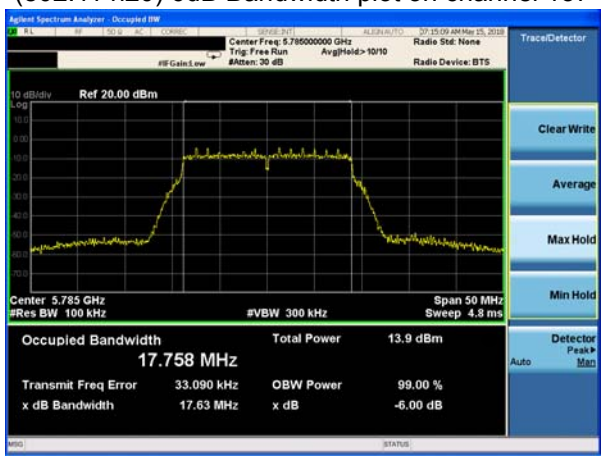
(802.11 n20) 6dB Bandwidth plot on channel 149



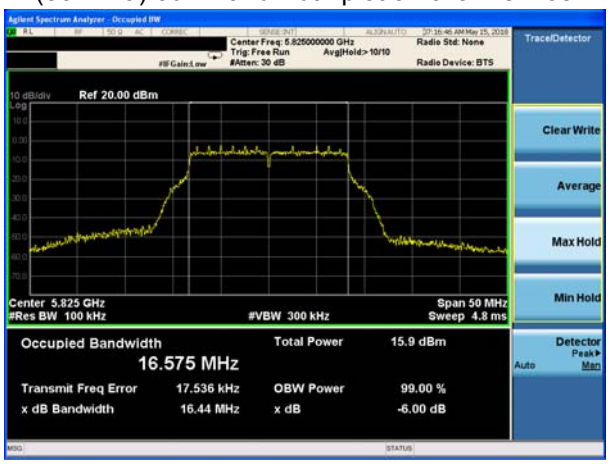
(802.11a) 6dB Bandwidth plot on channel 157



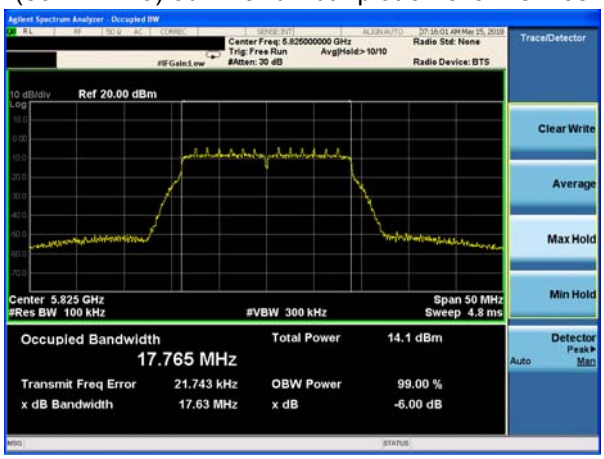
(802.11 n20) 6dB Bandwidth plot on channel 157



(802.11a) 6dB Bandwidth plot on channel 165

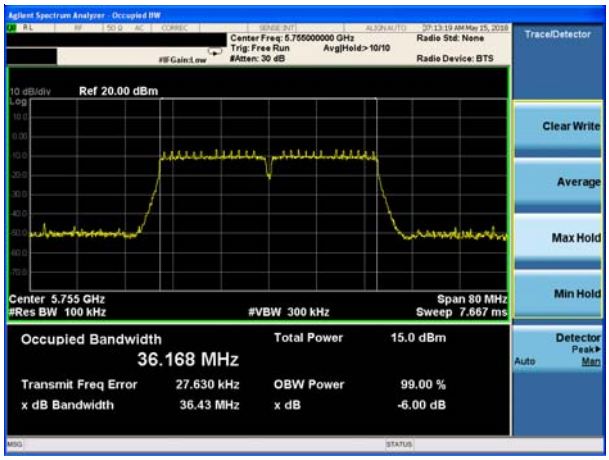


(802.11 n20) 6dB Bandwidth plot on channel 165

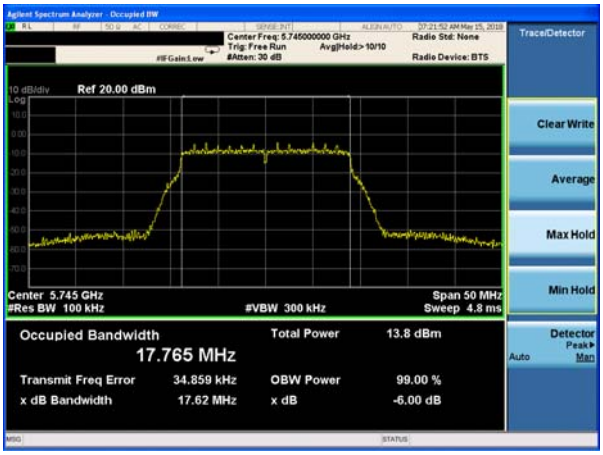


Test plot

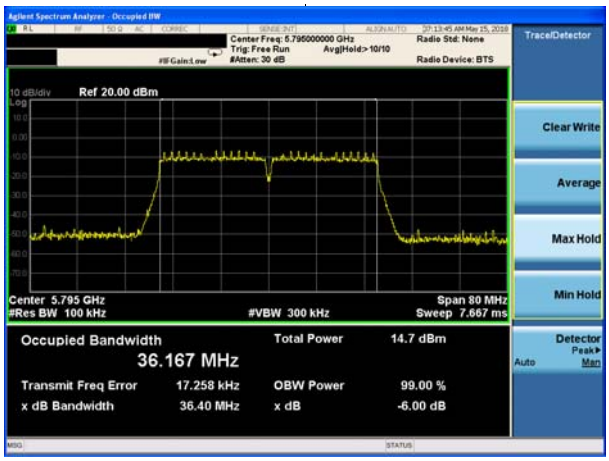
(802.11 n40) 6dB Bandwidth plot on channel 151



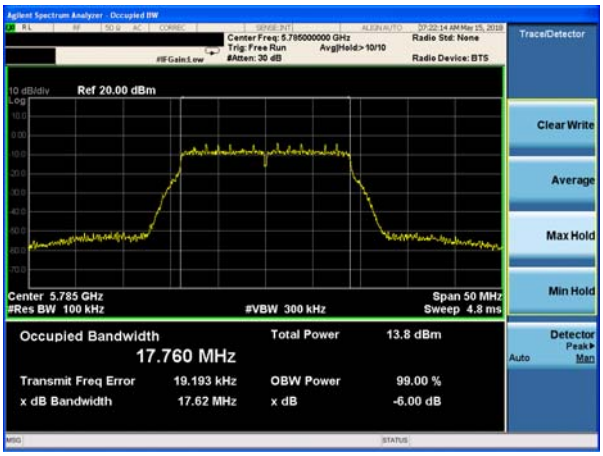
(802.11 ac20) 6dB Bandwidth plot on channel 149



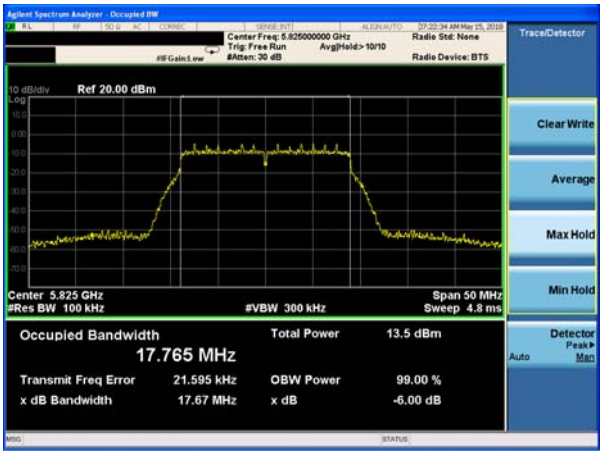
(802.11 n40) 6dB Bandwidth plot on channel 159



(802.11 ac20) 6dB Bandwidth plot on channel 157

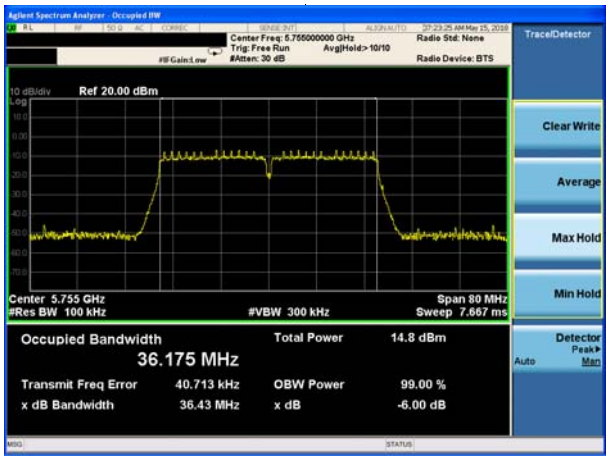


(802.11 ac20) 6dB Bandwidth plot on channel 165

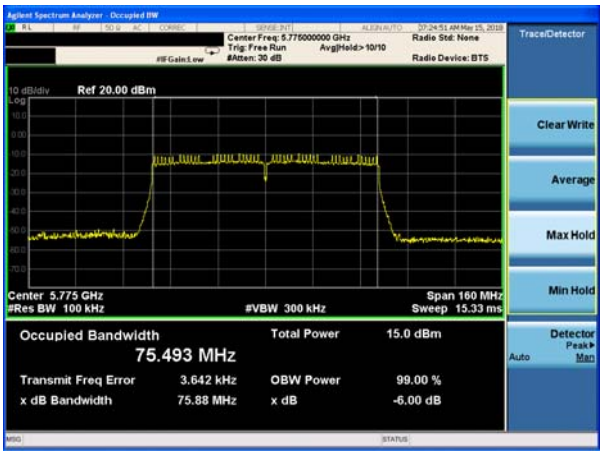


Test plot

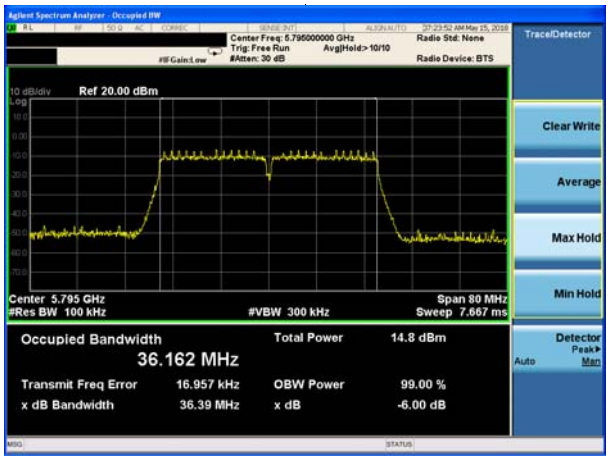
(802.11 ac40) 6dB Bandwidth plot on channel 151



(802.11 ac80) 6dB Bandwidth plot on channel 155



(802.11 ac40) 6dB Bandwidth plot on channel 159



7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conduced output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5725~5850	1W

7.2 TEST PROCEDURE

· Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)

Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.1 However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).

a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:

• The EUT transmits continuously (or with a duty cycle ≥ 98 percent).

• Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

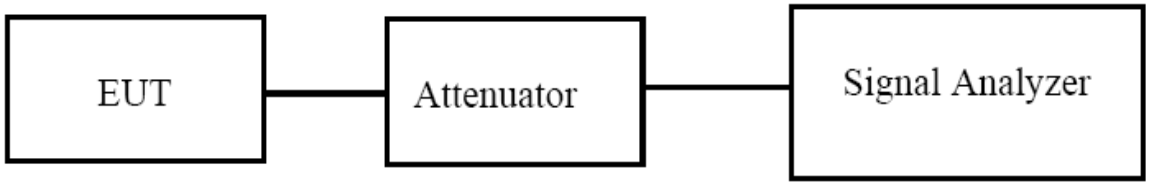
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 19V
Test Mode ：	TX (5G) Mode Frequency Band I (5150-5250MHz)		

Note:

EUT has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1Tx, 2Rx
802.11n/ac	1Tx /2Tx, 2Rx

Test Channel	Frequency	Maximum output power. Antenna port		Total Power	LIMIT	Result
		(AV) (dBm)		(AV)		
	(MHz)	ANT A	ANT B	dBm	dBm	
TX 802.11a Mode						
CH36	5180	16.7	16.5	-	23.98	Pass
CH40	5200	16.6	16.3	-	23.98	Pass
CH48	5240	16.5	16.1	-	23.98	Pass
TX 802.11 n20M Mode						
CH36	5180	16.5	16.3	19.41	23.98	Pass
CH40	5200	16.4	16.3	19.36	23.98	Pass
CH48	5240	16.7	16.3	19.51	23.98	Pass
TX 802.11 n40M Mode						
CH38	5190	16.1	15.8	18.96	23.98	Pass
CH46	5230	15.8	15.4	18.61	23.98	Pass
TX 802.11 ac20M Mode						
CH36	5180	16.6	16.3	19.46	23.98	Pass
CH40	5200	16.2	16.3	19.26	23.98	Pass
CH48	5240	16.2	16.3	19.26	23.98	Pass
TX 802.11 ac40M Mode						
CH38	5190	15.8	15.8	18.81	23.98	Pass
CH46	5230	15.8	15.6	18.71	23.98	Pass
TX 802.11 ac80M Mode						
CH42	5210	15.0	14.8	17.91	23.98	Pass

Note: For 802.11n/ac 5GHz has MIMO mode. Directional gain=5.01dbi

5.01dbi＜6.0 dbi so power density limit= 23.98

EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 19V
Test Mode ：	TX (5G) Mode Frequency Band IV (5725-5825MHz)		

Note:

EUT has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1Tx, 2Rx
802.11n/ac	1Tx /2Tx, 2Rx

Test Channel	Frequency	Maximum output power. Antenna port		Total Power	LIMIT	Result
		(AV) (dBm)		(AV)		
	(MHz)	ANT A	ANT B	dBm	dBm	
TX 802.11a Mode						
CH 149	5745	11.0	9.7	-	30	Pass
CH 157	5785	10.4	9.8	-	30	Pass
CH 165	5825	10.0	10.1	-	30	Pass
TX 802.11 n20M Mode						
CH 149	5745	7.6	7.3	10.46	30	Pass
CH 157	5785	7.2	7.5	10.36	30	Pass
CH 165	5825	6.8	7.4	10.12	30	Pass
TX 802.11 n40M Mode						
CH 151	5755	7.8	7.4	10.61	30	Pass
CH 159	5795	7.3	7.6	10.46	30	Pass
TX 802.11 ac20M Mode						
CH 149	5745	7.6	7.1	10.37	30	Pass
CH 157	5785	7.3	7.5	10.41	30	Pass
CH 165	5825	7.0	7.4	10.21	30	Pass
TX 802.11 ac40M Mode						
CH 151	5755	7.7	7.4	10.56	30	Pass
CH 159	5795	7.3	7.6	10.46	30	Pass
TX 802.11 ac80M Mode						
CH 155	5775	6.8	6.8	9.81	30	Pass

Note: For 802.11n/ac 5GHz has MIMO mode. Directional gain=5.01dbi

5.01 dbi＜6.0 dbi so power density limit= 30

8. OUT OF BAND EMISSIONS

8.1 APPLICABLE STANDARD

According to FCC §15.407(b)

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) 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 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

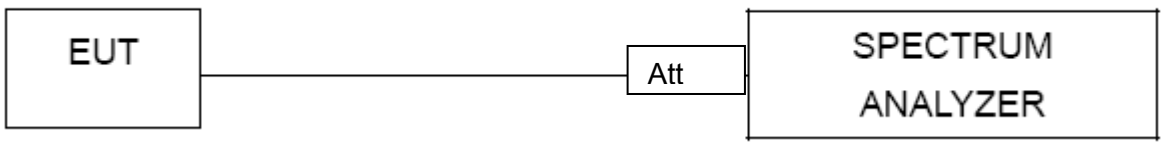
8.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULTS

EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 19V

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A ,only shown Antenna A Plot.

EUT has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1Tx, 2Rx
802.11n/ac	1Tx /2Tx, 2Rx

5.2G

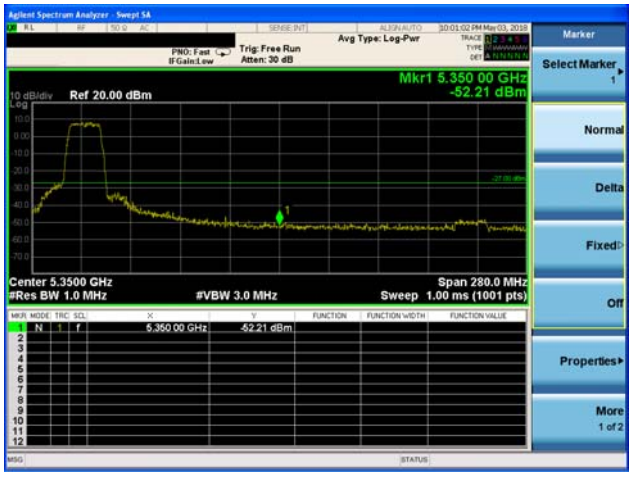
5.15~5.25 GHz

(802.11a) Band Edge, Left Side

(802.11n20) Band Edge, Left Side

(802.11a) Band Edge, Right Side

(802.11n20) Band Edge, Right Side



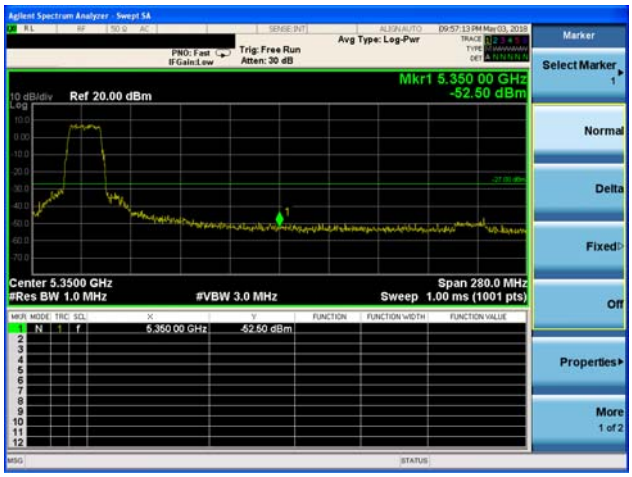
5.15~5.25 GHz

(802.11n40) Band Edge, Left Side

(802.11ac20) Band Edge, Left Side

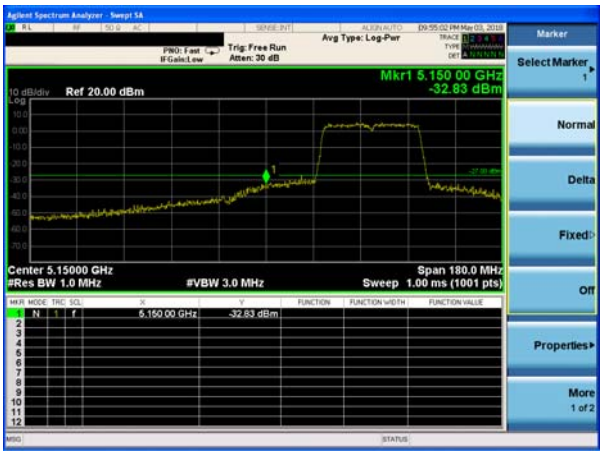
(802.11n40) Band Edge, Right Side

(802.11ac20) Band Edge, Right Side



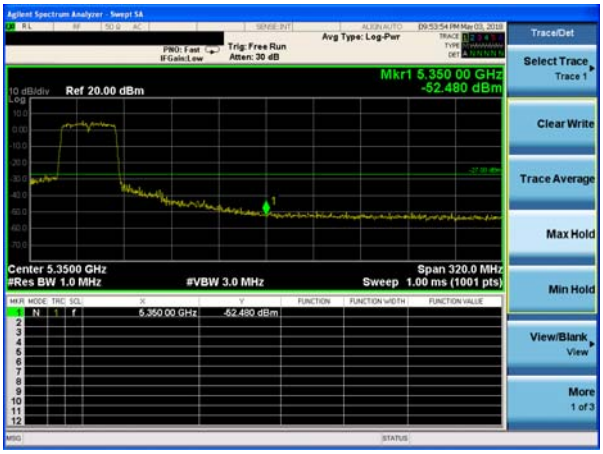
5.15~5.25 GHz

(802.11ac40) Band Edge, Left Side

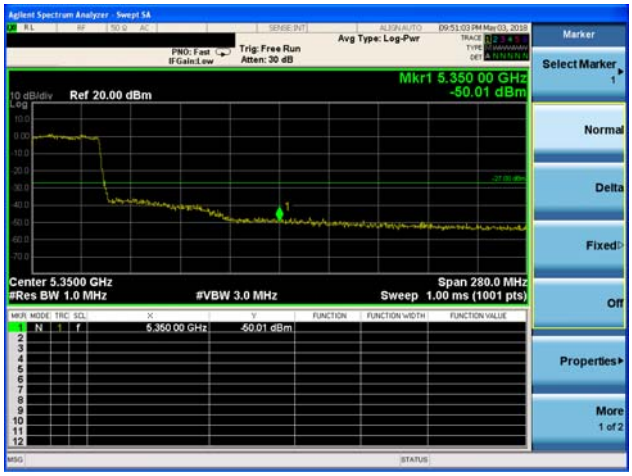


(802.11ac80) Band Edge, Left Side

(802.11ac40) Band Edge, Right Side



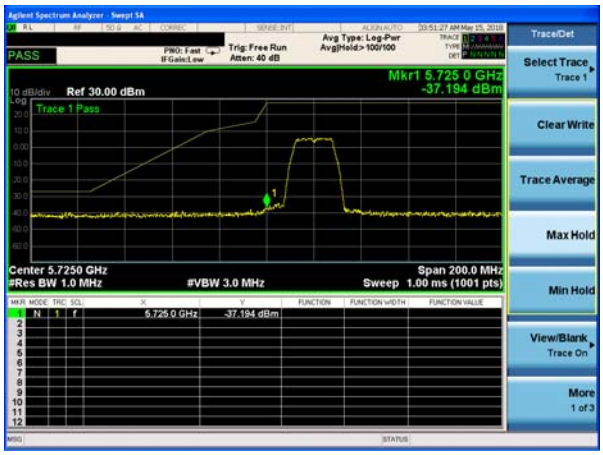
(802.11ac80) Band Edge, Right Side



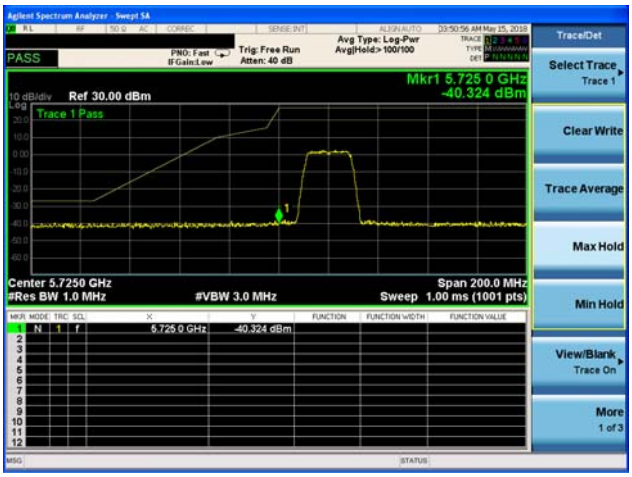
5.8G

5.75~5.85 GHz

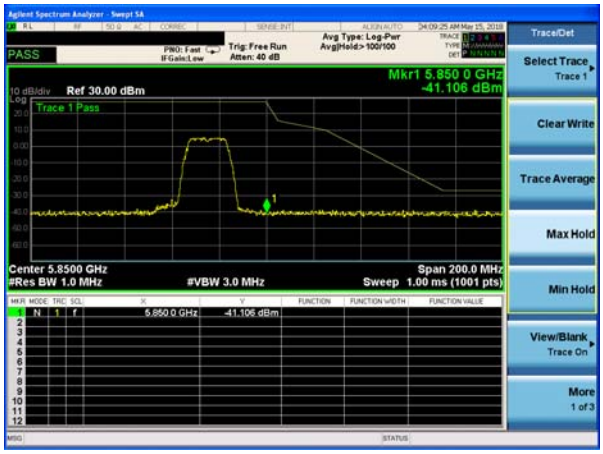
(802.11a) Band Edge, Left Side



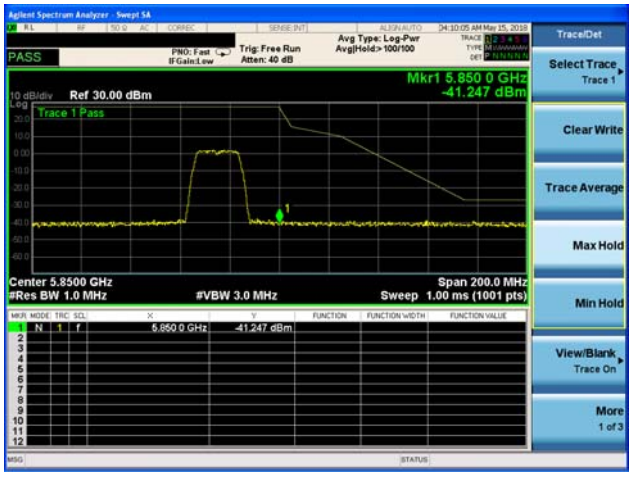
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side



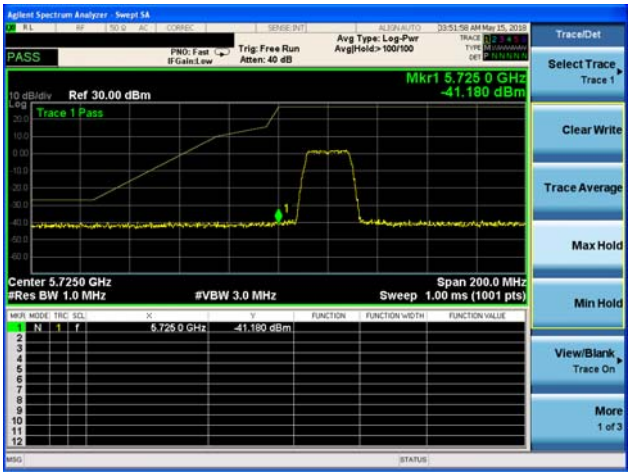
(802.11n20) Band Edge, Right Side



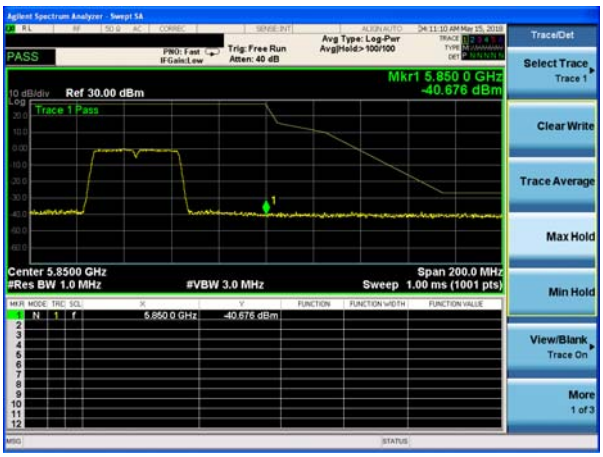
5.75~5.85 GHz

(802.11n40) Band Edge, Left Side

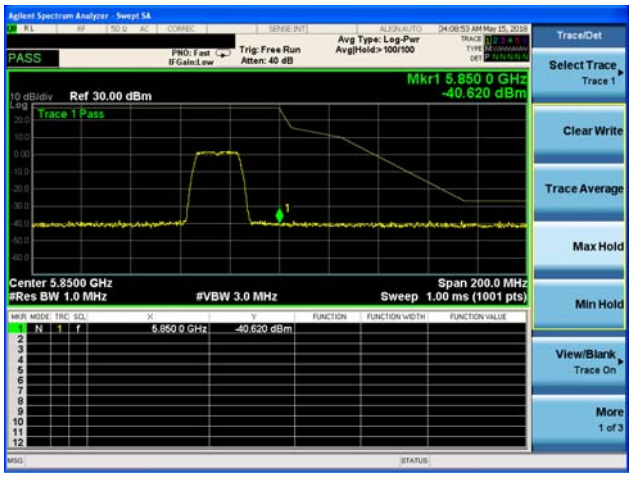
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Right Side

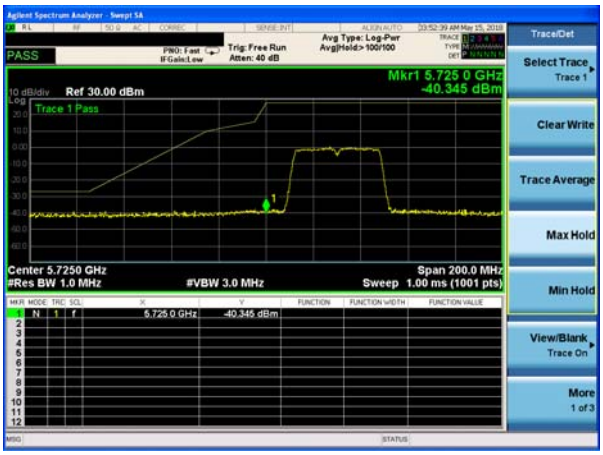


(802.11ac20) Band Edge, Right Side



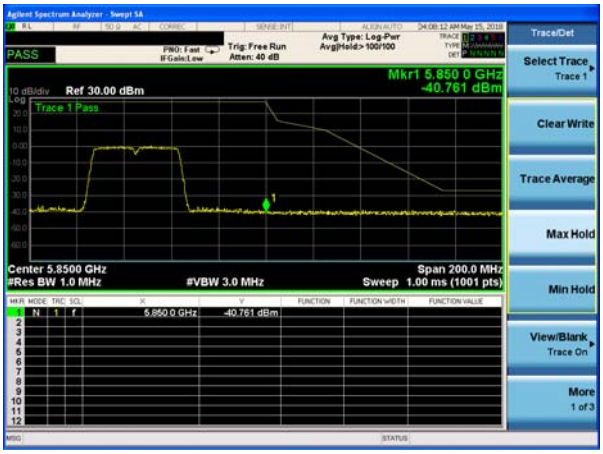
5.75~5.83 GHz

(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge, Left Side

(802.11ac40) Band Edge, Right Side



(802.11ac80) Band Edge, Right Side

9.SPURIOUS RF CONDUCTED EMISSIONS

9.1CONFORMANCE 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.

9.2MEASURING INSTRUMENTS

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

9.3TEST SETUP

Please refer to Section 6.1 of this test report.

9.4TEST 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 mwasure frequeny range from 9KHz to 26.5GHz.

9.5TEST 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 bandege measurement data.

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A ,only shown Antenna A Plot.

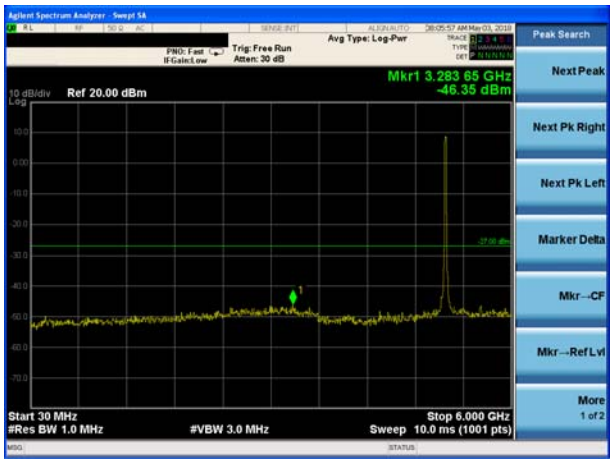
EUT has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1Tx, 2Rx
802.11n/ac	1Tx /2Tx, 2Rx

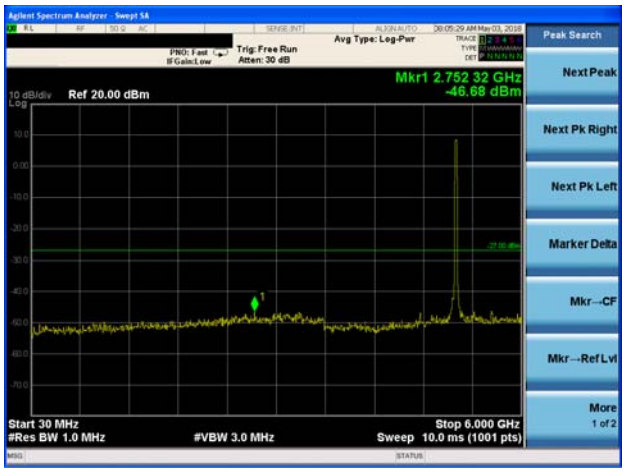
5.2G

Test Plot

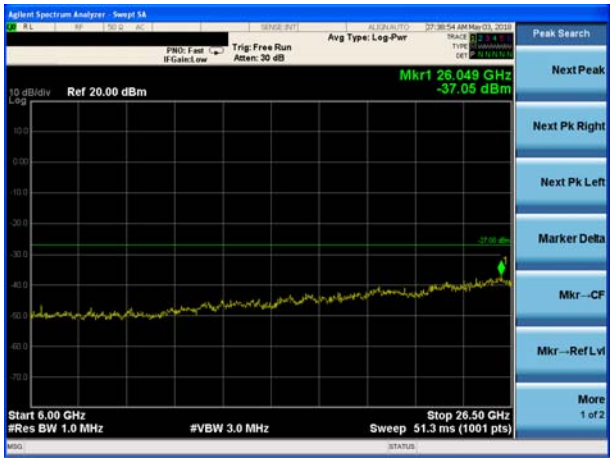
802.11a on channel 36



802.11a on channel 40



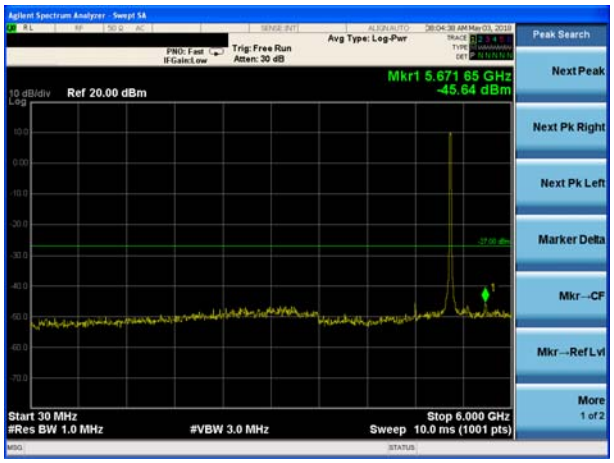
802.11a on channel 36



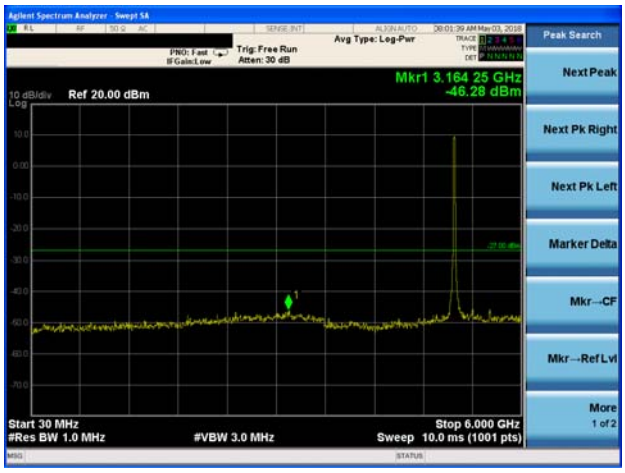
802.11a on channel 40

Test Plot

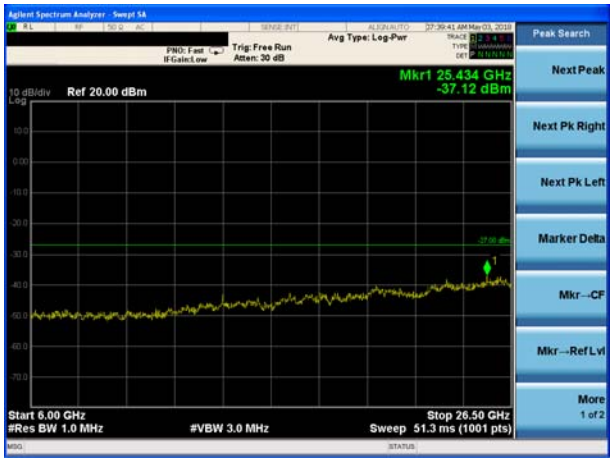
802.11a on channel 48



802.11n20 on channel 36



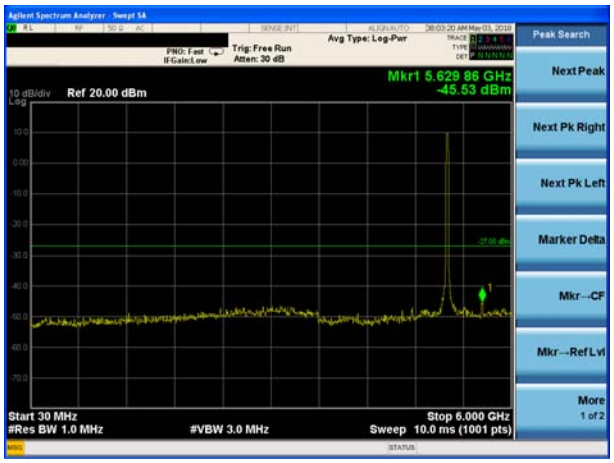
802.11a on channel 48



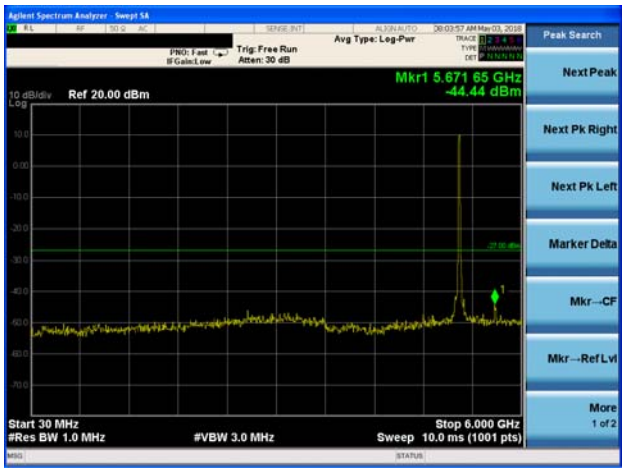
802.11n20 on channel 36

Test Plot

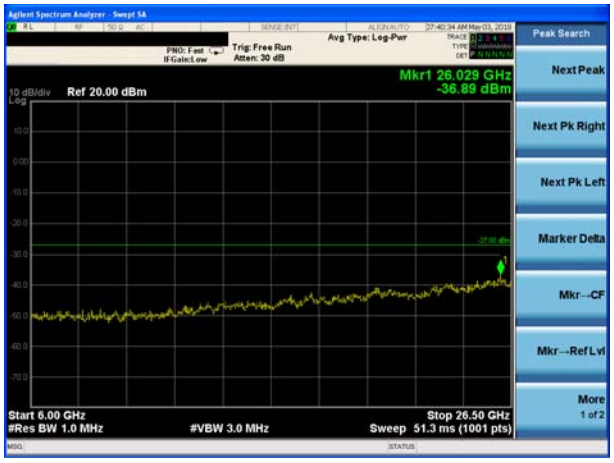
802.11n20 on channel 40



802.11n20 on channel 48



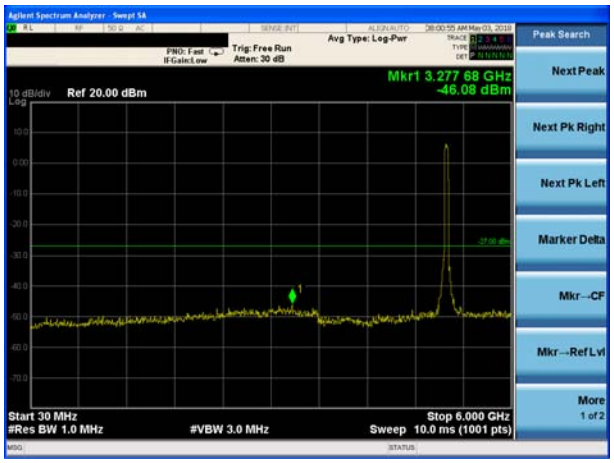
802.11n20 on channel 40



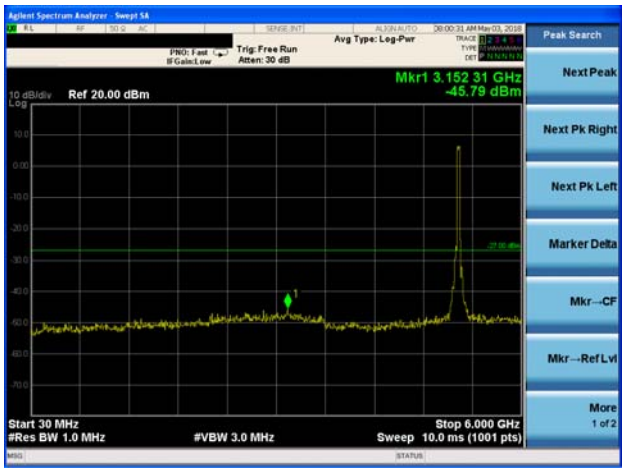
802.11n20 on channel 48

Test Plot

802.11n40 on channel 38



802.11n40 on channel 46

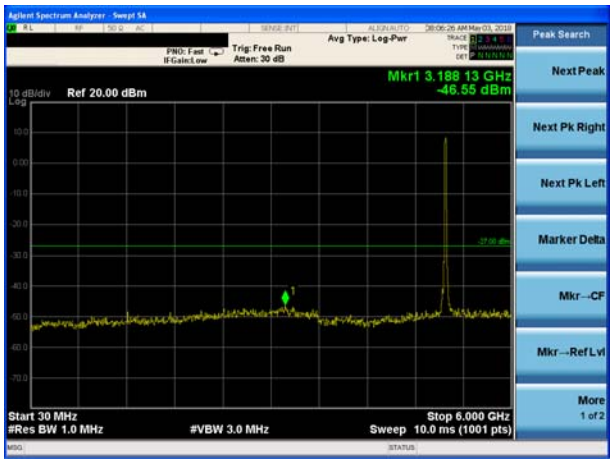


802.11n40 on channel 38

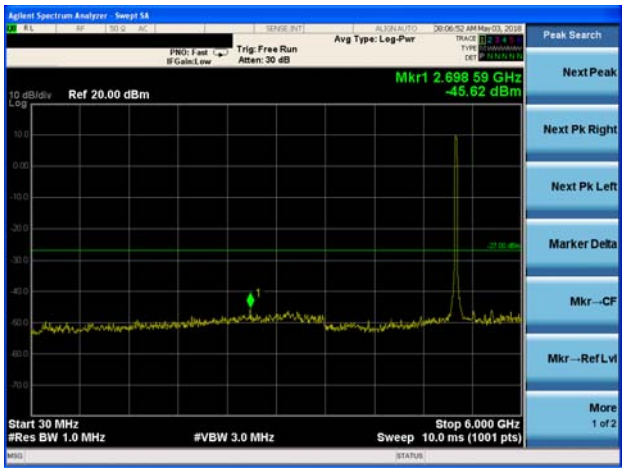
802.11n40 on channel 46

Test Plot

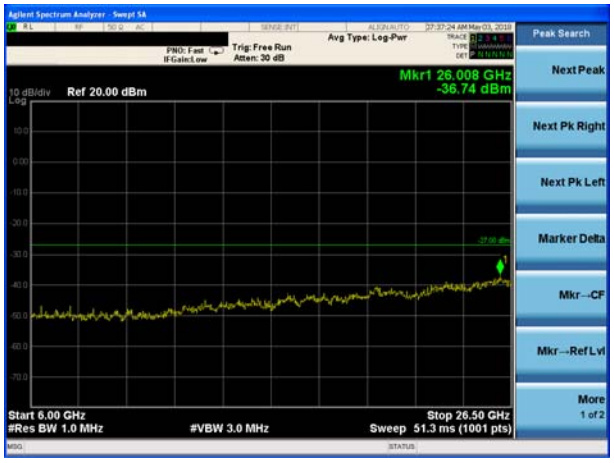
802.11ac20 on channel 36



802.11ac20 on channel 40



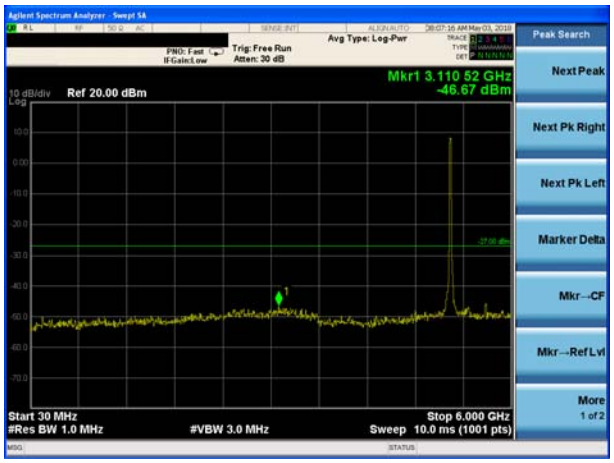
802.11ac20 on channel 36



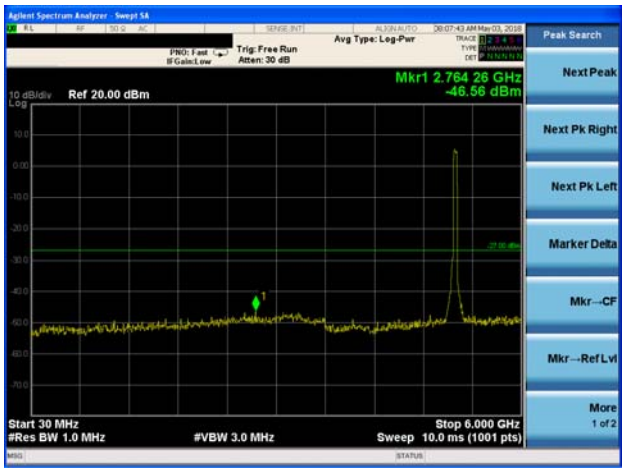
802.11ac20 on channel 40

Test Plot

802.11ac20 on channel 48



802.11ac40 on channel 38

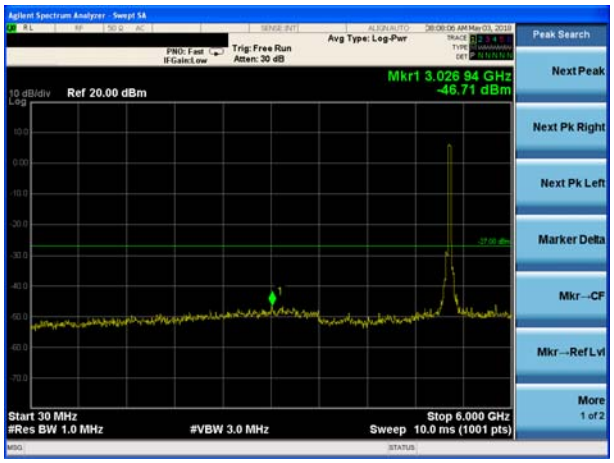


802.11ac20 on channel 48

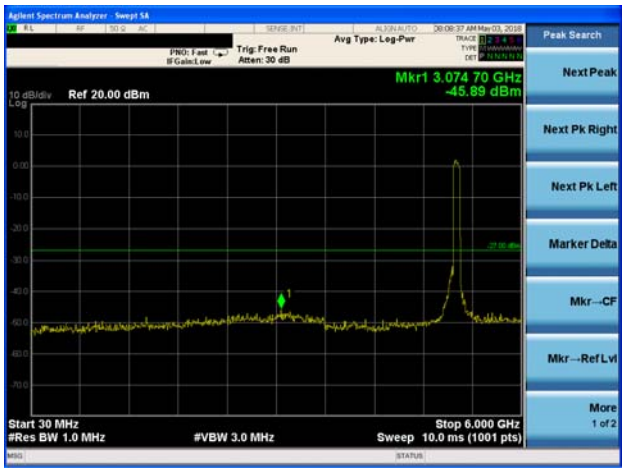
802.11ac40 on channel 38

Test Plot

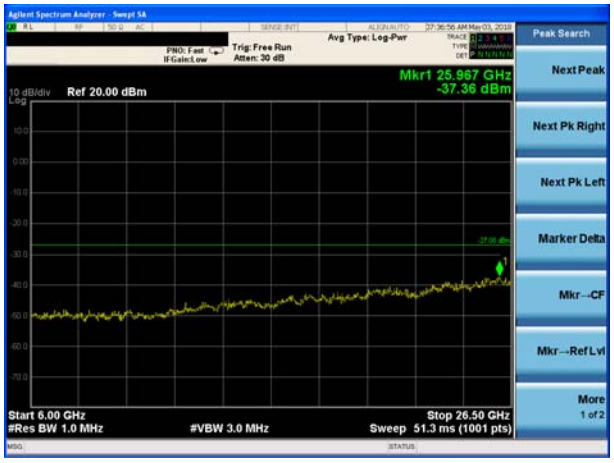
802.11ac40 on channel 46



802.11ac80 on channel 42



802.11 ac40 on channel 46



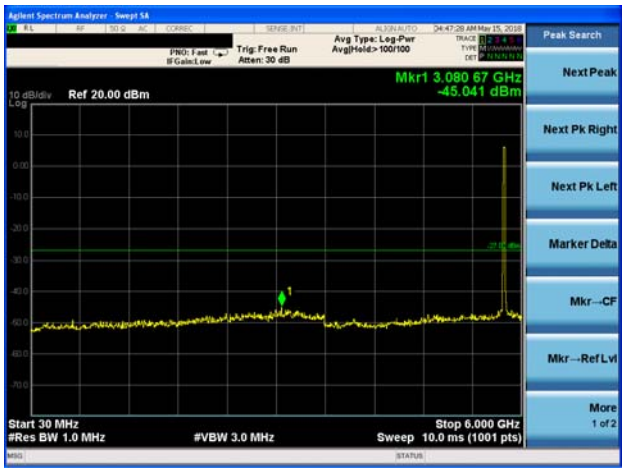
802.11 ac80 on channel 42

5.8G

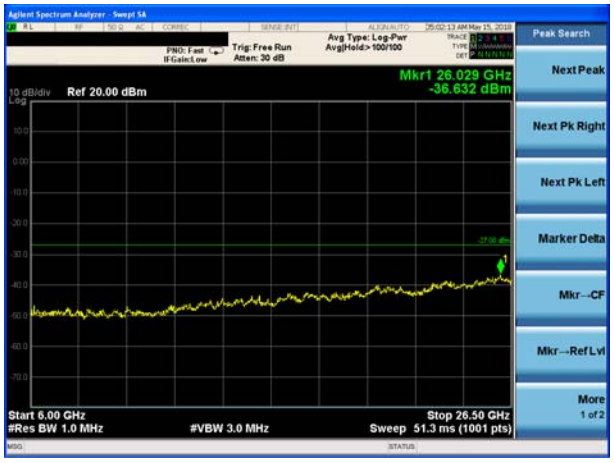
Test Plot

802.11a on channel 149

802.11a on channel 157



802.11a on channel 149



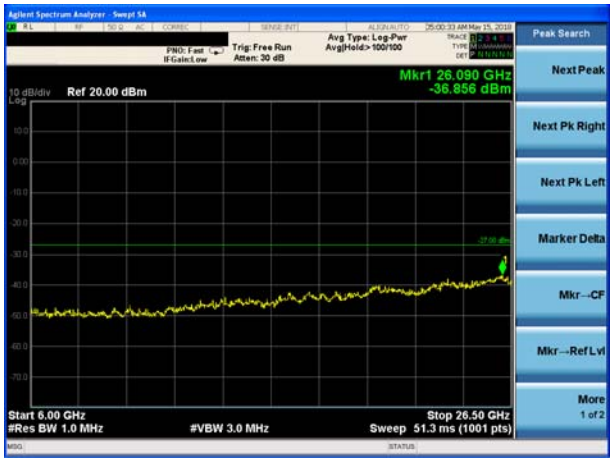
802.11a on channel 157

Test Plot

802.11a on channel 165

802.11n20 on channel 149

802.11a on channel 165

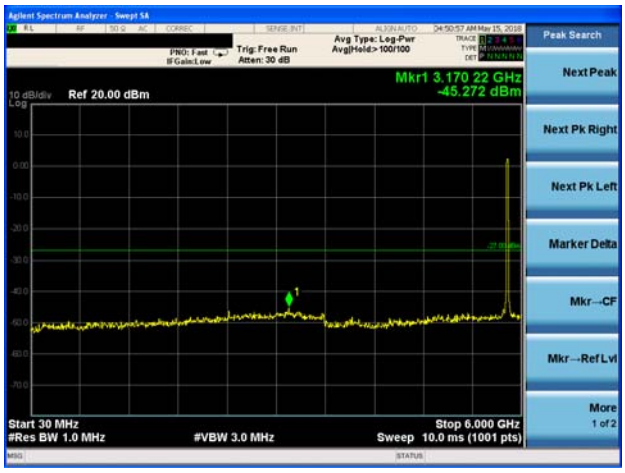


802.11n20 on channel 149

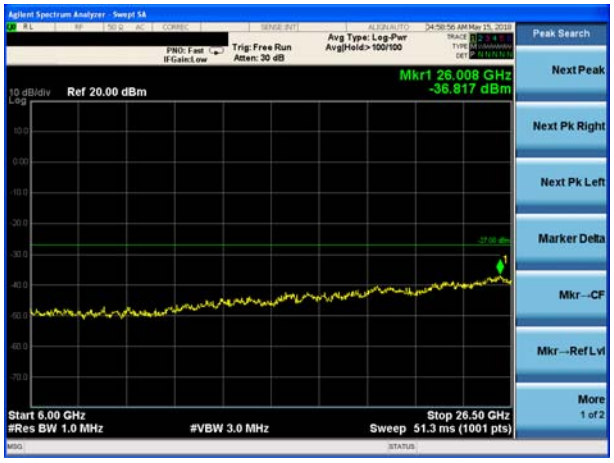
Test Plot

802.11n20 on channel 157

802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165

Test Plot

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

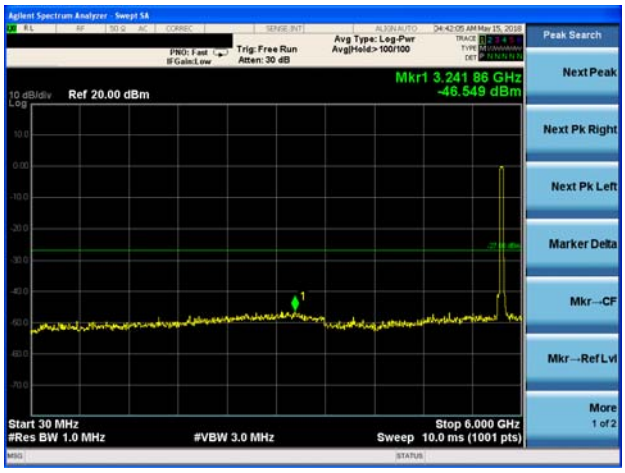
802.11ac20 on channel 149

802.11ac20 on channel 157

Test Plot

802.11ac20 on channel 165

802.11ac40 on channel 151

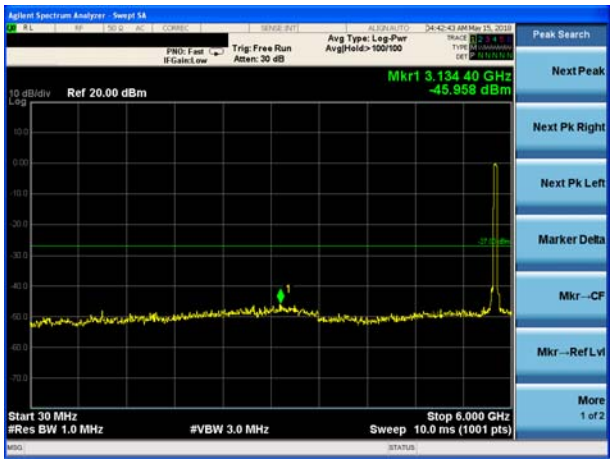


802.11ac20 on channel 165

802.11ac40 on channel 151

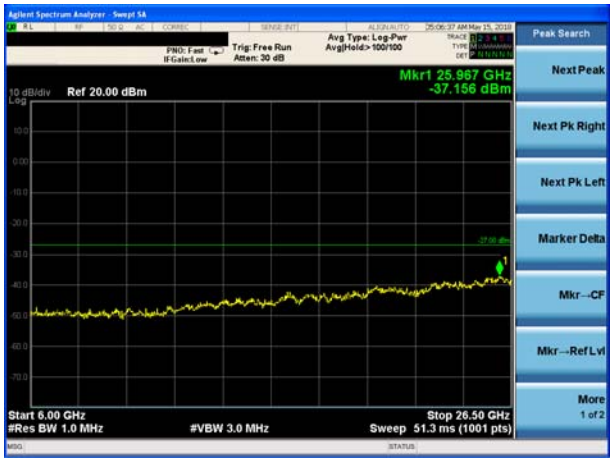
Test Plot

802.11ac40 on channel 159



802.11ac80 on channel 155

802.11 ac40 on channel 159



802.11 ac80 on channel 155

10. Frequency Stability Measurement

10.1 LIMIT

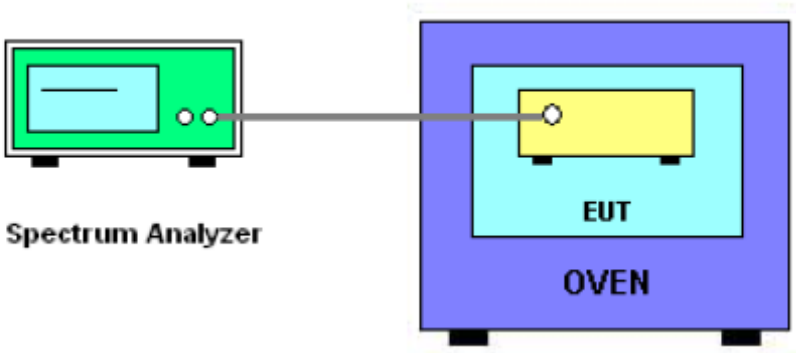
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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

10.2 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 $(fc-f)/fc \times 10_6$ 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.

10.3 TEST SETUP LAYOUT



10.4 EUT OPERATION DURING TEST

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

10.5 TEST RESULTS

EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 19V
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)	19.00	5180.0116	5180	0.0116	-2.2394
		V max (V)	21.85	5180.0166	5180	0.0166	-3.1961
		V min (V)	16.15	5180.0086	5180	0.0086	-1.6602
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)	19	T (°C)	-20	5180.0102	5180	0.0102	-1.9691
		T (°C)	-10	5180.0098	5180	0.0098	-1.8919
		T (°C)	0	5180.0099	5180	0.0099	-1.9112
		T (°C)	10	5180.0114	5180	0.0114	-2.2008
		T (°C)	20	5180.0109	5180	0.0109	-2.1042
		T (°C)	30	5180.0117	5180	0.0117	-2.2587
		T (°C)	40	5180.0162	5180	0.0162	-3.1274
		T (°C)	50	5180.0128	5180	0.0128	-2.4710
		T (°C)	60	5180.0123	5180	0.0123	-2.3745
		T (°C)	70	5180.0099	5180	0.0099	-1.9112
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)	19.00	5200.0133	5200	0.0133	-2.5577
		V max (V)	21.85	5200.0118	5200	0.0118	-2.2692
		V min (V)	16.15	5200.0114	5200	0.0114	-2.1923
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)	5	T (°C)	-20	5200.0102	5200	0.0102	-1.9615
		T (°C)	-10	5200.0165	5200	0.0165	-3.1731
		T (°C)	0	5200.0145	5200	0.0145	-2.7885
		T (°C)	10	5200.0133	5200	0.0133	-2.5577
		T (°C)	20	5200.0121	5200	0.0121	-2.3269
		T (°C)	30	5200.0109	5200	0.0109	-2.0962
		T (°C)	40	5200.0148	5200	0.0148	-2.8462
		T (°C)	50	5200.0126	5200	0.0126	-2.4231
		T (°C)	60	5200.0114	5200	0.0114	-2.1923
		T (°C)	70	5200.0152	5200	0.0152	-2.9231
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)	19.00	5240.0139	5240	0.0139	-2.6527
		V max (V)	21.85	5240.0155	5240	0.0155	-2.9580
		V min (V)	16.15	5240.0133	5240	0.0133	-2.5382
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)	19	T (°C)	-20	5240.0114	5240	0.0114	-2.1756
		T (°C)	-10	5240.0126	5240	0.0126	-2.4046
		T (°C)	0	5240.0148	5240	0.0148	-2.8244
		T (°C)	10	5240.0132	5240	0.0132	-2.5191
		T (°C)	20	5240.0126	5240	0.0126	-2.4046
		T (°C)	30	5240.0113	5240	0.0113	-2.1565
		T (°C)	40	5240.0091	5240	0.0091	-1.7366
		T (°C)	50	5240.0133	5240	0.0133	-2.5382
		T (°C)	60	5240.0114	5240	0.0114	-2.1756
		T (°C)	70	5240.0166	5240	0.0166	-3.1679
Limits				± 20 ppm			
Result				Complies			

EUT：	PIQS Virtual Touch Projector	Model Name. ：	F1
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 19V
Test Mode ：	TX Frequency(5745-5850MHz)		

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (° C)	20	V nom (V)	19.00	5745.00840	5745	0.00840	-1.4622
		V max (V)	21.85	5745.00635	5745	0.00635	-1.1055
		V min (V)	16.15	5745.01116	5745	0.01116	-1.9434
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)	19	T (°C)	-20	5745.01136	5745	0.01136	-1.9775
		T (°C)	-10	5745.00206	5745	0.00206	-0.3593
		T (°C)	0	5745.00442	5745	0.00442	-0.7686
		T (°C)	10	5745.00228	5745	0.00228	-0.3972
		T (°C)	20	5745.00282	5745	0.00282	-0.4907
		T (°C)	30	5745.00828	5745	0.00828	-1.4404
		T (°C)	40	5745.00756	5745	0.00756	-1.3167
		T (°C)	50	5745.00895	5745	0.00895	-1.5572
		T (°C)	60	5745.00091	5745	0.00091	-0.1586
		T (°C)	70	5745.00699	5745	0.00699	-1.2169
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)	19.00	5785.00955	5785	0.00955	-1.6516
		V max (V)	21.85	5785.00698	5785	0.00698	-1.2062
		V min (V)	16.15	5785.01140	5785	0.01140	-1.9705
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)	19	T (°C)	-20	5785.00895	5785	0.00895	-1.5463
		T (°C)	-10	5785.00578	5785	0.00578	-0.9998
		T (°C)	0	5785.00711	5785	0.00711	-1.2291
		T (°C)	10	5785.00593	5785	0.00593	-1.0249
		T (°C)	20	5785.01163	5785	0.01163	-2.0099
		T (°C)	30	5785.00983	5785	0.00983	-1.6984
		T (°C)	40	5785.00702	5785	0.00702	-1.2135
		T (°C)	50	5785.00126	5785	0.00126	-0.2173
		T (°C)	60	5785.00910	5785	0.00910	-1.5724
		T (°C)	70	5785.01018	5785	0.01018	-1.7601
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)	19.00	5825.01195	5825	0.01195	-2.0518
		V max (V)	21.85	5825.00636	5825	0.00636	-1.0916
		V min (V)	16.15	5825.00958	5825	0.00958	-1.6440
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)	19	T (°C)	-20	5825.00266	5825	0.00266	-0.4570
		T (°C)	-10	5825.00520	5825	0.00520	-0.8932
		T (°C)	0	5825.00271	5825	0.00271	-0.4659
		T (°C)	10	5825.00451	5825	0.00451	-0.7751
		T (°C)	20	5825.00749	5825	0.00749	-1.2853
		T (°C)	30	5825.01121	5825	0.01121	-1.9239
		T (°C)	40	5825.01320	5825	0.01320	-2.2663
		T (°C)	50	5825.00757	5825	0.00757	-1.2999
		T (°C)	60	5825.00832	5825	0.00832	-1.4281
		T (°C)	70	5825.00323	5825	0.00323	-0.5544
Limits				± 20 ppm			
Result				Complies			

11. ANTENNA REQUIREMENT

11.1 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.

11.2 EUT ANTENNA

Antenna	Brand	Model Name (P/N)	Antenna Type	Connector	Antenna Gain(dBi)	
					5.2G	5.8G
A(main)	N/A	N/A	FPCB	I-PEX	2	2
B(aux)	N/A	N/A	FPCB	I-PEX	2	2

The EUT antenna is permanent attached antenna. It comply with the standard requirement.

END OF REPORT