

### 7.6 TEST RESULTS

EUT :	8-Inch Fully Ruggedized Tablet	Model Name. :	SV-86H
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band IV (5725-5825MHz)		

Test Channel	Frequency	Maximum output power. Antenna port (AV)	LIMIT	Result
	(MHz)	(dBm)	dBm	
<b>TX 802.11a Mode</b>				
CH 149	5745	10.1	30	Pass
CH 157	5785	9.9	30	Pass
CH 165	5825	9.8	30	Pass
<b>TX 802.11 n20M Mode</b>				
CH 149	5745	8.8	30	Pass
CH 157	5785	8.7	30	Pass
CH 165	5825	8.6	30	Pass
<b>TX 802.11 n40M Mode</b>				
CH 151	5755	9.7	30	Pass
CH 159	5795	9.5	30	Pass
<b>TX 802.11 AC20M Mode</b>				
CH 149	5745	7.7	30	Pass
CH 157	5785	7.5	30	Pass
CH 165	5825	7.2	30	Pass
<b>TX 802.11 AC40M Mode</b>				
CH 151	5755	7.6	30	Pass
CH 159	5795	7.4	30	Pass
<b>TX 802.11 AC80M Mode</b>				
CH 155	5775	6.7	30	Pass

Note: The wireless module is 1x1 Wi-Fi support 802.11 a / g / n / ac; does not support MIMO

## 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.

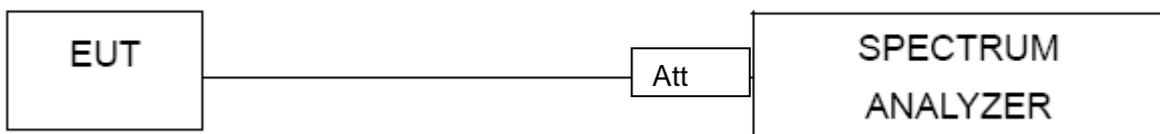
### 8.2 TEST PROCEDURE

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.

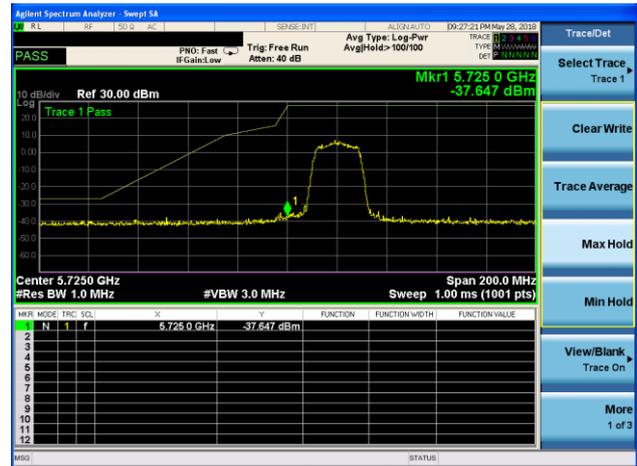
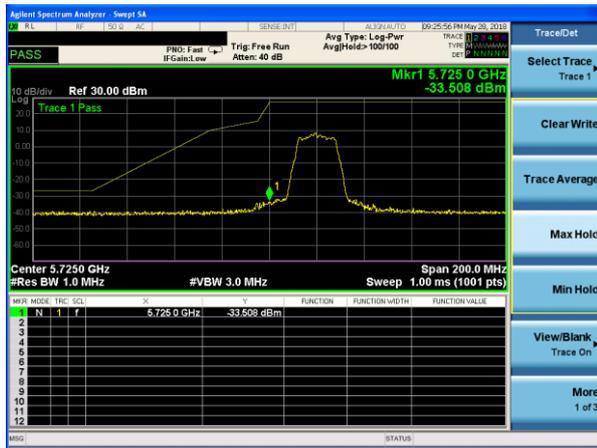
**8.6 TEST RESULTS**

EUT :	8-Inch Fully Ruggedized Tablet	Model Name. :	SV-86H
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V

**5.75~5.85 GHz**

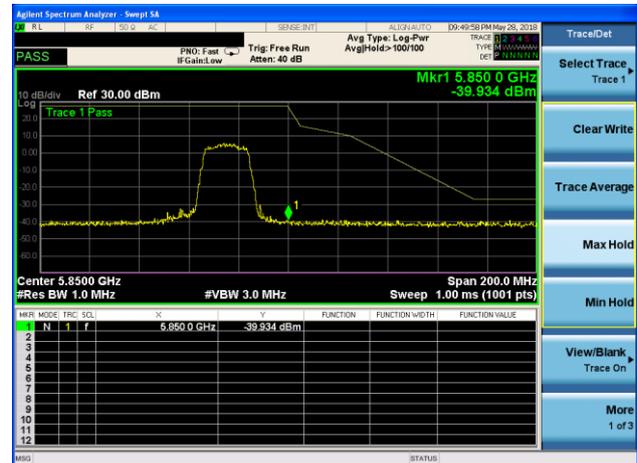
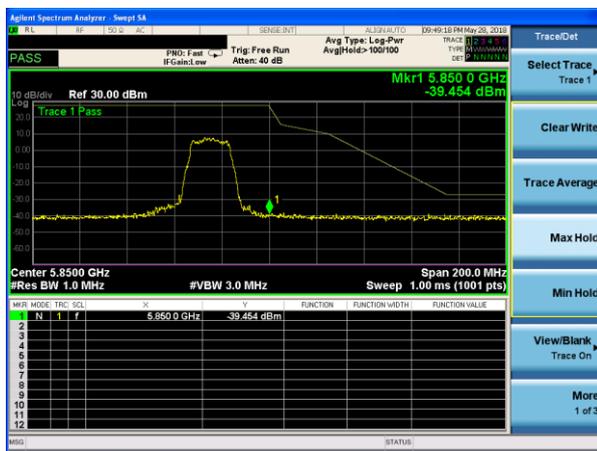
(802.11a) Band Edge, Left Side

(802.11n20) Band Edge, Left Side



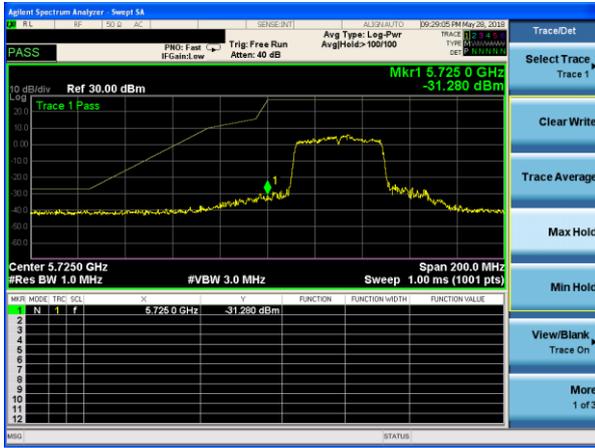
(802.11a) Band Edge, Right Side

(802.11n20) Band Edge, Right Side

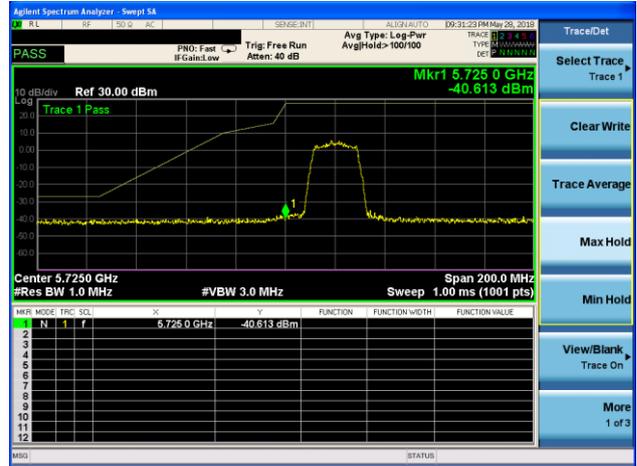


**5.75~5.85 GHz**

(802.11n40) Band Edge, Left Side



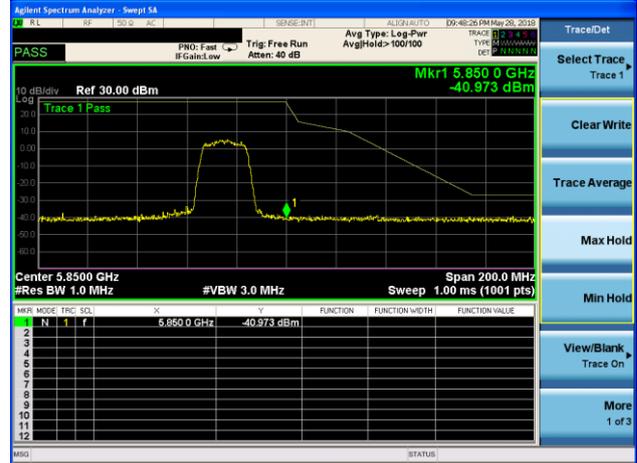
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Right Side

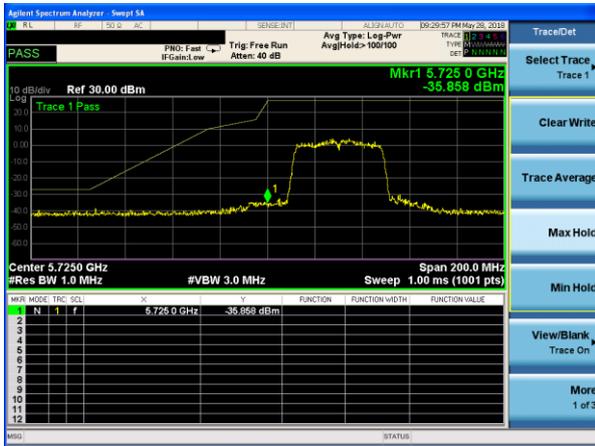


(802.11ac20) Band Edge, Right Side



**5.75~5.83 GHz**

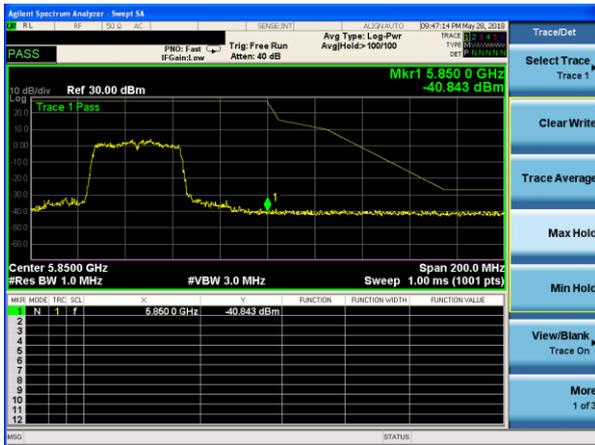
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge, Left Side



(802.11ac40) Band Edge, Right Side



(802.11ac80) Band Edge, Right Side



## 9.SPURIOUS RF CONDUCTED EMISSIONS

### 9.1 CONFORMANCE 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.

### 9.2 MEASURING INSTRUMENTS

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

### 9.3 TEST SETUP

Please refer to Section 6.1 of this test report.

### 9.4 TEST 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.

### 9.5 TEST 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 band edge measurement data.

Test Plot

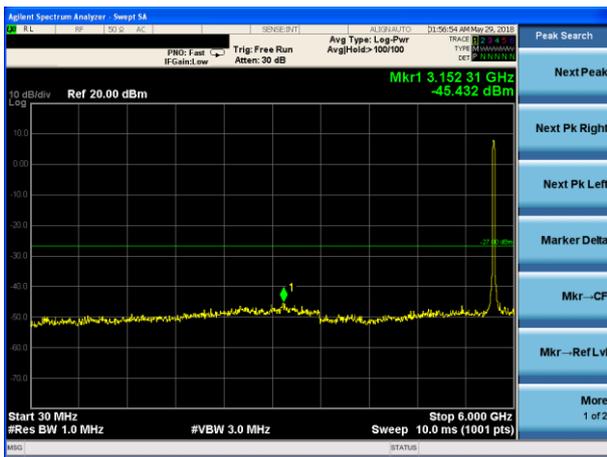
802.11a on channel 149



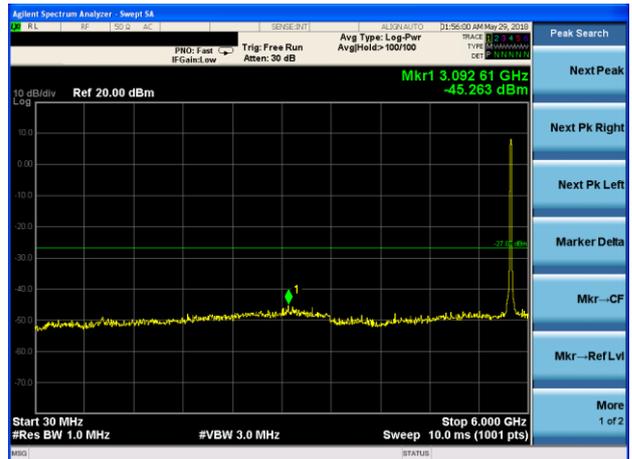
802.11a on channel 157



802.11a on channel 149



802.11a on channel 157



Test Plot

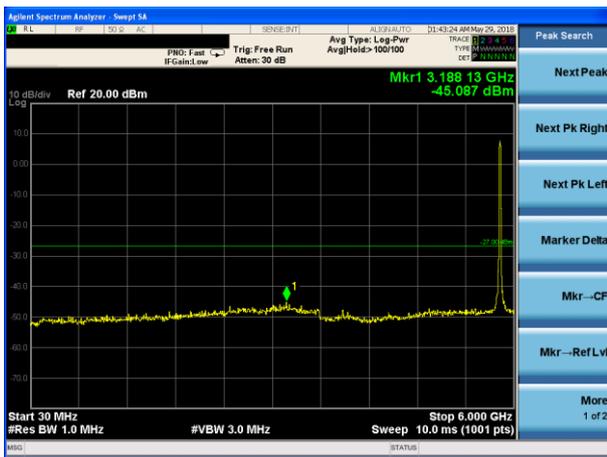
802.11a on channel 165



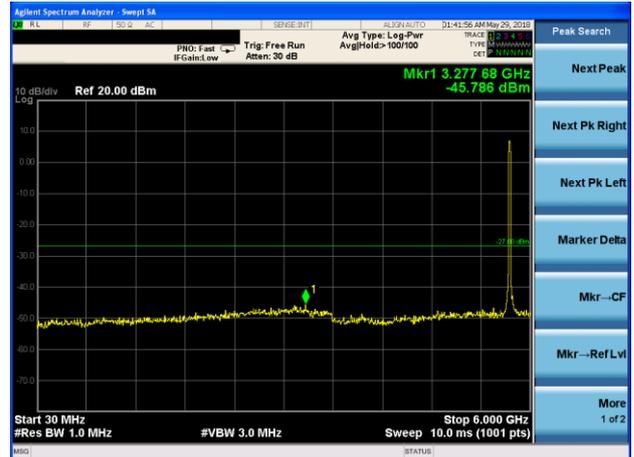
802.11n20 on channel 149



802.11a on channel 165



802.11n20 on channel 149



Test Plot

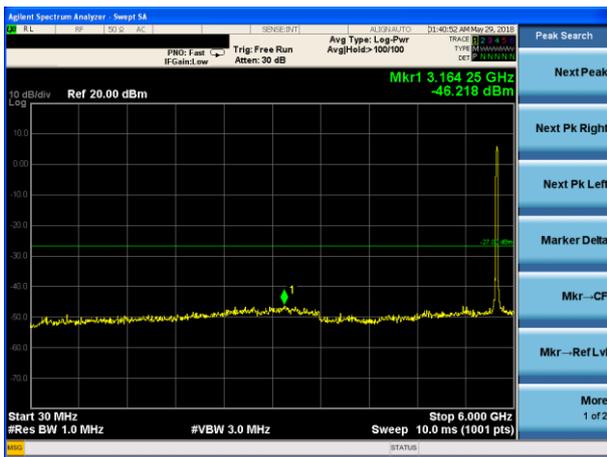
802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165



Test Plot

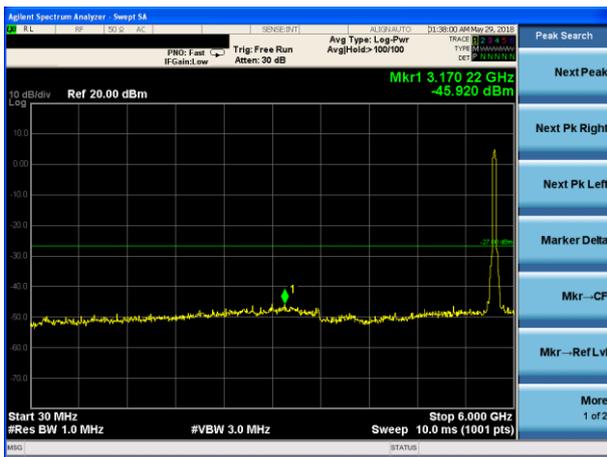
802.11n40 on channel 151



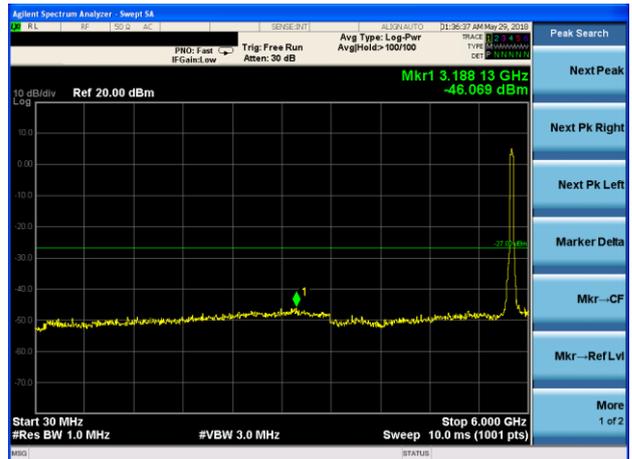
802.11n40 on channel 159



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

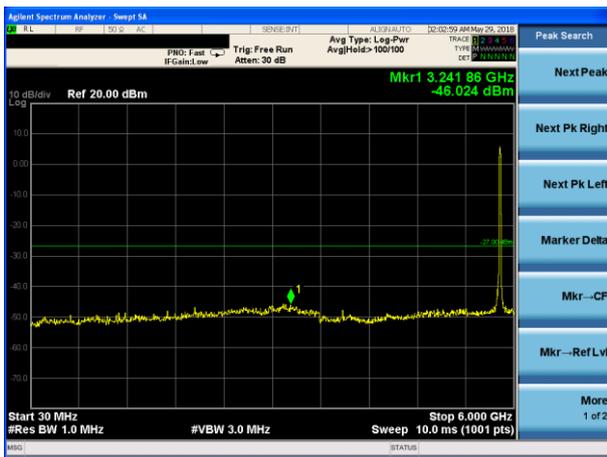
802.11ac20 on channel 165



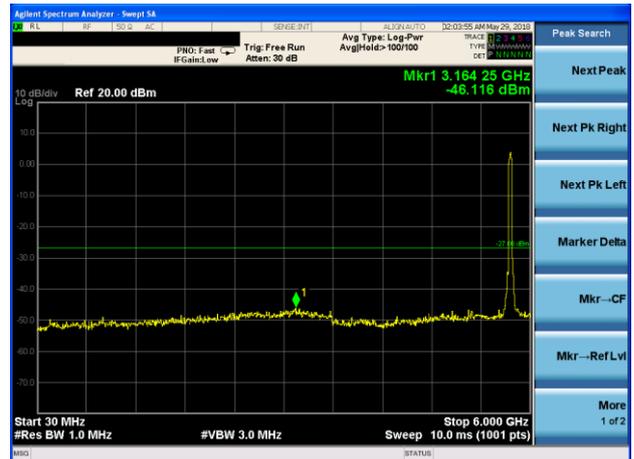
802.11ac40 on channel 151



802.11ac20 on channel 165



802.11ac40 on channel 151



Test Plot

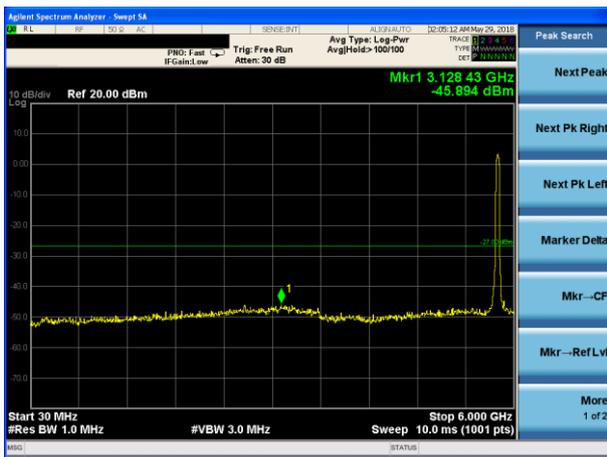
802.11ac40 on channel 159



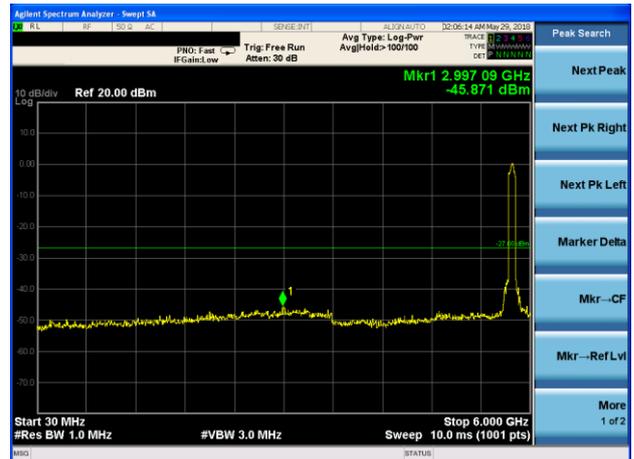
802.11ac80 on channel 155



802.11 ac40 on channel 159



802.11 ac80 on channel 155



## 10. Frequency Stability Measurement

### 10.1 LIMIT

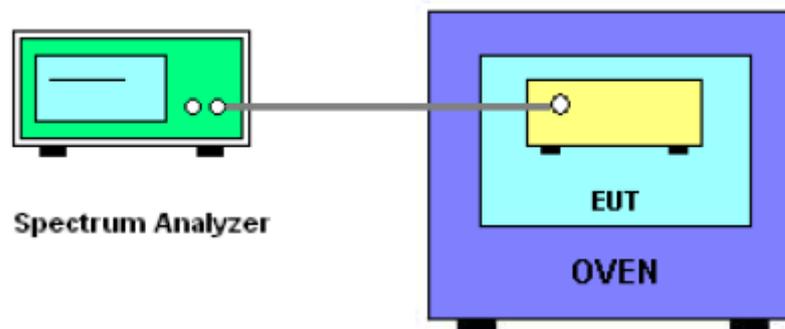
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be  $\pm 20$  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.  $f_c$  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  $\pm 20$  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  $-20^\circ\text{C} \sim 70^\circ\text{C}$ .

### 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 :	8-Inch Fully Ruggedized Tablet	Model Name. :	SV-86H
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
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)	3.70	5745.00344	5745	0.00344	-0.5983
		V max (V)	4.26	5745.00195	5745	0.00195	-0.3393
		V min (V)	3.15	5745.00794	5745	0.00794	-1.3812
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)	3.7	T (°C)	-20	5745.00866	5745	0.00866	-1.5074
		T (°C)	-10	5745.01242	5745	0.01242	-2.1610
		T (°C)	0	5745.00465	5745	0.00465	-0.8099
		T (°C)	10	5745.00392	5745	0.00392	-0.6817
		T (°C)	20	5745.00297	5745	0.00297	-0.5172
		T (°C)	30	5745.00468	5745	0.00468	-0.8153
		T (°C)	40	5745.00049	5745	0.00049	-0.0859
		T (°C)	50	5745.00452	5745	0.00452	-0.7866
		T (°C)	60	5745.01134	5745	0.01134	-1.9739
		T (°C)	70	5745.00719	5745	0.00719	-1.2515
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)	3.70	5785.00489	5785	0.00489	-0.8454
		V max (V)	4.26	5785.00249	5785	0.00249	-0.4310
		V min (V)	3.15	5785.00691	5785	0.00691	-1.1951
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)	3.7	T (°C)	-20	5785.00326	5785	0.00326	-0.5632
		T (°C)	-10	5785.00710	5785	0.00710	-1.2274
		T (°C)	0	5785.00821	5785	0.00821	-1.4190
		T (°C)	10	5785.00504	5785	0.00504	-0.8714
		T (°C)	20	5785.00207	5785	0.00207	-0.3583
		T (°C)	30	5785.00497	5785	0.00497	-0.8583
		T (°C)	40	5785.00010	5785	0.00010	-0.0181
		T (°C)	50	5785.00219	5785	0.00219	-0.3783
		T (°C)	60	5785.00156	5785	0.00156	-0.2700
		T (°C)	70	5785.01005	5785	0.01005	-1.7376
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)	3.70	5825.00726	5825	0.00726	-1.2457
		V max (V)	4.26	5825.01276	5825	0.01276	-2.1909
		V min (V)	3.15	5825.00586	5825	0.00586	-1.0054
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)	3.7	T (°C)	-20	5825.01115	5825	0.01115	-1.9146
		T (°C)	-10	5825.01352	5825	0.01352	-2.3212
		T (°C)	0	5825.01307	5825	0.01307	-2.2437
		T (°C)	10	5825.00264	5825	0.00264	-0.4534
		T (°C)	20	5825.00567	5825	0.00567	-0.9734
		T (°C)	30	5825.00552	5825	0.00552	-0.9477
		T (°C)	40	5825.00619	5825	0.00619	-1.0627
		T (°C)	50	5825.00007	5825	0.00007	-0.0121
		T (°C)	60	5825.00261	5825	0.00261	-0.4475
		T (°C)	70	5825.01354	5825	0.01354	-2.3246
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

The EUT antenna is permanent attached FPCB antenna(antenna gain:2dBi). It comply with the standard requirement.

END OF REPORT