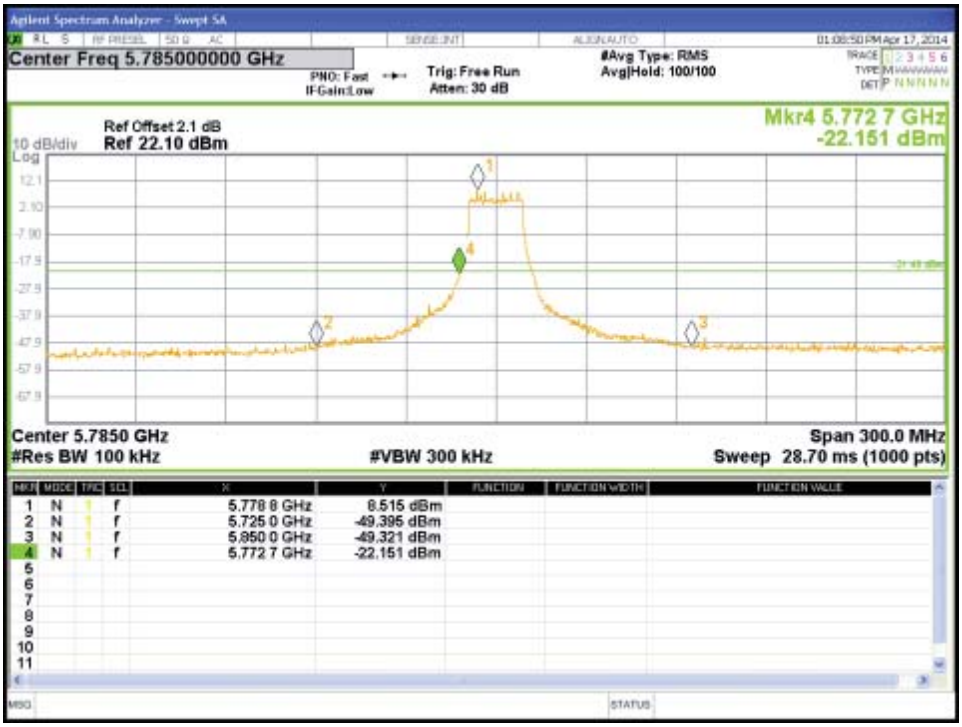


Figure 245: Conducted Band Edge-5785MHz-VHT20-MCS0-Ch2

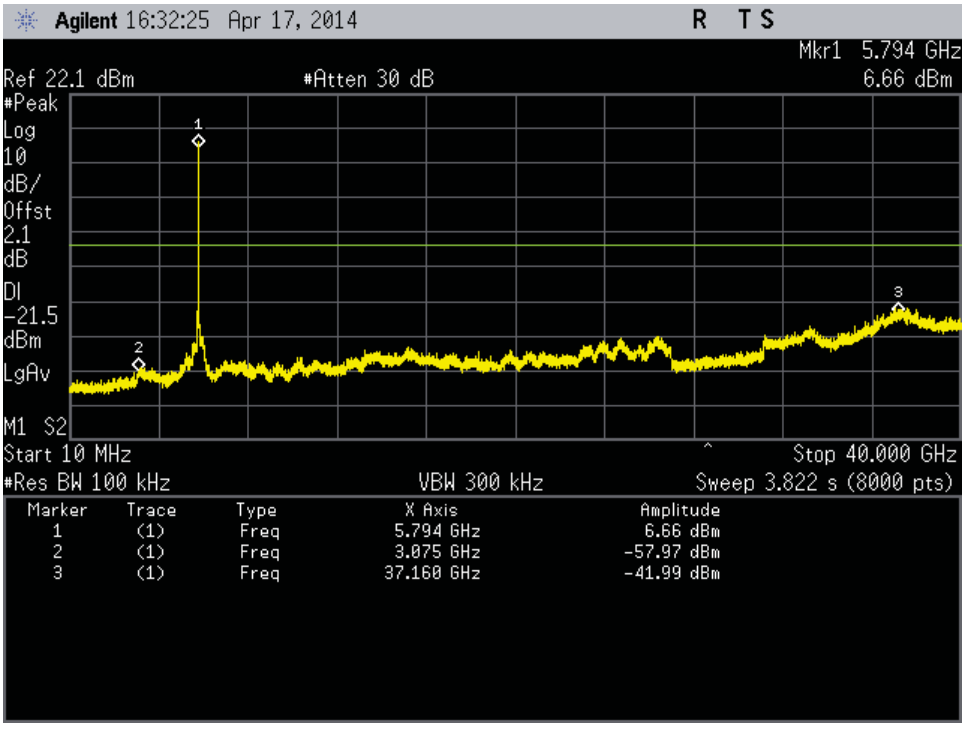


Figure 246: Out of Band Emission-802.11ac VHT20-5785 MHz-MCS0-Ch2

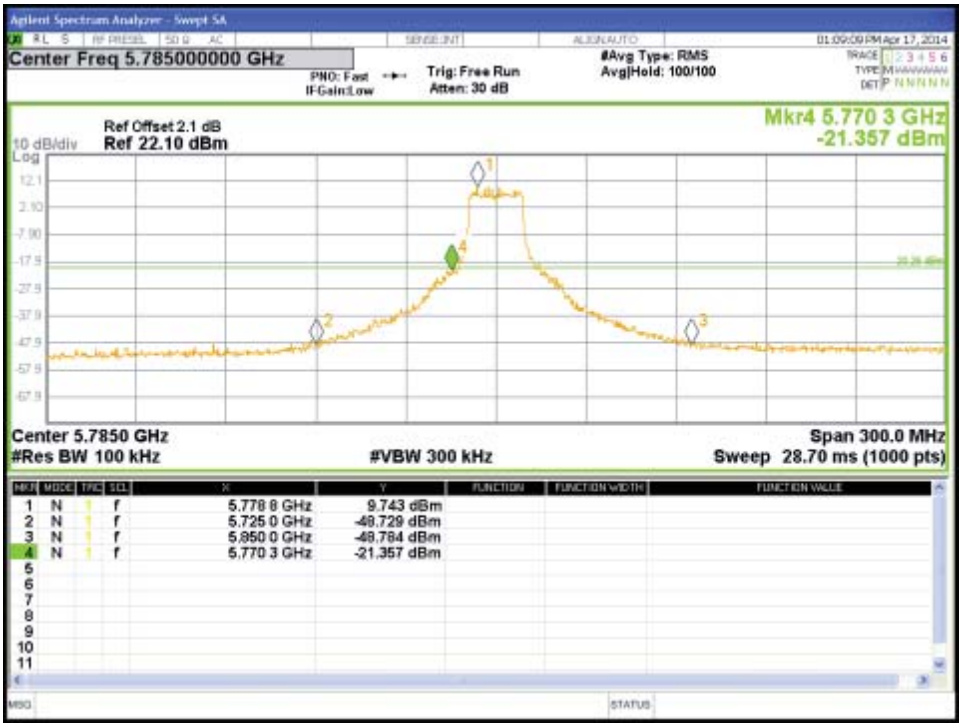


Figure 247: Conducted Band Edge-5785MHz-VHT20-MCS0-Ch3

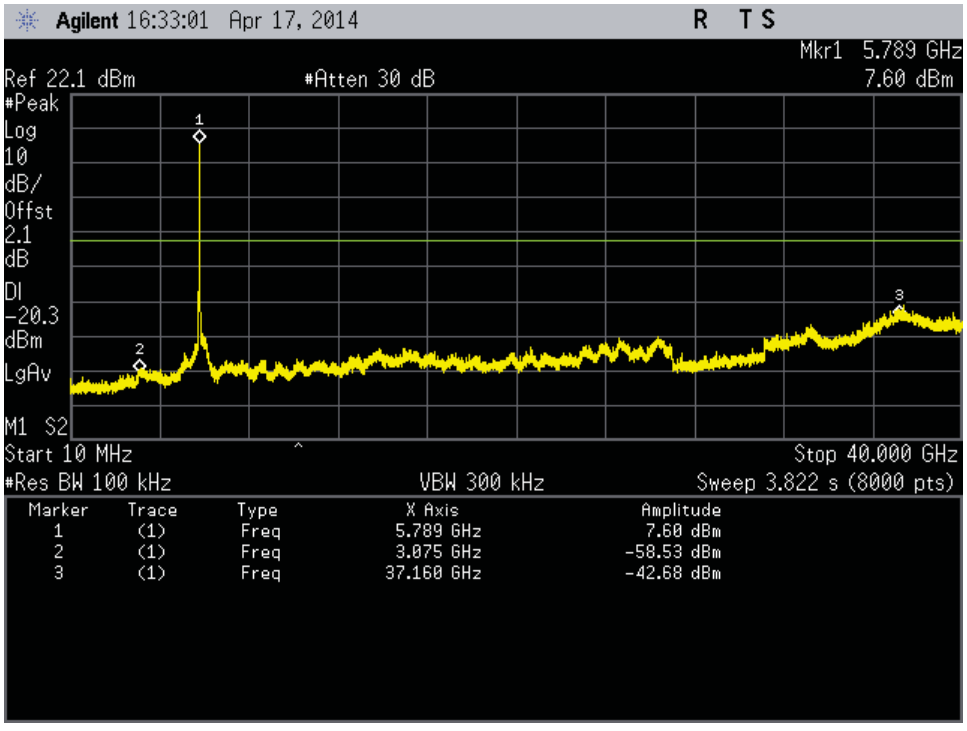


Figure 248: Out of Band Emission-802.11ac VHT20-5785 MHz-MCS0-Ch3

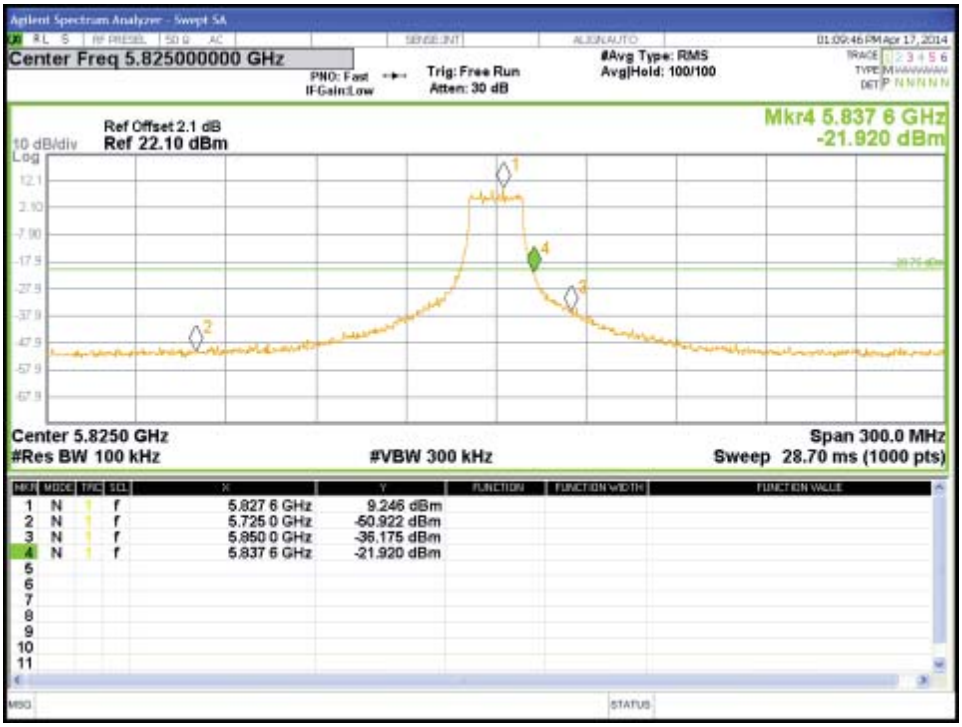


Figure 249: Conducted Band Edge-5825MHz-VHT20-MCS0-Ch0

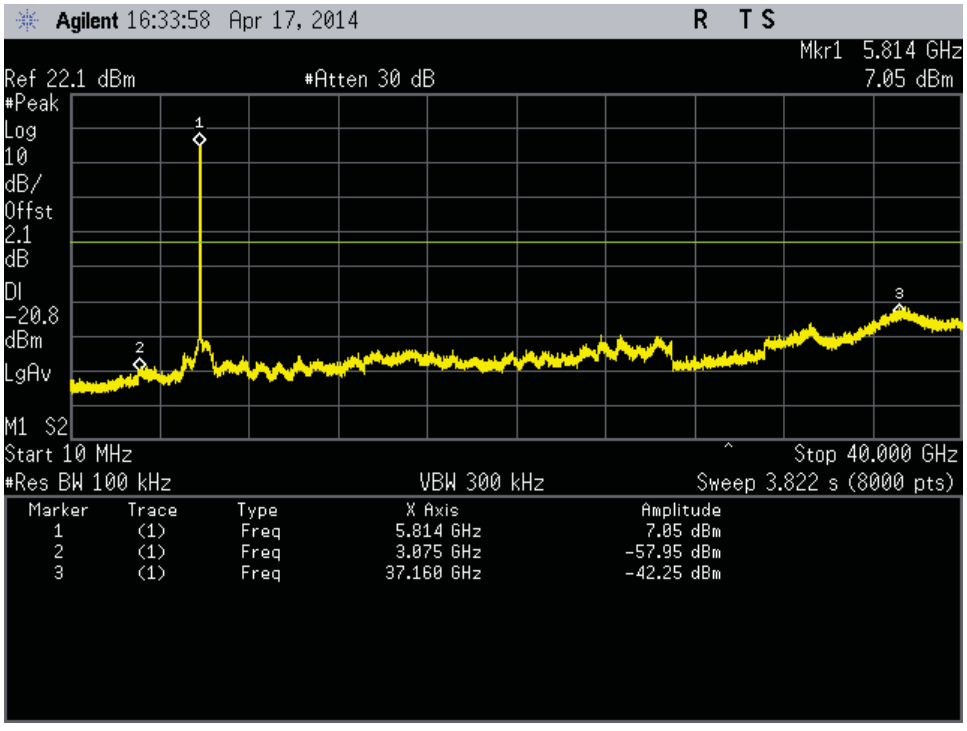


Figure 250: Out of Band Emission-802.11ac VHT20-5825 MHz-MCS0-Ch0

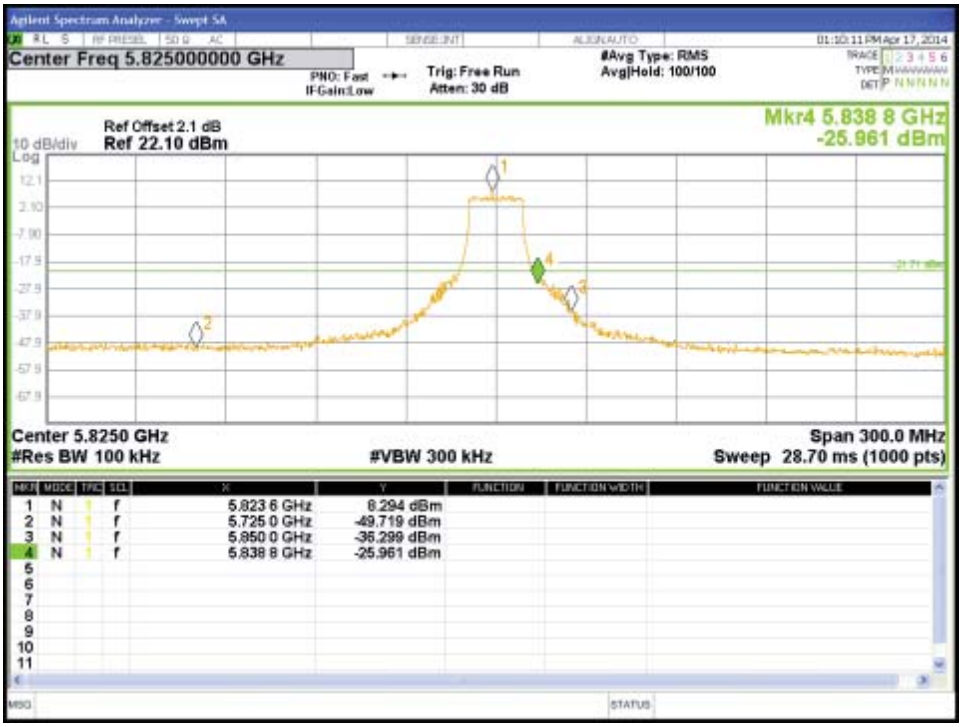


Figure 251: Conducted Band Edge-5825MHz-VHT20-MCS0-Ch1

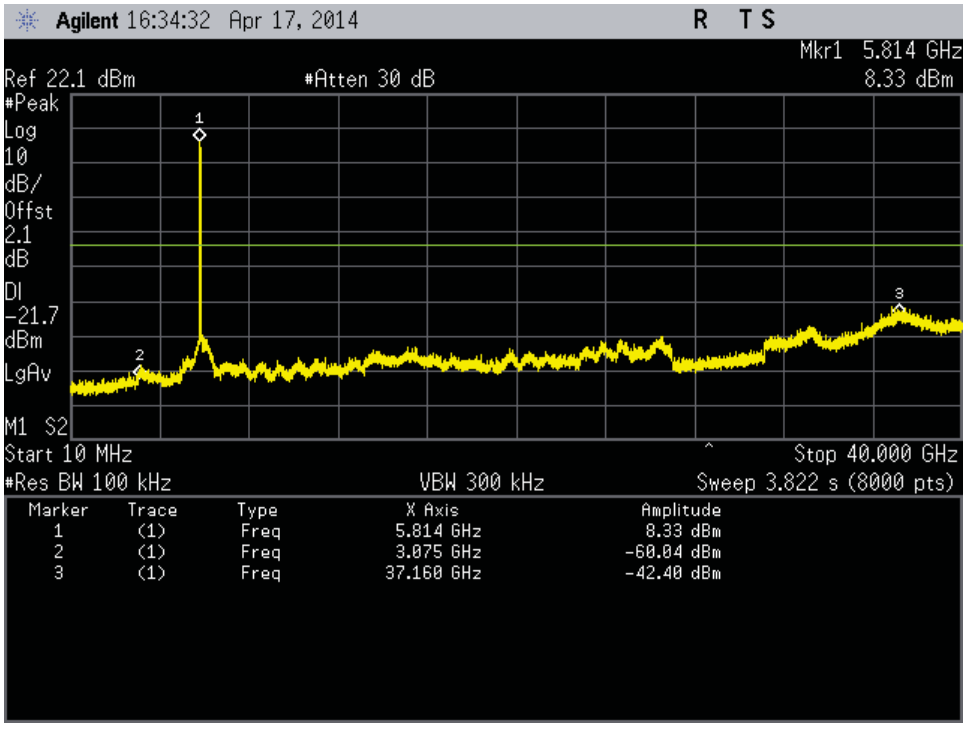


Figure 252: Out of Band Emission-802.11ac VHT20-5825 MHz-MCS0-Ch1

1279 Quarry Lane, Ste. A, Pleasanton, CA 95466
Tel: (925) 249-9123, Fax: (925) 249-9124

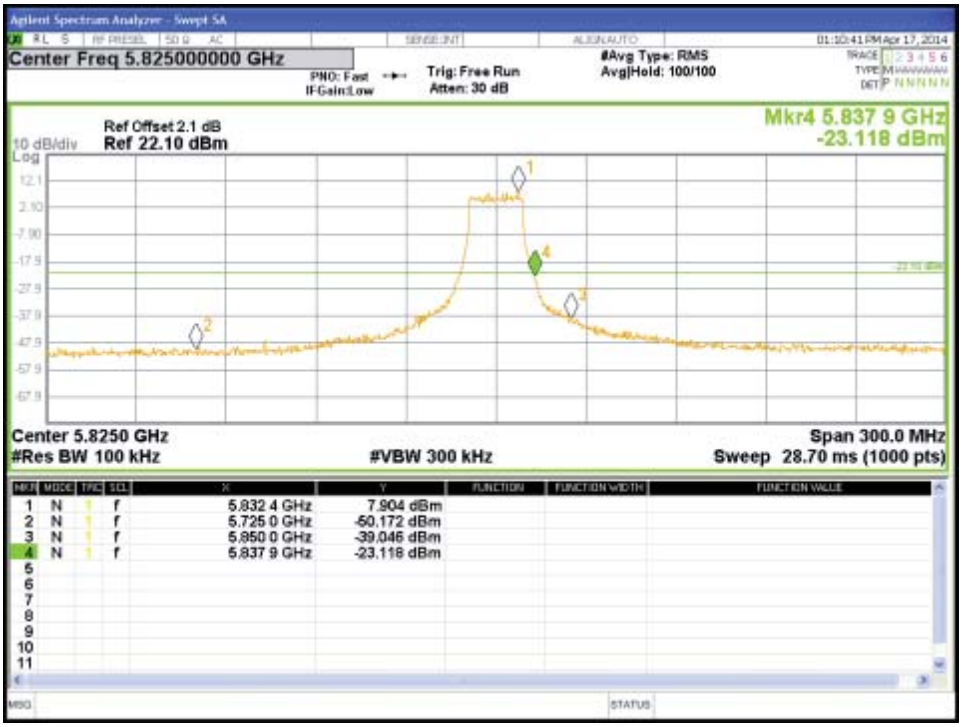


Figure 253: Conducted Band Edge-5825MHz-VHT20-MCS0-Ch2

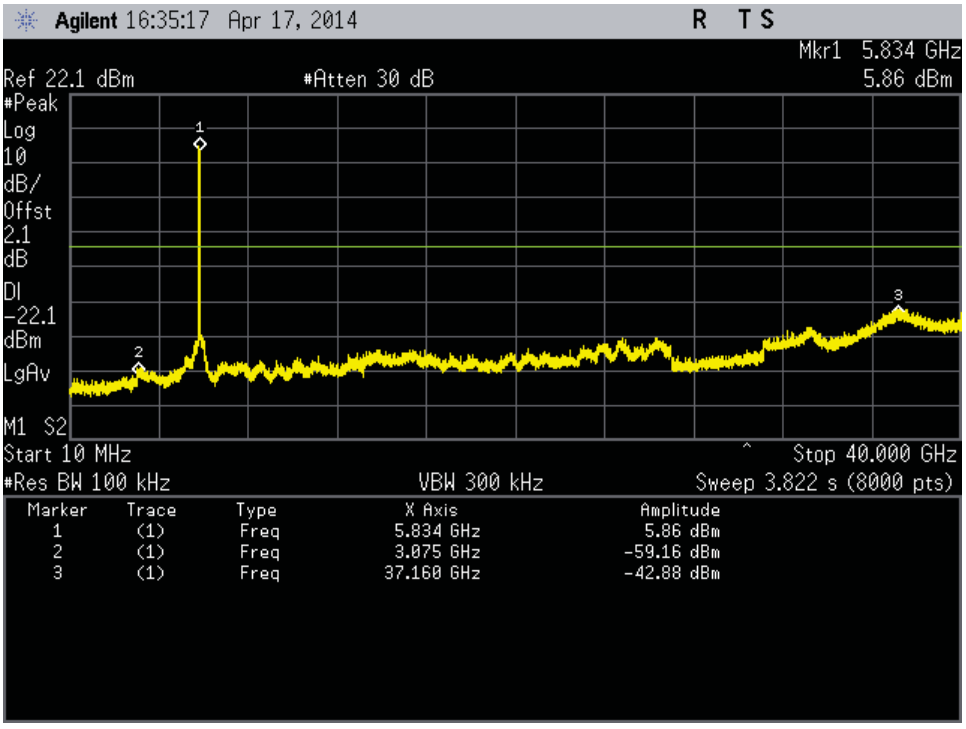


Figure 254: Out of Band Emission-802.11ac VHT20-5825 MHz-MCS0-Ch2

1279 Quarry Lane, Ste. A, Pleasanton, CA 95466
Tel: (925) 249-9123, Fax: (925) 249-9124

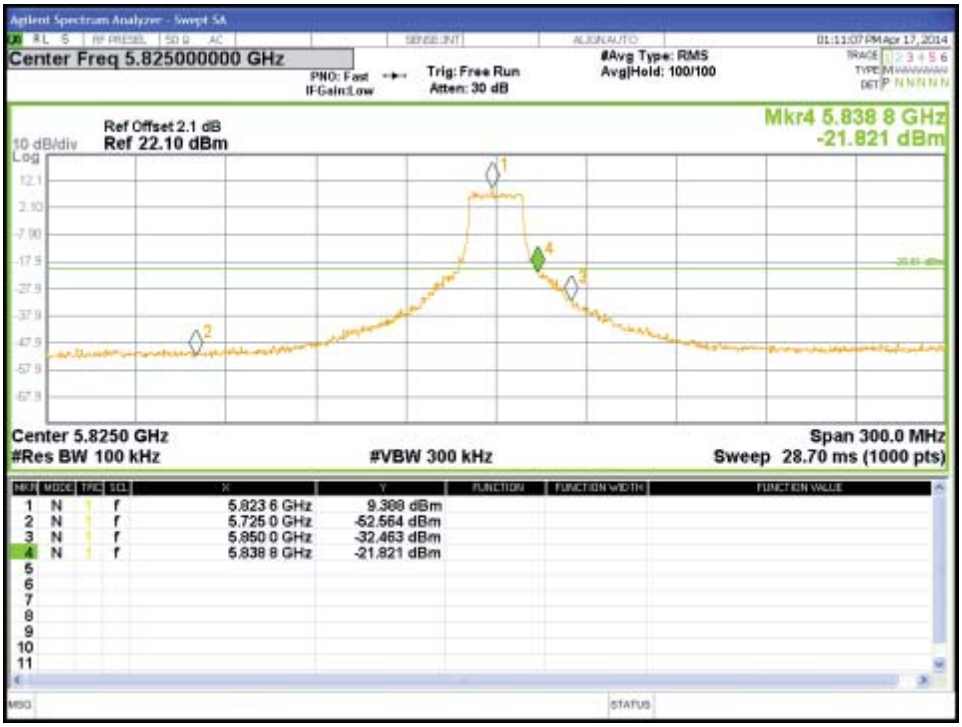


Figure 255: Conducted Band Edge-5825MHz-VHT20-MCS0-Ch3

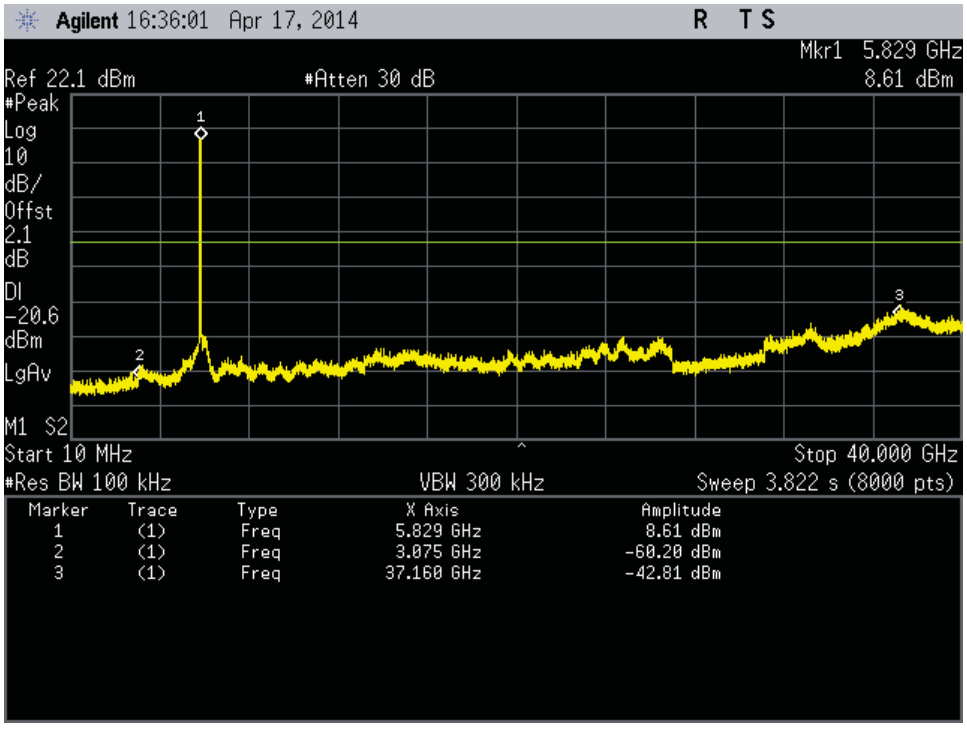


Figure 256: Out of Band Emission-802.11ac VHT20-5825 MHz-MCS0-Ch3

1279 Quarry Lane, Ste. A, Pleasanton, CA 95466
Tel: (925) 249-9123, Fax: (925) 249-9124

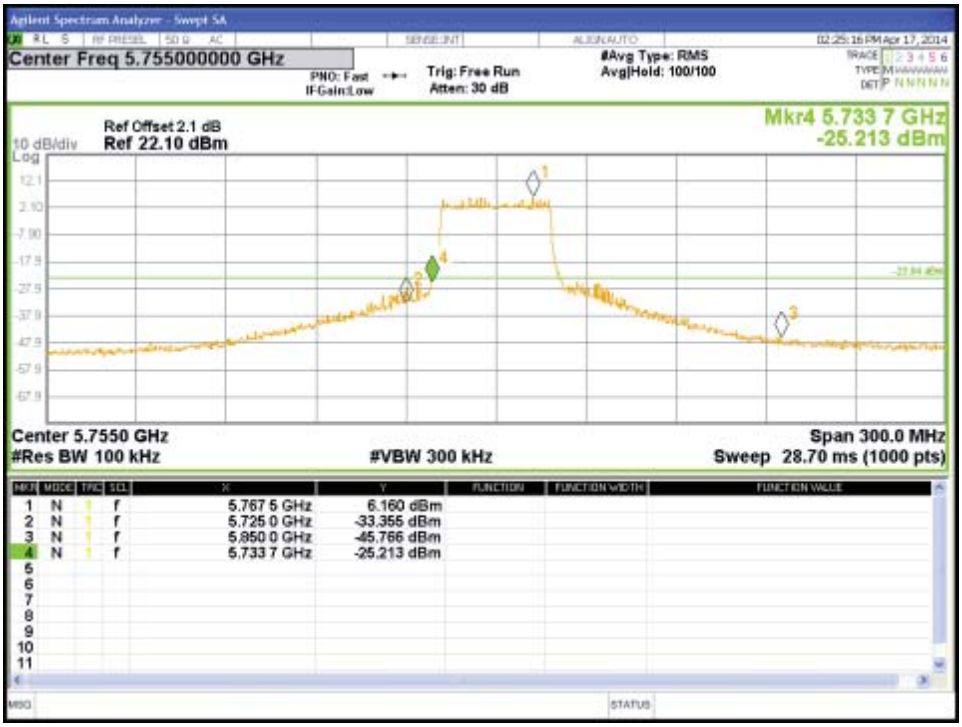


Figure 257: Conducted Band Edge-5755MHz-VHT40-MCS0-Ch0

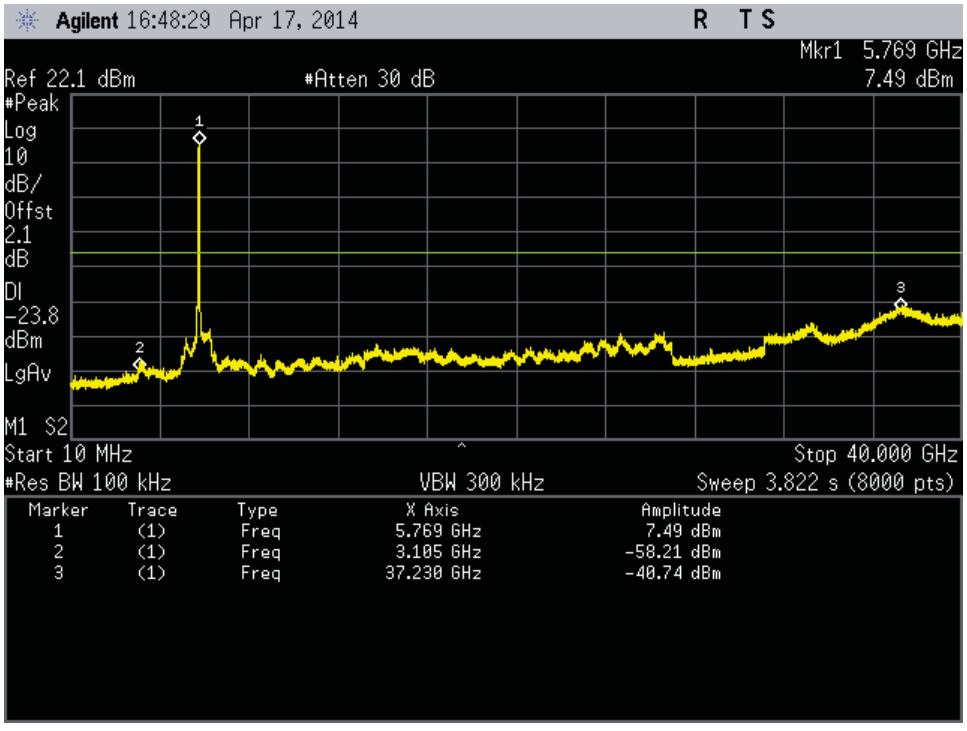


Figure 258: Out of Band Emission-802.11ac VHT40-5755 MHz-MCS0-Ch0

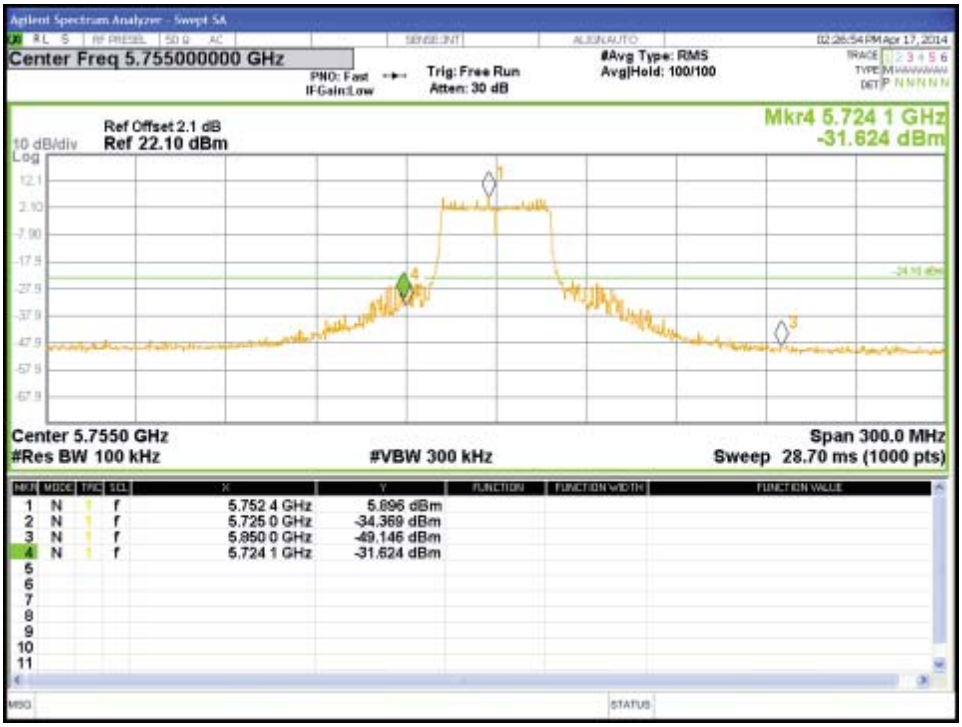


Figure 259: Conducted Band Edge-5755MHz-VHT40-MCS0-Ch1

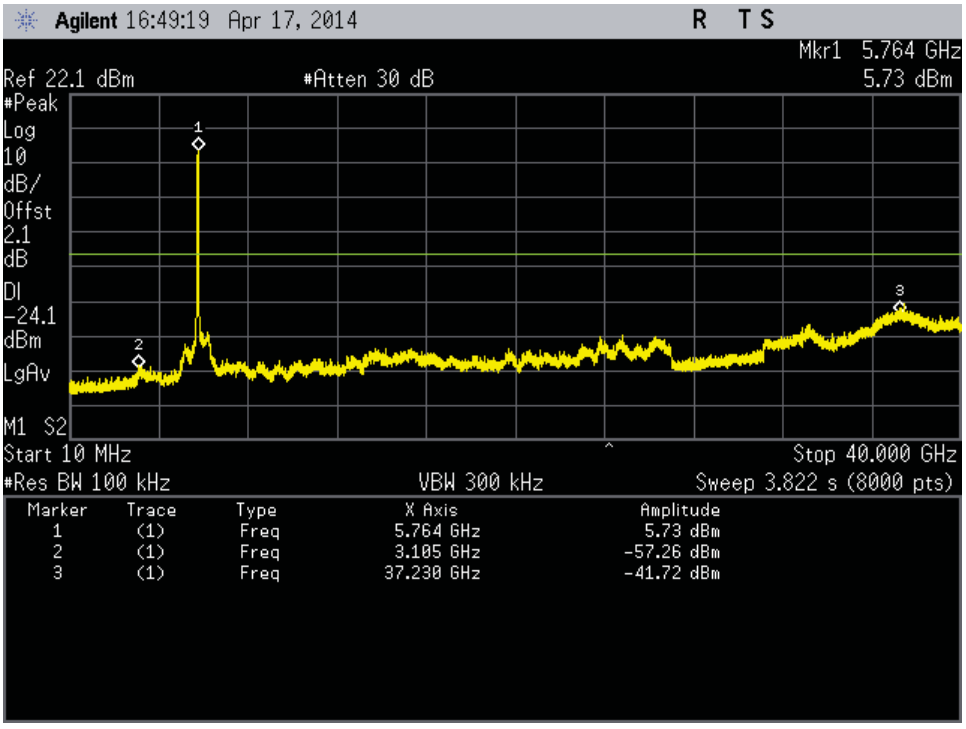


Figure 260: Out of Band Emission-802.11ac VHT40-5755 MHz-MCS0-Ch1

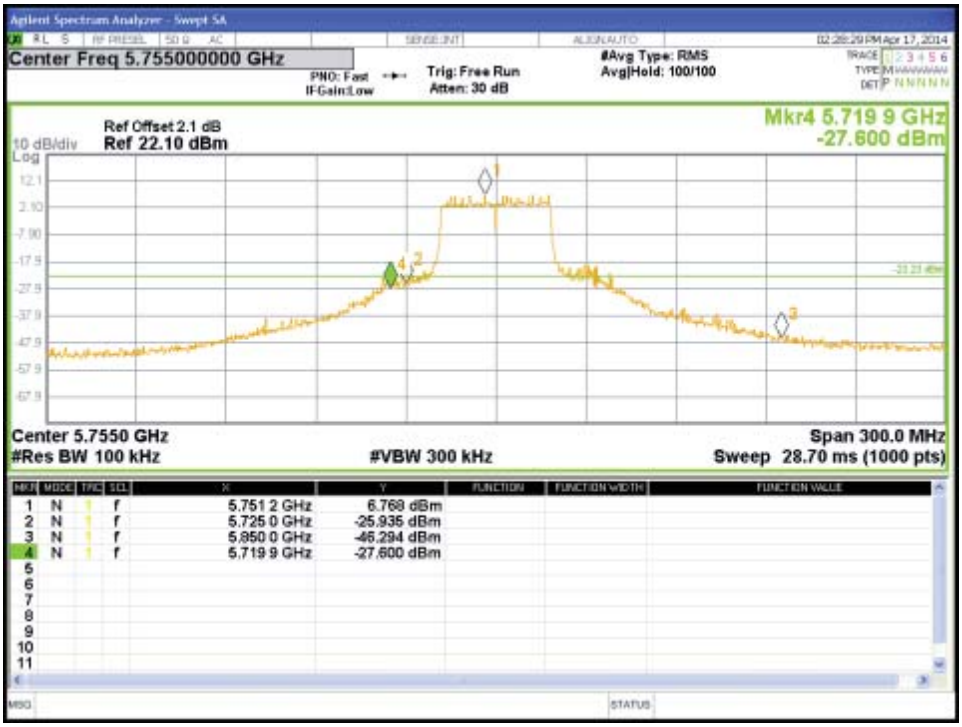


Figure 261: Conducted Band Edge-5755MHz-VHT40-MCS0-Ch2

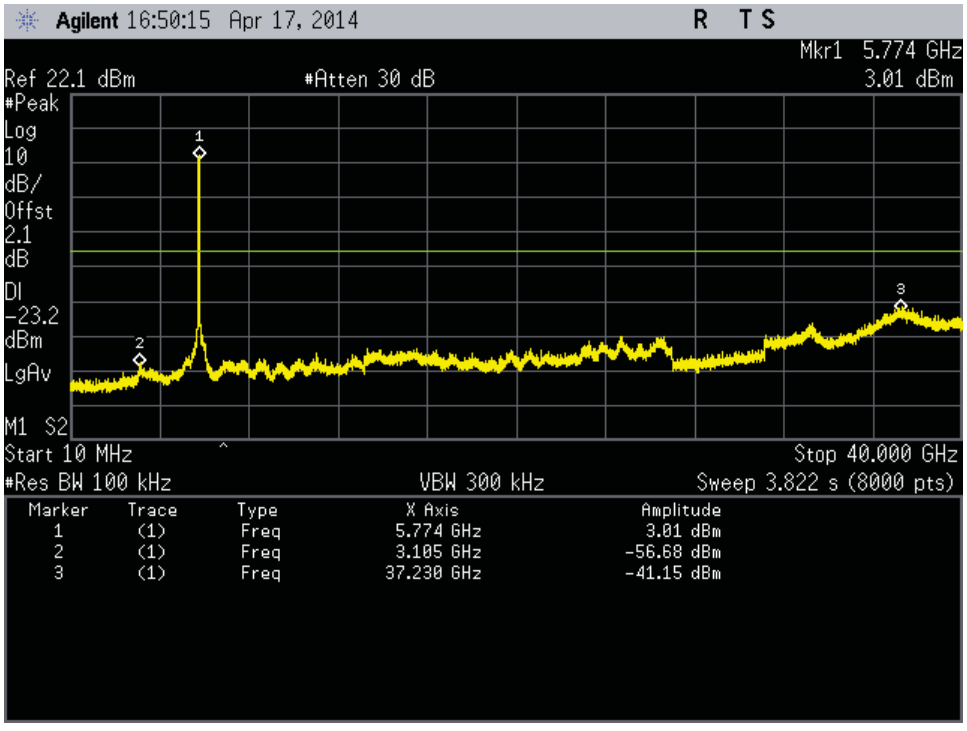


Figure 262: Out of Band Emission-802.11ac VHT40-5755 MHz-MCS0-Ch2

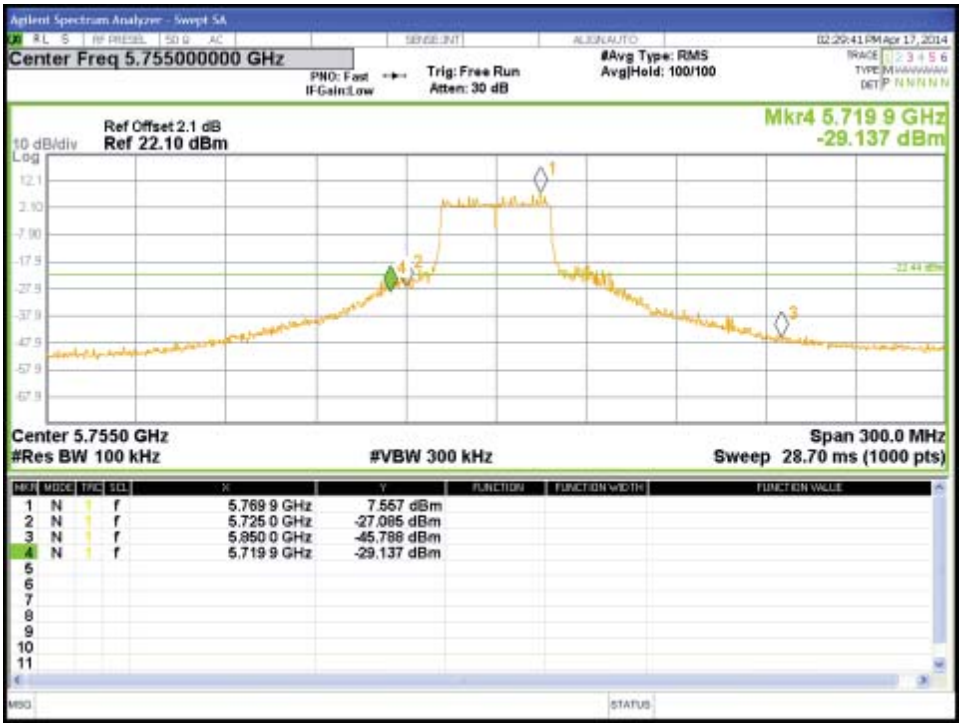


Figure 263: Conducted Band Edge-5755MHz-VHT40-MCS0-Ch3

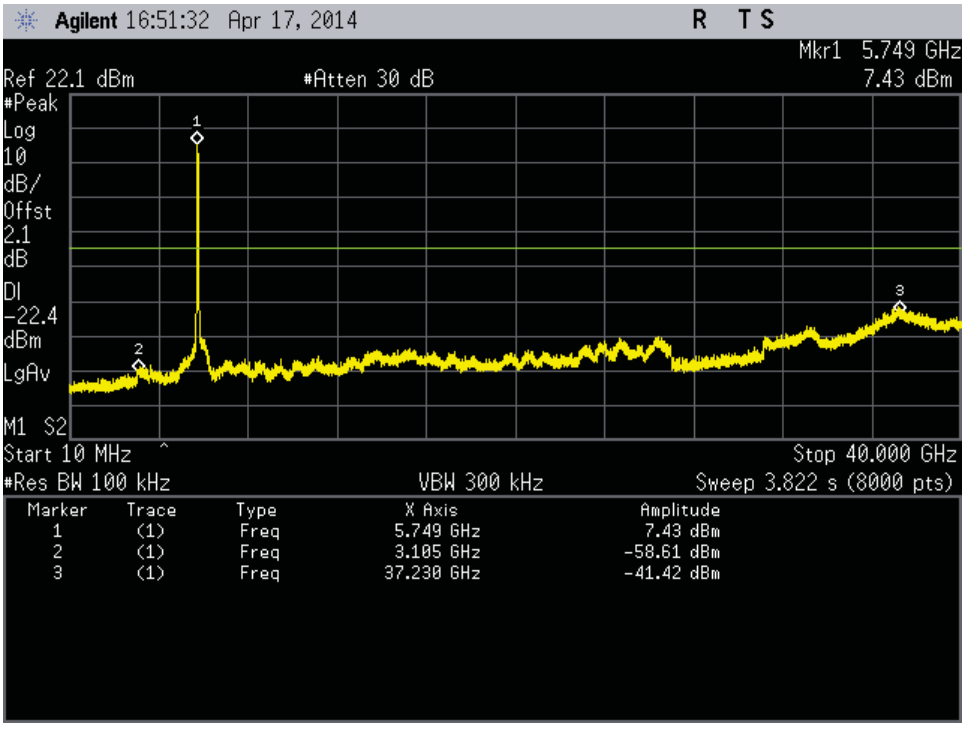


Figure 264: Out of Band Emission-802.11ac VHT40-5755 MHz-MCS0-Ch3

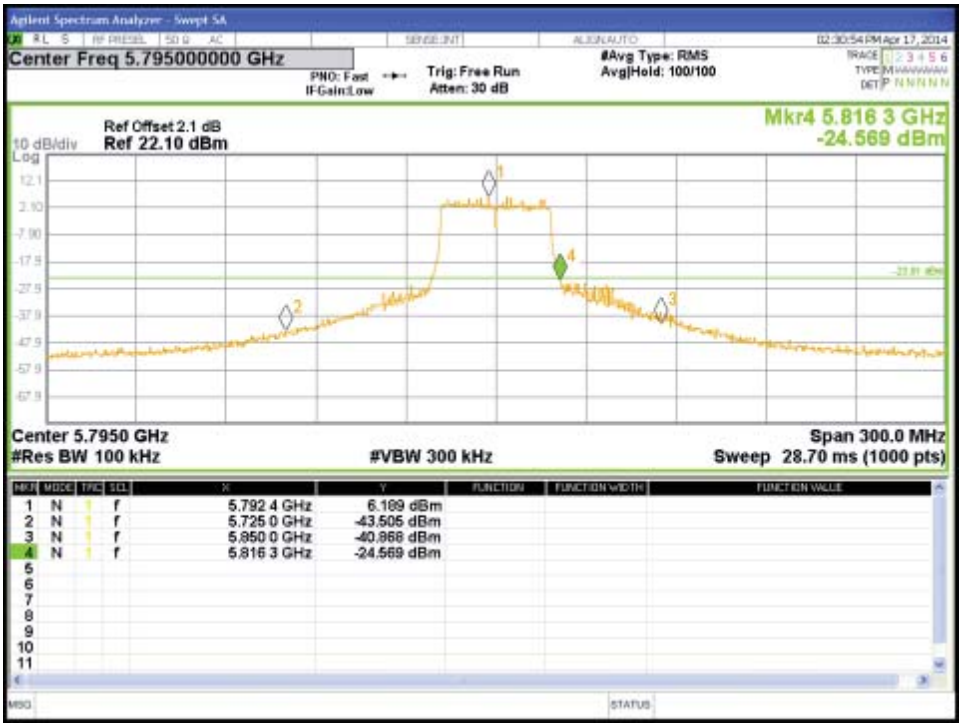


Figure 265: Conducted Band Edge-5795MHz-VHT40-MCS0-Ch0

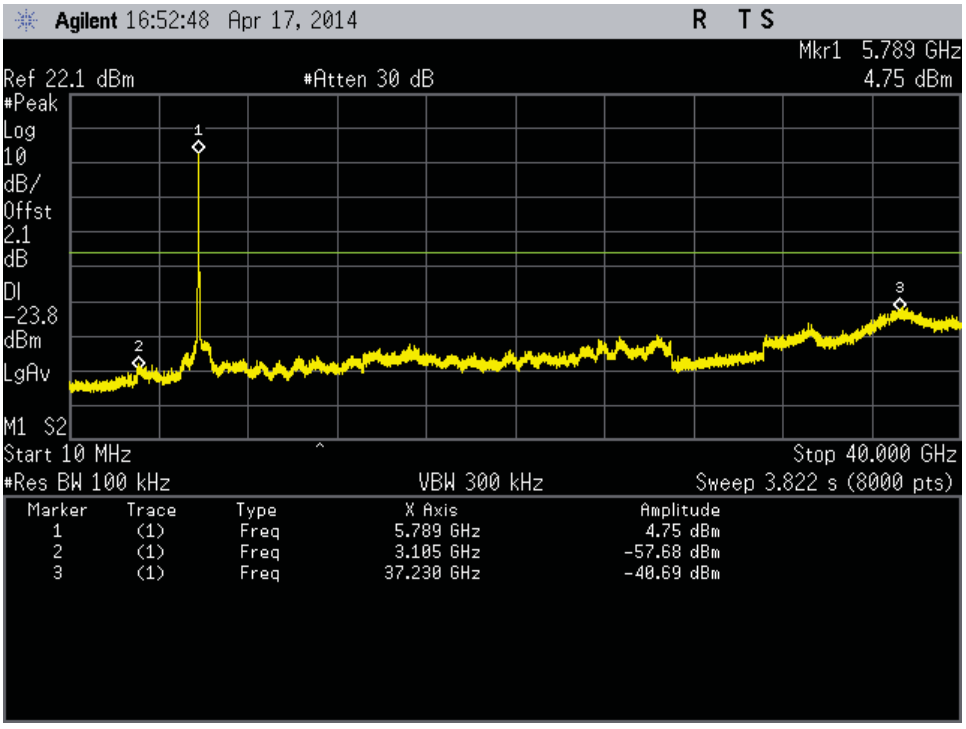


Figure 266: Out of Band Emission-802.11ac VHT40-5795 MHz-MCS0-Ch0

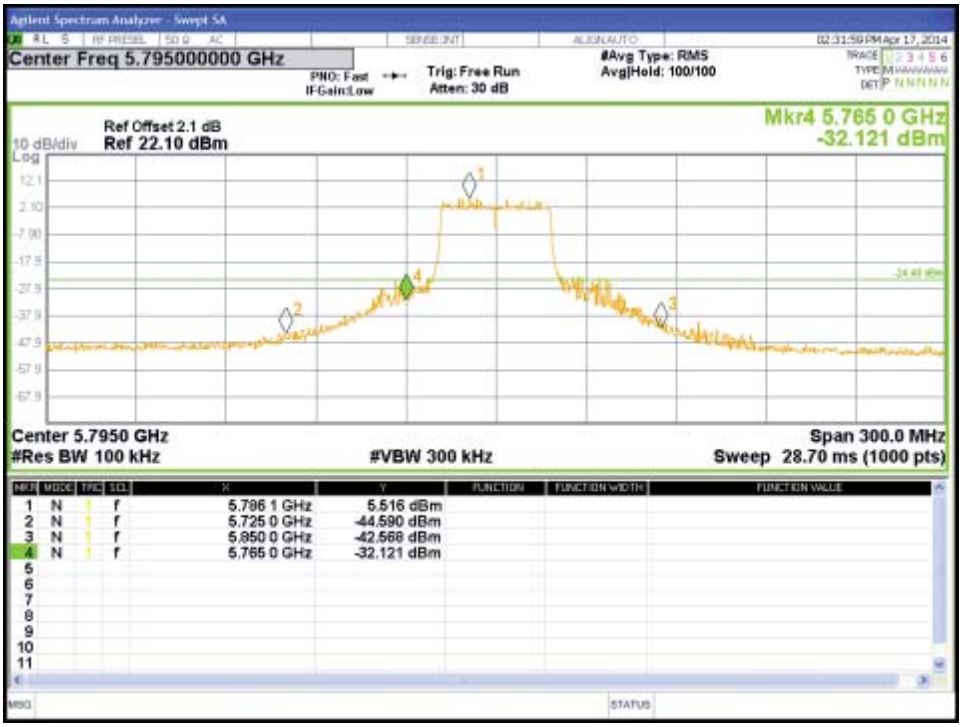


Figure 267: Conducted Band Edge-5795MHz-VHT40-MCS0-Ch1

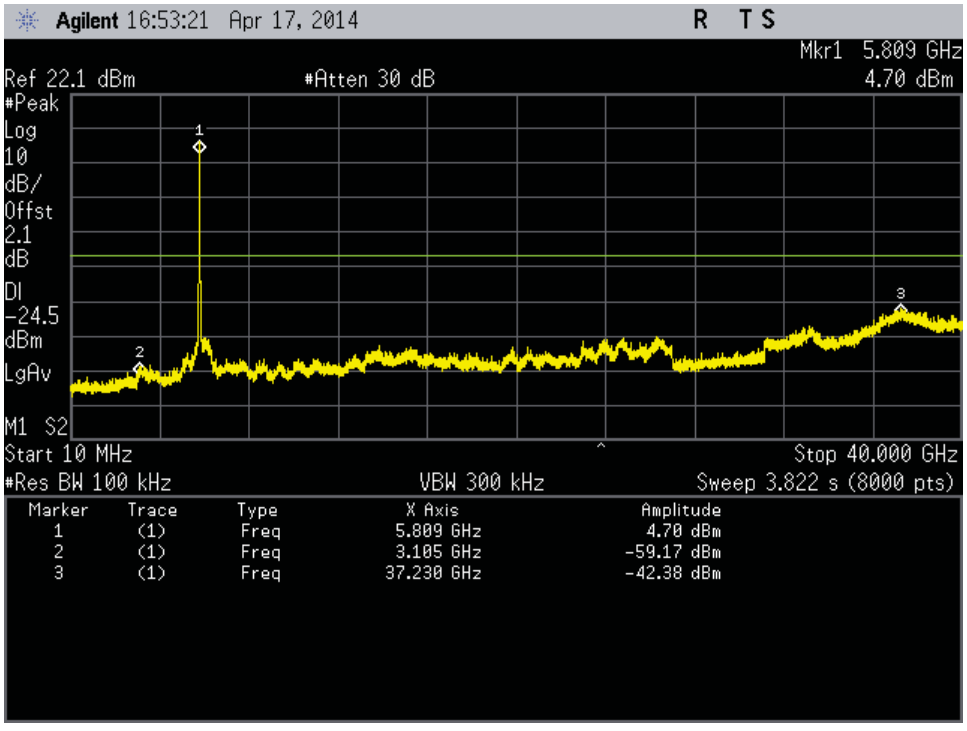


Figure 268: Out of Band Emission-802.11ac VHT40-5795 MHz-MCS0-Ch1

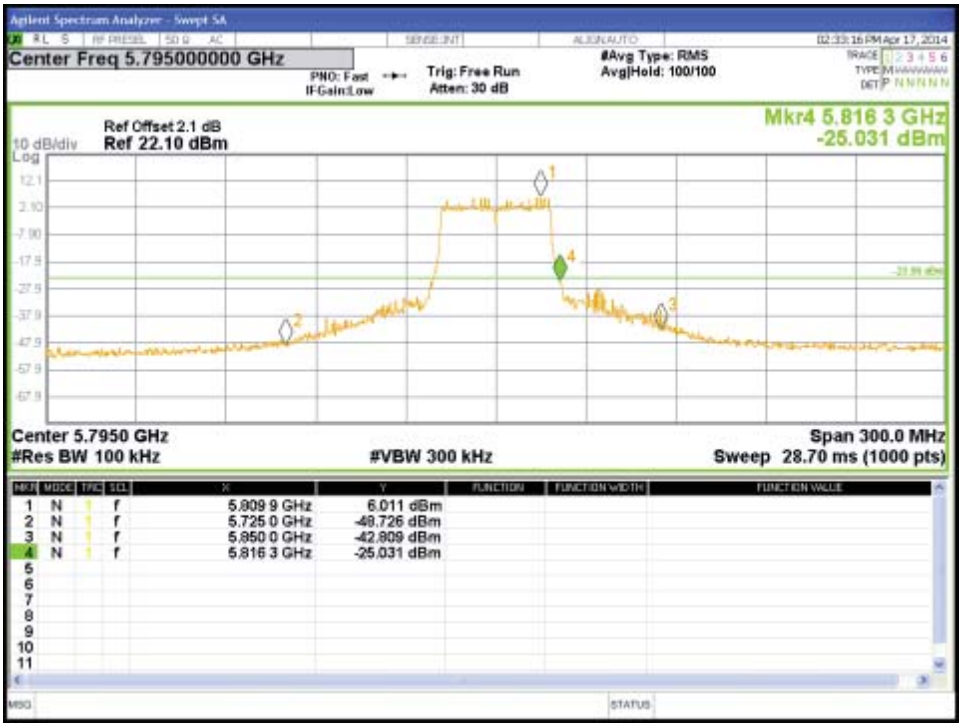


Figure 269: Conducted Band Edge-5795MHz-VHT40-MCS0-Ch2

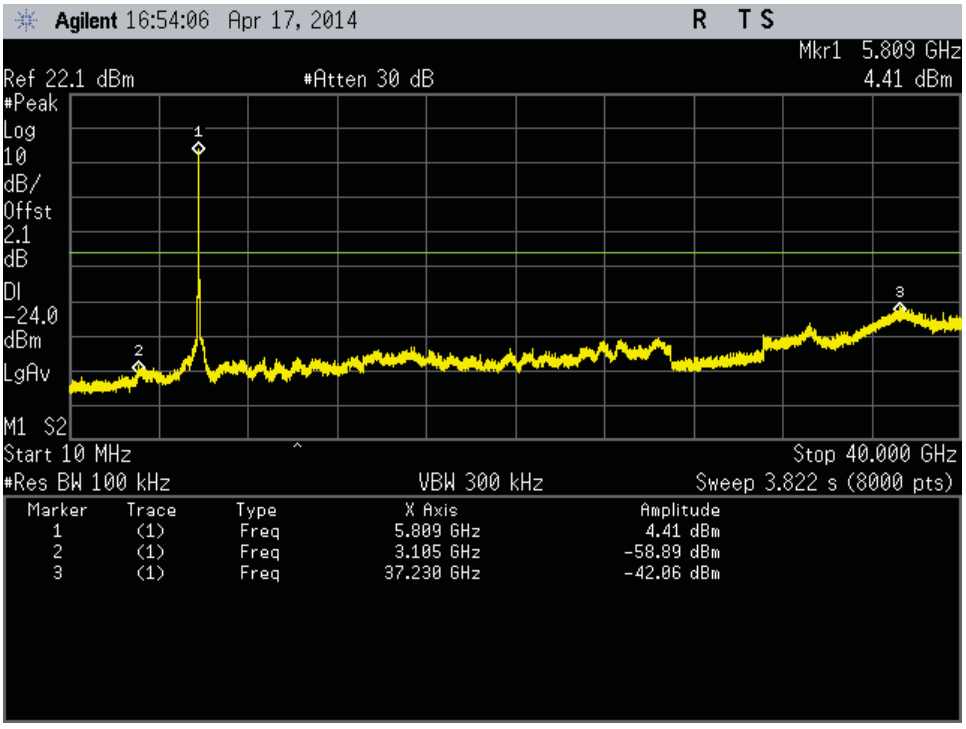


Figure 270: Out of Band Emission-802.11ac VHT40-5795 MHz-MCS0-Ch2

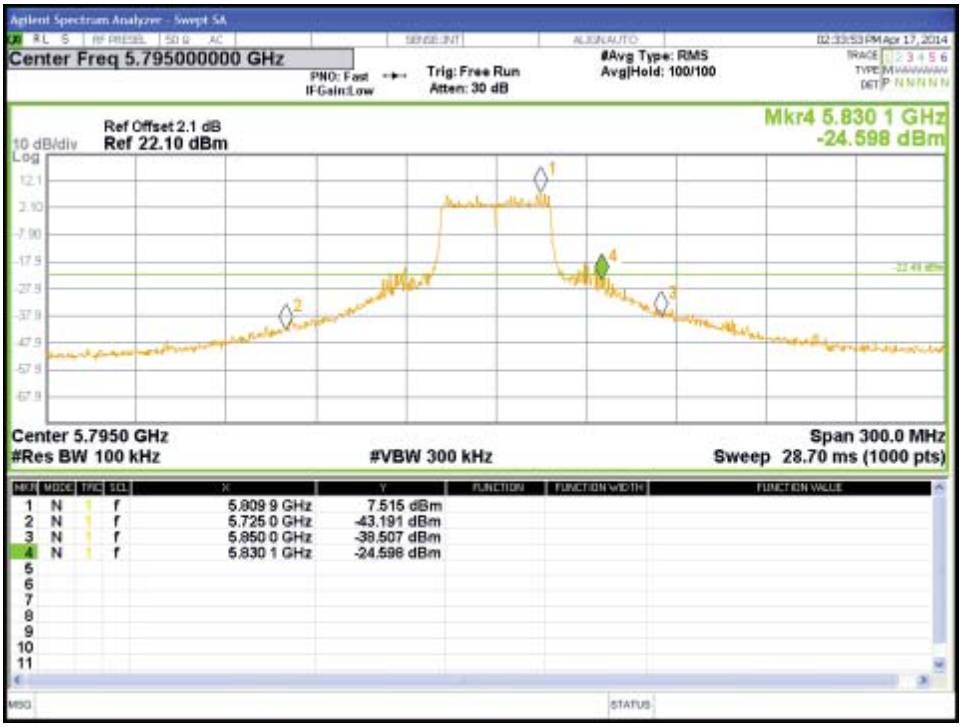


Figure 271: Conducted Band Edge-5795MHz-VHT40-MCS0-Ch3

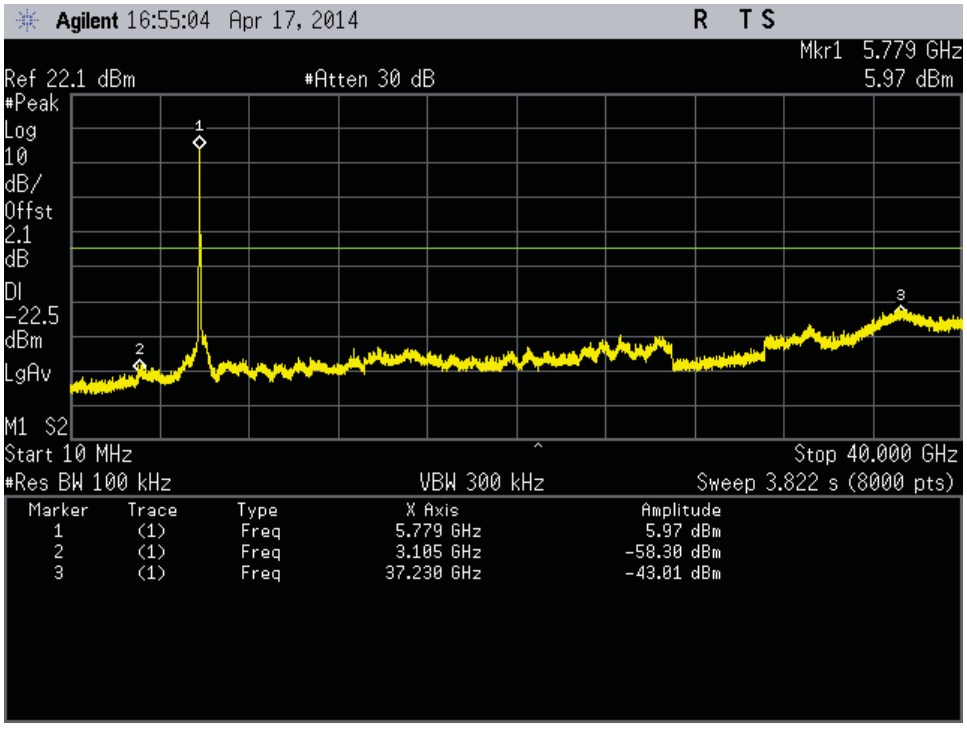


Figure 272: Out of Band Emission-802.11ac VHT40-5795 MHz-MCS0-Ch3

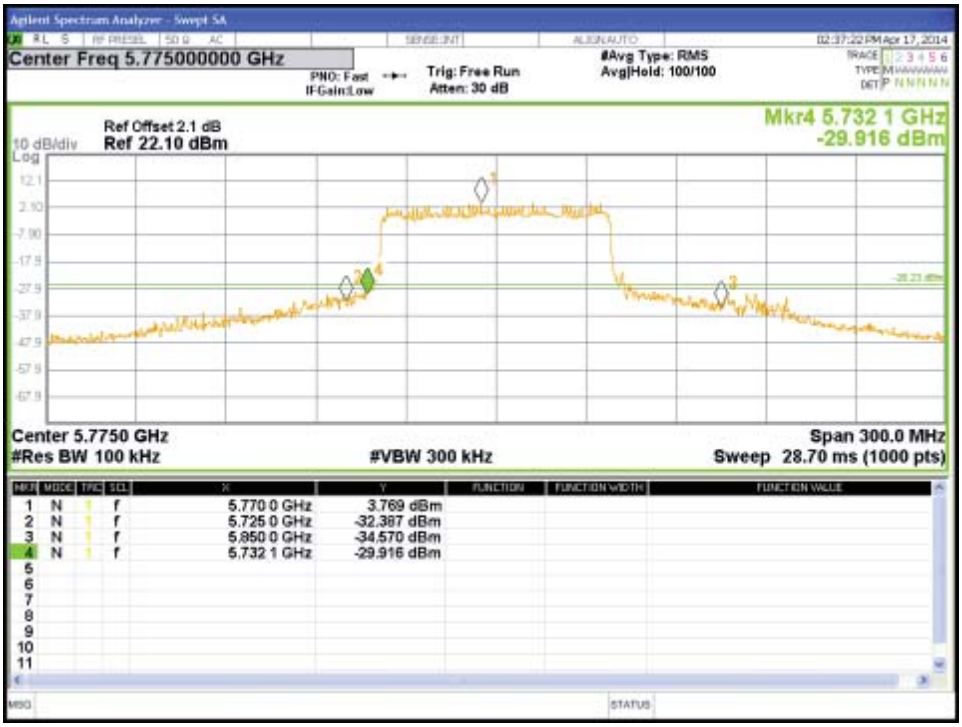


Figure 273: Conducted Band Edge-5775MHz-VHT80-MCS0-Ch0

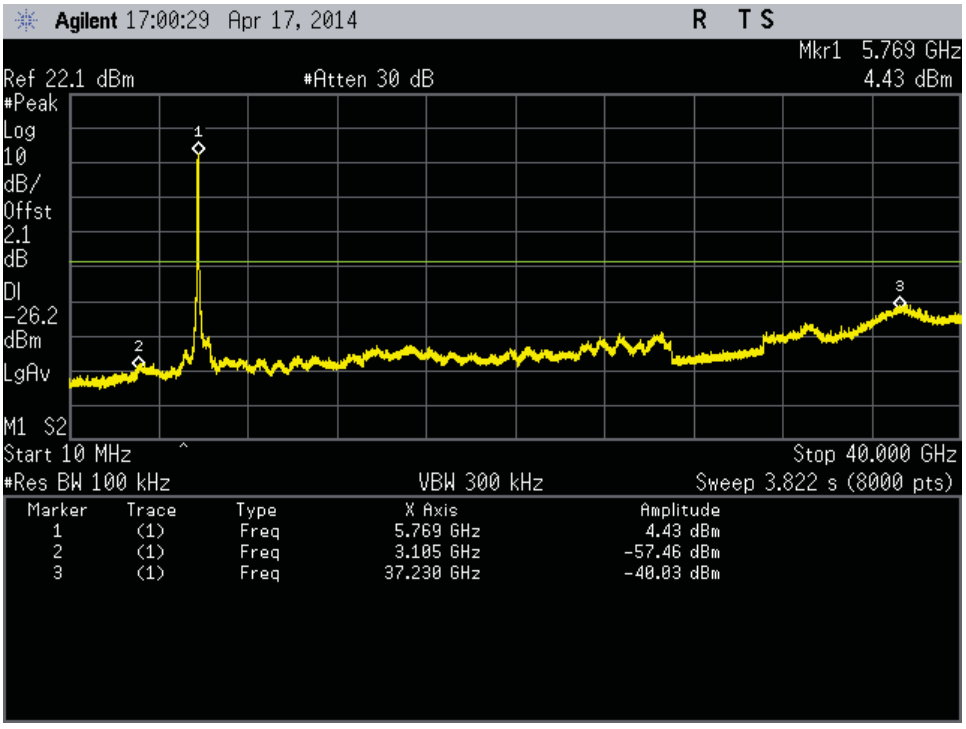


Figure 274: Out of Band Emission-802.11ac VHT80-5775 MHz-MCS0-Ch0

Figure 275: Conducted Band Edge-5775MHz-VHT80-MCS0-Ch1

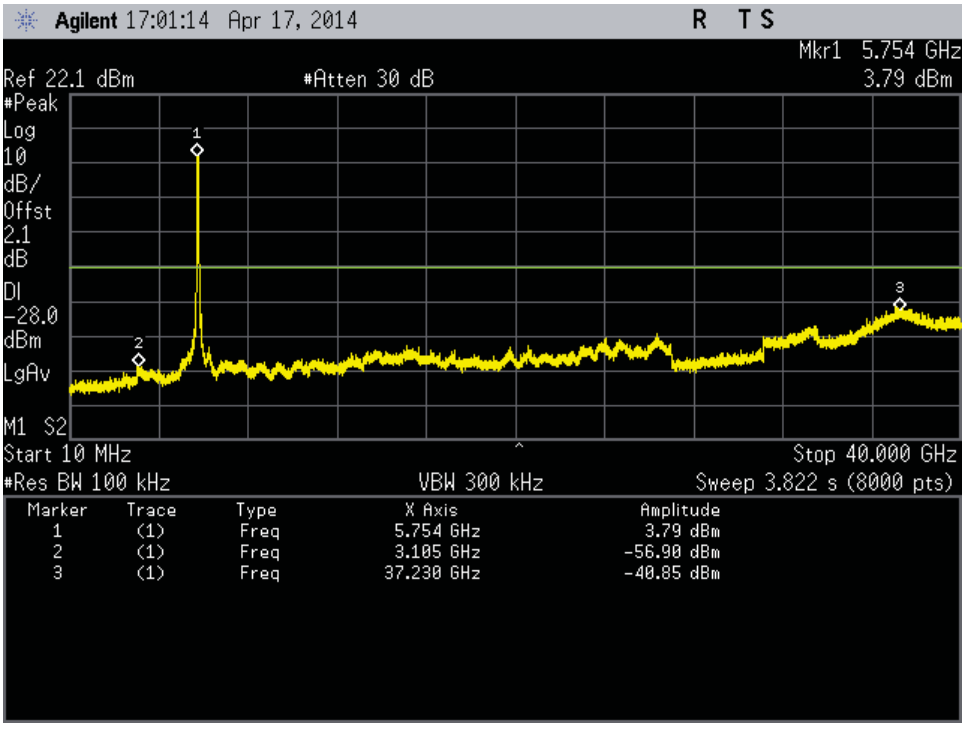


Figure 276: Out of Band Emission-802.11ac VHT80-5775 MHz-MCS0-Ch1

Figure 277: Conducted Band Edge-5775MHz-VHT80-MCS0-Ch2

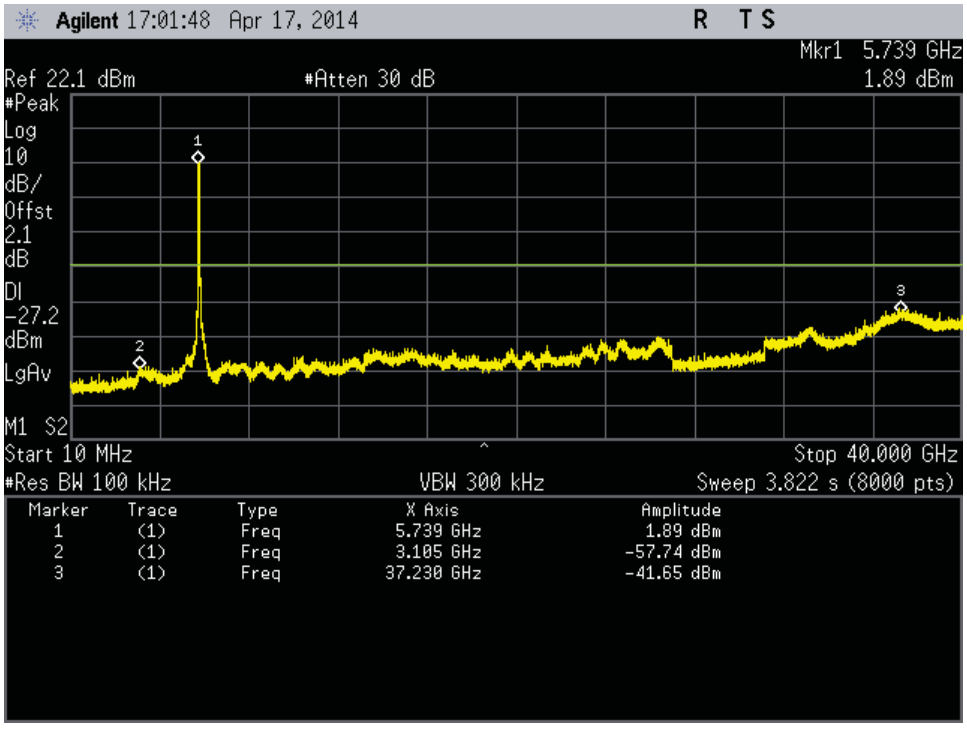


Figure 278: Out of Band Emission-802.11ac VHT80-5775 MHz-MCS0-Ch2

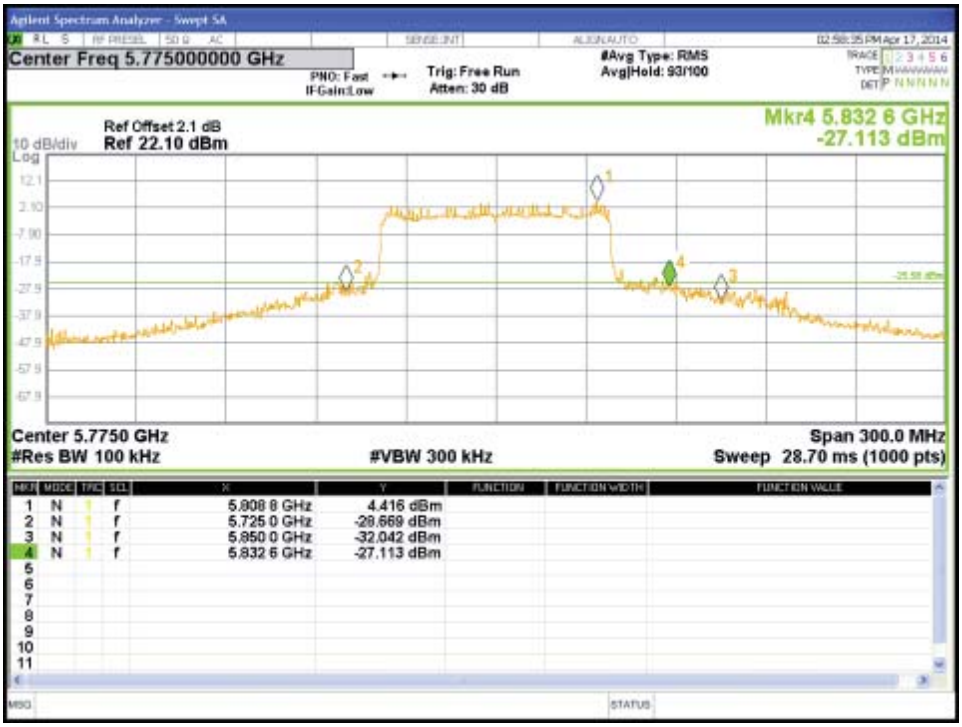


Figure 279: Conducted Band Edge-5775MHz-VHT80-MCS0-Ch3

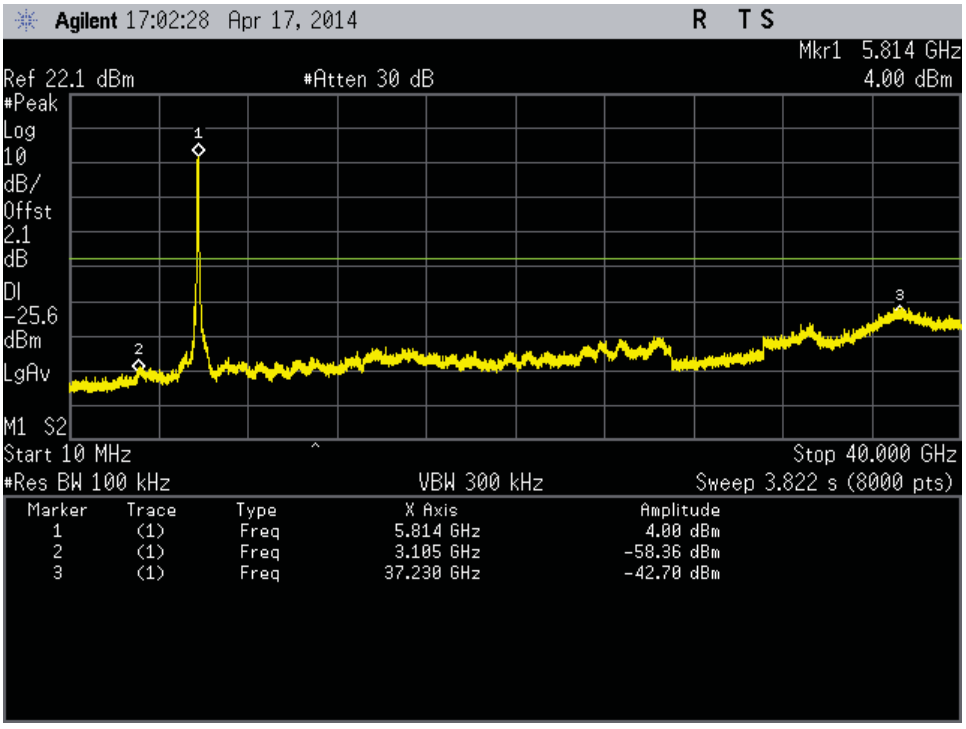


Figure 280: Out of Band Emission-802.11ac VHT80-5775 MHz-MCS0-Ch3

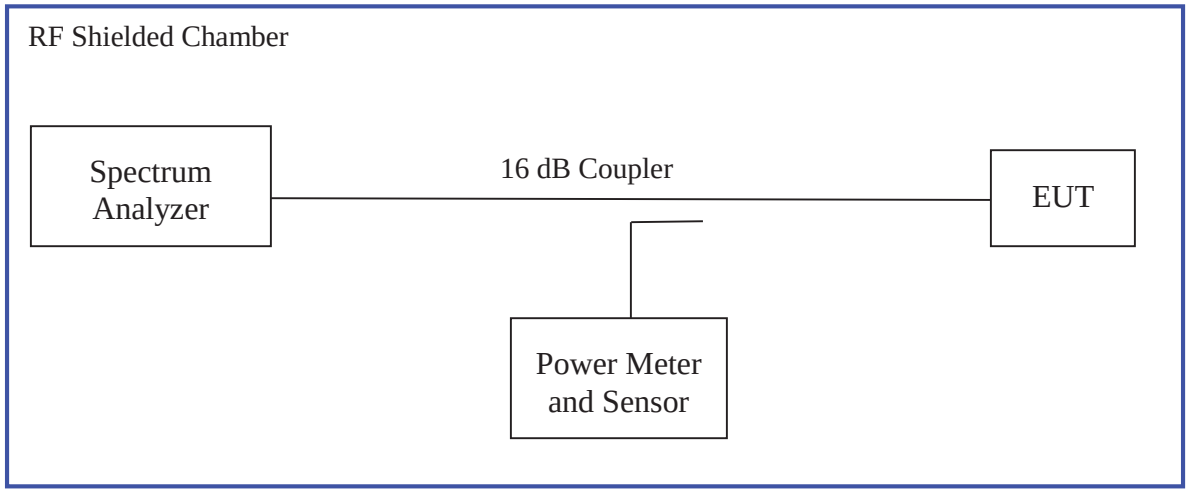
4.4 Peak Power Spectral Density

According to the CFR47 Part 15.407 (a)(3), the spectral power density output of the antenna port shall not exceed 30 dBm in any 500 kHz band during any time interval of continuous transmission.

4.4.1 Test Method

The conducted method was used to measure the channel peak power spectral density per ANSI C63.10-2013 Section 12.5. The measurement was performed with modulation per CFR47 Part 15.407 (a)(3). This test was conducted on 3 channels of Sample, S/N 121404000111. The worst findings were conducted on 3 channels in each operating mode of 5725 MHz to 5850 MHz indicated below.

Test Setup:



Measurement procedure SA-2 of KDB 789033 D02 General UNII Test Procedures New Rules v01r01 was applied.

The total directional gain would be 8.08 dBi. The limit is reduced for every dBi gain exceeding 6 dBi per CFR47 Part 15.407. The limit would be 27.92 dBm.

CF = (10*Log(1/duty cycle))+(10*Log(500kHz/100kHz)) + (10*Log(N)) where N is accounted for the number of data streams being used per KDB 662911.

4.4.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 6: Peak Power Spectral Density – Test Results

Test Conditions: Conducted Measurement				**Test Date:** April 16, 2014				
Antenna Type: Integrated				**Power Setting:** See test plan				
Max. Directional Gain: + 8.08 dBi				**Signal State:** Modulated				
Ambient Temp.: 22 °C				**Relative Humidity:**30%				
Peak Power Spectral Density								
802.11a Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5745	27.92	1.01	0.16	-0.05	1.34	13.05	19.73	-8.19
5785	27.92	1.02	-0.04	0.74	1.63	13.05	19.95	-7.97
5825	27.92	0.73	-0.22	0.33	1.22	13.05	19.62	-8.30
Note: The highest peak output power was observed at 802.11a 6Mbps per data stream at 99% duty cycle								
802.11n (HT20) Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5745	27.92	0.63	-0.36	-0.35	0.97	13.10	19.38	-8.54
5785	27.92	0.57	0.26	-0.33	0.91	13.10	19.49	-8.43
5825	27.92	0.25	0.01	0.38	1.19	13.10	19.60	-8.32
Note: The highest peak output power was observed at HT20 MCS0 per data stream at 98% duty cycle								
802.11n (HT40) Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5755	27.92	-2.29	-2.86	-2.28	-1.75	13.19	16.93	-10.99
5795	27.92	-0.62	-2.92	-2.03	-1.89	13.19	17.42	-10.50
Note: The highest peak output power was observed at HT40 MCS0 per data stream at 96% duty cycle								

802.11ac (VHT20) Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5745	27.92	0.59	-0.05	-0.35	1.22	13.10	19.51	-8.41
5785	27.92	0.50	0.03	-0.12	0.98	13.10	19.49	-8.43
5825	27.92	0.15	0.03	0.19	1.27	13.10	19.56	-8.36
Note: The highest peak output power was observed at VHT20 MCS0 per data stream at 98% duty cycle								
802.11ac (VHT40) Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5755	27.92	-0.59	-2.87	-2.94	-1.89	13.14	17.20	-10.72
5795	27.92	-2.23	-3.22	-2.97	-1.98	13.14	16.59	-11.33
Note: The highest peak output power was observed at VHT40 MCS0 per data stream at 97% duty cycle								
802.11ac (VHT80) Mode								
Freq. (MHz)	**Limit [dBm]**	**Ch0 [dBm]**	**Ch1 [dBm]**	**Ch2 [dBm]**	**Ch3 [dBm]**	**CF [dB]**	**Max. PPSD [dBm]**	**Margin [dB]**
5775	27.92	1.98	1.72	1.08	2.83	13.33	21.29	-6.63
Note: The highest peak output power was observed at VHT80 MCS0 per data stream at 93% duty cycle								

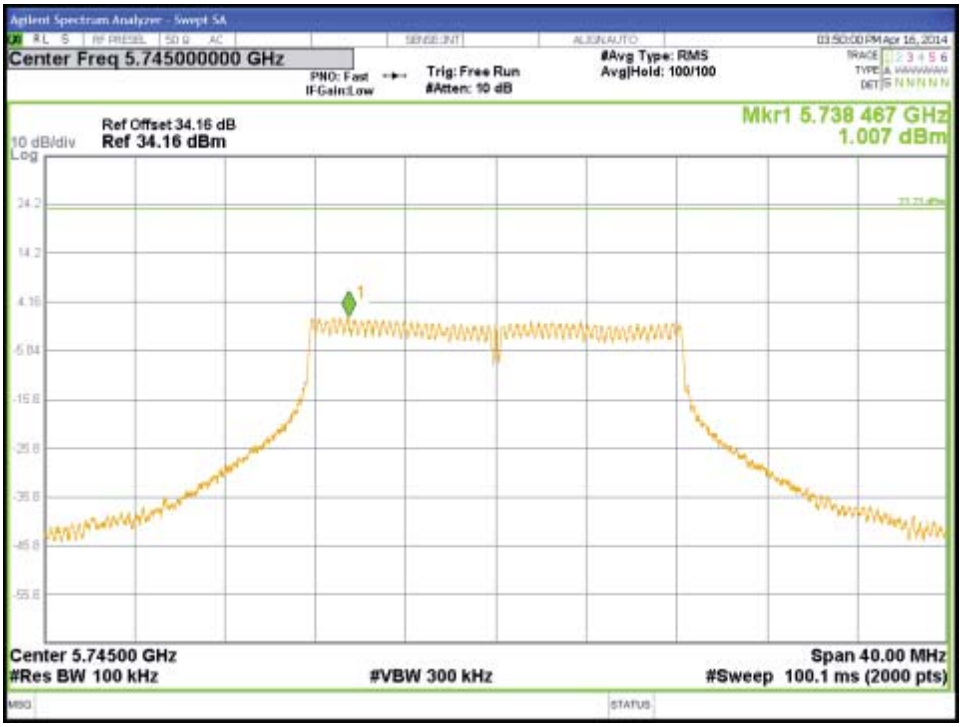


Figure 281: Maximum Power Spectral Density-5745MHz-11a-6Mpbs-Ch0

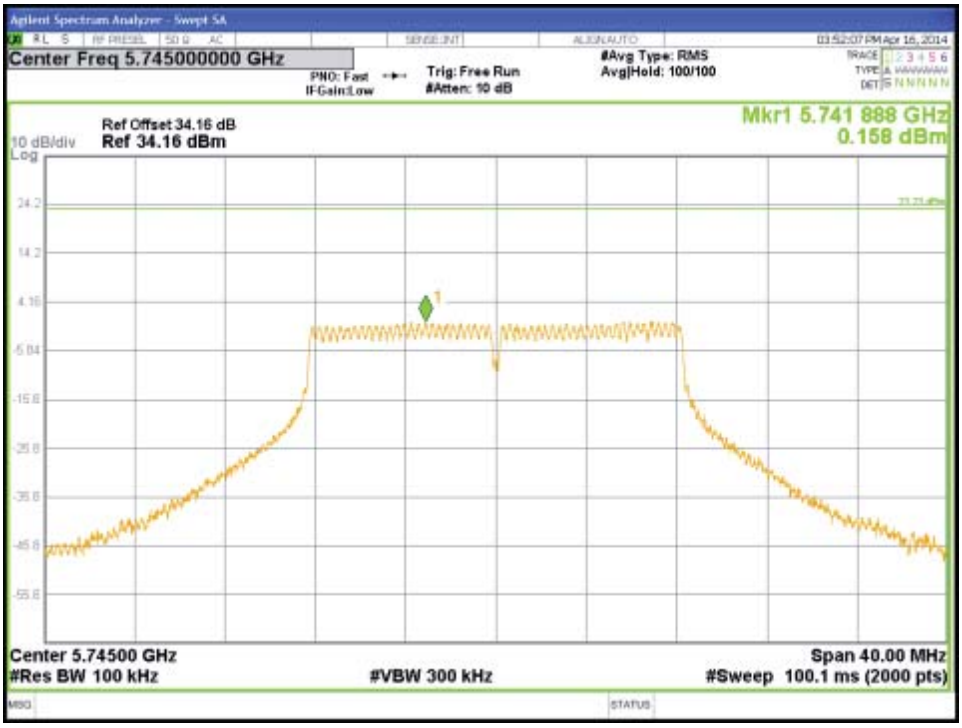


Figure 282: Maximum Power Spectral Density-5745MHz-11a-6Mpbs-Ch1

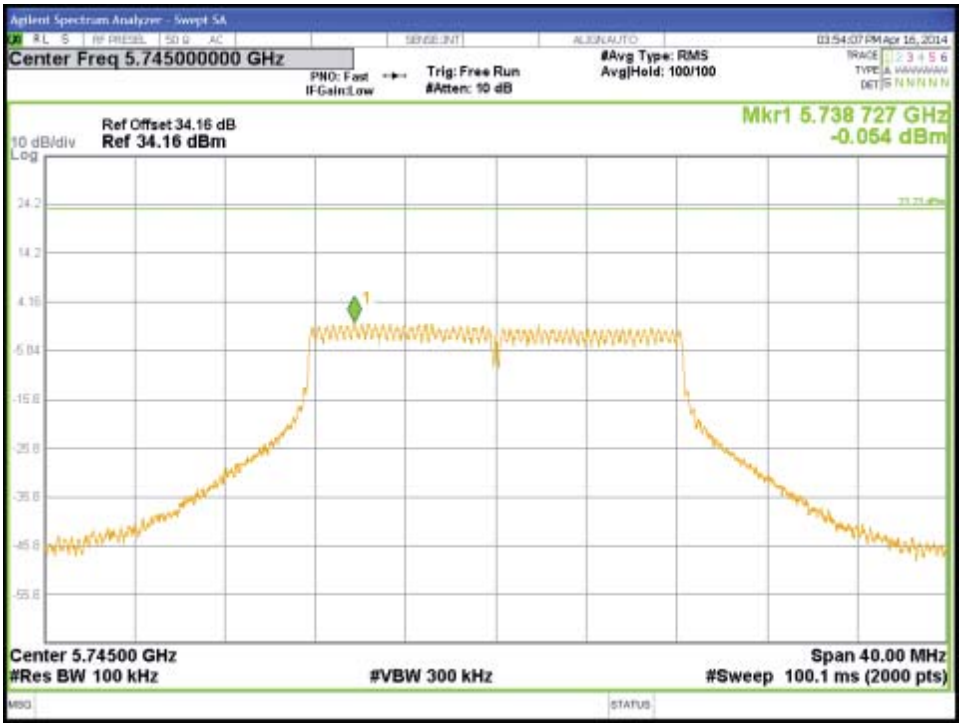


Figure 283: Maximum Power Spectral Density-5745MHz-11a-6Mpbs-Ch2

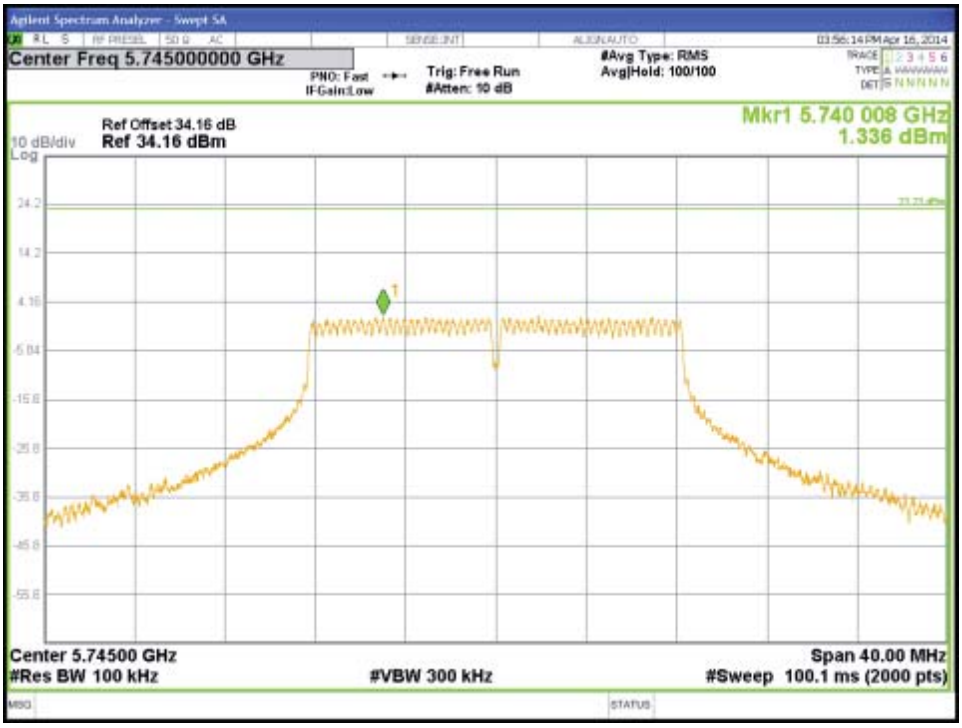


Figure 284: Maximum Power Spectral Density-5745MHz-11a-6Mpbs-Ch3

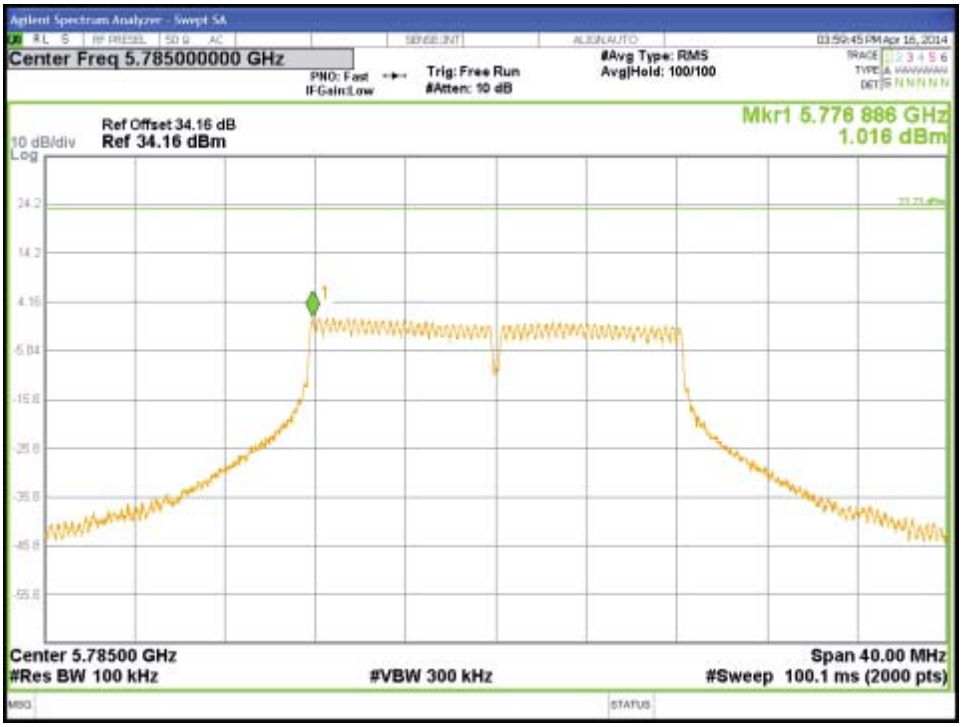


Figure 285: Maximum Power Spectral Density-5785MHz-11a-6Mpbs-Ch0

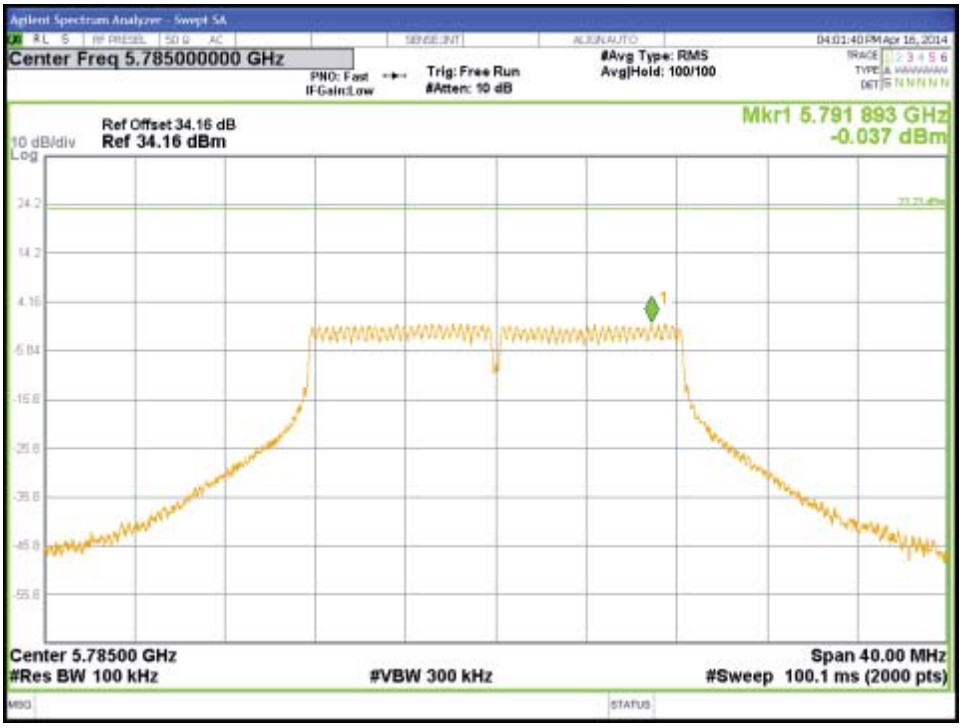


Figure 286: Maximum Power Spectral Density-5785MHz-11a-6Mpbs-Ch1

Figure 287: Maximum Power Spectral Density-5785MHz-11a-6Mpbs-Ch2

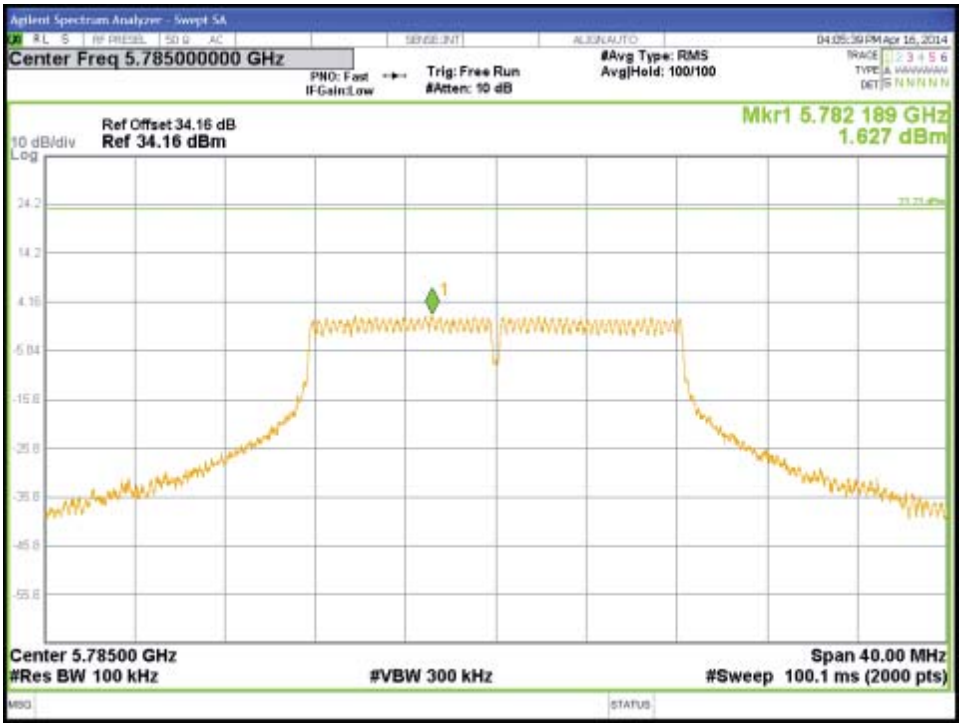


Figure 288: Maximum Power Spectral Density-5785MHz-11a-6Mpbs-Ch3

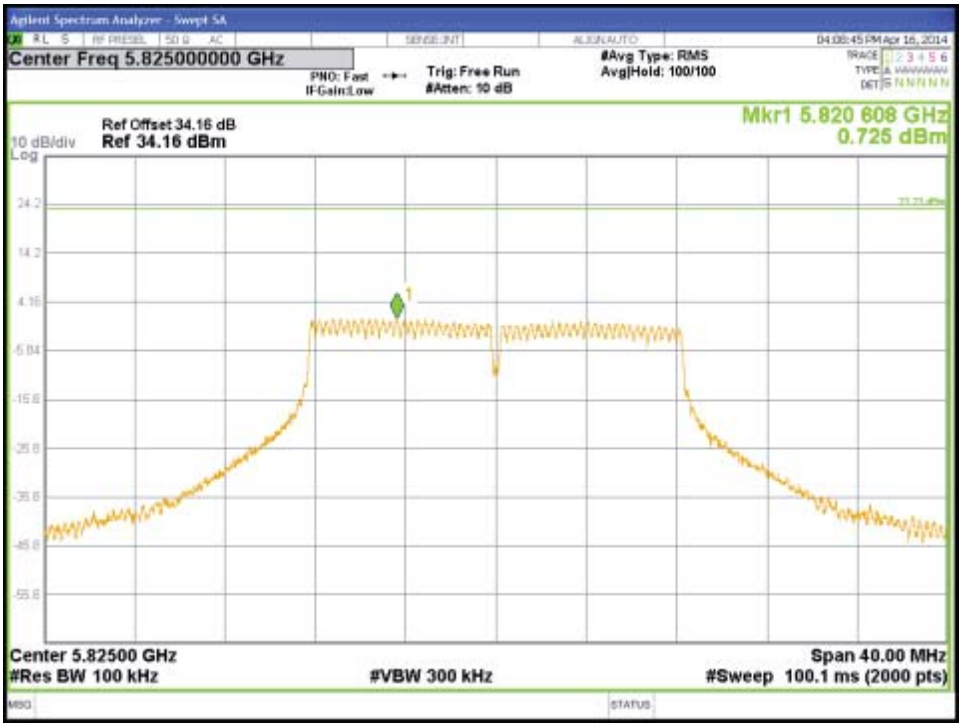


Figure 289: Maximum Power Spectral Density-5825MHz-11a-6Mpbs-Ch0

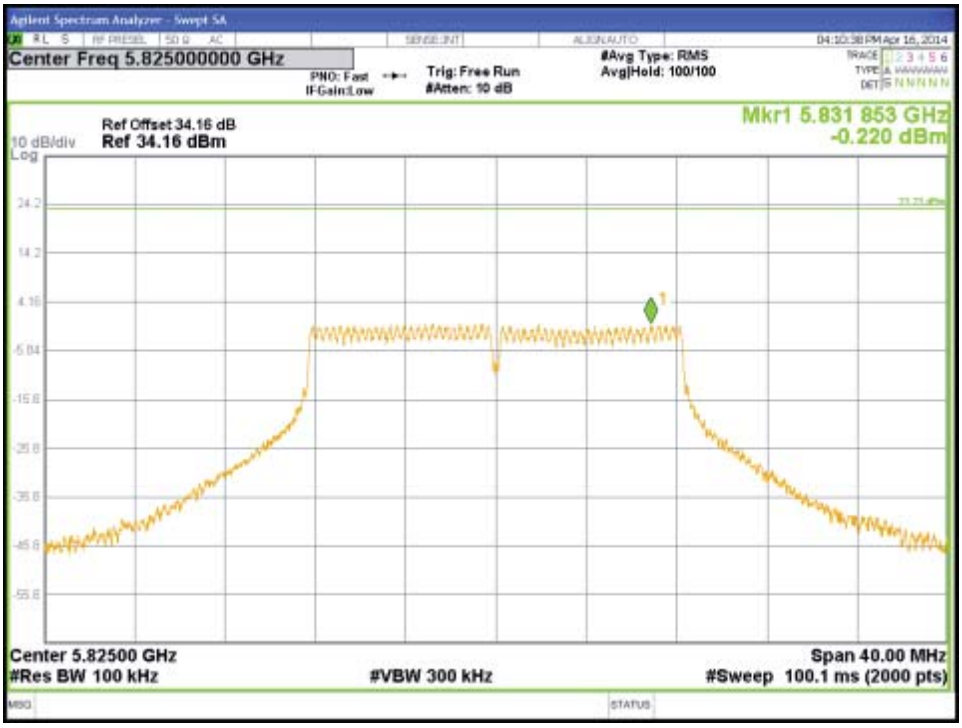


Figure 290: Maximum Power Spectral Density-5825MHz-11a-6Mpbs-Ch1

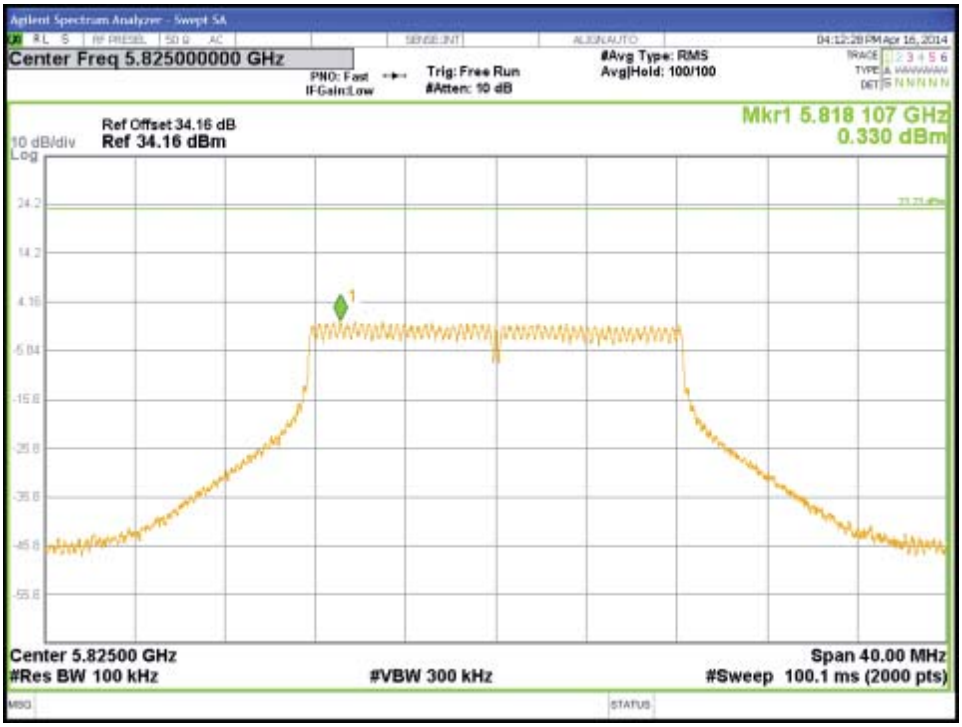


Figure 291: Maximum Power Spectral Density-5825MHz-11a-6Mpbs-Ch2

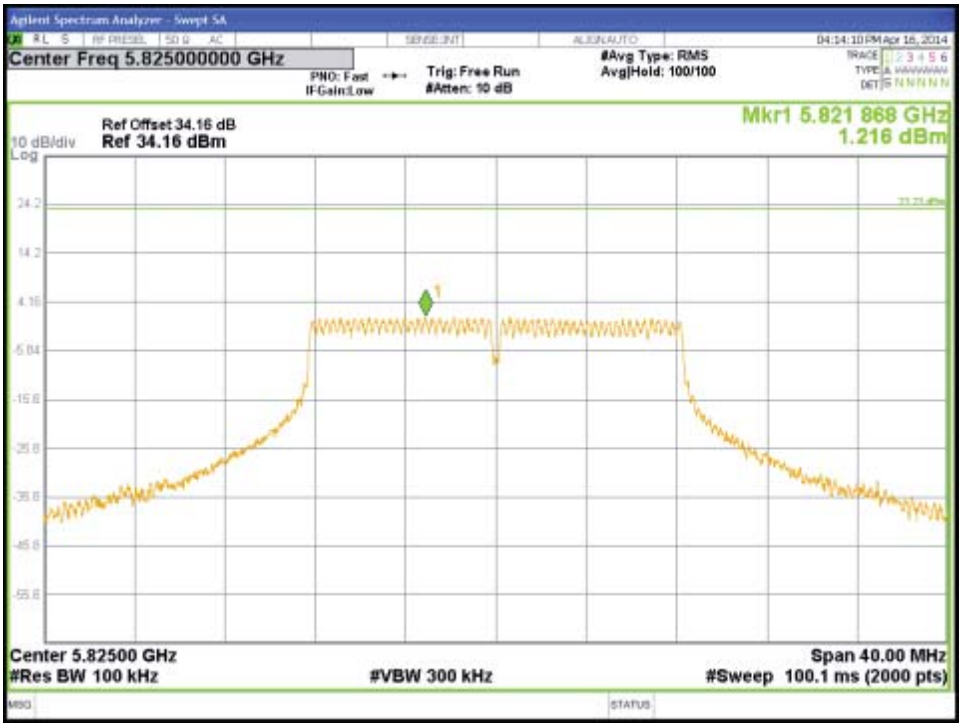


Figure 292: Maximum Power Spectral Density-5825MHz-11a-6Mpbs-Ch3

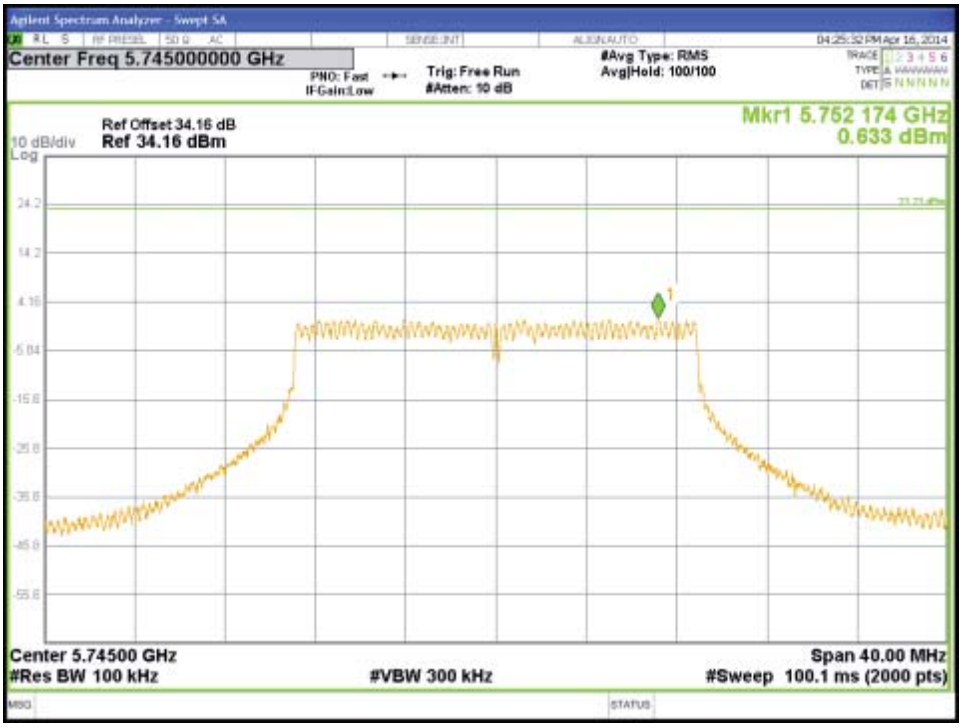


Figure 293: Maximum Power Spectral Density-5745MHz-HT20-MCS0-Ch0

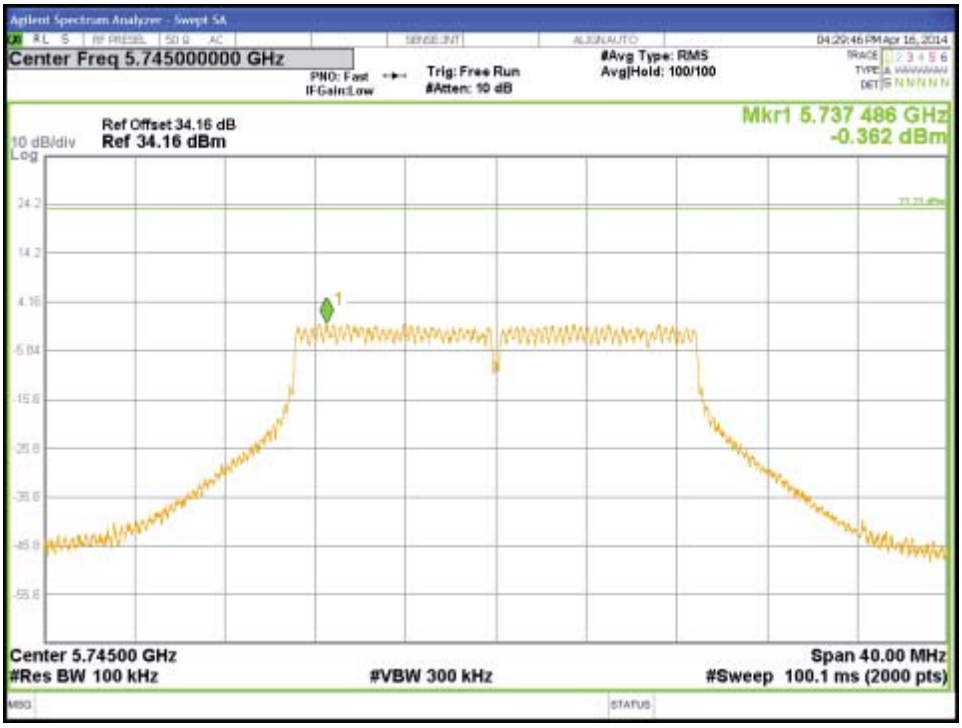


Figure 294: Maximum Power Spectral Density-5745MHz-HT20-MCS0-Ch1

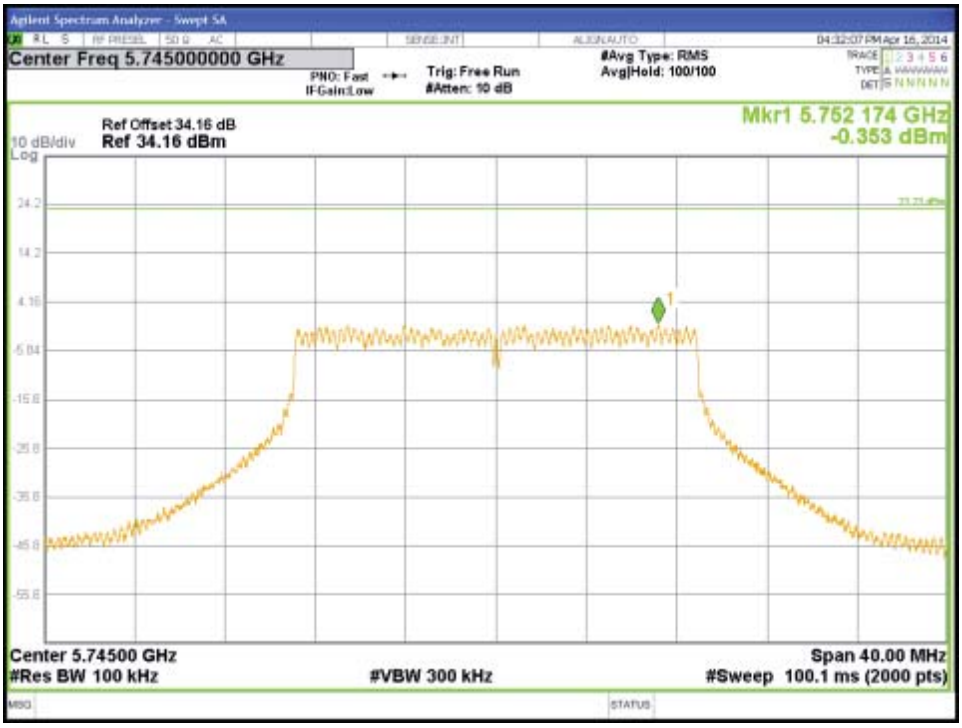


Figure 295: Maximum Power Spectral Density-5745MHz-HT20-MCS0-Ch2

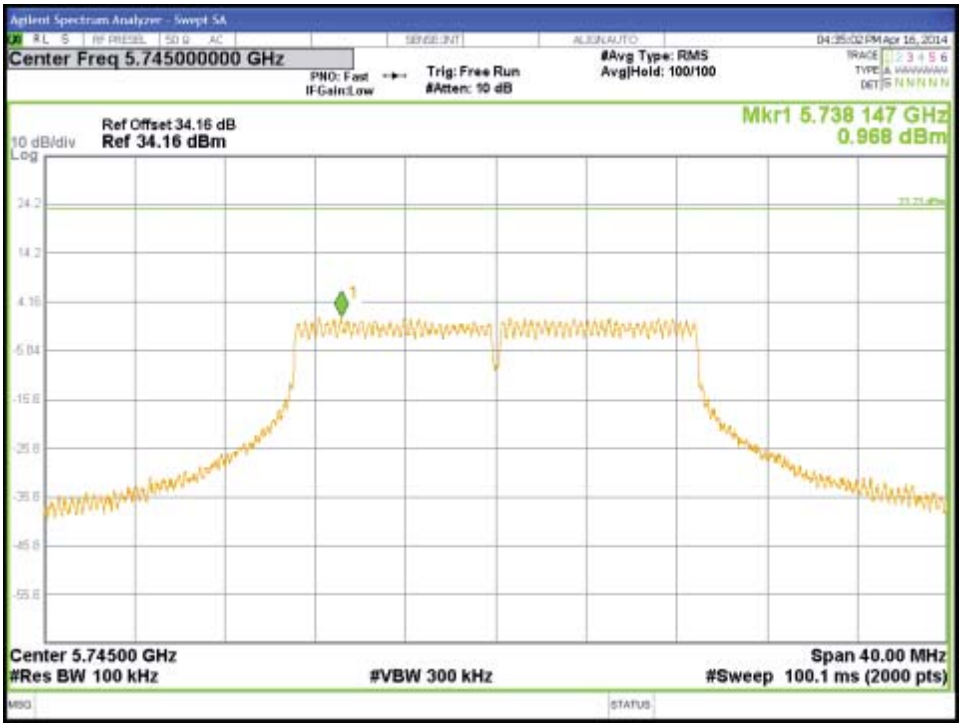


Figure 296: Maximum Power Spectral Density-5745MHz-HT20-MCS0-Ch3

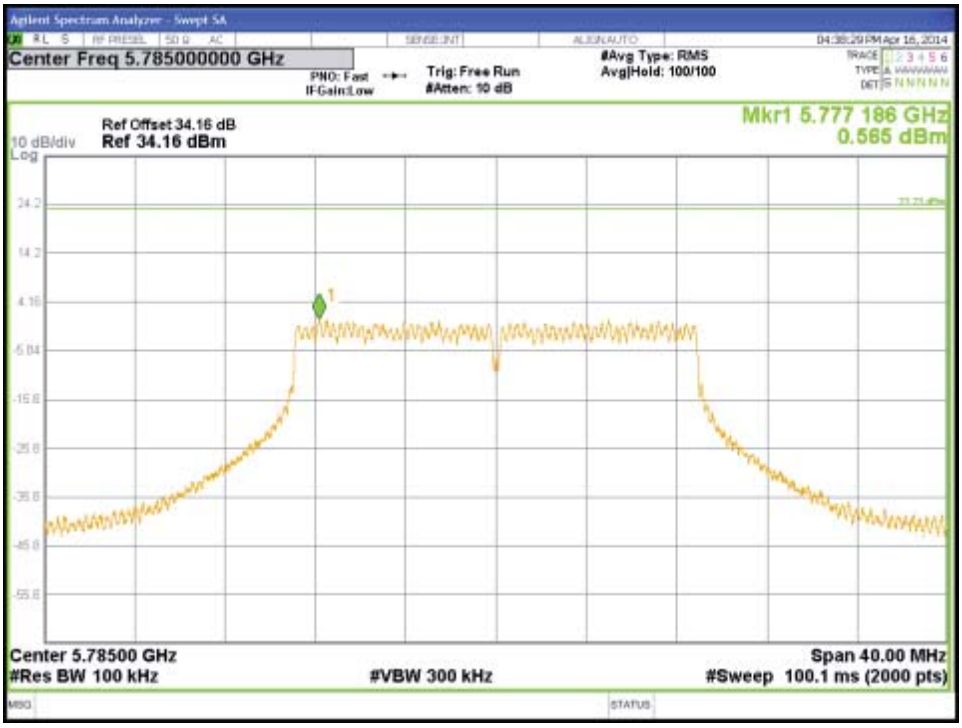


Figure 297: Maximum Power Spectral Density-5785MHz-HT20-MCS0-Ch0

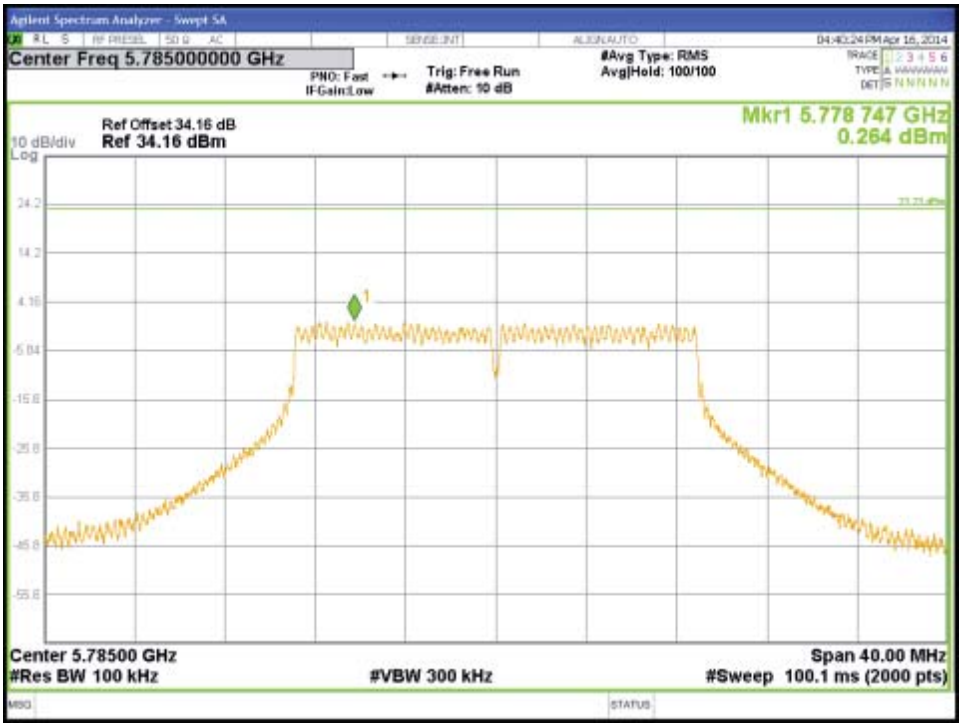


Figure 298: Maximum Power Spectral Density-5785MHz-HT20-MCS0-Ch1

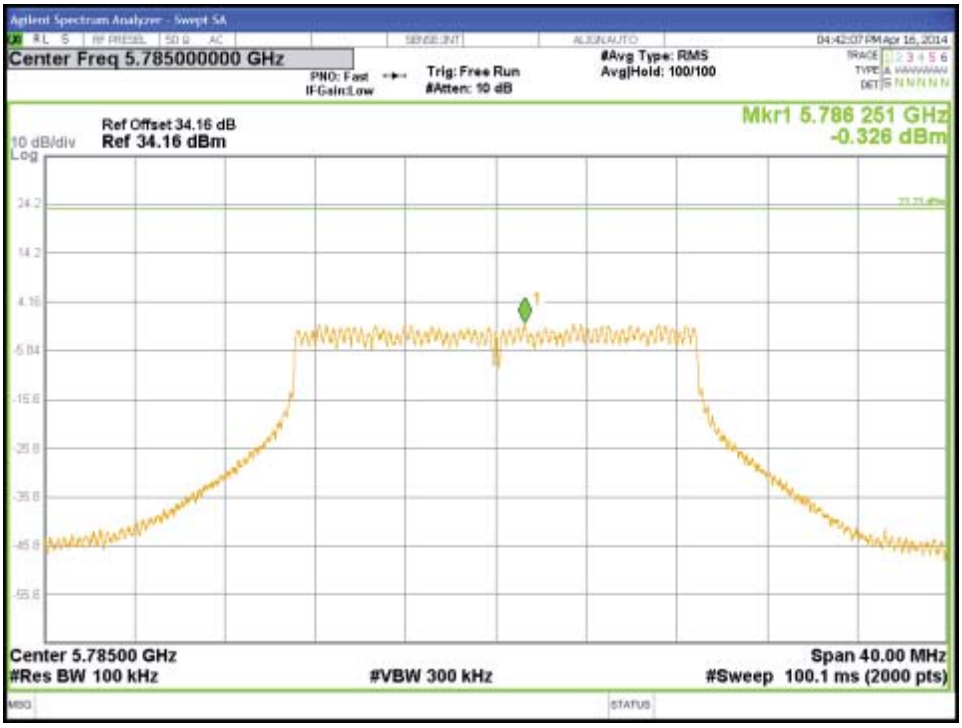


Figure 299: Maximum Power Spectral Density-5785MHz-HT20-MCS0-Ch2

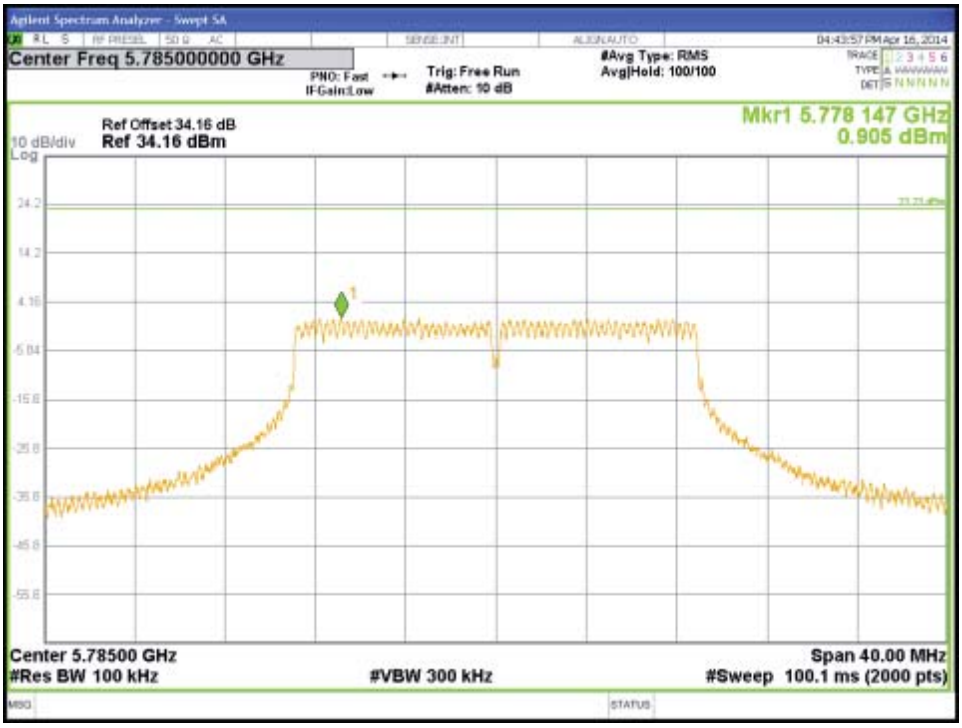


Figure 300: Maximum Power Spectral Density-5785MHz-HT20-MCS0-Ch3

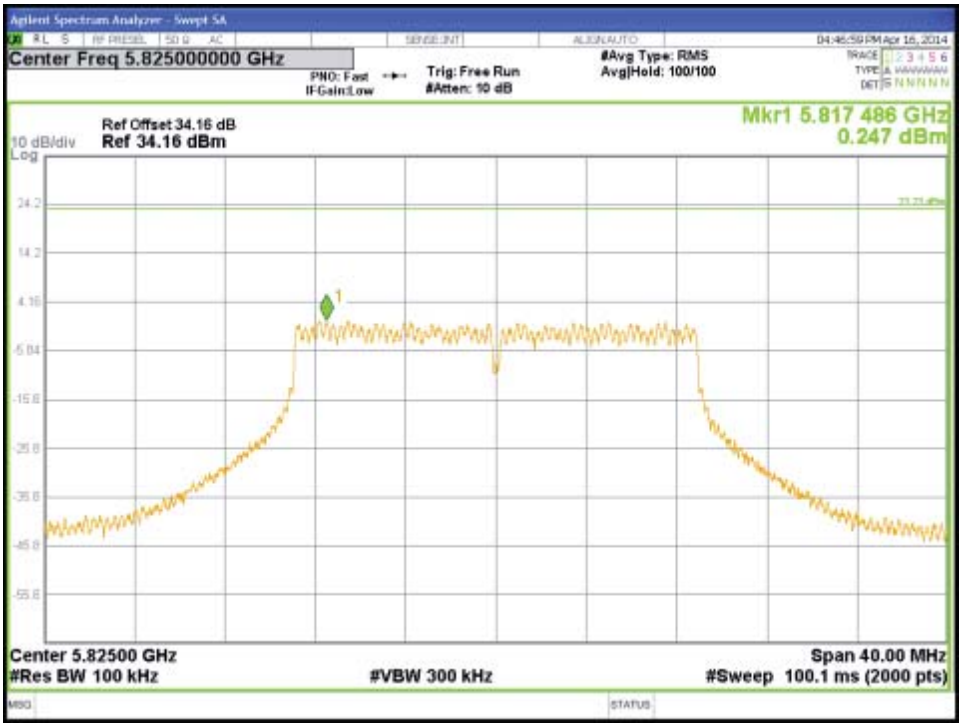


Figure 301: Maximum Power Spectral Density-5825MHz-HT20-MCS0-Ch0

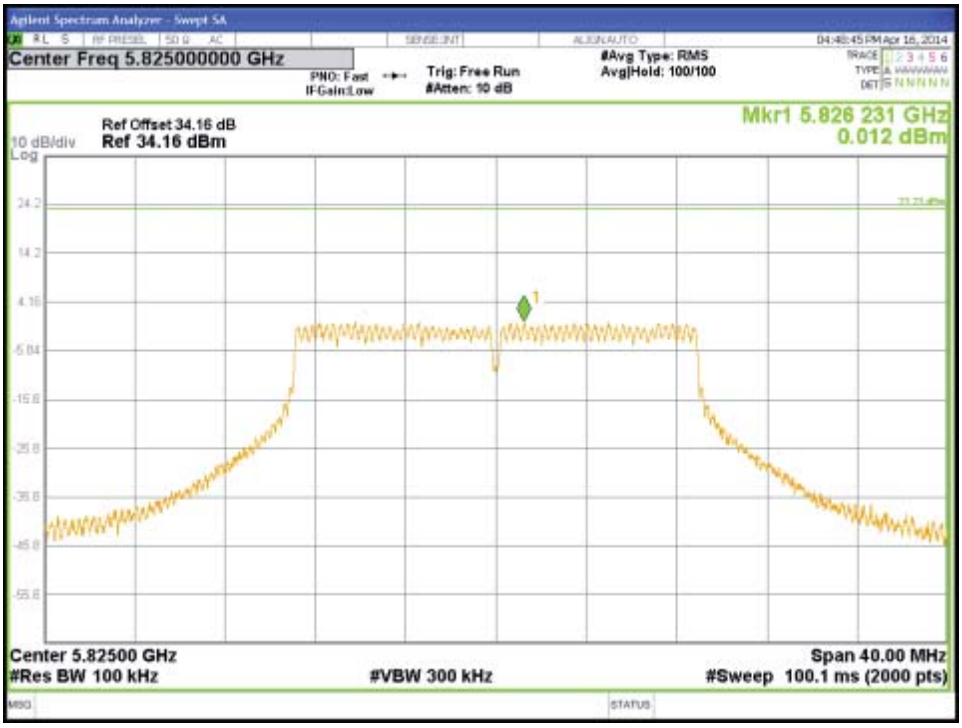


Figure 302: Maximum Power Spectral Density-5825MHz-HT20-MCS0-Ch1

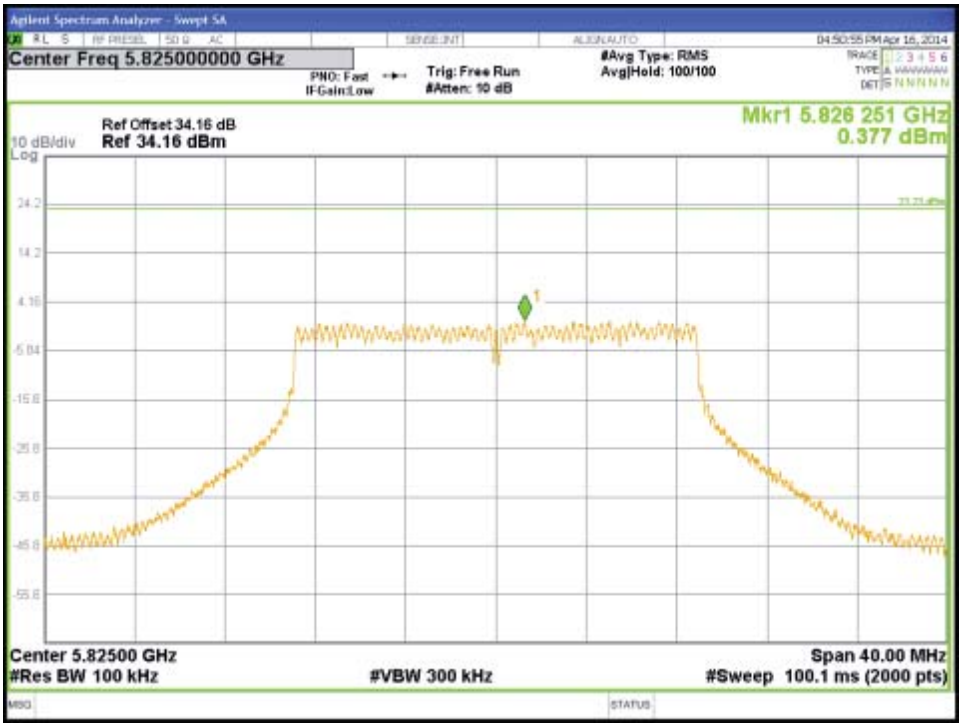


Figure 303: Maximum Power Spectral Density-5825MHz-HT20-MCS0-Ch2

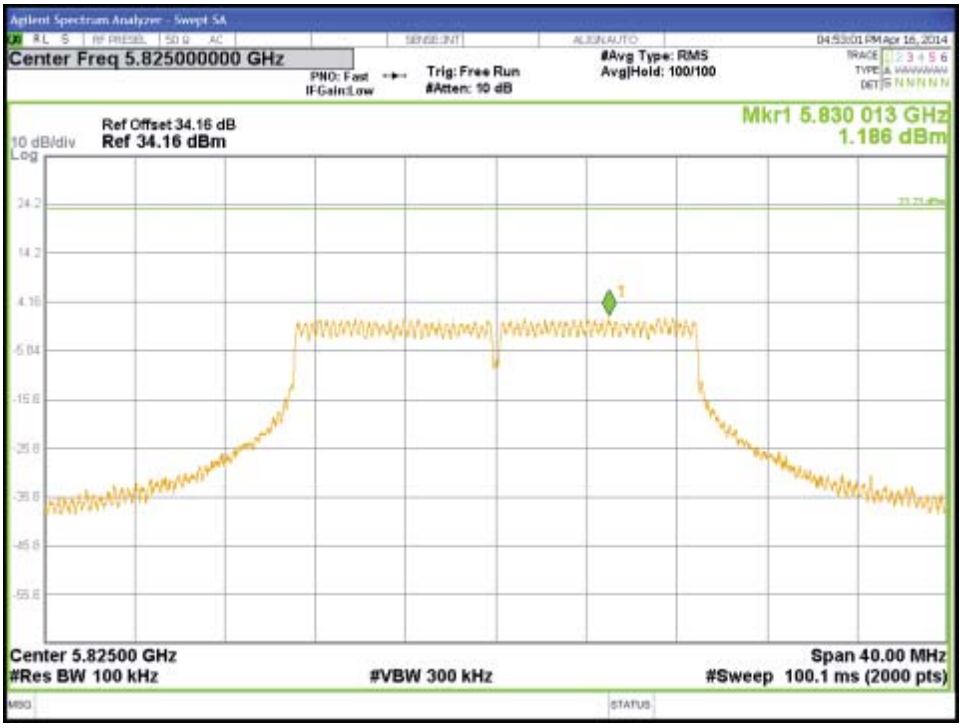


Figure 304: Maximum Power Spectral Density-5825MHz-HT20-MCS0-Ch3

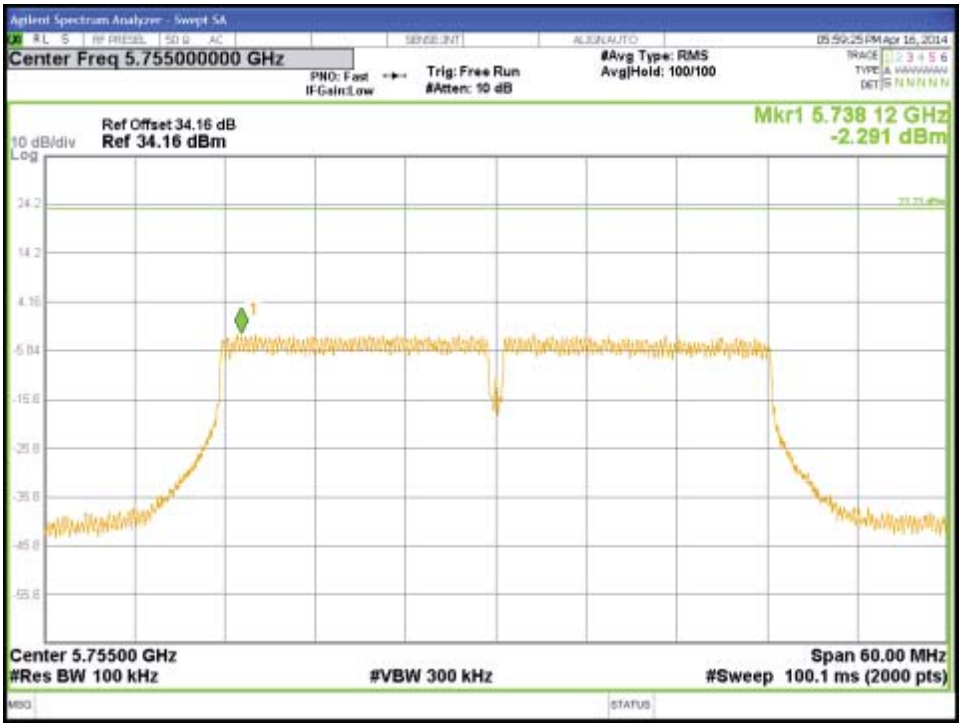


Figure 305: Maximum Power Spectral Density-5755MHz-HT40-MCS0-Ch0

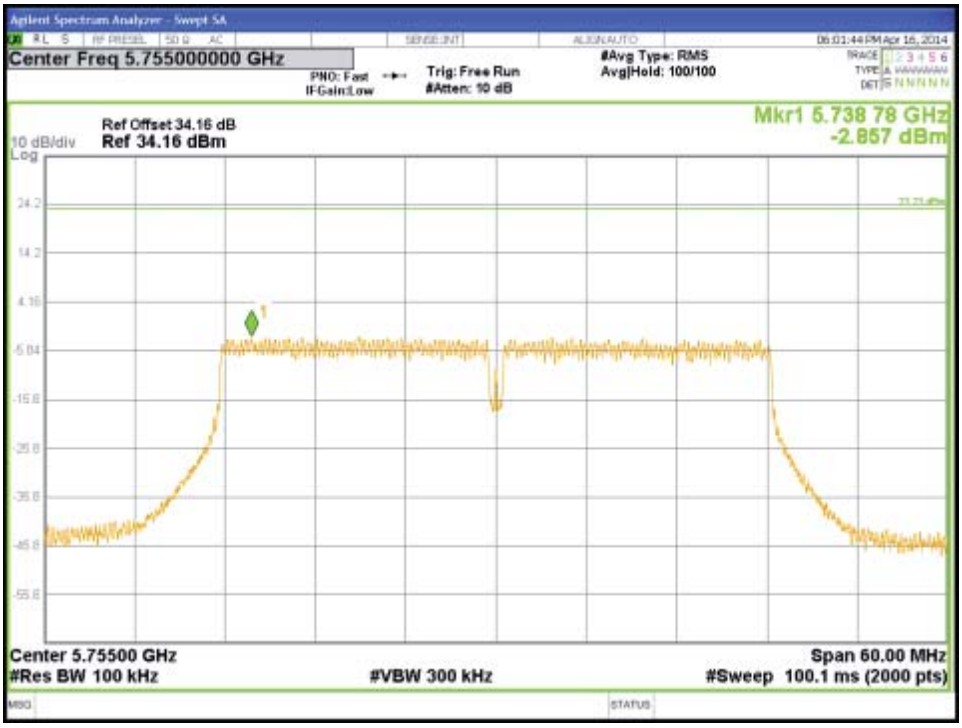


Figure 306: Maximum Power Spectral Density-5755MHz-HT40-MCS0-Ch1

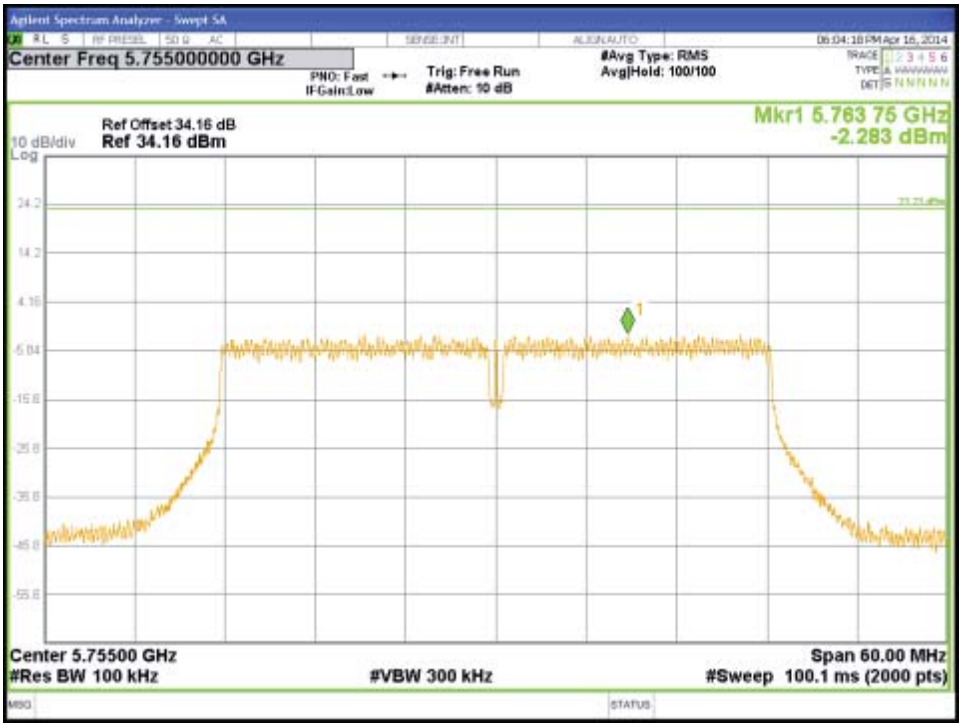


Figure 307: Maximum Power Spectral Density-5755MHz-HT40-MCS0-Ch2

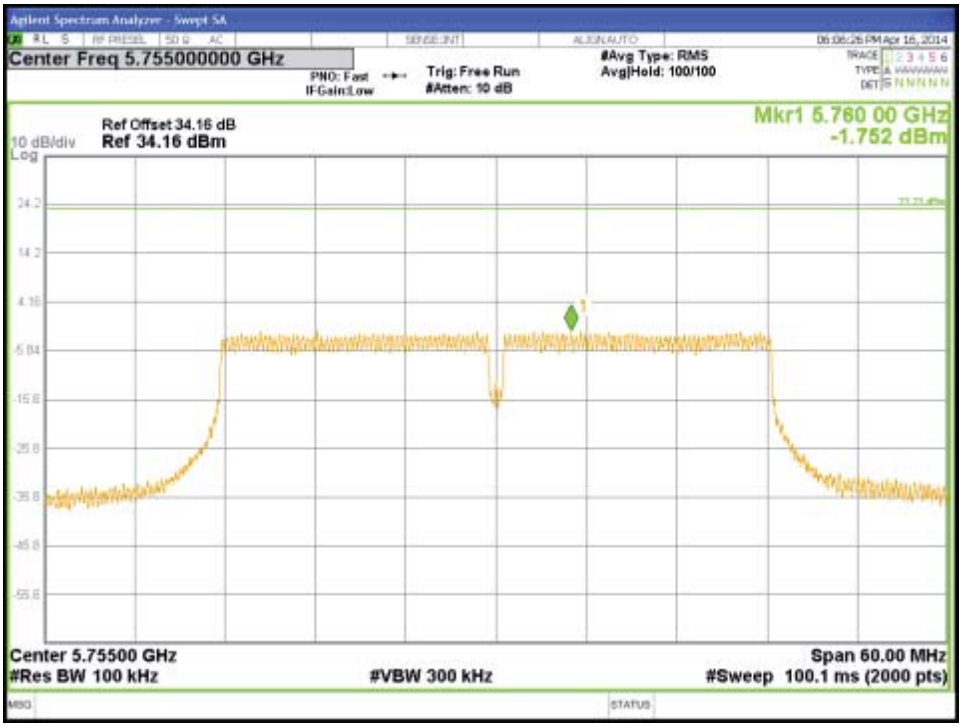


Figure 308: Maximum Power Spectral Density-5755MHz-HT40-MCS0-Ch3

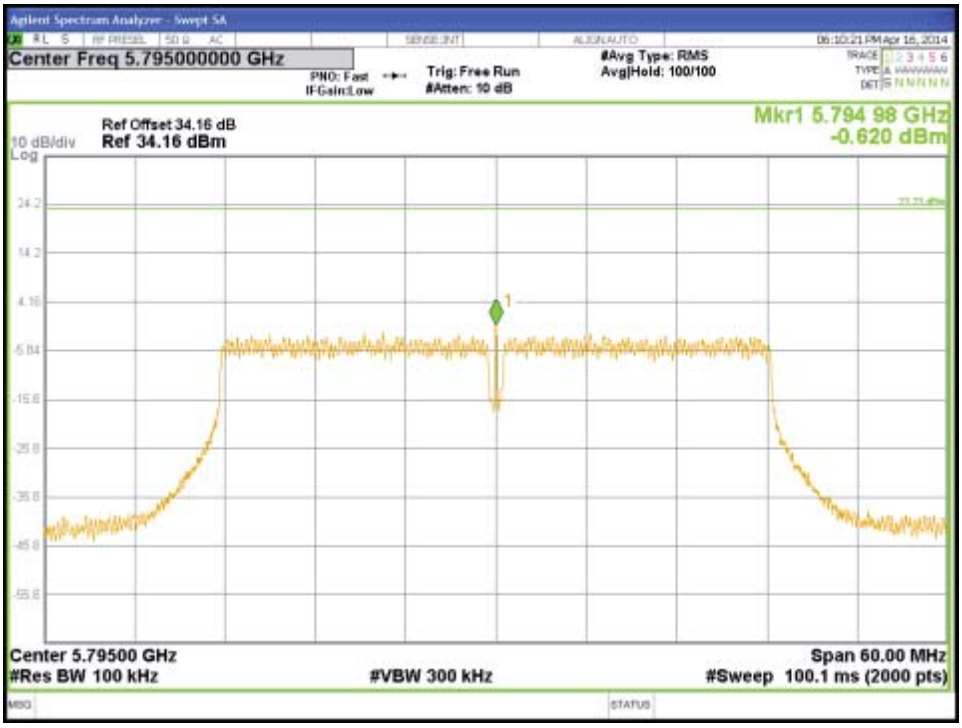


Figure 309: Maximum Power Spectral Density-5795MHz-HT40-MCS0-Ch0

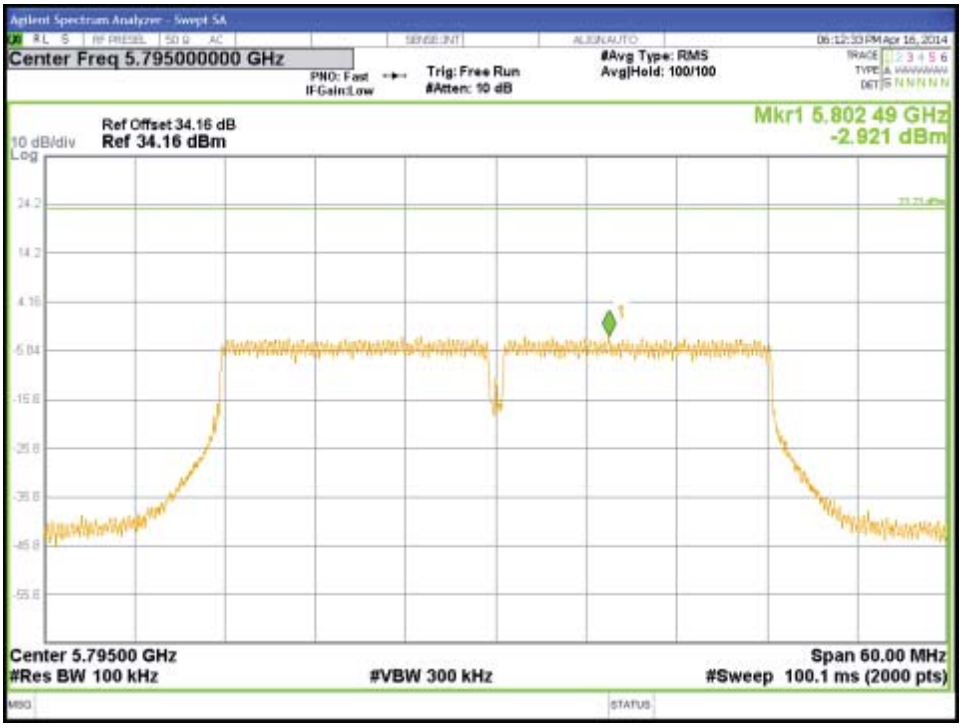


Figure 310: Maximum Power Spectral Density-5795MHz-HT40-MCS0-Ch1

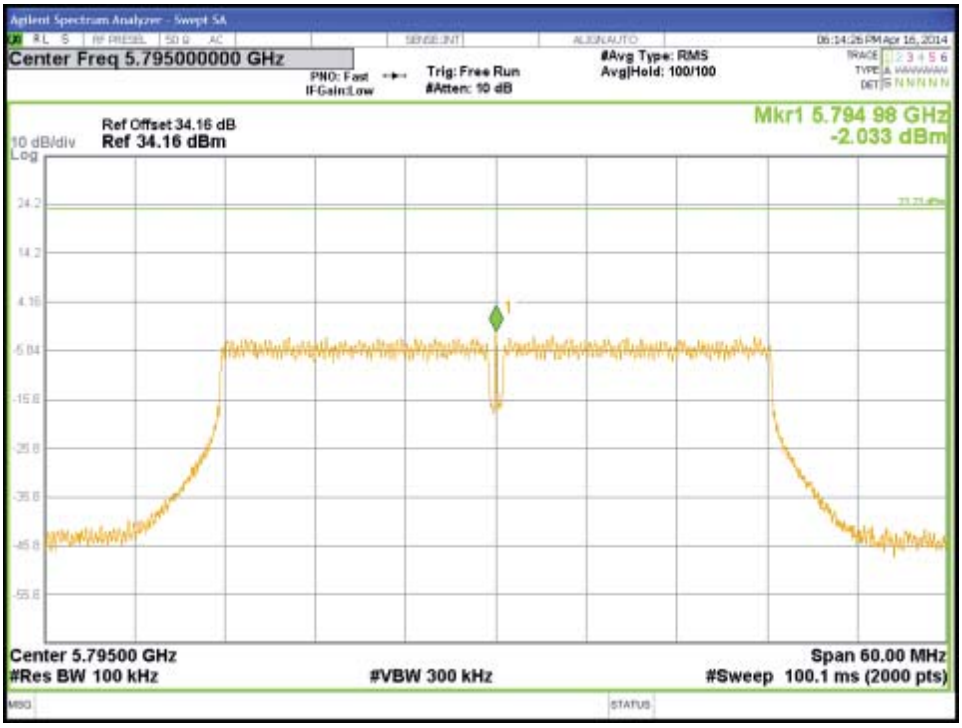


Figure 311: Maximum Power Spectral Density-5795MHz-HT40-MCS0-Ch2

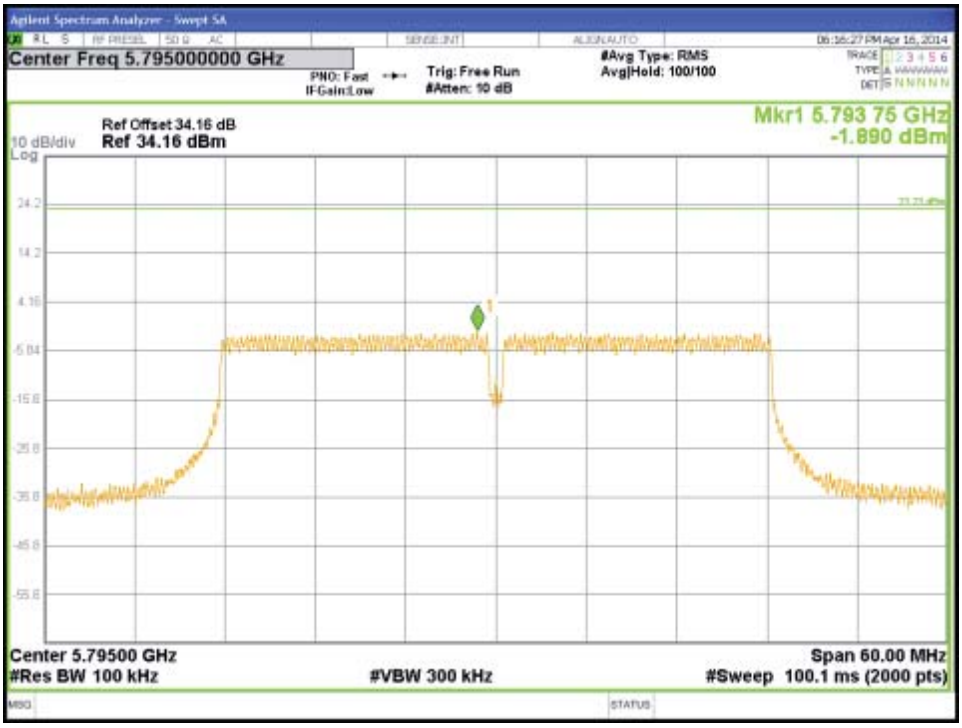


Figure 312: Maximum Power Spectral Density-5795MHz-HT40-MCS0-Ch3

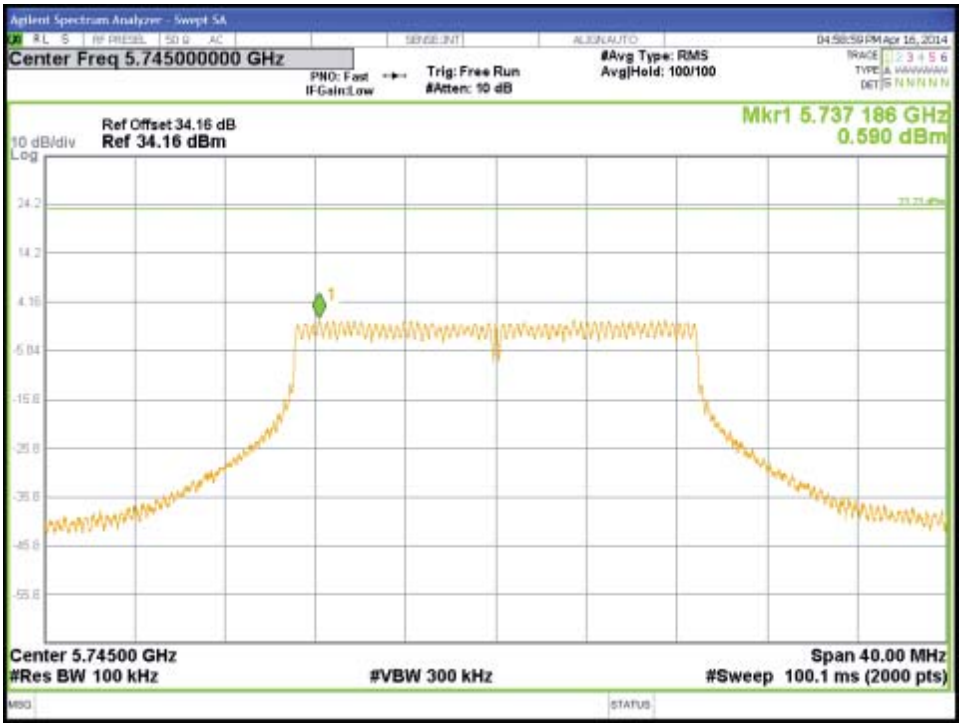


Figure 313: Maximum Power Spectral Density-5745MHz-VHT20-MCS0-Ch0

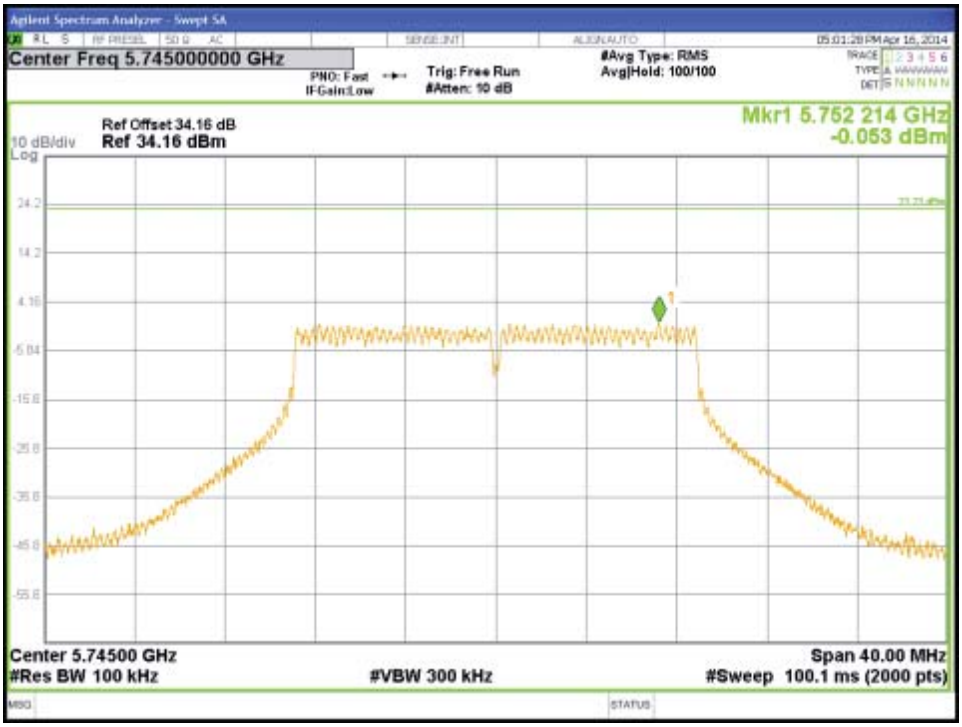


Figure 314: Maximum Power Spectral Density-5745MHz-VHT20-MCS0-Ch1

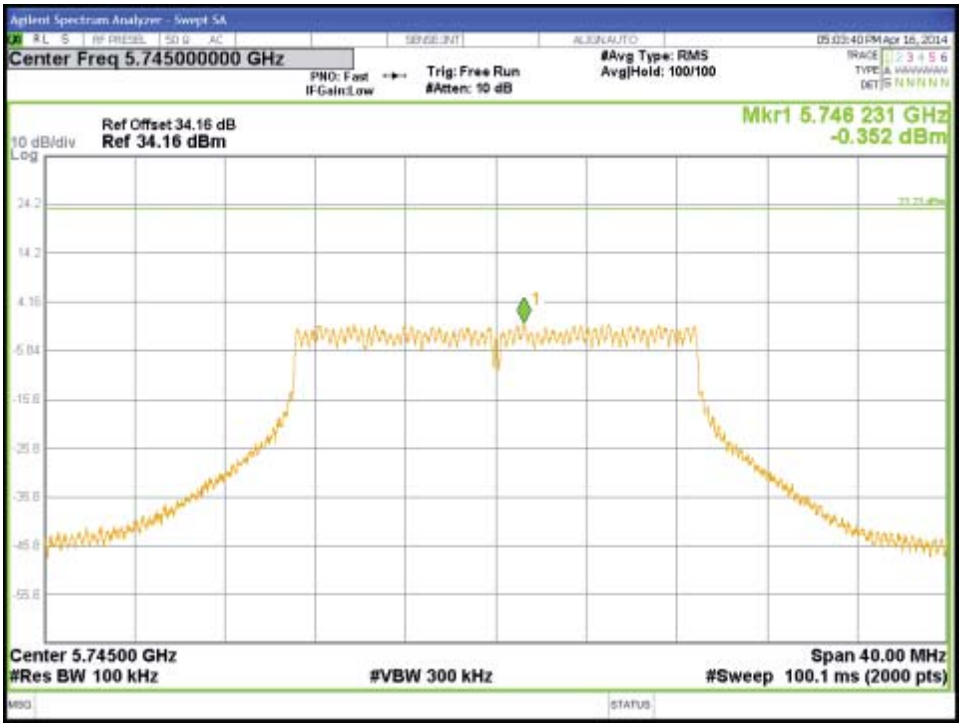


Figure 315: Maximum Power Spectral Density-5745MHz-VHT20-MCS0-Ch2

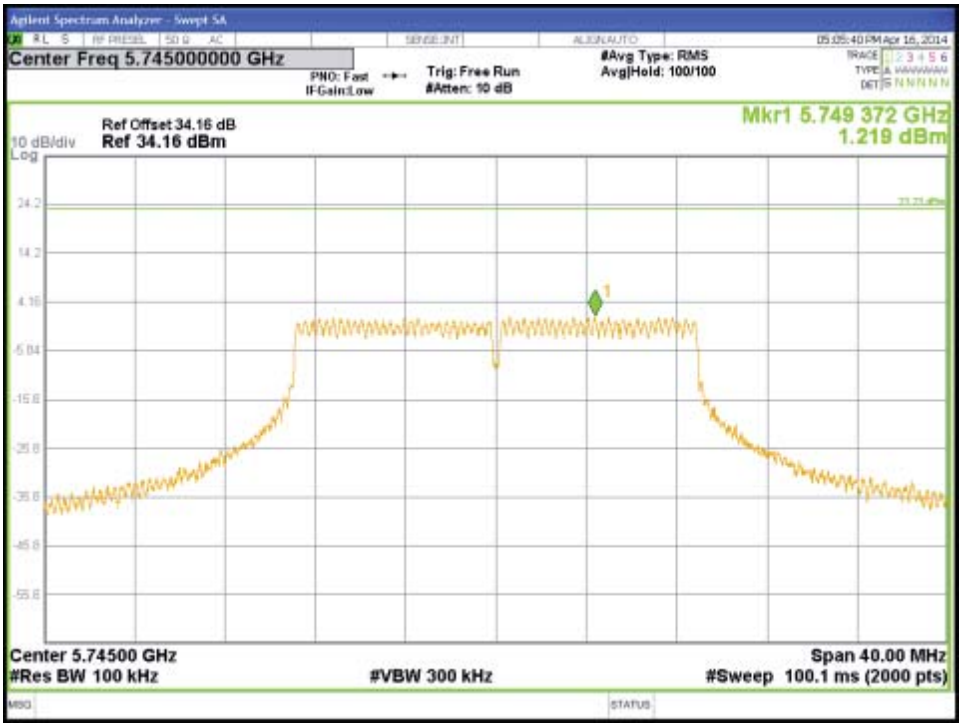


Figure 316: Maximum Power Spectral Density-5745MHz-VHT20-MCS0-Ch3

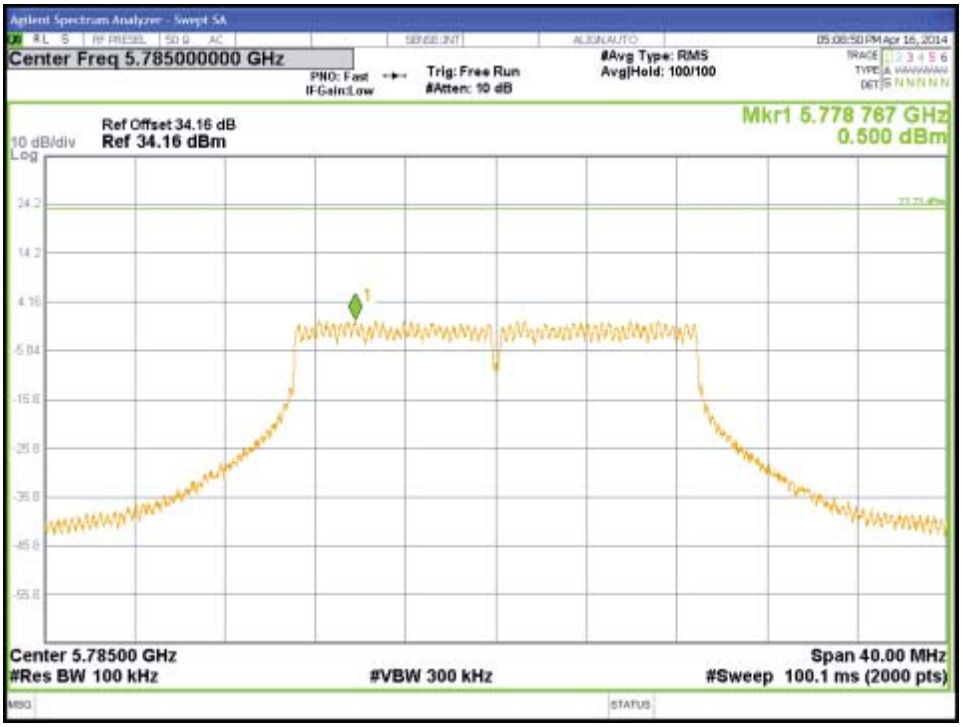


Figure 317: Maximum Power Spectral Density-5785MHz-VHT20-MCS0-Ch0

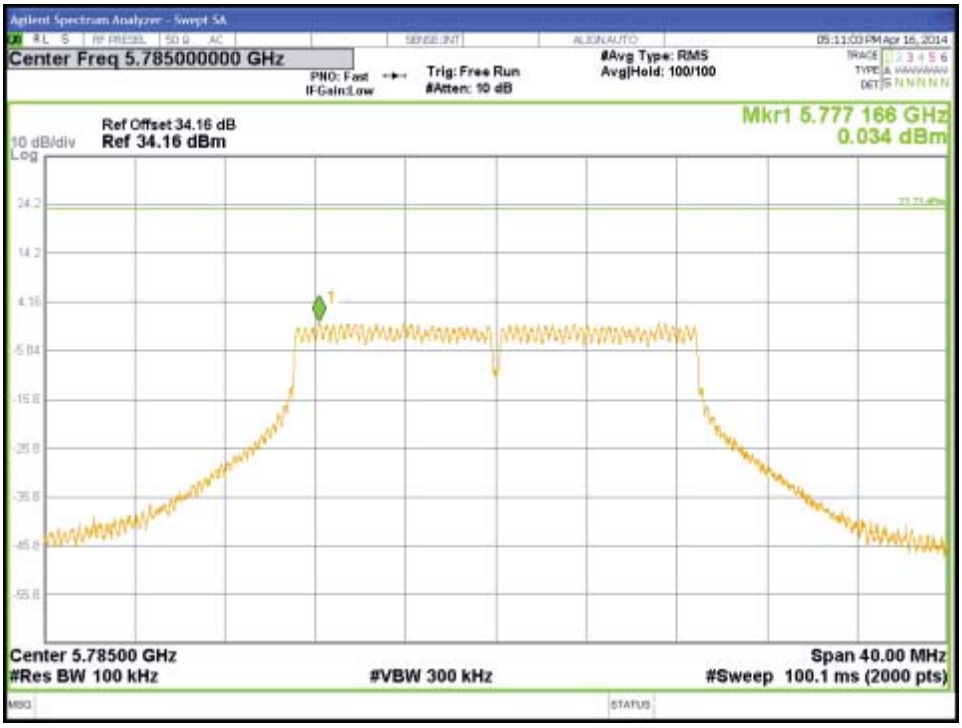


Figure 318: Maximum Power Spectral Density-5785MHz-VHT20-MCS0-Ch1

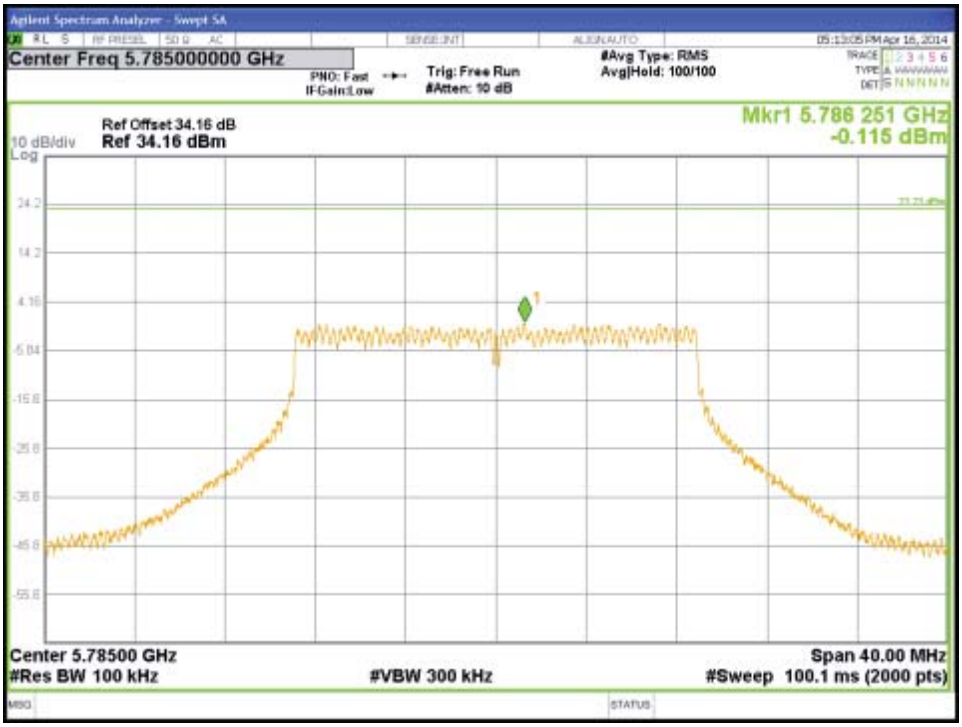


Figure 319: Maximum Power Spectral Density-5785MHz-VHT20-MCS0-Ch2

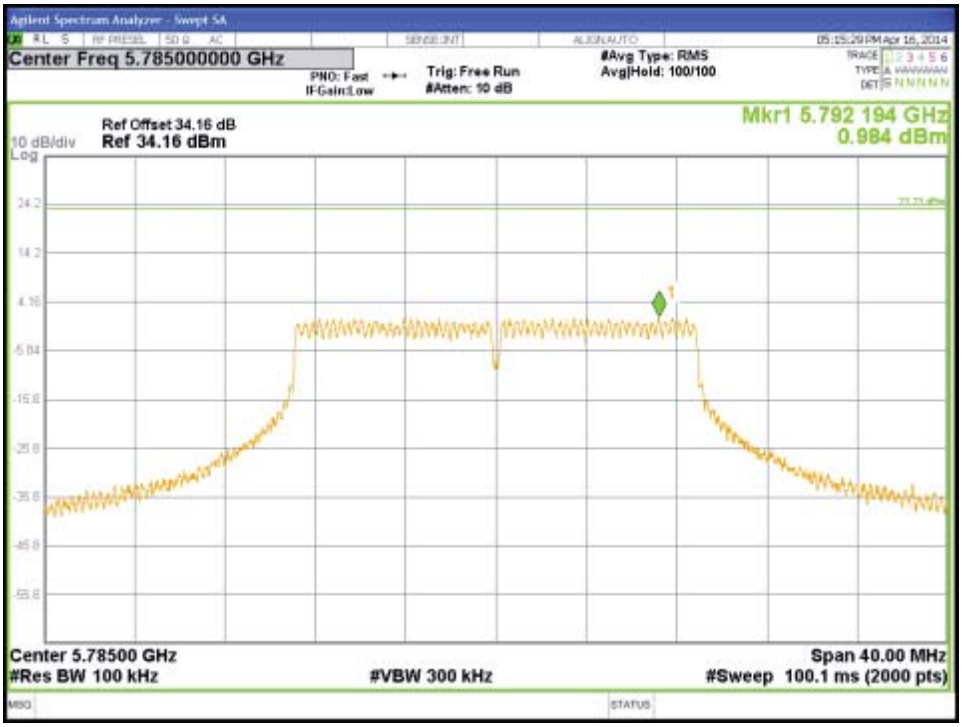


Figure 320: Maximum Power Spectral Density-5785MHz-VHT20-MCS0-Ch3

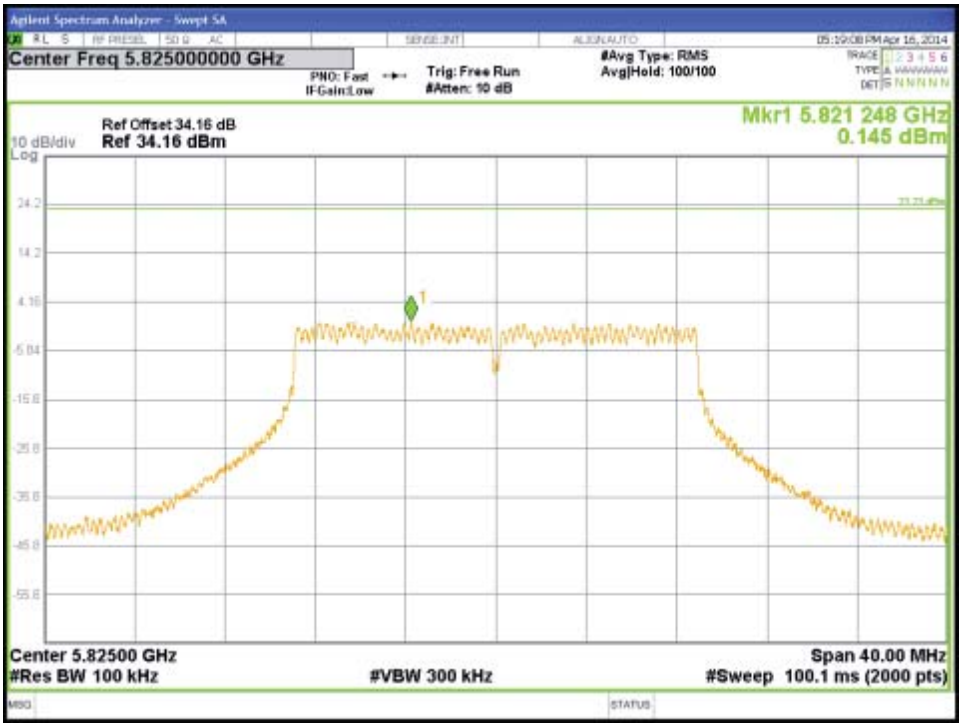


Figure 321: Maximum Power Spectral Density-5825MHz-VHT20-MCS0-Ch0

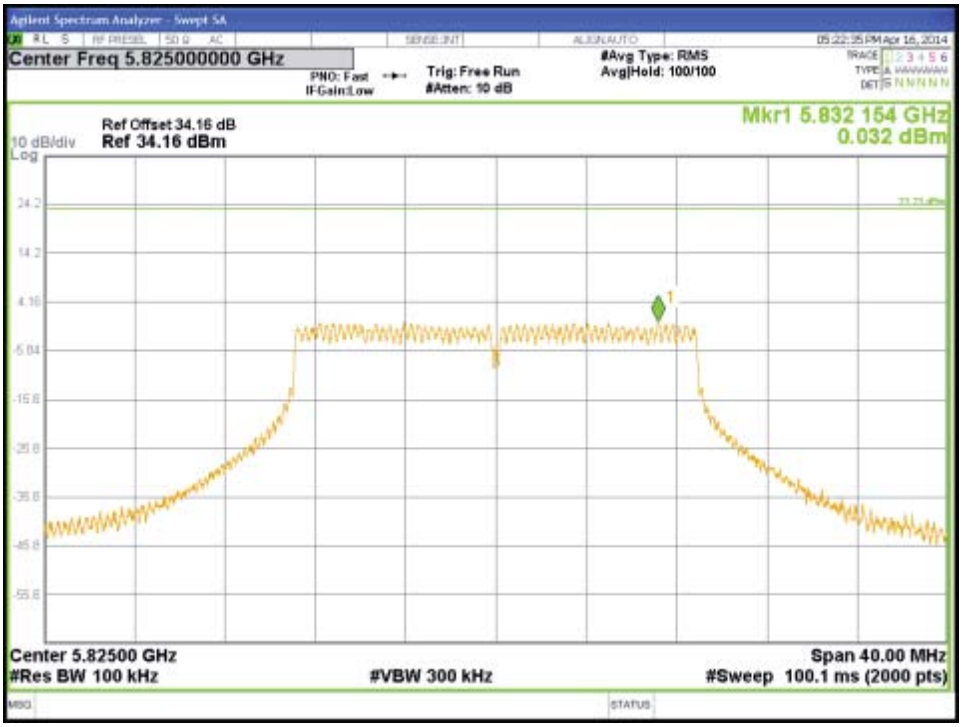


Figure 322: Maximum Power Spectral Density-5825MHz-VHT20-MCS0-Ch1

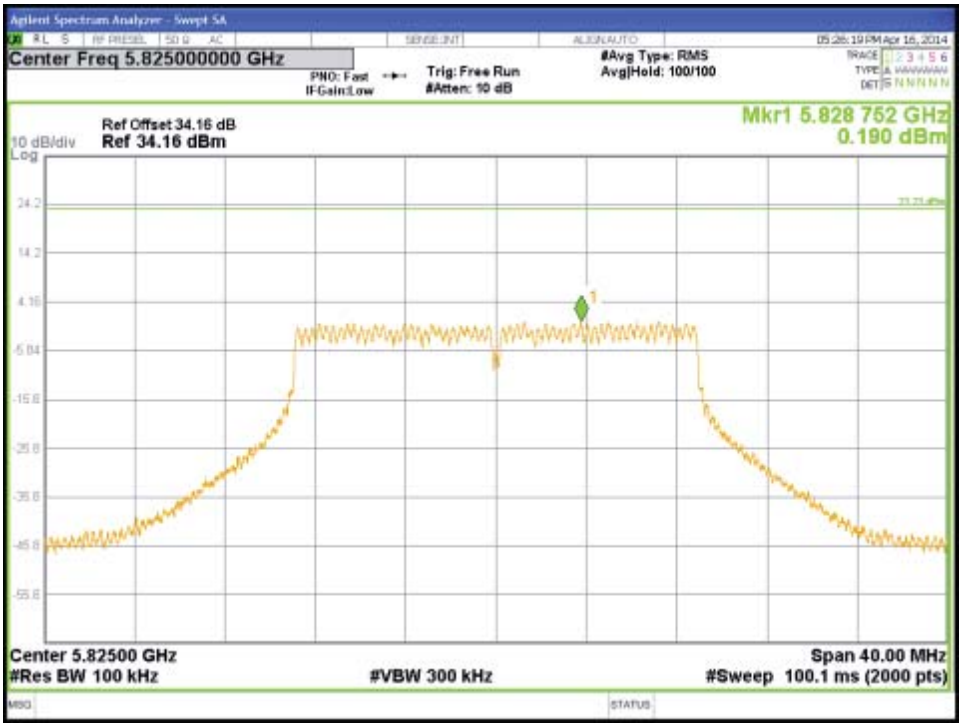


Figure 323: Maximum Power Spectral Density-5825MHz-VHT20-MCS0-Ch2

Figure 324: Maximum Power Spectral Density-5825MHz-VHT20-MCS0-Ch3

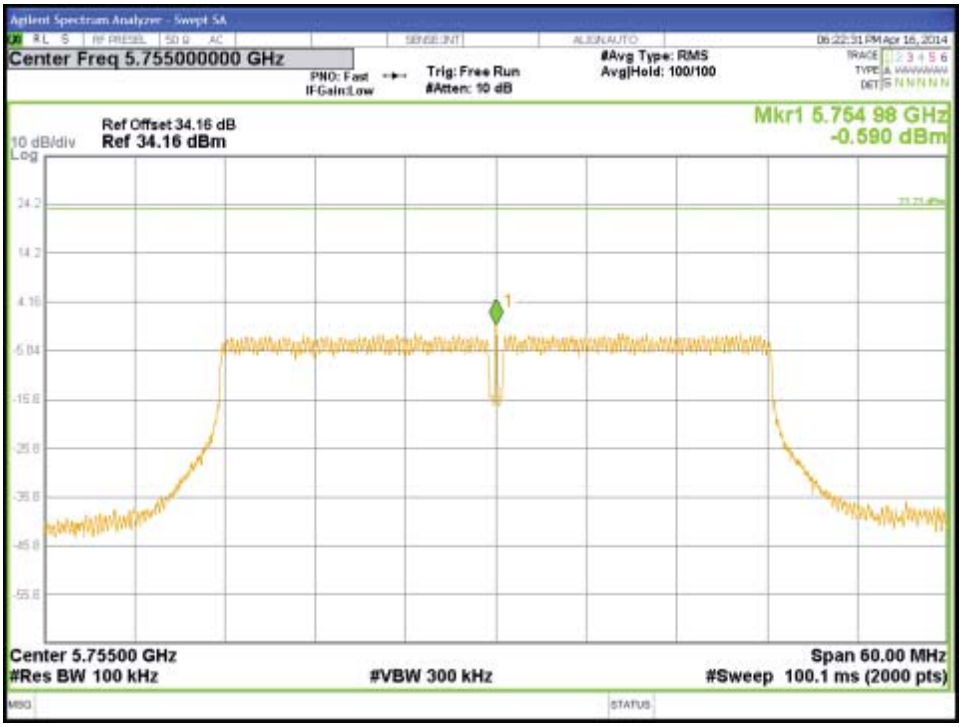


Figure 325: Maximum Power Spectral Density-5755MHz-VHT40-MCS0-Ch0

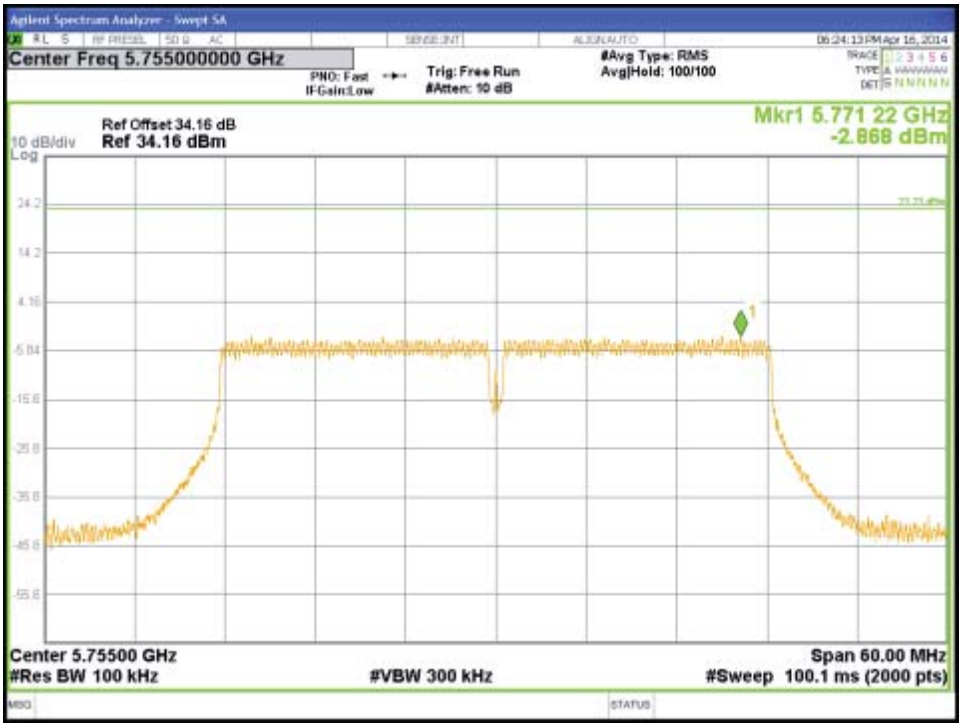


Figure 326: Maximum Power Spectral Density-5755MHz-VHT40-MCS0-Ch1

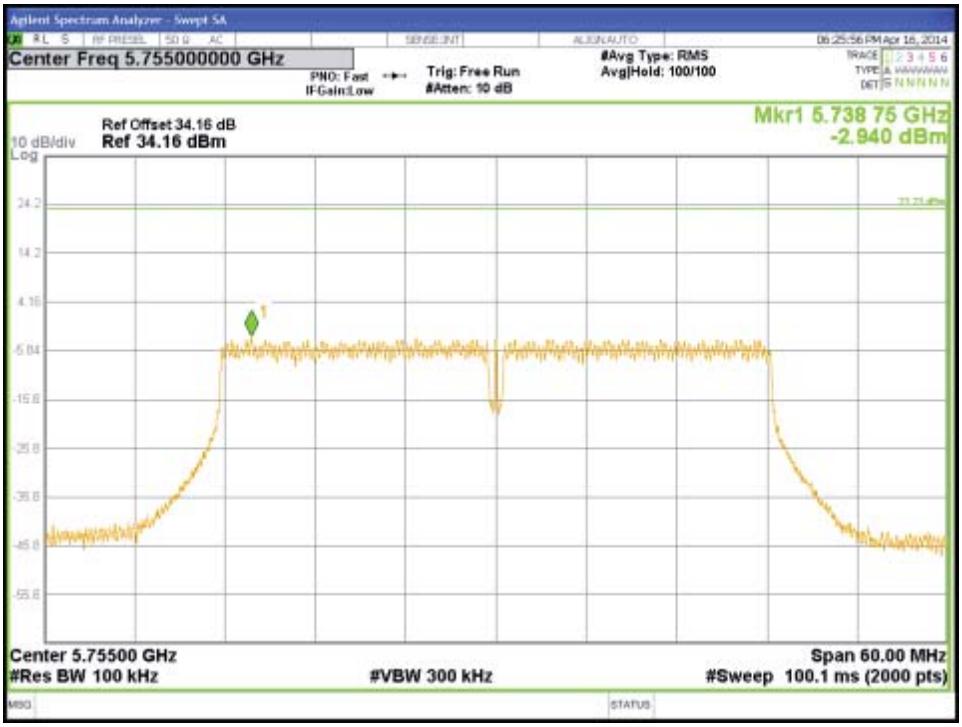


Figure 327: Maximum Power Spectral Density-5755MHz-VHT40-MCS0-Ch2

Figure 328: Maximum Power Spectral Density-5755MHz-VHT40-MCS0-Ch3

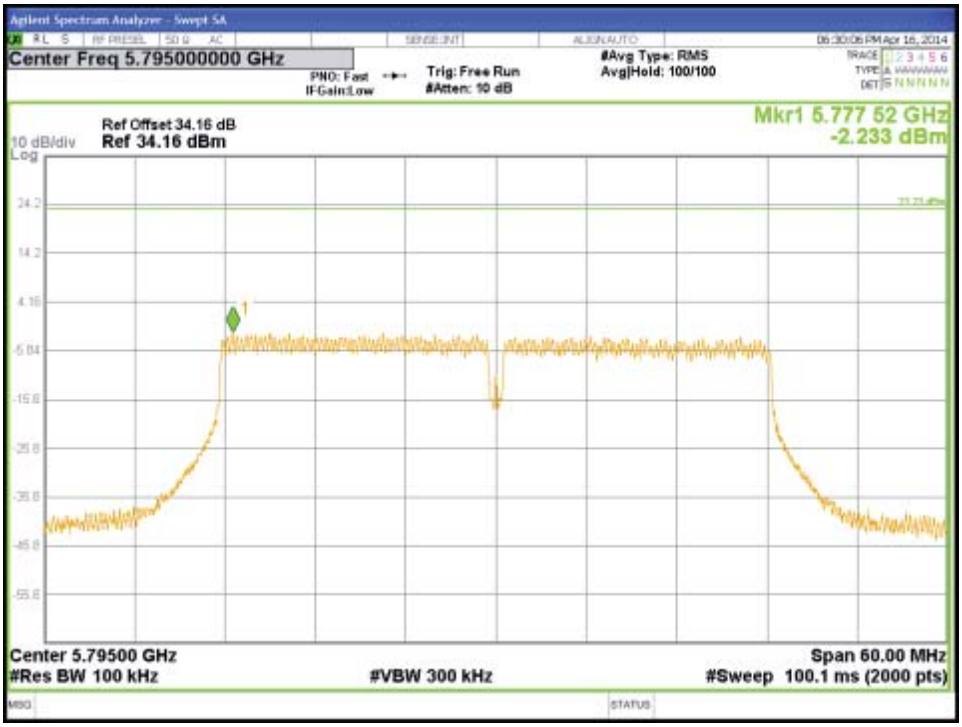


Figure 329: Maximum Power Spectral Density-5795MHz-VHT40-MCS0-Ch0

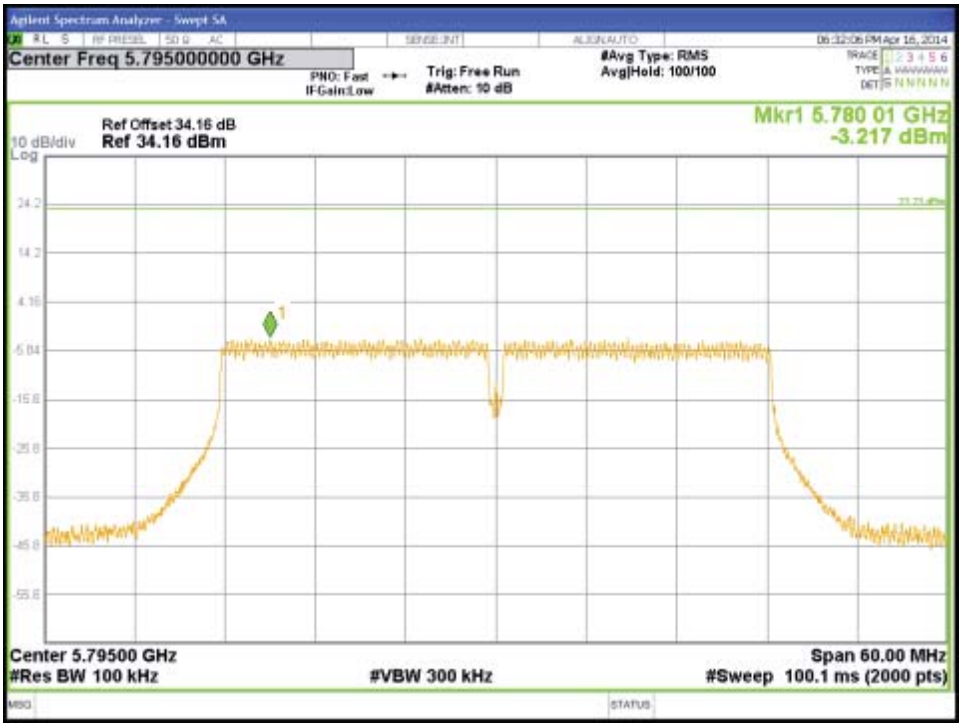


Figure 330: Maximum Power Spectral Density-5795MHz-VHT40-MCS0-Ch1

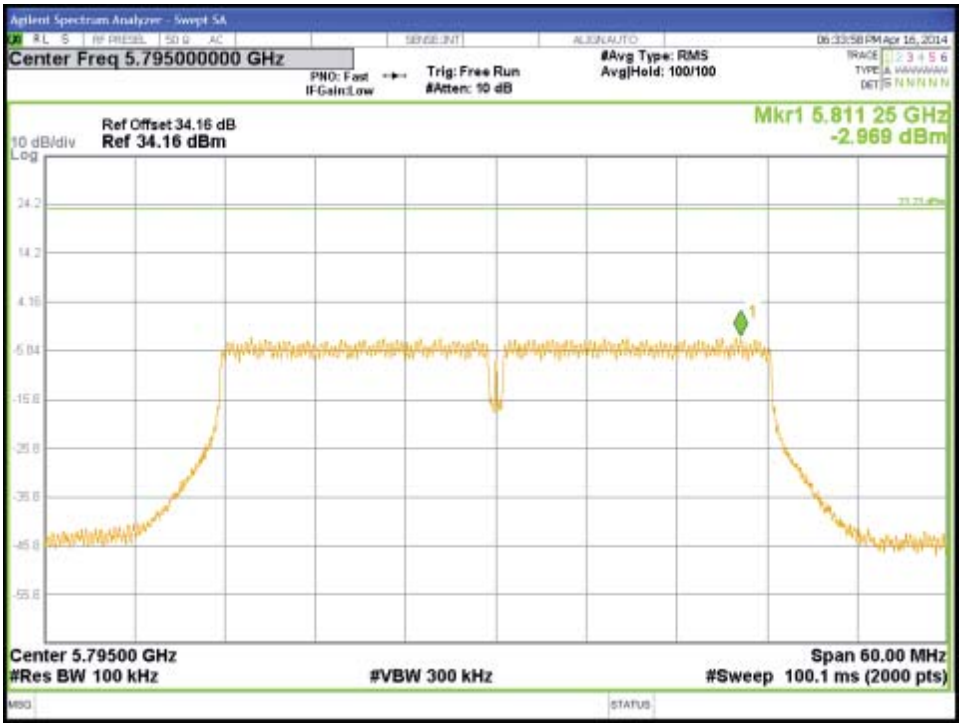


Figure 331: Maximum Power Spectral Density-5795MHz-VHT40-MCS0-Ch2

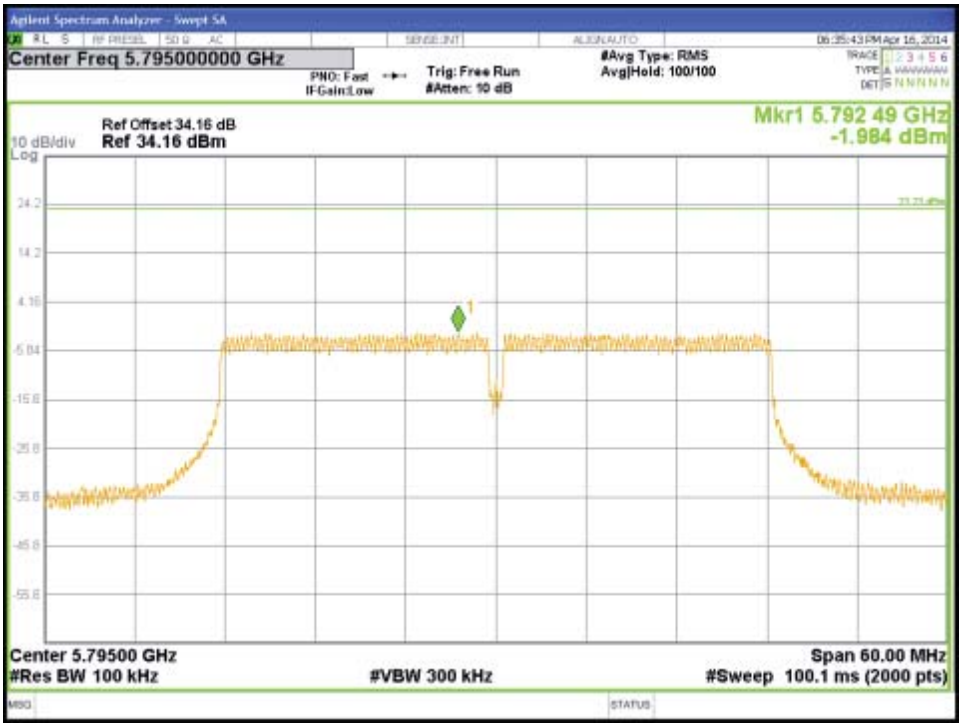


Figure 332: Maximum Power Spectral Density-5795MHz-VHT40-MCS0-Ch3

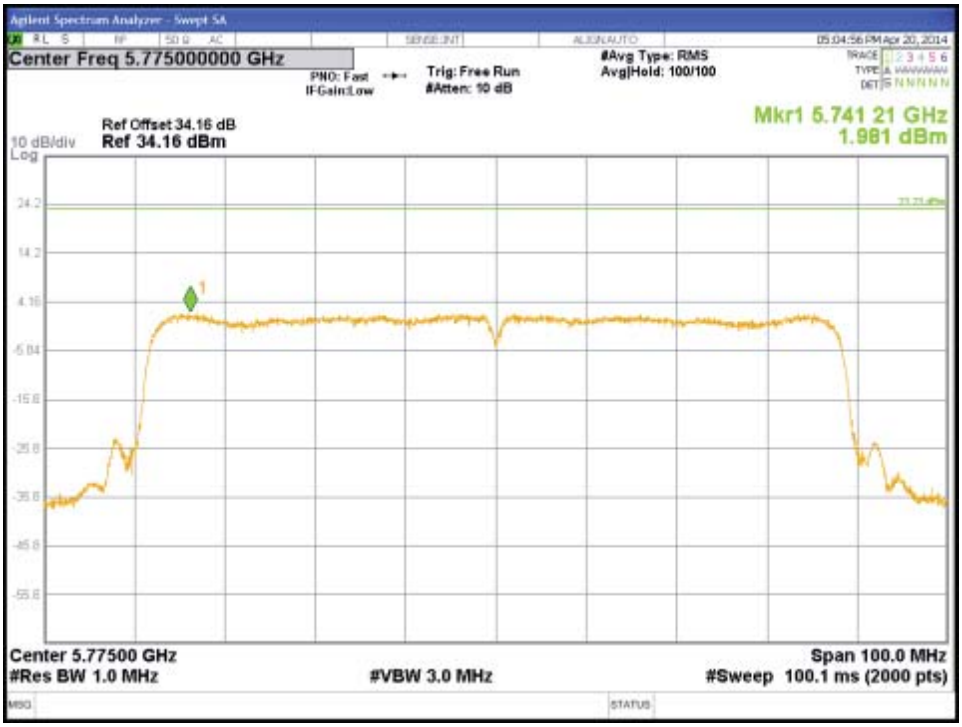


Figure 333: Maximum Power Spectral Density-5775MHz-VHT80-MCS0-Ch0

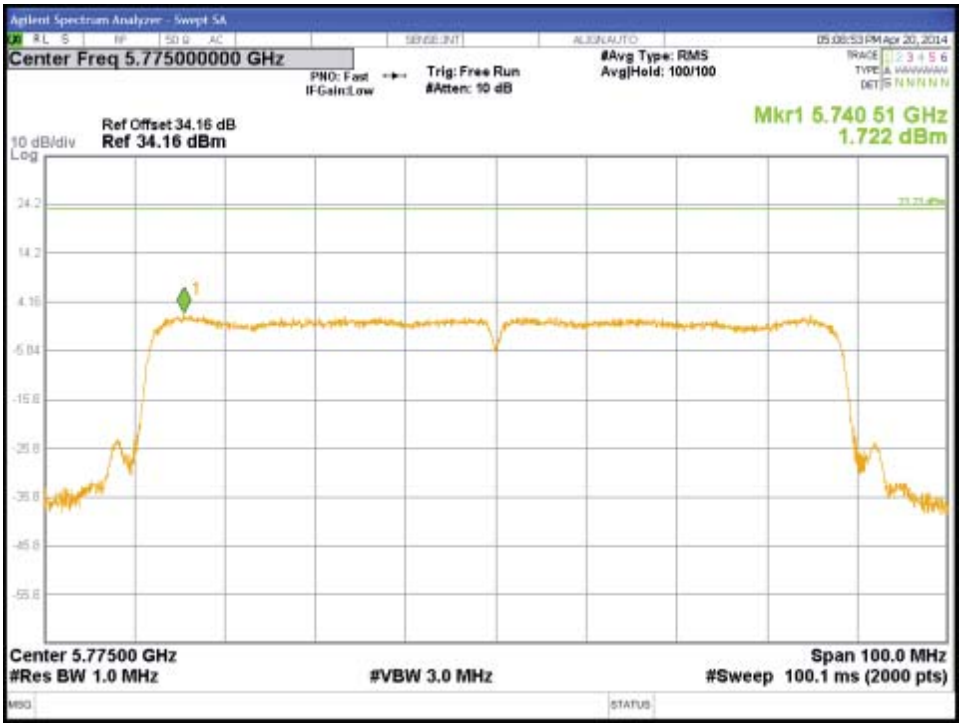


Figure 334: Maximum Power Spectral Density-5775MHz-VHT80-MCS0-Ch1

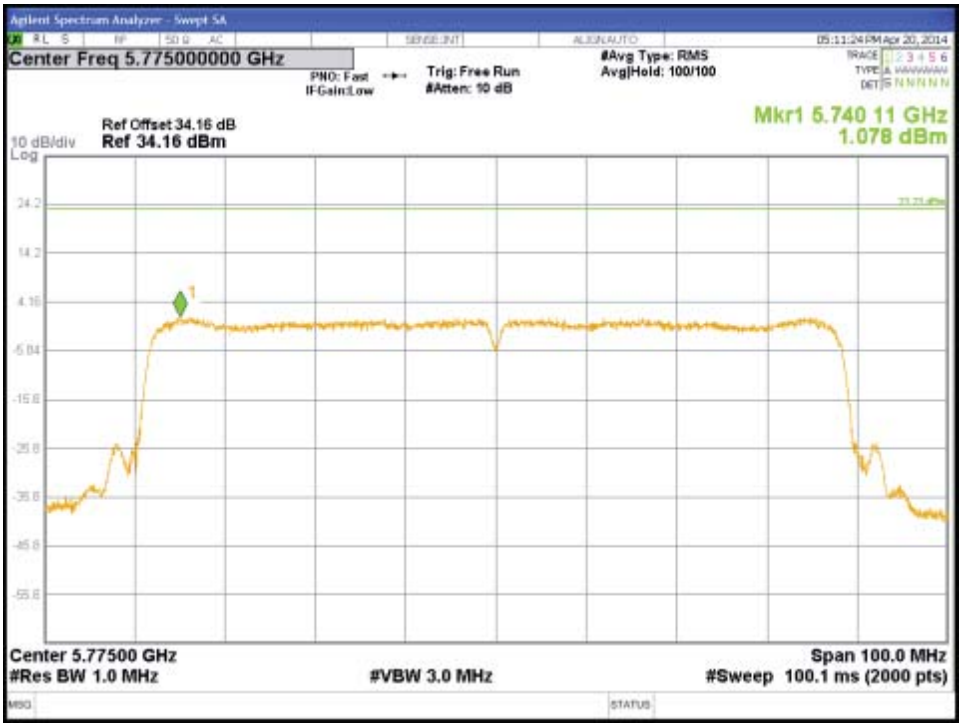


Figure 335: Maximum Power Spectral Density-5775MHz-VHT80-MCS0-Ch2

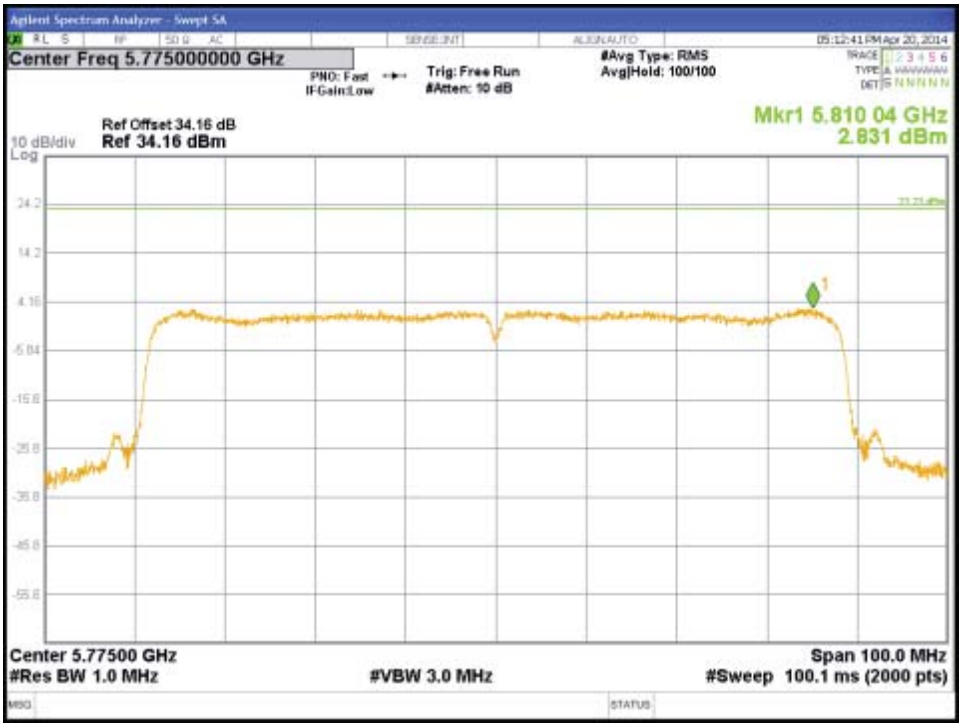


Figure 336: Maximum Power Spectral Density-5775MHz-VHT80-MCS0-Ch3

4.5 Transmitter Spurious Emissions

Transmitter spurious emissions are emissions outside the frequency range of the equipment when the equipment is in transmit mode; per requirement of CFR47 15.205, 15.209, 15.407(b)(6).

4.5.1 Test Methodology

4.5.1.1 Preliminary Test

A test program that controls instrumentation and data logging was used to automate the preliminary RF emission test procedure. The frequency range of interest was divided into sub-ranges to yield a frequency resolution of approximately 120 kHz and provide a reading at each frequency for no more than 12° of turntable rotation. For each frequency sub-range the turntable was rotated 360° while peak emission data was recorded and plotted over the frequency range of interest in horizontal and vertical antenna polarization's.

Preliminary emission profile testing was performed inside the anechoic chamber. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm above the floor. The EUT was positioned as shown in the setup photographs. The receiving antenna was placed at a distance of 3m at a fixed height of 1m. Measurement equipment was located outside of the chamber. A video camera was placed inside the chamber to view the EUT.

Pres-scans were performed to determine the worst axis, data rate/chains.

4.5.1.2 Final Test

For each frequency measured, the peak emission was maximized by manipulating the receiving antenna from 1 to 4 meters above the ground plane and placing it at the position that produced the maximum signal strength reading. The turntable was then rotated through 360° while observing the peak signal and placing the EUT at the position that produced maximum radiation. The six highest emissions relative to the limit were measured unless such emissions were more than 20 dB below the limit. If less than six emissions are within 20 dB of the limit, than the noise level of the receiver is measured at frequencies where emissions are expected. Multiples of all oscillator and microprocessor frequencies were also checked.

Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm above the ground plane. The placement of EUT and cables were the same as for preliminary testing and is shown in the setup photographs.

The final scans performed on the worst axis, Y-Axis, for three operating channels;
6 Mbps for 802.11a Mode: 5745 MHz, 5785 MHz, 5825 MHz
MCS0 for 802.11n HT20 Mode: 5745 MHz, 5785 MHz, 5825 MHz
MCS0 for 802.11n HT40 Mode: 5755 MHz, 5795 MHz
MCS0 for 802.11ac VHT20 Mode: 5745 MHz, 5785 MHz, 5825 MHz
MCS0 for 802.11a VHT40 Mode: 5755 MHz, 5795 MHz
MCS0 for 802.11a VHT80 Mode: 5775 MHz.

4.5.1.3 Deviations

None.

4.5.2 Transmitter Spurious Emission Limit

The spurious emissions of the transmitter shall not exceed the values in CFR47 Part 15.205, 15.209: 2016.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

4.5.3 Test Results

The final measurement data was taken under the worst case operating modes, configurations, and/or cable positions. It also reflects the results including any modifications and/or special accessories listed in Sections 1.4 and test plan.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 7: Transmit Spurious Emission at Band-Edge Requirements

Test Conditions: Radiated Measurement				**Test Date:** April 16, 2014				
Antenna Type: Integrated				**Power Setting:** See test plan				
Max. Directional Gain: + 8 dBi				**Signal State:** Modulated at 100%.				
Ambient Temp.: 23 °C				**Relative Humidity:**33%				
Band-Edge Results								
Freq. (MHz)	Level (dBuV/m)	Polarity (H/V)	Limit (dBuV/m)	Margin (dB)	Det.	Table Deg.	Tower (cm)	Note
5725	85.55	H	101.17	−15.62	Pk	110	222	5745MHz-11a-6Mbps-22dBm
5725	70.86	H	92.87	−22.01	Ave	110	222	5745MHz-11a-6Mbps-22dBm
5725	80.08	V	100.05	−19.97	Pk	210	222	5745MHz-11a-6Mbps-22dBm
5725	71.36	V	93.53	−22.17	Ave	210	222	5745MHz-11a-6Mbps-22dBm
5850	82.68	H	102.40	−19.72	Pk	215	150	5825MHz-11a-6Mbps-22dBm
5850	72.28	H	94.79	−22.51	Ave	215	150	5825MHz-11a-6Mbps-22dBm
5850	78.86	V	100.78	−21.92	Pk	198	254	5825MHz-11a-6Mbps-22dBm
5850	68.53	V	92.73	−24.20	Ave	198	254	5825MHz-11a-6Mbps-22dBm
5725	87.41	H	104.75	−17.34	Pk	214	103	5745MHz-HT20-MCS0-22dBm
5725	74.72	H	97.85	−23.13	Ave	214	103	5745MHz-HT20-MCS0-22dBm
5725	83.62	V	102.67	−19.05	Pk	190	198	5745MHz-HT20-MCS0-22dBm
5725	72.06	V	95.64	−23.58	Ave	190	198	5745MHz-HT20-MCS0-22dBm
5850	83.27	H	103.89	−20.62	Pk	218	148	5825MHz-HT20-MCS0-22dBm
5850	74.39	H	96.62	−22.23	Ave	218	148	5825MHz-HT20-MCS0-22dBm
5850	76.57	V	97.62	−21.05	Pk	89	183	5825MHz-HT20-MCS0-22dBm
5850	67.47	V	89.65	−22.18	Ave	89	183	5825MHz-HT20-MCS0-22dBm
5725	83.60	V	98.48	−14.88	Pk	205	225	5755MHz-HT40-MCS0-22dBm
5725	73.86	V	90.47	−16.61	Ave	205	225	5755MHz-HT40-MCS0-22dBm
5725	90.91	H	100.11	−9.20	Pk	218	153	5755MHz-HT40-MCS0-22dBm
5725	78.62	H	94.95	−16.33	Ave	218	139	5755MHz-HT40-MCS0-22dBm
5850	78.54	H	100.06	−21.52	Pk	221	179	5795MHz-HT40-MCS0-22dBm
5850	67.47	H	93.69	−26.22	Ave	221	179	5795MHz-HT40-MCS0-22dBm

5850	73.21	V	96.53	−23.32	Pk	196	242	5795MHz−HT40−MCS0−22dBm
5850	63.16	V	91.06	−27.90	Ave	196	242	5795MHz−HT40−MCS0−22dBm
5725	86.62	H	102.14	−15.52	Pk	168	144	5745MHz−VHT20−MCS0−22dBm
5725	76.22	H	94.52	−18.30	Ave	168	144	5745MHz−VHT20−MCS0−22dBm
5725	81.93	V	100.26	−18.33	Pk	93	203	5745MHz−VHT20−MCS0−22dBm
5725	70.60	V	91.72	−21.12	Ave	93	203	5745MHz−VHT20−MCS0−22dBm
5850	81.19	H	102.14	−20.95	Pk	116	114	5825MHz−VHT20−MCS0−22dBm
5850	67.47	H	94.83	−27.36	Ave	116	114	5825MHz−VHT20−MCS0−22dBm
5850	78.60	V	100.40	−21.80	Pk	193	223	5825MHz−VHT20−MCS0−22dBm
5850	69.78	V	94.14	−24.36	Ave	193	223	5825MHz−VHT20−MCS0−22dBm
5850	67.54	H	100.62	−33.08	Pk	295	294	5755MHz−VHT40−MCS0−22dBm
5850	59.32	H	93.16	−33.84	Ave	295	294	5755MHz−VHT40−MCS0−22dBm
5850	67.68	V	96.29	−28.61	Pk	154	294	5755MHz−VHT40−MCS0−22dBm
5850	58.30	V	88.29	−29.99	Ave	154	294	5755MHz−VHT40−MCS0−22dBm
5850	71.80	H	99.24	−27.44	Pk	291	235	5795MHz−VHT40−MCS0−22dBm
5850	63.76	H	92.51	−28.75	Ave	291	235	5795MHz−VHT40−MCS0−22dBm
5850	73.95	V	96.90	−22.95	Pk	203	176	5795MHz−VHT40−MCS0−22dBm
5850	65.34	V	91.10	−25.76	Ave	203	176	5795MHz−VHT40−MCS0−22dBm
5725	89.62	H	97.40	−7.78	Pk	298	294	5775MHz−VHT80−MCS0−21dBm
5725	78.19	H	90.39	−12.20	Ave	298	294	5775MHz−VHT80−MCS0−21dBm
5725	85.05	V	92.74	−7.69	Pk	156	292	5775MHz−VHT80−MCS0−21dBm

5725	72.90	V	85.76	−12.86	Ave	156	292	5775MHz−VHT80−MCS0−21dBm
Note: Band-edge frequencies were taken at 5725MHz or 5850 MHz. Since both sides of the operational band are not restricted, the measurements took to demonstrate the compliance to 20 dB relative to peak.								

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EUT Name	Wireless Residential Gateway	**Date**	March 31, 2014
EUT Model	5268AC	**Temp / Hum in**	23°C / 40%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	802.11a at Y-Axis (30MHz-1 GHz)	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	120 kHz/ 300 kHz
Dist/Ant Used	3m / JB3	**Performed by**	Jeremy Luong

Freq.	Raw	Cbl	AF	Level	Det.	Pol.	Hght.	Azt	Limit	Margin	Result
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 802.11a, 5785MHz											
624.92	47.20	3.00	-18.67	31.54	QP	H	117	86	37.00	-5.47	Pass
874.83	42.04	3.62	-15.36	30.29	QP	H	135	60	37.00	-6.71	Pass
30.00	33.82	0.59	-15.89	18.53	QP	V	120	240	30.00	-11.47	Pass
45.26	47.17	0.73	-27.38	20.53	QP	V	133	42	30.00	-9.47	Pass
57.67	49.84	0.83	-30.34	20.33	QP	V	108	70	30.00	-9.67	Pass
99.99	50.80	1.11	-27.28	24.62	QP	V	103	304	30.00	-5.38	Pass
400.01	48.80	2.36	-21.55	29.62	QP	V	128	252	37.00	-7.38	Pass
530.00	42.60	2.75	-19.90	25.45	QP	V	105	46	37.00	-11.55	Pass
2400.51	50.08	2.15	-21.68	30.55	Ave	H	200	160	54.00	-23.45	Pass
5583.20	60.26	2.79	-16.19	46.87	Ave	H	215	62	54.00	-7.14	Pass
6015.73	58.38	2.87	-15.32	45.92	Ave	H	168	110	54.00	-8.08	Pass
6276.06	58.08	2.90	-14.76	46.23	Ave	H	133	108	54.00	-7.77	Pass
6422.49	52.22	2.93	-14.45	40.69	Ave	H	271	110	54.00	-13.31	Pass
11567.6	61.41	3.66	-12.34	52.73	Ave	V	208	74	54.00	-1.27	Pass*

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Note: All digital emissions passed Class B limit.
(*) Harmonic emission.

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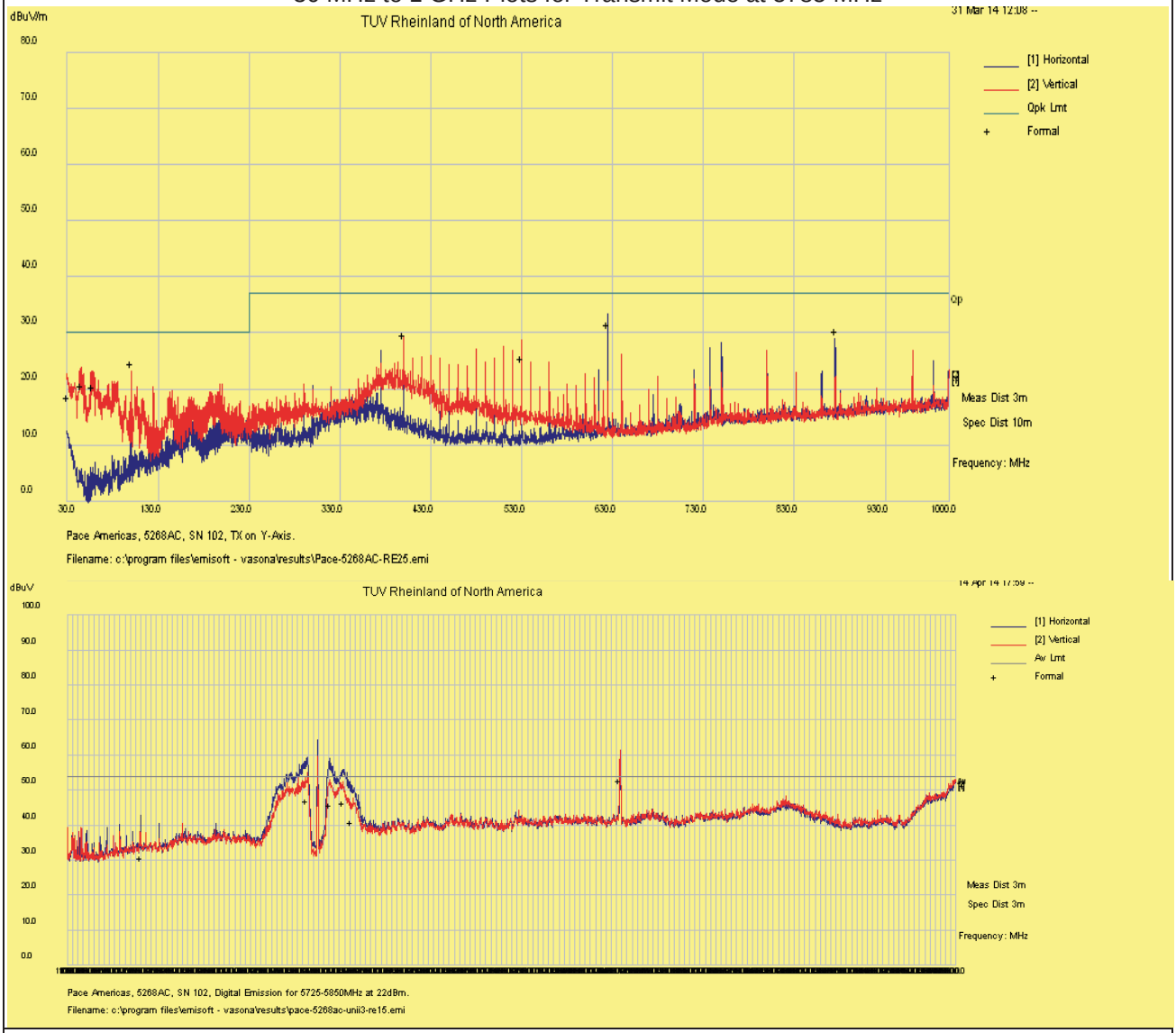
EUT Name	Wireless Residential Gateway	**Date**	March 31, 2014
EUT Model	5268AC	**Temp / Hum in**	23°C / 40%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	802.11a at Y-Axis (30MHz-1 GHz)	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	120 kHz/ 300 kHz
Dist/Ant Used	3m / JB3 & EMCO3115	**Performed by**	Jeremy Luong

30 MHz to 1 GHz Plots for Transmit Mode at 5785 MHz



Notes: Scan for digital emission per FCC Class B Limit.

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EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5745MHz at 802.11a, 6Mbit/s											
17241.15	40.74	8.34	-5.02	44.05	Ave	H	118	52	54.00	-9.95	Harmonics
11490.19	52.50	6.51	-12.20	46.81	Ave	V	246	66	54.00	-7.19	Harmonics
22976.80	51.10	5.59	3.35	60.03	Ave	V	142	116	63.98	-3.95	Harmonics
28720.20	62.73	6.36	-20.92	41.82	Ave	V	121	170	63.98	-22.16	Harmonics
34475.50	55.69	7.02	-12.92	42.77	Ave	V	116	124	63.98	-21.21	Harmonics
Transmitted Data at 5785MHz at 802.11a, 6Mbit/s											
17359.14	38.93	8.39	-3.87	43.46	Ave	H	196	38	54.00	-10.54	Harmonics
11567.6	61.41	3.66	-12.34	52.73	Ave	V	208	74	54.00	-1.27	Harmonics
23142.70	48.90	5.60	3.18	57.67	Ave	V	140	149	63.98	-6.31	Harmonics
28924.90	62.79	6.38	-20.56	42.23	Ave	V	115	168	63.98	-21.75	Harmonics
34708.80	54.82	7.07	-12.99	41.82	Ave	V	111	125	63.98	-22.16	Harmonics
Transmitted Data at 5825MHz at 802.11a, 6Mbit/s											
17480.45	40.70	8.44	-3.11	46.03	Ave	H	119	88	54.00	-7.97	Harmonics
11647.60	57.40	6.56	-12.65	51.31	Ave	V	200	106	54.00	-2.69	Harmonics
23304.20	51.69	5.64	2.93	60.26	Ave	V	134	147	63.98	-3.72	Harmonics
29120.70	66.95	6.40	-20.25	46.71	Ave	V	121	86	63.98	-17.27	Harmonics
34946.20	53.40	7.10	-12.49	40.91	Ave	V	116	160	63.98	-23.07	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

SOP 1 Radiated Emissions

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EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 at MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5745MHz at 802.11n HT20 MCS0											
17238.46	37.85	8.34	-5.06	41.12	Ave	H	153	60	54.00	-12.88	Harmonics
11491.36	51.27	6.51	-12.20	45.57	Ave	V	232	70	54.00	-8.43	Harmonics
22978.00	47.80	5.59	3.35	56.73	Ave	H	152	149	63.98	-7.25	Harmonics
28725.30	62.06	6.37	-20.91	41.15	Ave	V	117	138	63.98	-22.83	Harmonics
Transmitted Data at 5785MHz at 802.11n HT20 MCS0											
17362.22	39.10	8.40	-3.87	43.63	Ave	H	185	56	54.00	-10.38	Harmonics
11566.48	51.18	6.51	-12.34	45.35	Ave	V	244	106	54.00	-8.65	Harmonics
23131.30	50.11	5.60	3.19	58.90	Ave	V	121	166	63.98	-5.08	Harmonics
28925.00	60.46	6.38	-20.56	39.90	Ave	V	120	164	63.98	-24.08	Harmonics
Transmitted Data at 5825MHz at 802.11n HT20 MCS0											
17475.92	40.51	8.44	-3.13	45.82	Ave	H	132	34	54.00	-8.18	Harmonics
11650.23	56.72	6.56	-12.67	50.61	Ave	V	201	100	54.00	-3.40	Harmonics
23306.50	53.88	5.64	2.92	62.44	Ave	V	114	168	63.98	-1.54	Harmonics
34949.80	52.78	7.10	-12.48	40.30	Ave	H	118	158	63.98	-23.68	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

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EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT40 at MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5755MHz at 802.11n HT40 MCS0											
17313.38	36.80	8.38	-4.13	41.05	Ave	H	115	46	54.00	-12.95	Harmonics
11544.09	48.96	6.52	-12.30	43.17	Ave	V	108	56	54.00	-10.83	Harmonics
23017.70	46.33	5.59	3.35	55.27	Ave	V	126	115	63.98	-8.71	Harmonics
28774.90	60.75	6.37	-20.83	39.93	Ave	V	118	96	63.98	-24.05	Harmonics
Transmitted Data at 5795MHz at 802.11n HT40 MCS0											
17393.39	39.62	8.41	-3.52	44.50	Ave	H	117	36	54.00	-9.50	Harmonics
11597.93	51.37	6.57	-12.49	45.45	Ave	V	284	98	54.00	-8.55	Spurious
23198.90	47.58	5.61	3.10	56.29	Ave	V	128	87	63.98	-7.69	Harmonics
28974.90	60.10	6.39	-20.47	39.63	Ave	V	106	109	63.98	-24.35	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

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EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 at MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5745MHz at 802.11ac VHT20 MCS0											
17247.09	39.40	8.30	-4.90	42.80	Ave	H	163	40	54.00	-11.20	Harmonics
11491.33	51.42	6.51	-12.20	45.73	Ave	V	103	62	54.00	-8.27	Harmonics
22983.70	50.45	5.59	3.35	59.39	Ave	V	118	164	63.98	-4.59	Harmonics
Transmitted Data at 5785MHz at 802.11ac VHT20 MCS0											
17357.91	36.42	8.39	-3.87	40.94	Ave	H	247	116	54.00	-13.06	Harmonics
11570.66	50.32	6.51	-12.35	44.48	Ave	V	216	110	54.00	-9.52	Harmonics
23142.10	50.40	5.60	3.18	59.17	Ave	H	116	164	63.98	-4.81	Harmonics
28924.90	62.90	6.38	-20.56	42.34	Ave	H	118	166	63.98	-21.64	Harmonics
Transmitted Data at 5825MHz at 802.11ac VHT20 MCS0											
17470.02	39.40	8.44	-3.12	44.72	Ave	H	110	38	54.00	-9.28	Harmonics
11642.71	54.32	6.57	-12.60	48.29	Ave	V	272	104	54.00	-5.71	Harmonics
23298.00	48.57	5.64	2.94	57.15	Ave	H	134	106	63.98	-6.83	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

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Tracking # 31153119.005 Page 7 of 36

EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT40 at MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5755MHz at 802.11ac VHT40 MCS0											
17252.11	34.00	8.33	-4.85	37.48	Ave	H	188	2	54.00	-16.52	Harmonics
11513.51	44.65	6.55	-12.30	38.90	Ave	V	258	126	54.00	-15.10	Harmonics
23009.70	46.88	5.59	3.36	55.83	Ave	V	143	147	63.98	-8.15	Harmonics
28775.00	59.99	6.38	-20.83	39.16	Ave	H	99	97	63.98	-24.82	Harmonics
Transmitted Data at 5795MHz at 802.11ac VHT40 MCS0											
11591.45	48.96	6.55	-12.45	43.06	Ave	V	183	56	54.00	-10.94	Harmonics
17373.17	33.60	8.40	-3.90	38.10	Ave	V	129	274	54.00	-15.90	Harmonics
23189.60	50.25	5.61	3.11	58.97	Ave	H	116	165	63.98	-5.01	Harmonics
28974.80	60.93	6.39	-20.47	40.46	Ave	V	107	113	63.98	-23.52	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

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EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	121404000111	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT80 at MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz/ 3 MHz
Dist/Ant Used	3m / EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Freq	Raw	Cbl	AF	Level	Det	Pol	Hght	Azt	Limit	Margin	Comment
MHz	dBuV/m	dB	dB	dBuV/m		H/V	cm	deg	dBuV/m	dB	
Transmitted Data at 5775MHz at 802.11ac VHT80 MCS0											
17252.84	32.50	8.30	-4.80	36.00	Ave	H	217	6	54.00	-18.00	Harmonics
11571.07	40.00	6.50	-12.40	34.20	Ave	V	216	164	54.00	-19.80	Harmonics
11604.86	41.67	6.57	-12.48	35.76	Ave	V	228	92	54.00	-18.24	Harmonics
17358.40	30.48	8.39	-3.87	35.01	Ave	V	188	268	54.00	-18.99	Harmonics
17374.79	30.64	8.42	-3.89	35.17	Ave	V	136	134	54.00	-18.83	Harmonics
23080.40	45.67	5.59	3.26	54.52	Ave	H	119	96	63.98	-9.46	Harmonics
28967.90	65.15	6.39	-20.49	44.66	Ave	H	99	83	63.98	-19.32	Harmonics

Spec Margin = Level - Limit, Level = Raw+ Cbl+ CF ± Uncertainty
CF= Amp Gain + ANT Factor

Combined Standard Uncertainty $u_c(y)$ = ± 4.93 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: All emissions passed the spurious emission limit.

SOP 1 Radiated Emissions

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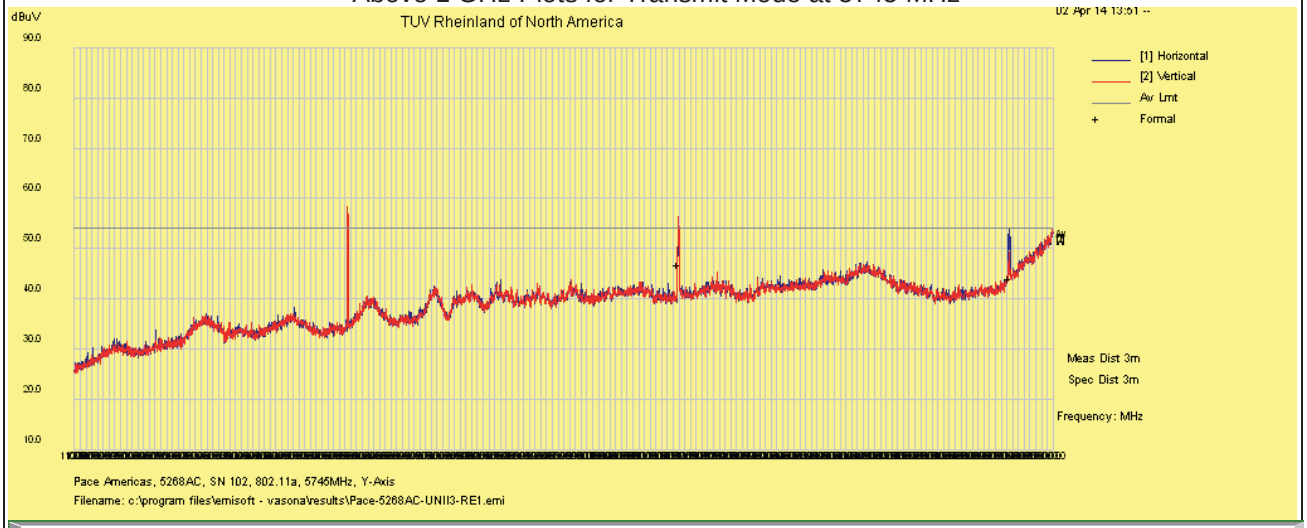
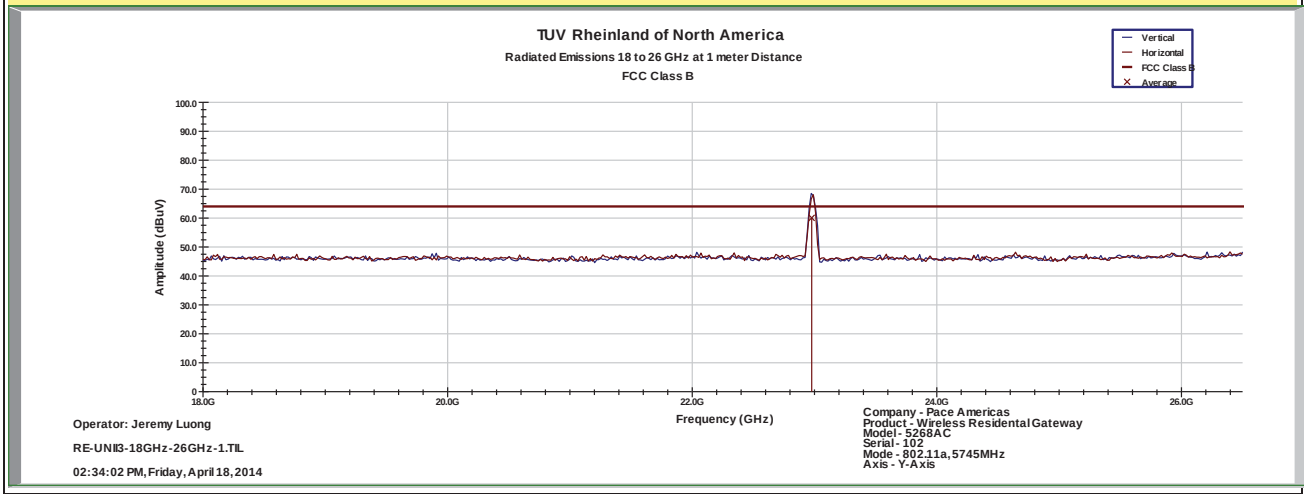
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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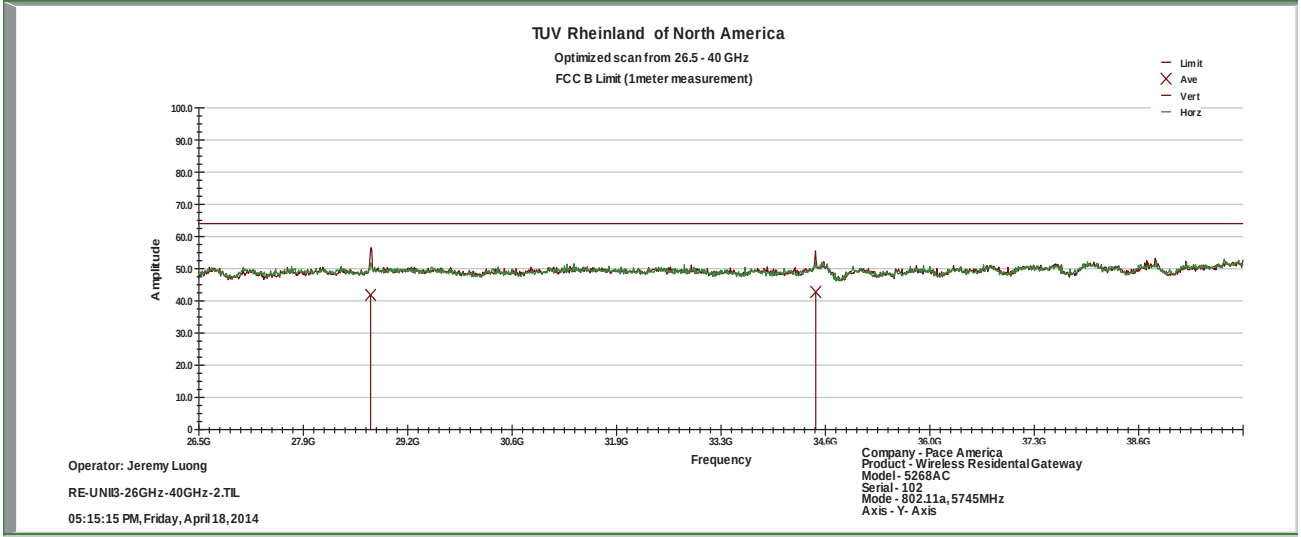
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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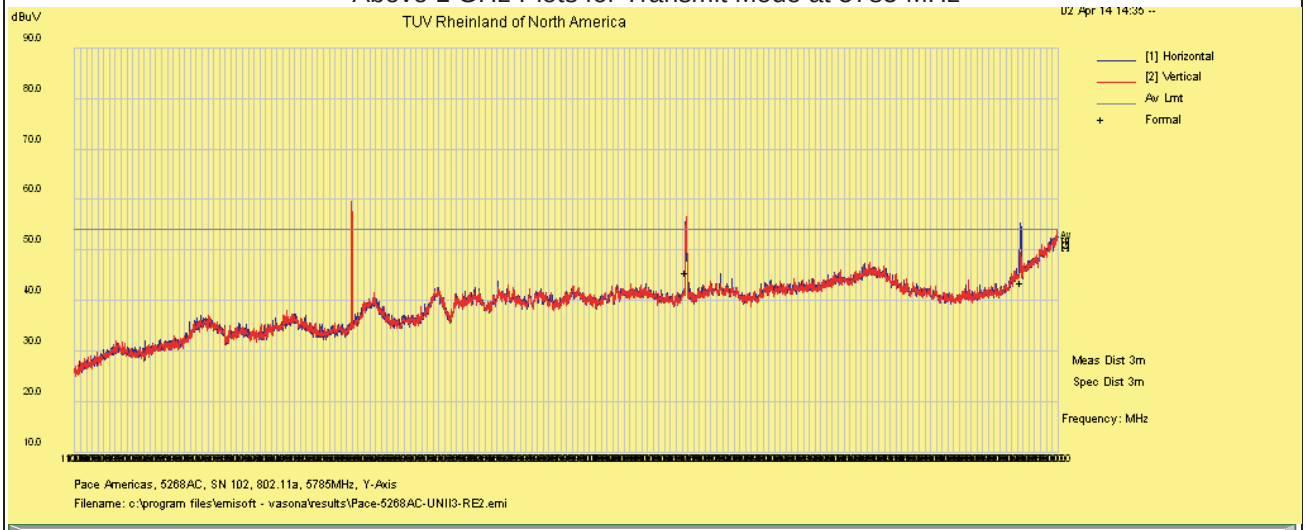
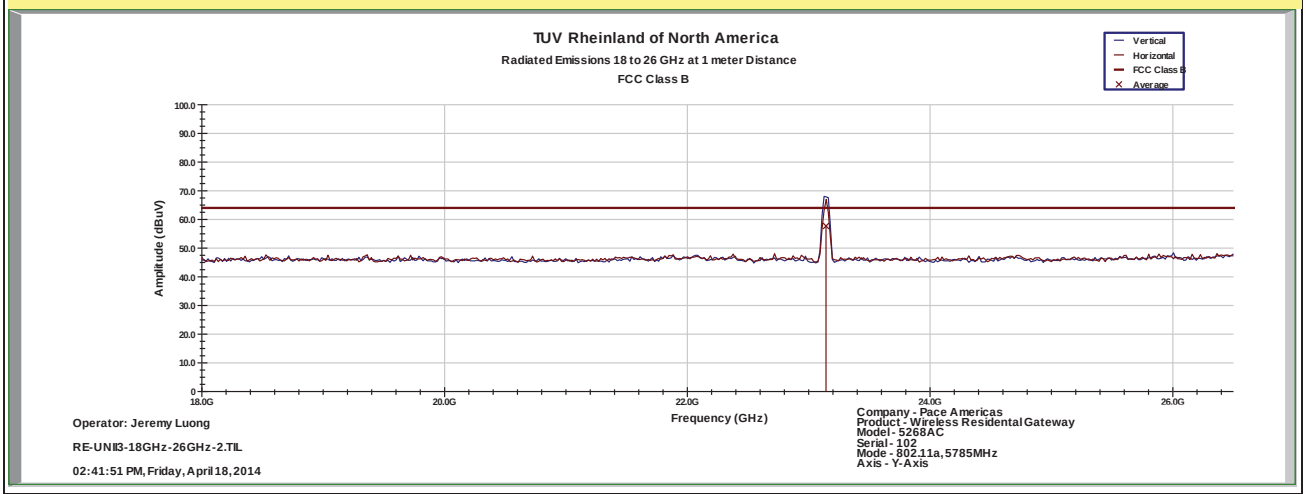
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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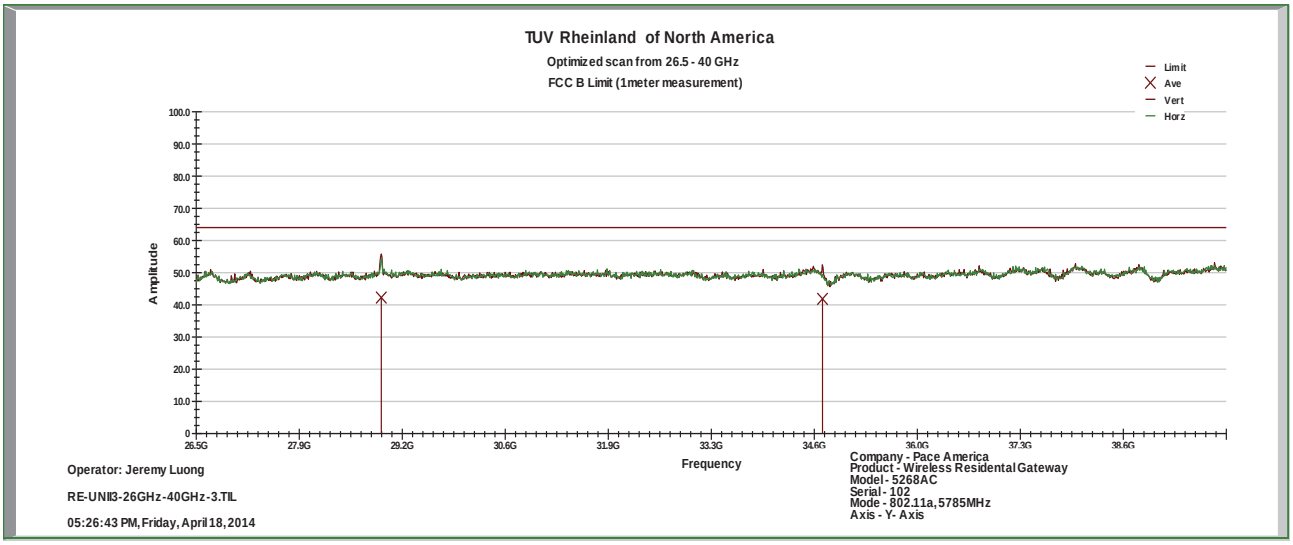
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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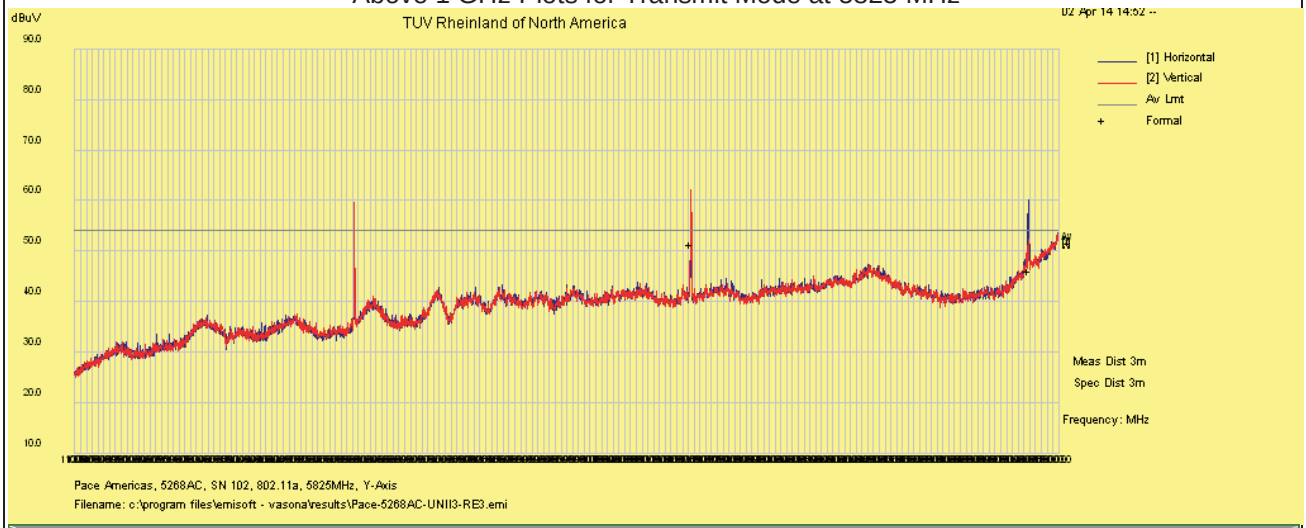
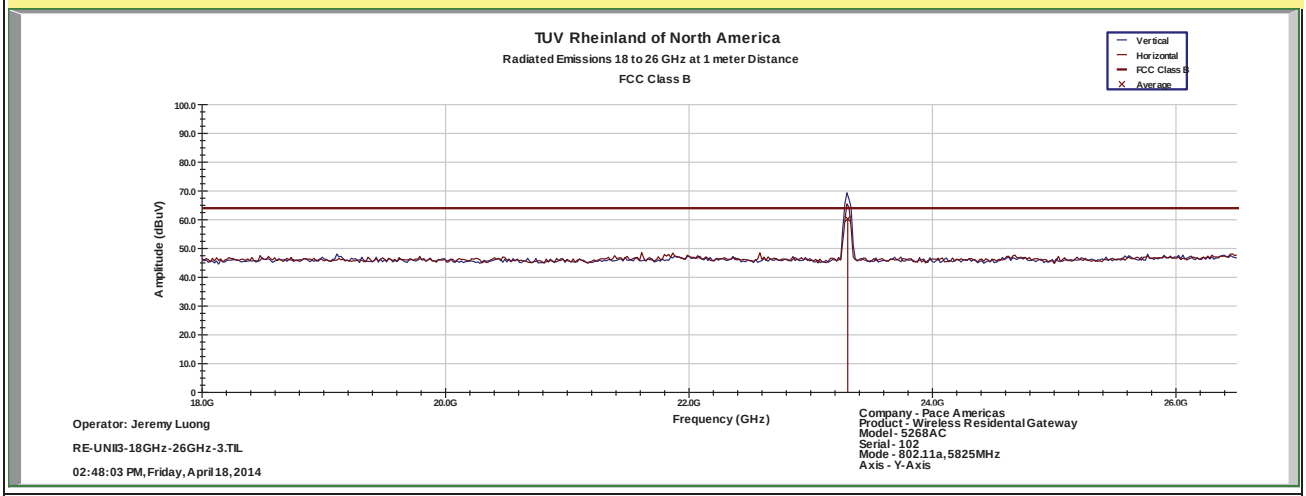
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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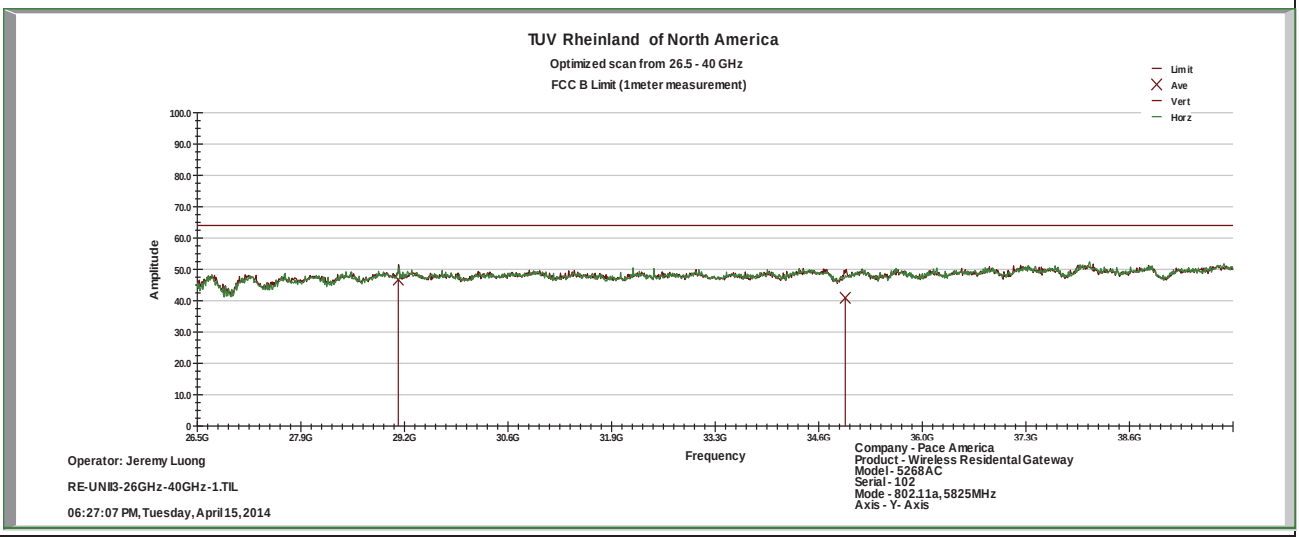
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11a at 6Mbps	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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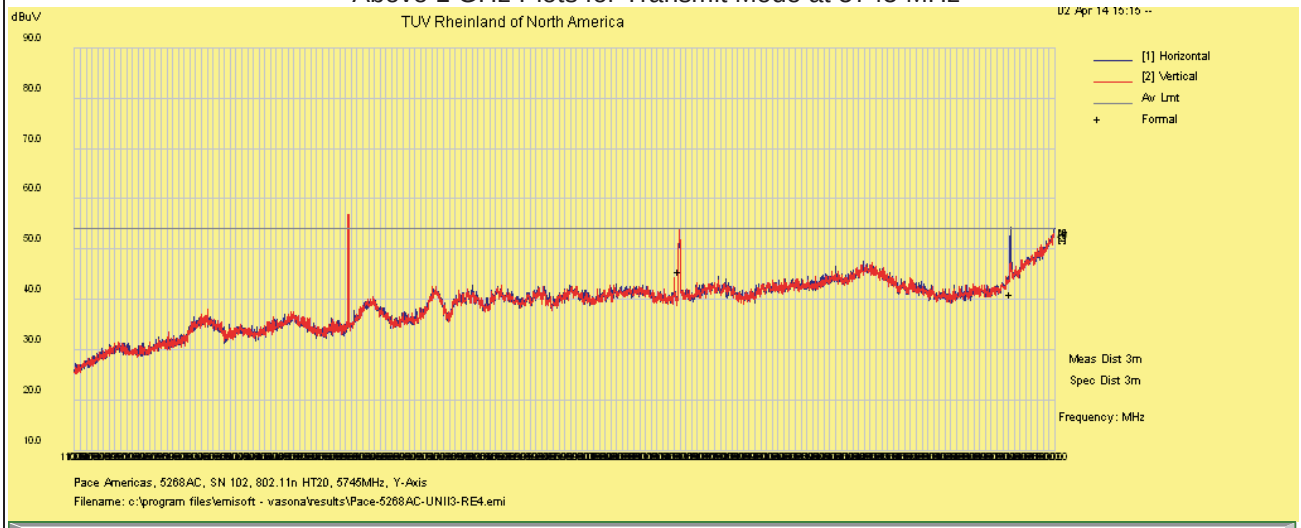
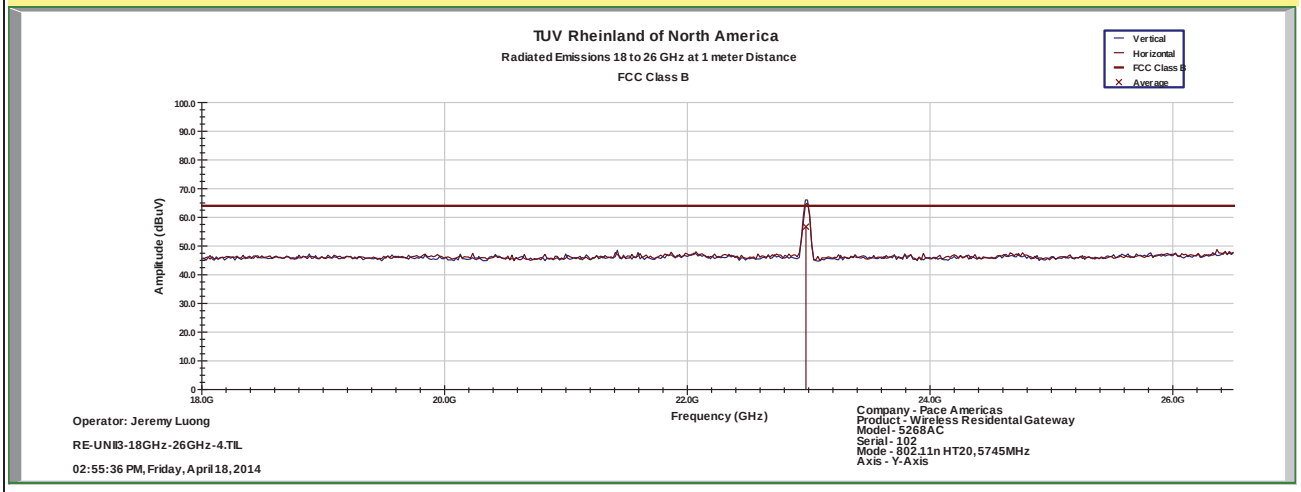
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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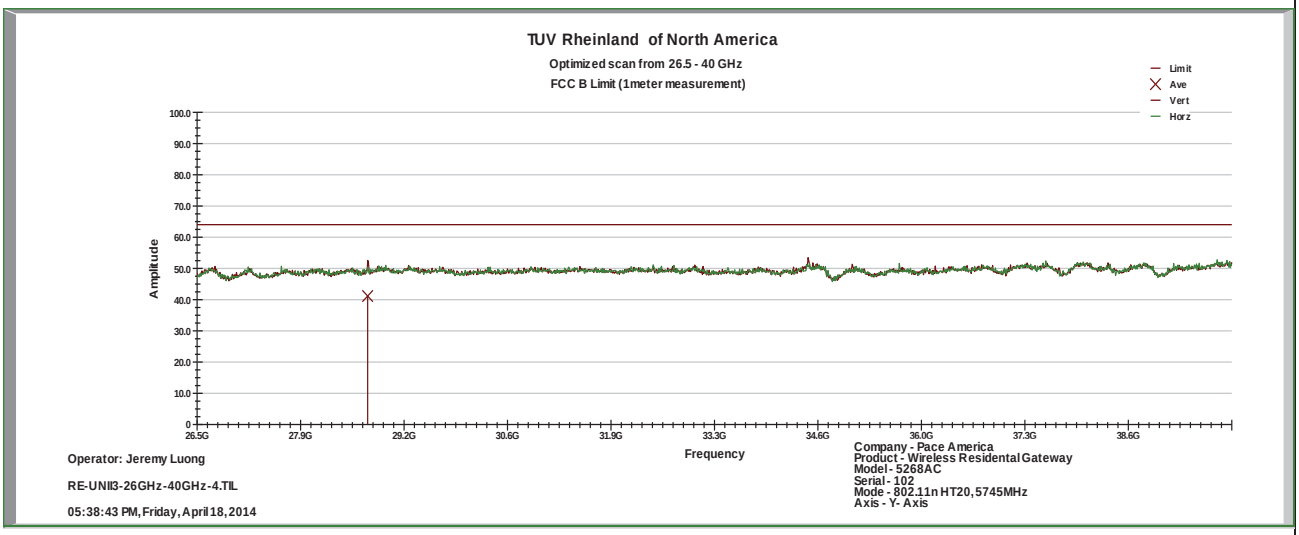
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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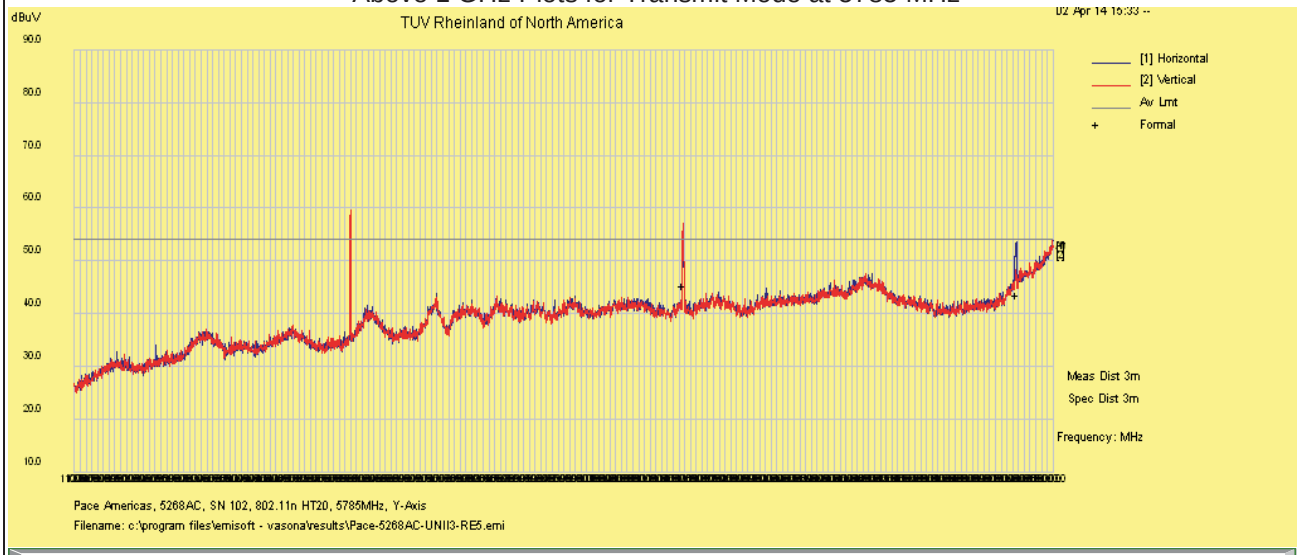
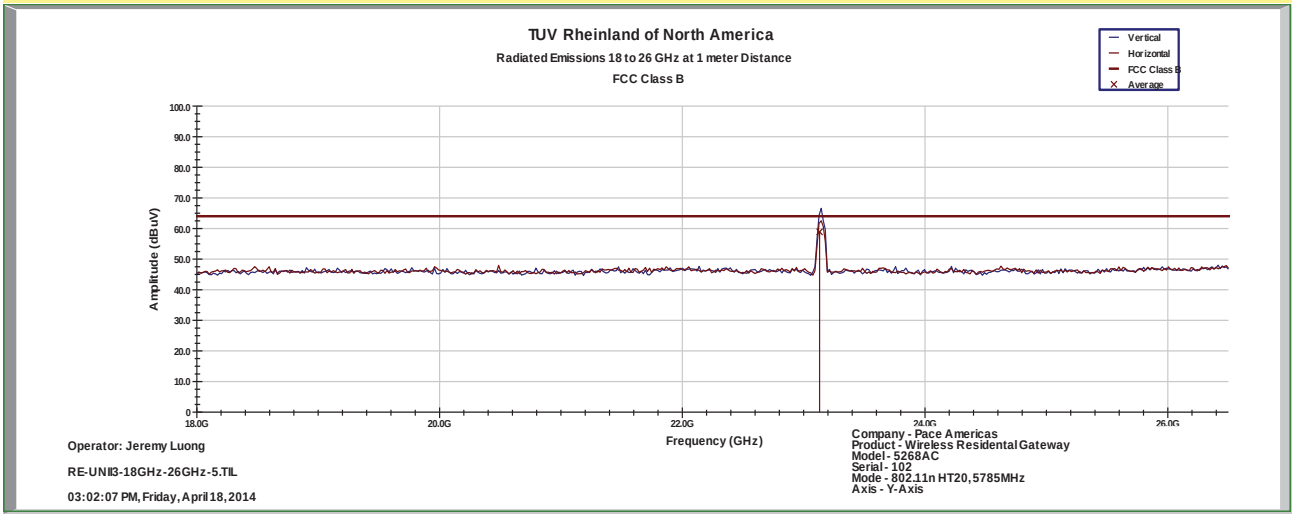
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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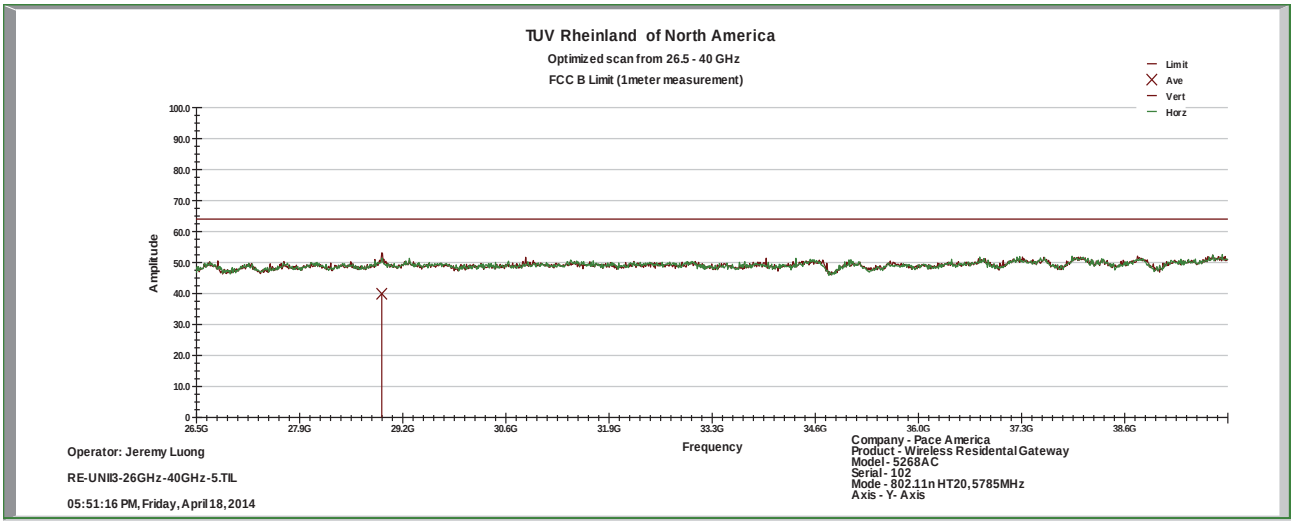
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz

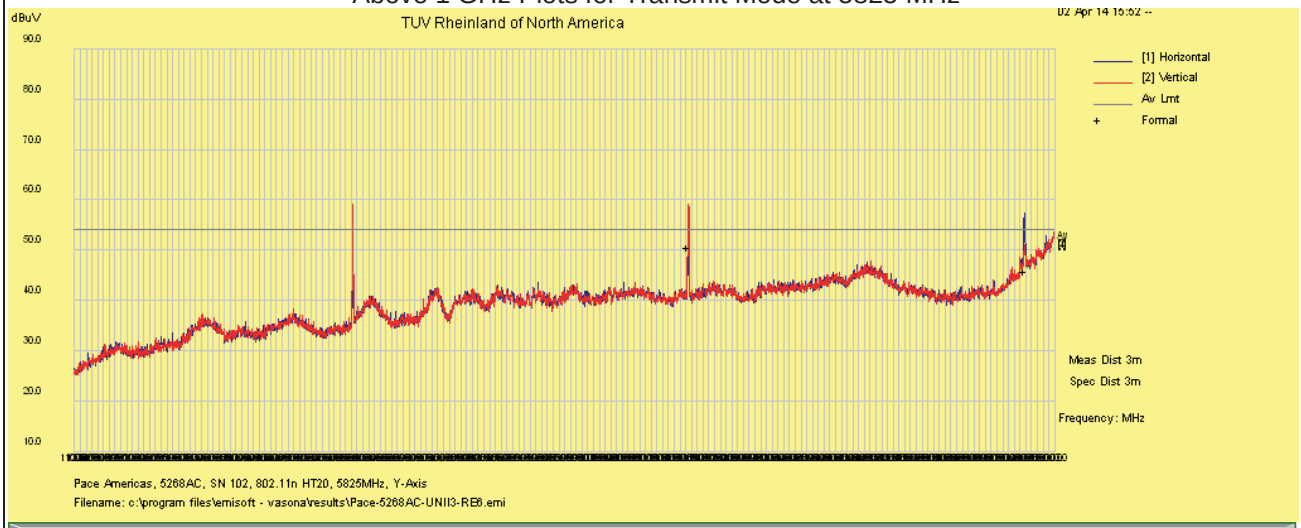


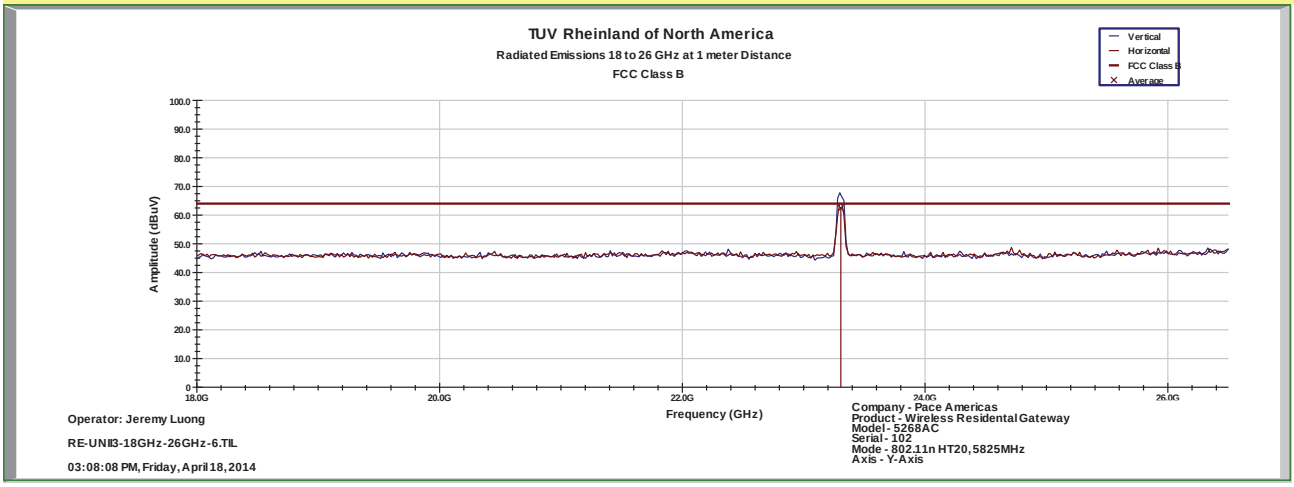
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

EUT Name	Wireless Residential Gateway	**Date**	April 1, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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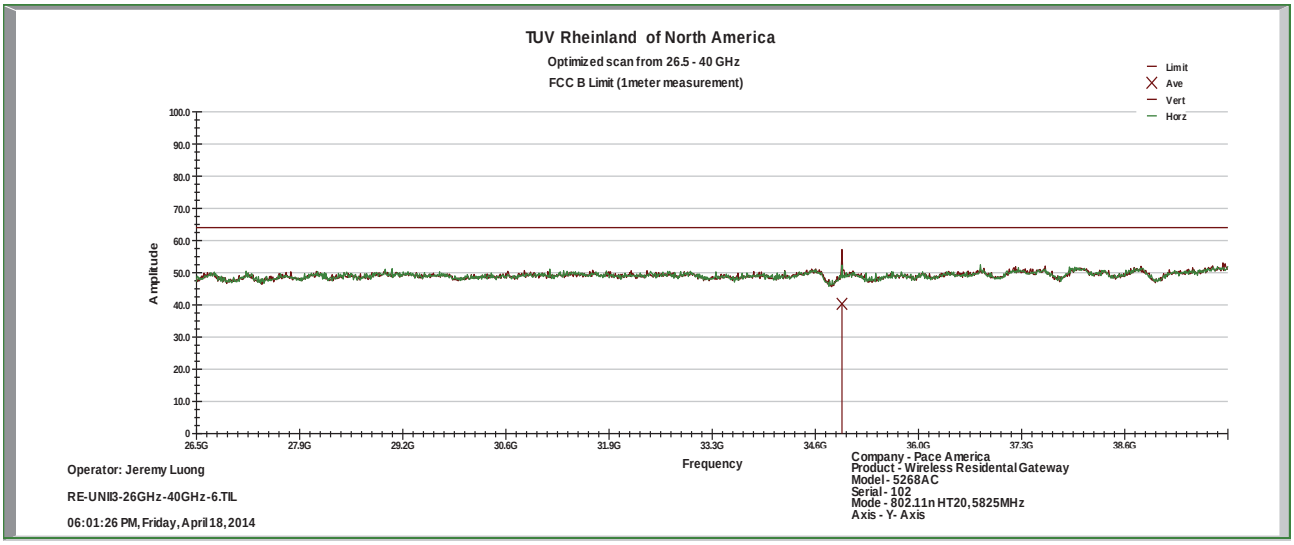
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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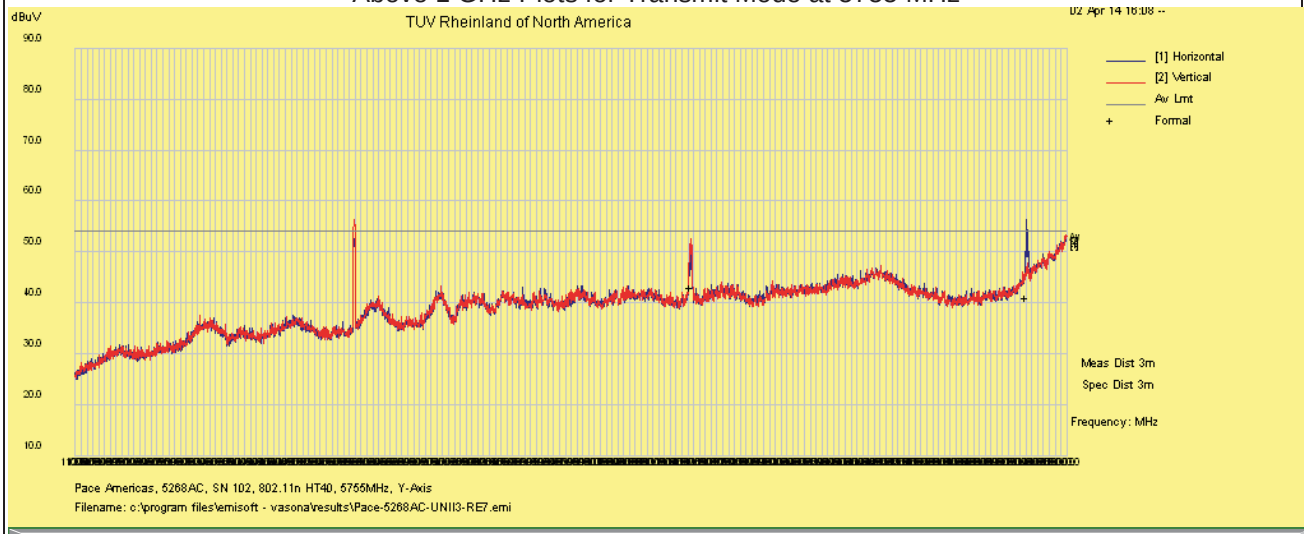
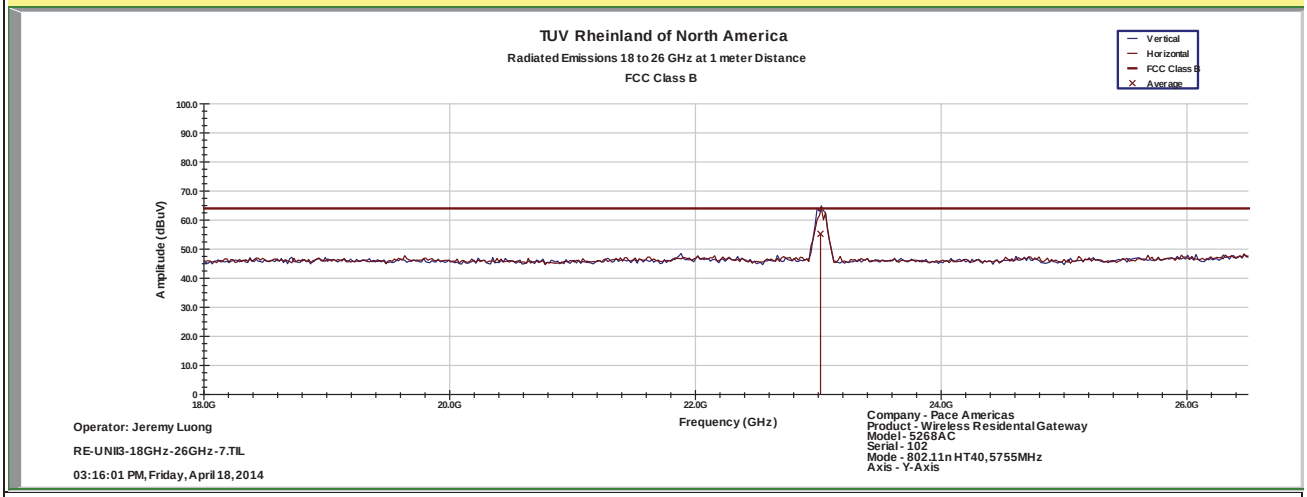
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT40 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5755 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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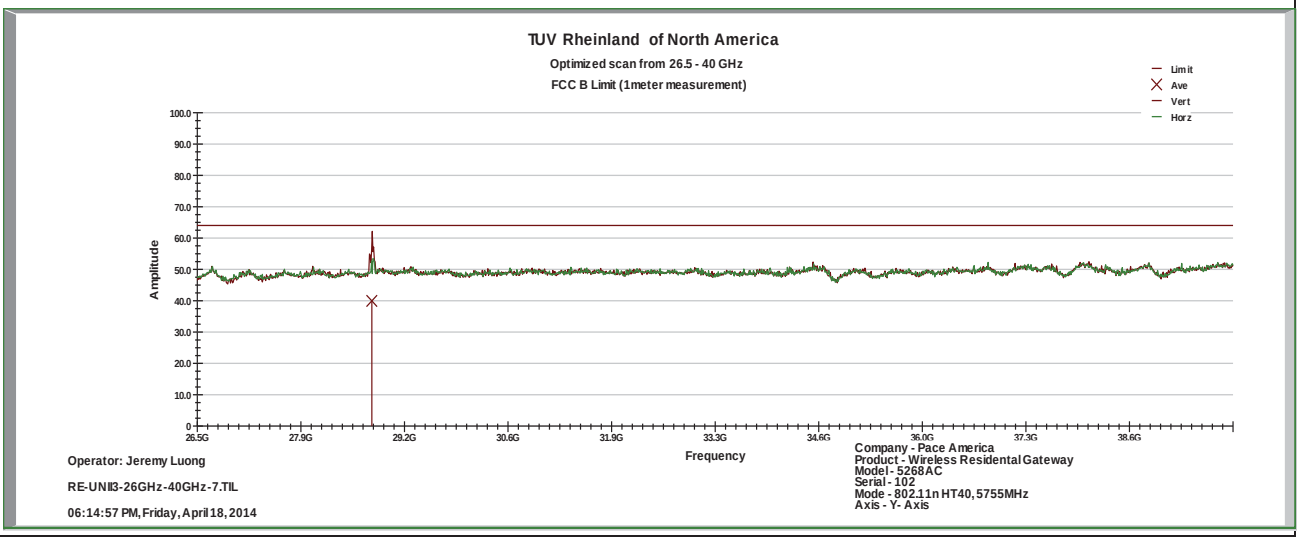
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT40 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5755 MHz

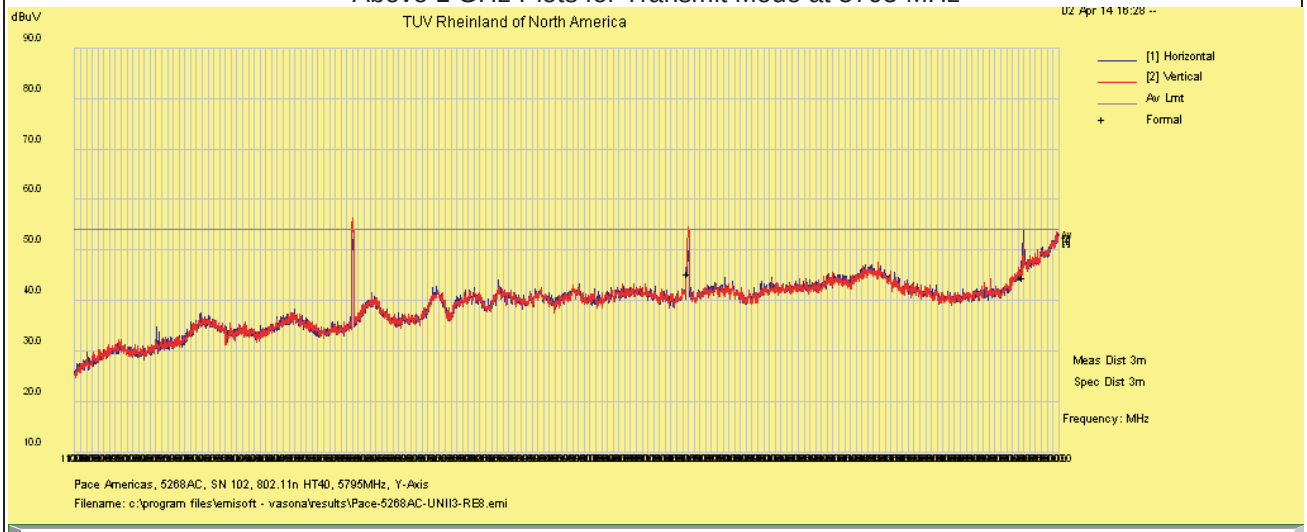


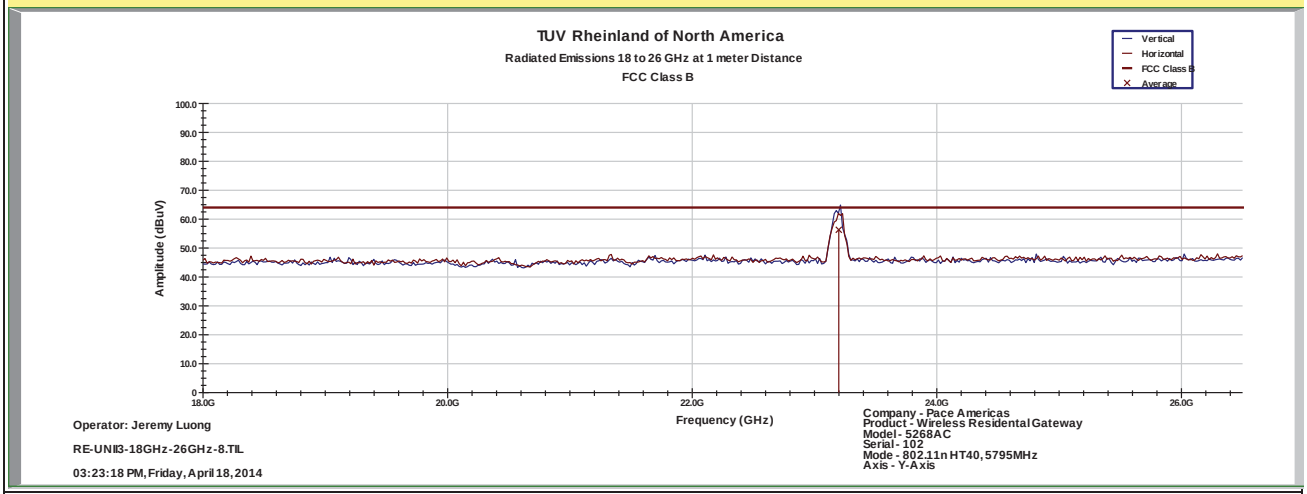
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT40 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5795 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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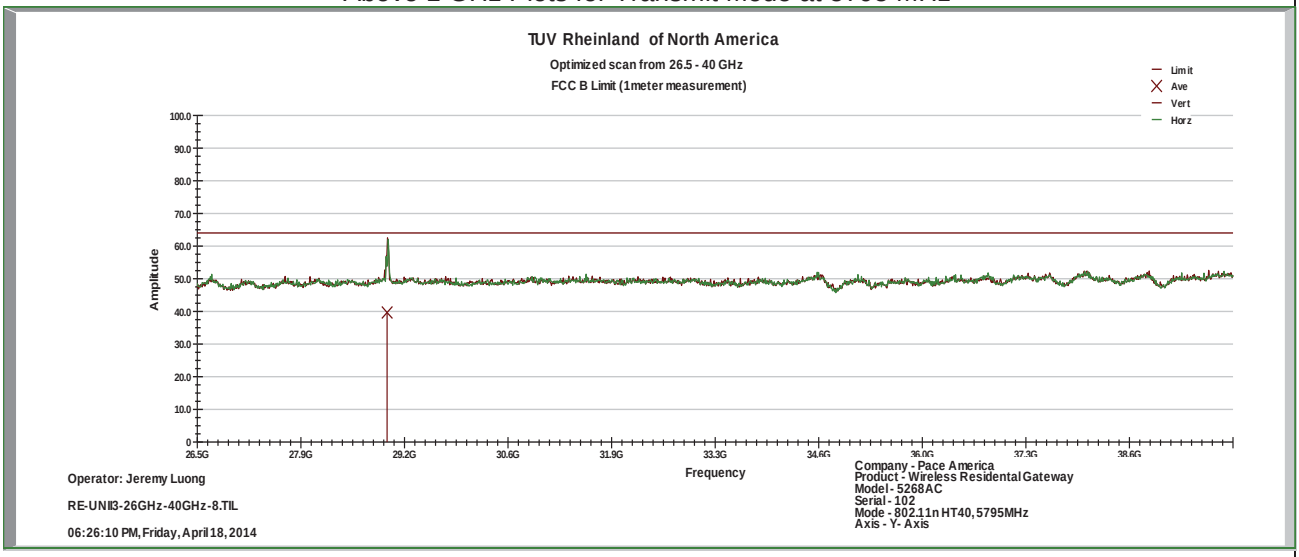
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11n HT40 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5795 MHz



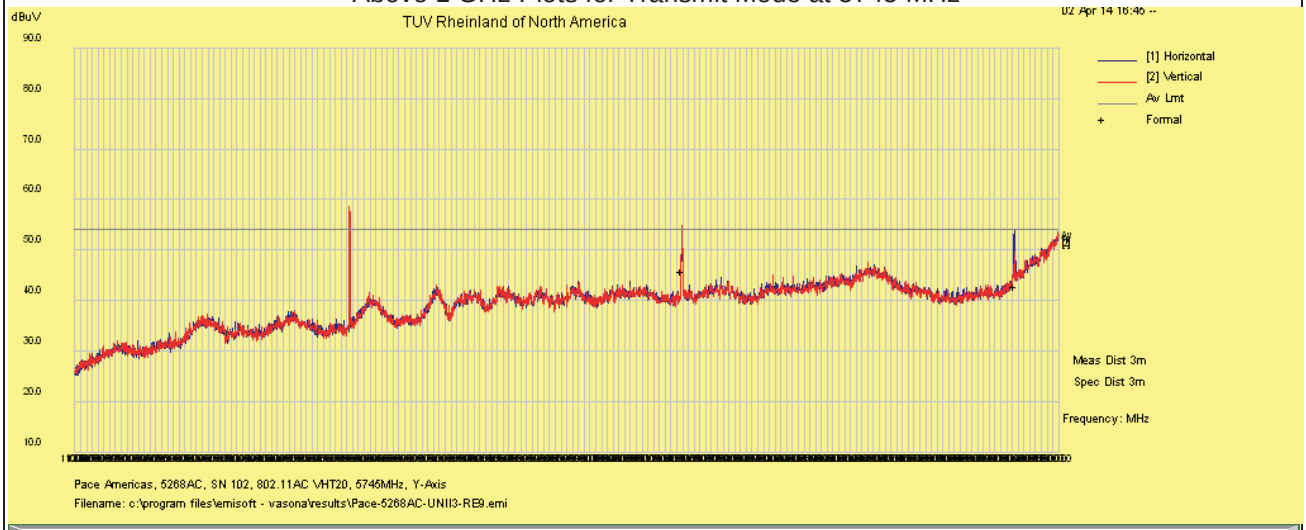
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

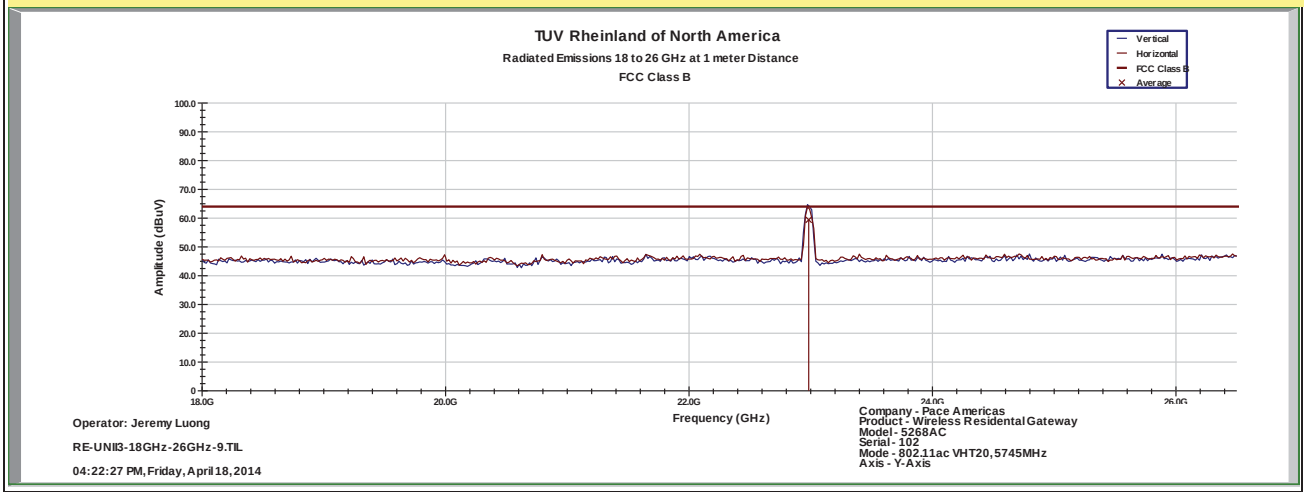
SOP 1 Radiated Emissions

Tracking # 31153119.005 Page 25 of 36

EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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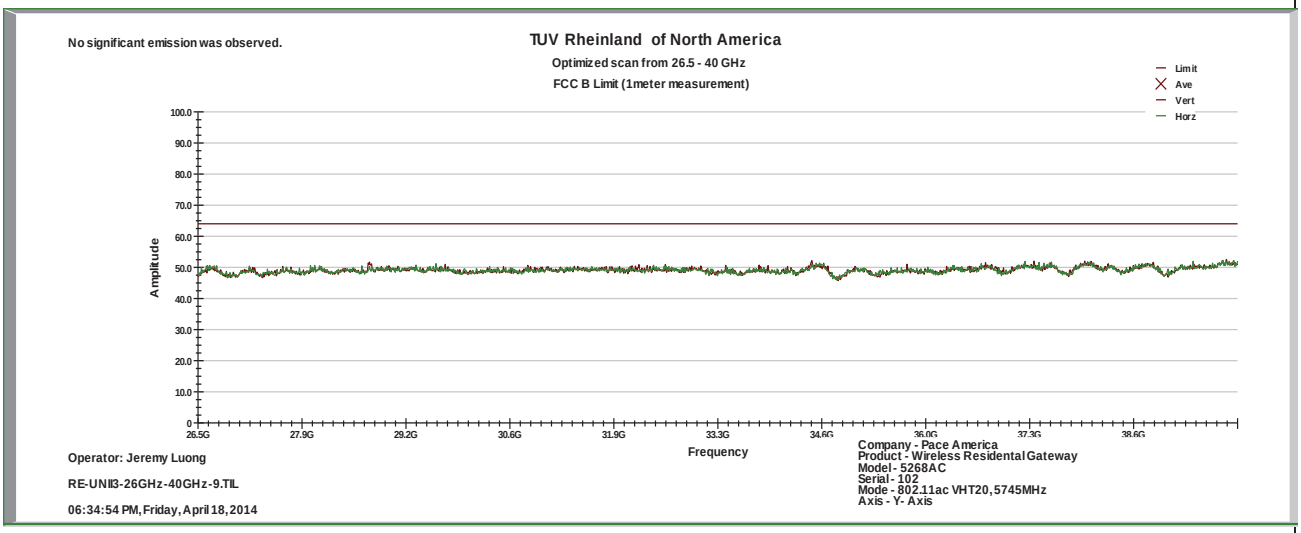
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5745 MHz



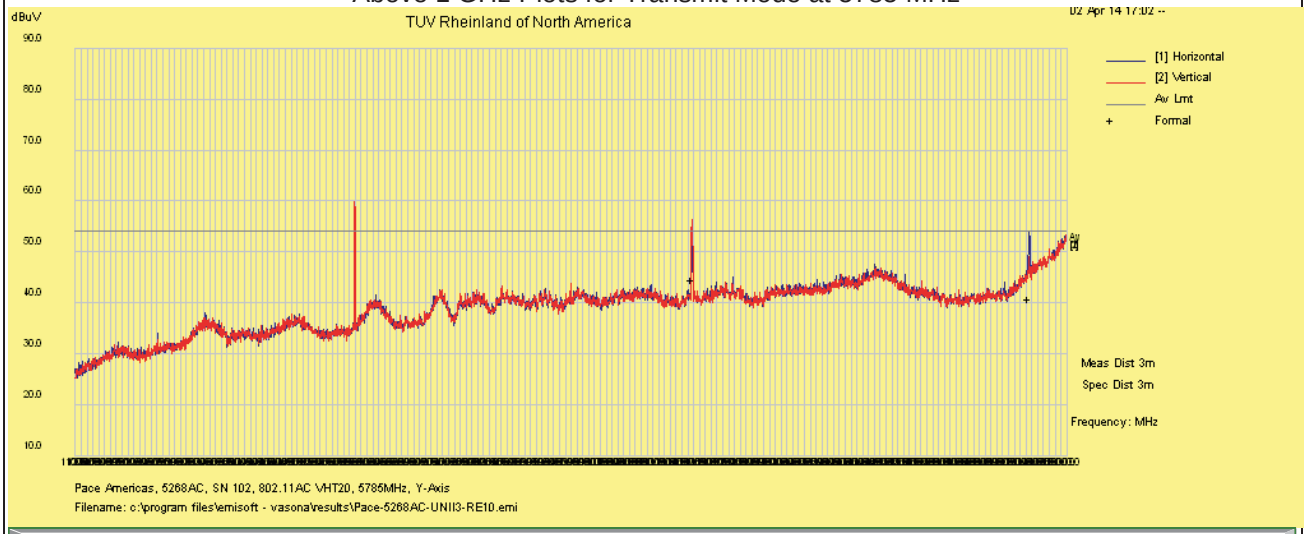
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

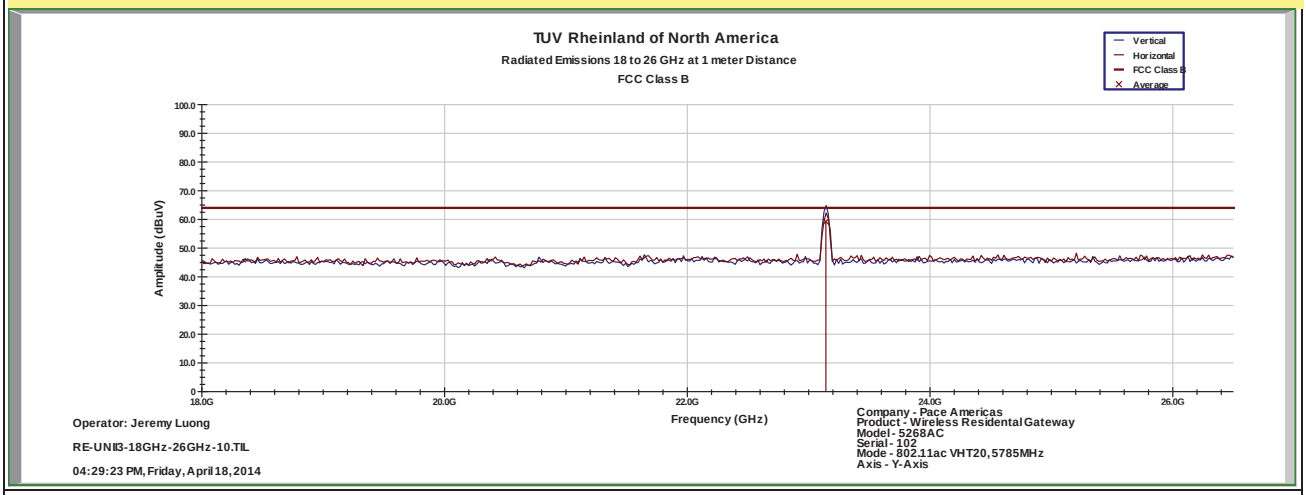
SOP 1 Radiated Emissions

Tracking # 31153119.005 Page 27 of 36

EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz





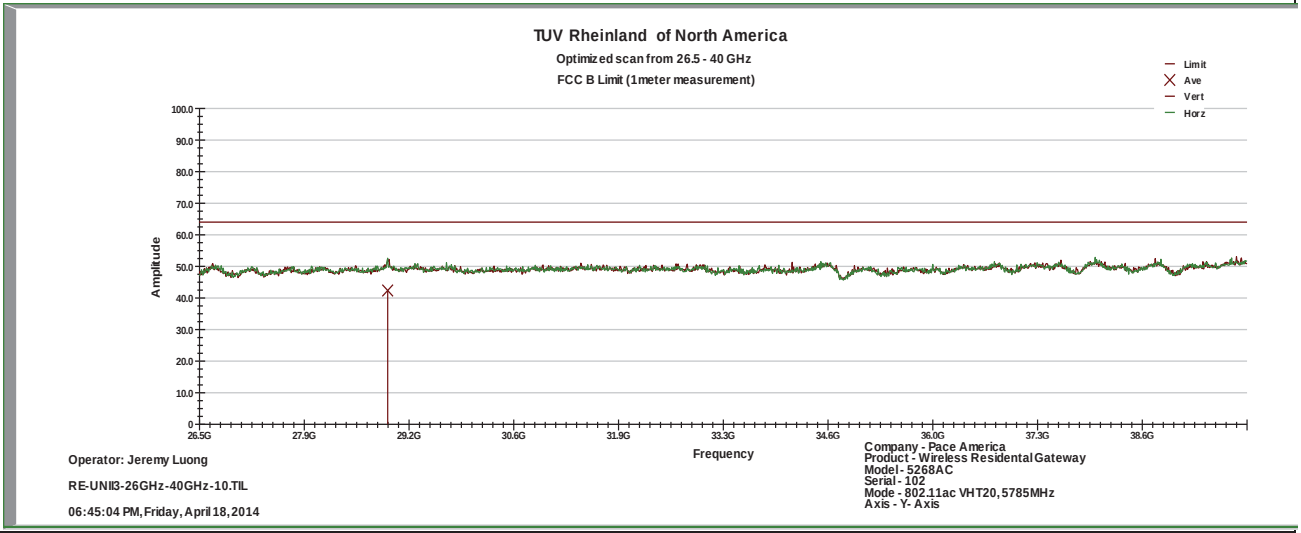
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

Tracking # 31153119.005 Page 28 of 36

EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5785 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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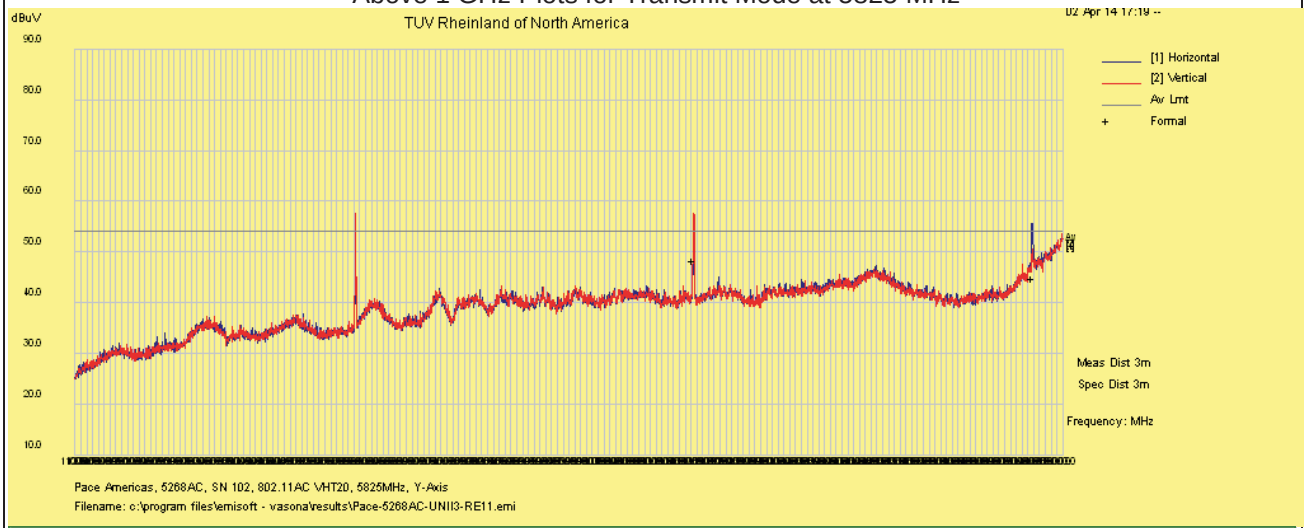
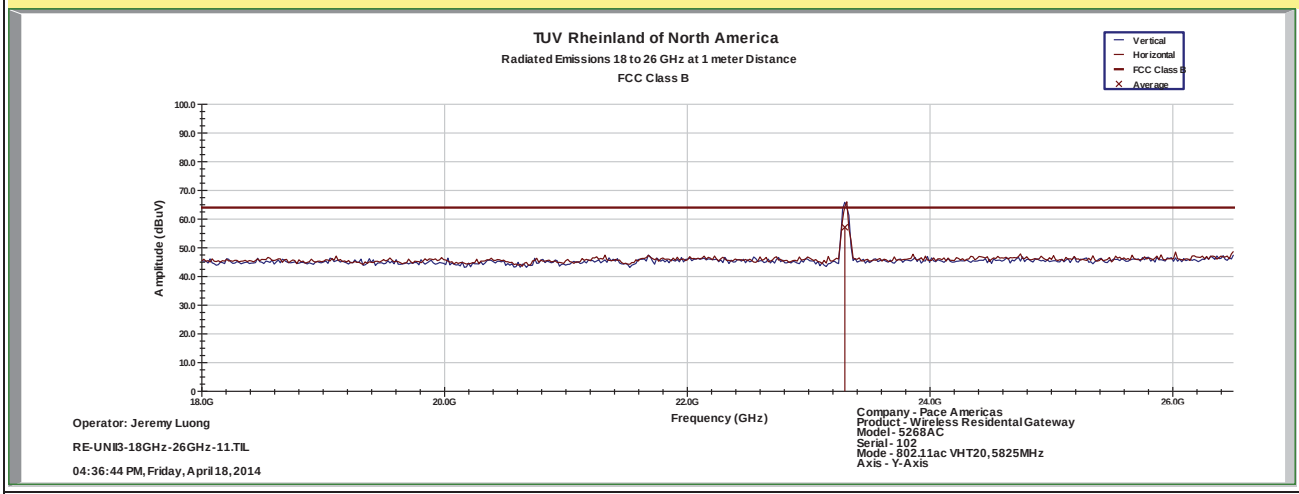
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

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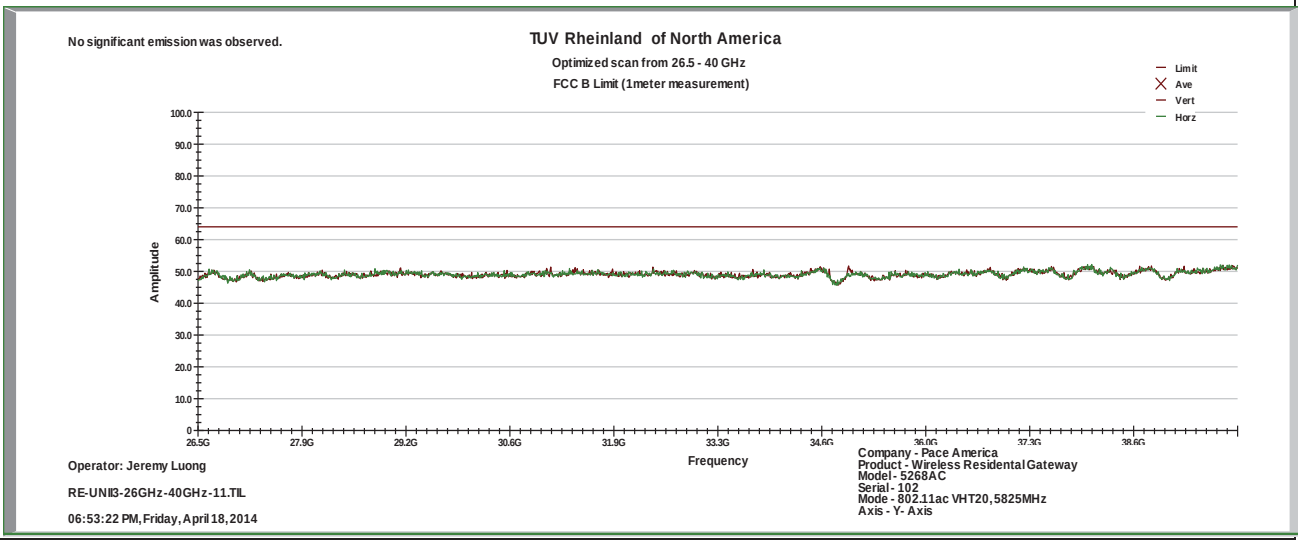
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT20 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5825 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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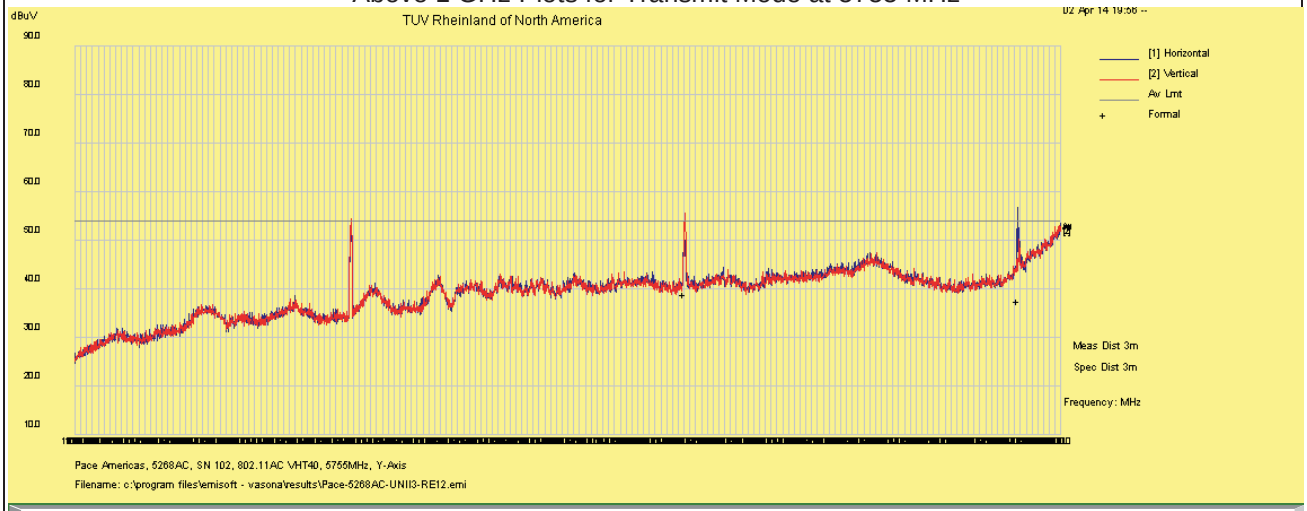
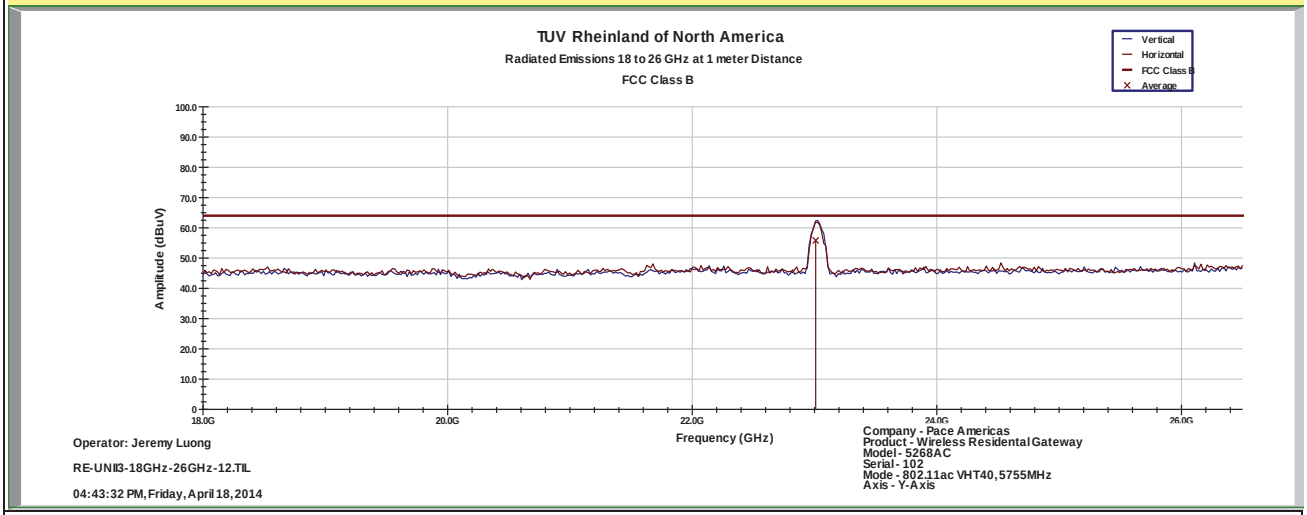
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT40 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5755 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

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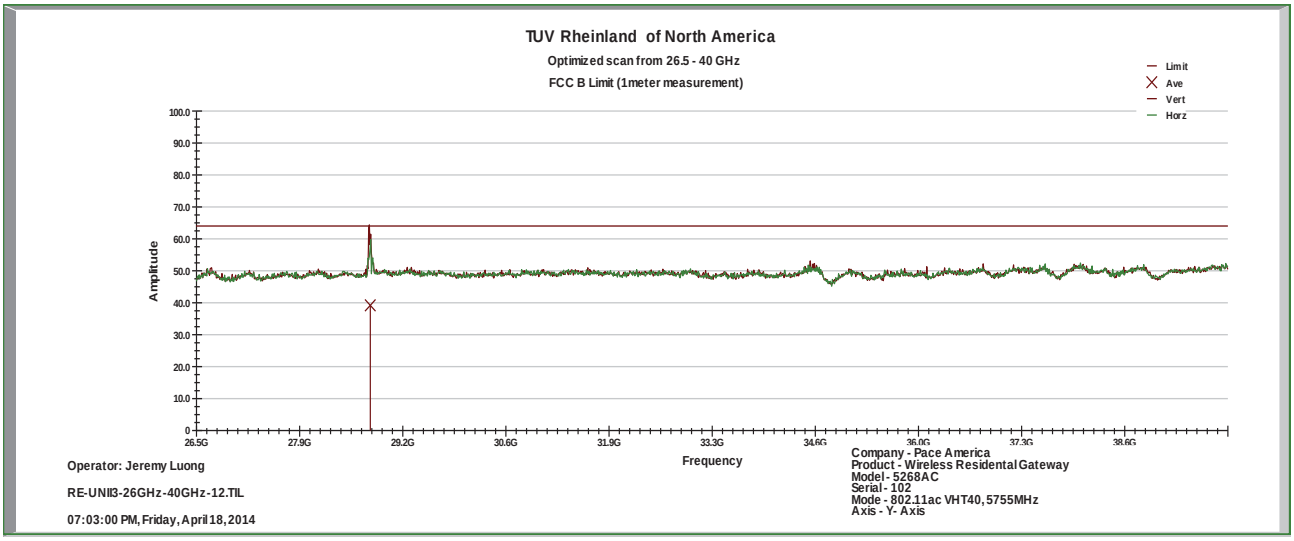
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT40 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5755 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

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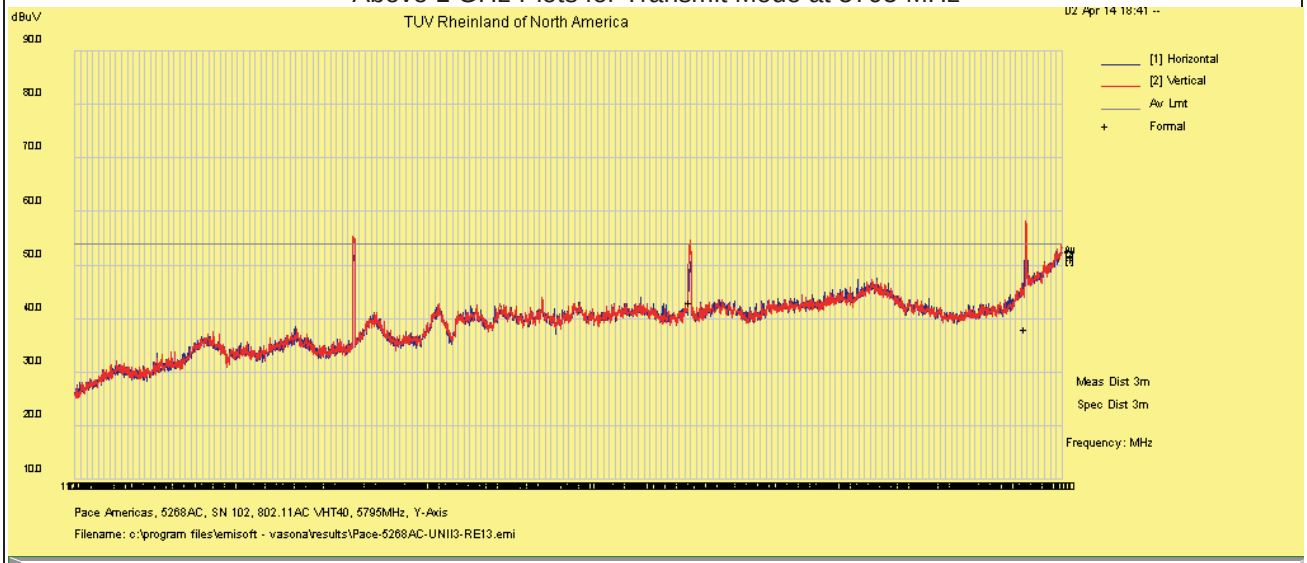
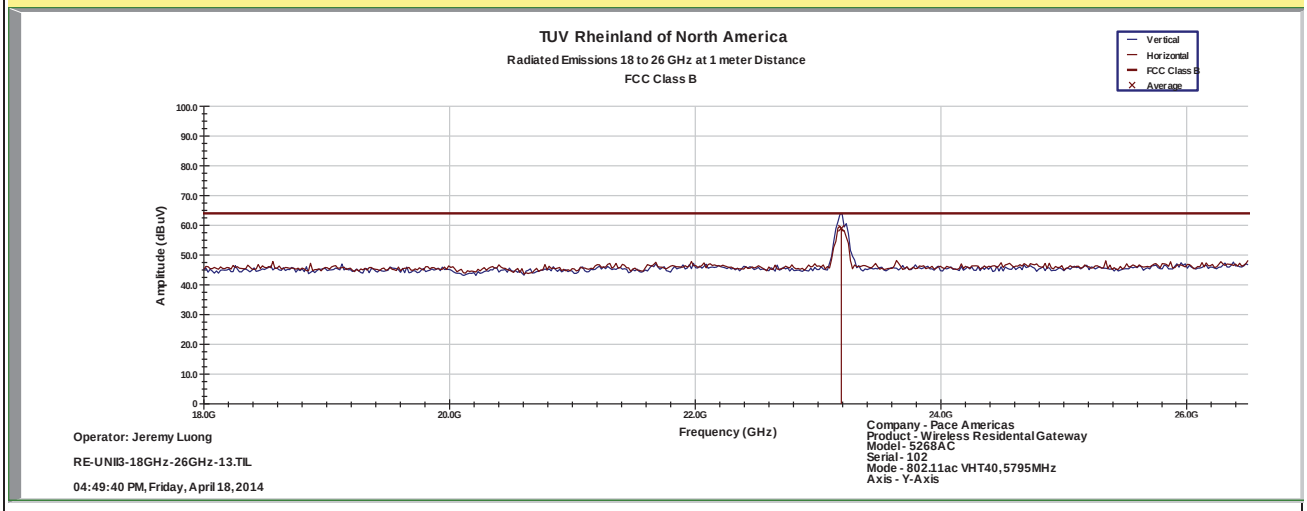
EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT40 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5795 MHz





Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

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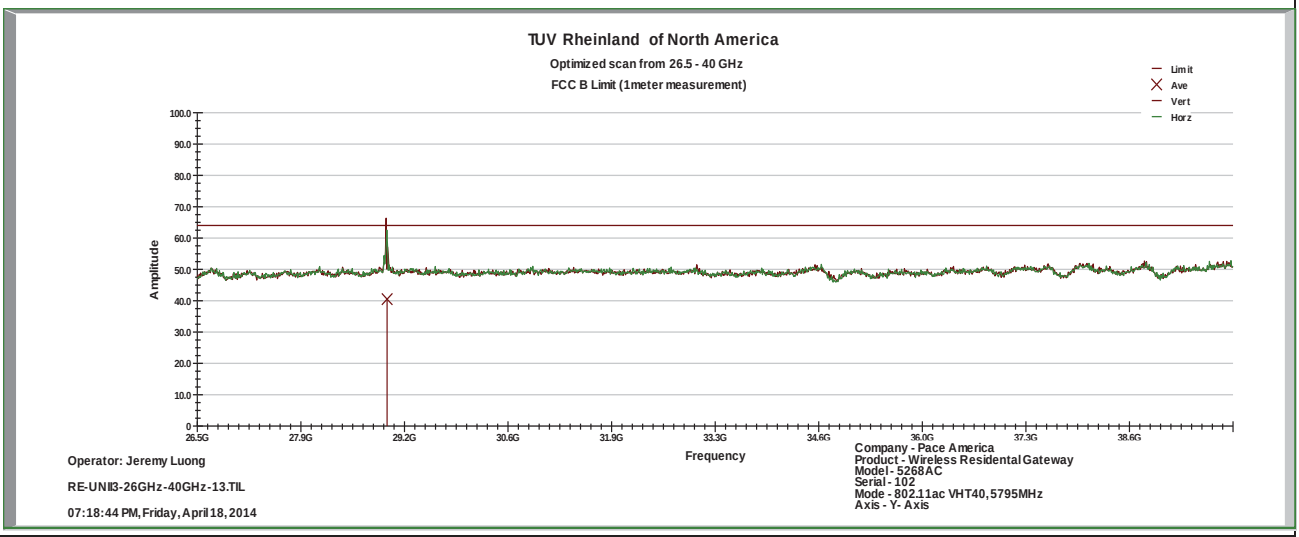
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT40 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5795 MHz

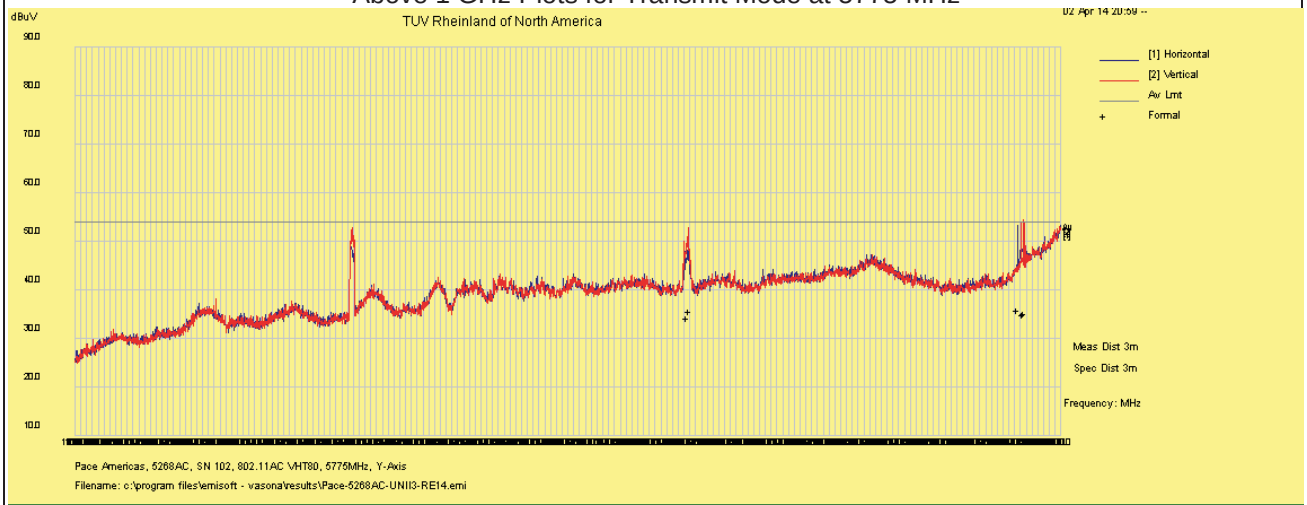


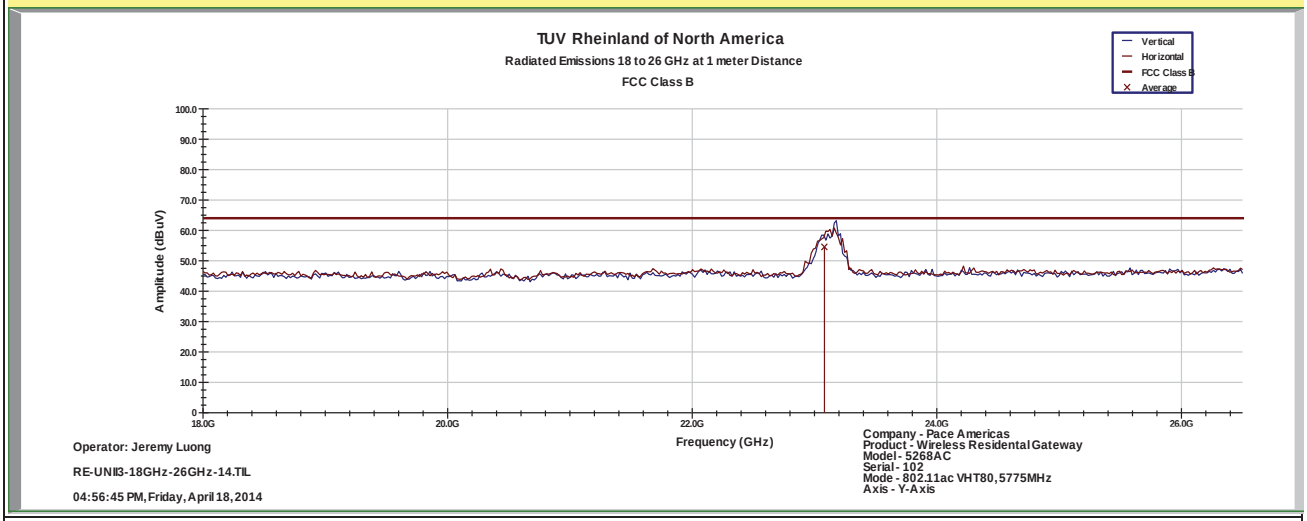
Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions

EUT Name	Wireless Residential Gateway	**Date**	April 2, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 33%rh
EUT Serial	121404000111	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT80 MCS0	**Line AC**	120Vac 60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	3m - EMCO3115 / 1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5775 MHz

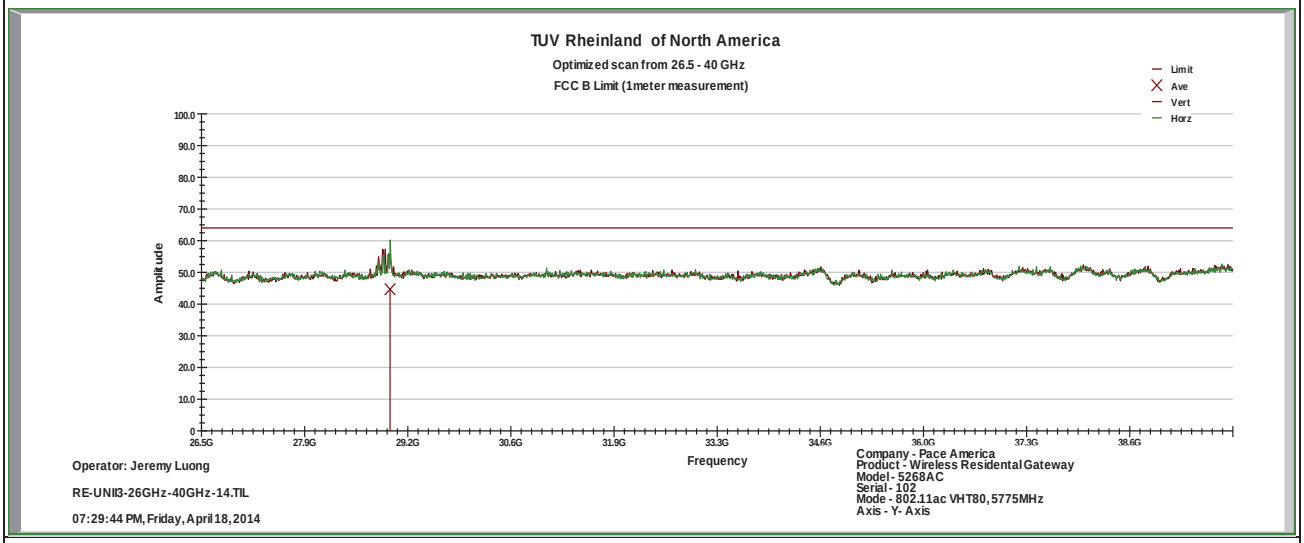




Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

SOP 1 Radiated Emissions		Tracking # 31153119.005 Page 36 of 36	
EUT Name	Wireless Residential Gateway	**Date**	April 18, 2013
EUT Model	5268AC	**Temp / Hum in**	23°C / 30%rh
EUT Serial	102	**Temp / Hum out**	N/A
EUT Config.	Y-Axis, 802.11ac VHT80 MCS0	**Line AC / Freq**	120Vac/60Hz
Standard	CFR47 Part 15 Subpart C	**RBW / VBW**	1 MHz / 3MHz
Dist/Ant Used	1m - RA42-K-F-4B-C	**Performed by**	Jeremy Luong

Above 1 GHz Plots for Transmit Mode at 5775 MHz



Notes: Limit was extrapolated to 1m distance for 18 GHz – 40 GHz range.

4.5.4 Sample Calculation

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength Level (dBμV/m) = Raw - AMP + CBL + ACF

Where: Raw = Field Intensity Meter (dBμV)
AMP = Amplifier Gain (dB)
CBL = Cable Loss (dB)
ACF = Antenna Correction Factor (dB/m)

$$\mu V/m = 10^{\frac{dB\mu V/m}{20}}$$

4.6 AC Conducted Emissions

Testing was performed in accordance with ANSI C63.4: 2009. These test methods are listed under the laboratory's A2LA Scope of Accreditation.

This test measures the levels emanating from the EUT's AC input port, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

The AC conducted emissions of equipment under test shall not exceed the values in CFR47 Part 15.207: 2016.

4.6.1 Test Methodology

A test program that controls instrumentation and data logging was used to automate the AC Power Line Conducted emission test procedure. The frequency range of interest was divided into sub-ranges such as to yield a frequency resolution of 9 kHz. Each phase and neutral of the AC power line were measured with respect to ground. Measurements were performed using a set of 50μH / 50Ω LISNs.

Testing is either performed in Lab 2. The setup photographs clearly identify which site was used. The vertical ground plane used in the semi-anechoic chamber is a 2m x 2m solid aluminum frame and panel, and it is bonded to the horizontal ground plane.

In the case of tabletop equipment, the EUT is placed on a 1.0m x 1.5m non-conductive table 80cm above the ground plane and 40cm from a vertical ground reference plane. The rear of the EUT was positioned flush with the backside of the table and directly over the LISNs. The power and I/O cables were routed over the edge of the table and bundled approximately 40cm from the ground plane. Support equipment was powered from a separate LISN.

4.6.1.1 Deviations

There were no deviations from this test methodology.

4.6.2 Test Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

Table 8: AC Conducted Emissions – Test Results

Test Conditions: Conducted Measurement	**Test Date:** April 10, 2014
Antenna Type: Attached	**Power Level:** See Test Plan
AC Power: 120 Vac/60 Hz	**Configuration:** Tabletop
Ambient Temperature: 23° C	**Relative Humidity:** 34% RH

Configuration	Frequency Range	Test Result
Line 1 (Hot)	0.15 to 30 MHz	Pass
Line 2 (Neutral)	0.15 to 30 MHz	Pass

SOP 2 Conducted Emissions

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EUT Name	Wireless Residential Gateway	**Date**	April 20, 2013
EUT Model	5268AC	**Temp / Hum in**	23° C / 34% rh
EUT Serial	09130M000104	**Temp / Hum out**	N/A
EUT Config.	Attached Antenna	**Line AC / Freq**	120 Vac/60 Hz
Standard	CFR47 Part 15.207	**RBW / VBW**	9 kHz / 30 kHz
Lab/LISN	Lab #2 /Com-Power, Line 1	**Performed by**	Jeremy Luong

Frequency	Raw	Limiter	Ins. Loss	Level	Detector	Line	Limit	Margin	Result
MHz	dBuV	dB	dB	dBuV		Line	dBuV	dB	
0.166	38.21	10.14	-0.67	47.68	QP	Live	65.15	-17.47	Pass
0.166	24.12	10.14	-0.67	33.59	Ave	Live	55.15	-21.56	Pass
0.505	27.25	10.18	-0.31	37.12	QP	Live	56.00	-18.88	Pass
0.505	18.12	10.18	-0.31	27.99	Ave	Live	46.00	-18.01	Pass
0.726	24.14	10.20	-0.24	34.10	QP	Live	56.00	-21.90	Pass
0.726	12.75	10.20	-0.24	22.71	Ave	Live	46.00	-23.29	Pass
0.954	24.16	10.23	-0.22	34.17	QP	Live	56.00	-21.83	Pass
0.954	10.37	10.23	-0.22	20.38	Ave	Live	46.00	-25.62	Pass
1.133	22.49	10.24	-0.20	32.53	QP	Live	56.00	-23.47	Pass
1.133	11.63	10.24	-0.20	21.67	Ave	Live	46.00	-24.33	Pass
3.620	19.27	10.39	-0.15	29.52	QP	Live	56.00	-26.48	Pass
3.620	7.06	10.39	-0.15	17.31	Ave	Live	46.00	-28.69	Pass
4.557	24.33	10.43	-0.14	34.62	QP	Live	56.00	-21.38	Pass
4.557	15.59	10.43	-0.14	25.88	Ave	Live	46.00	-20.12	Pass

Spec Margin = QP./Ave. - Limit, ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 2.18 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: EUT was setup as table top equipment and transmitted at 5785 MHz in HT20 at 6.5 Mbps

SOP 2 Conducted Emissions

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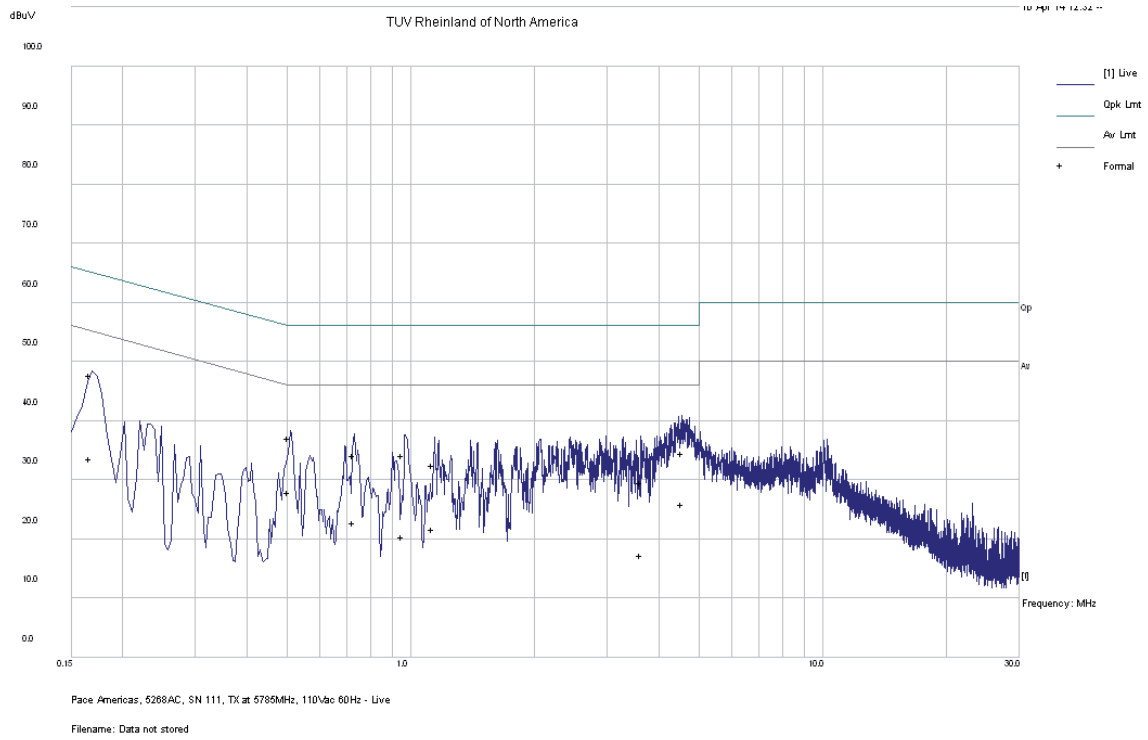
EUT Name	Wireless Residential Gateway	**Date**	April 20, 2013
EUT Model	5268AC	**Temp / Hum in**	23° C / 34% rh
EUT Serial	09130M000104	**Temp / Hum out**	N/A
EUT Config.	Attached Antenna	**Line AC**	120 Vac/60 Hz
Standard	CFR47 Part 15.207	**RBW / VBW**	9 kHz / 30 kHz
Lab/LISN	Lab #2 /Com-Power, Line 1	**Performed by**	Jeremy Luong

150 kHz to 30 MHz Plot for Line 1 (Hot)



Notes: Meet FCC Class B limit.

SOP 2 Conducted Emissions

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EUT Name	Wireless Residential Gateway	**Date**	April 20, 2013
EUT Model	5268AC	**Temp / Hum in**	23° C / 34% rh
EUT Serial	09130M000104	**Temp / Hum out**	N/A
EUT Config.	Attached Antenna	**Line AC / Freq**	120 Vac/60 Hz
Standard	CFR47 Part 15.207	**RBW / VBW**	9 kHz / 30 kHz
Lab/LISN	Lab #2 /Com-Power, Line 2	**Performed by**	Jeremy Luong

Frequency	Raw	Limiter	Ins. Loss	Level	Detector	Line	Limit	Margin	Result
MHz	dBuV	dB	dB	dBuV		Line	dBuV	dB	
0.169	37.65	10.14	-0.66	47.12	QP	Neutral	65.03	-17.91	Pass
0.169	24.33	10.14	-0.66	33.80	Ave	Neutral	55.03	-21.23	Pass
0.737	25.81	10.20	-0.24	35.77	QP	Neutral	56.00	-20.23	Pass
0.737	16.23	10.20	-0.24	26.19	Ave	Neutral	46.00	-19.81	Pass
0.950	23.66	10.23	-0.22	33.67	QP	Neutral	56.00	-22.33	Pass
0.950	9.80	10.23	-0.22	19.81	Ave	Neutral	46.00	-26.19	Pass
1.201	24.13	10.25	-0.20	34.18	QP	Neutral	56.00	-21.82	Pass
1.201	13.35	10.25	-0.20	23.40	Ave	Neutral	46.00	-22.60	Pass
1.801	23.46	10.29	-0.17	33.58	QP	Neutral	56.00	-22.42	Pass
1.801	13.90	10.29	-0.17	24.02	Ave	Neutral	46.00	-21.98	Pass
4.063	25.14	10.41	-0.14	35.41	QP	Neutral	56.00	-20.59	Pass
4.063	11.69	10.41	-0.14	21.96	Ave	Neutral	46.00	-24.04	Pass
4.447	27.97	10.42	-0.14	38.25	QP	Neutral	56.00	-17.75	Pass
4.447	17.25	10.42	-0.14	27.53	Ave	Neutral	46.00	-18.47	Pass

Spec Margin = QP./Ave. - Limit, ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 2.18 dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: EUT was setup as table top equipment and transmitted at 5785 MHz in HT20 at 6.5 Mbps

SOP 2 Conducted Emissions

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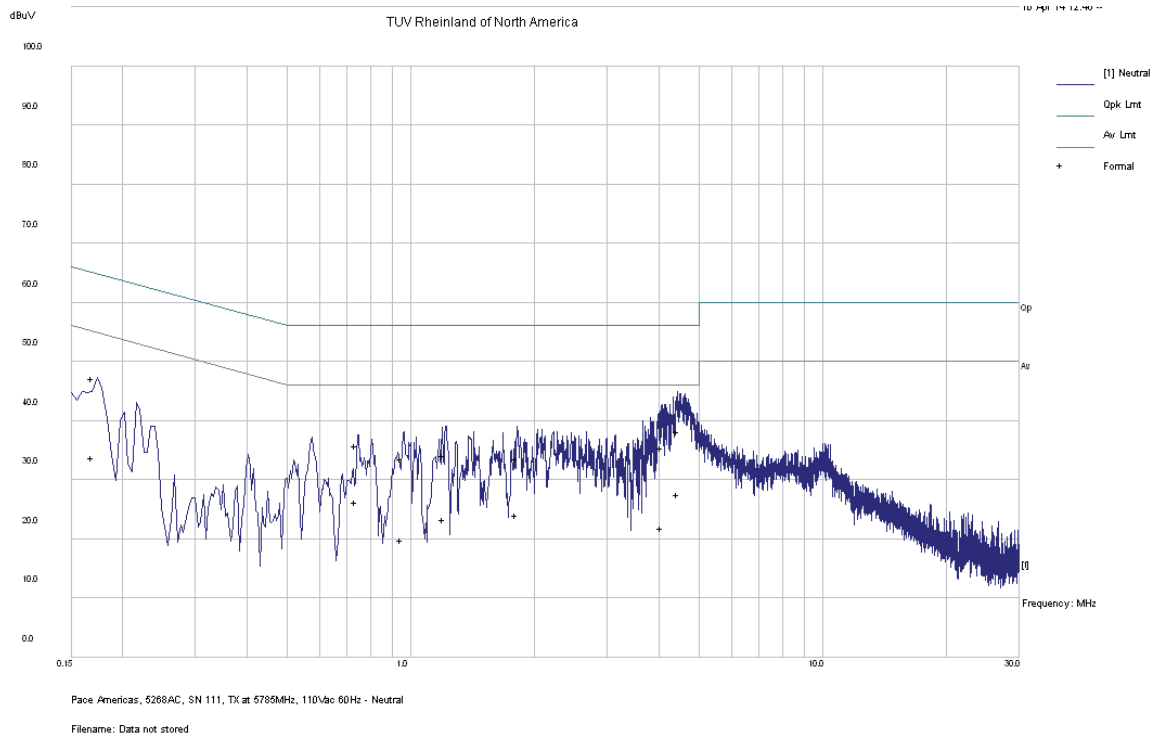
EUT Name	Wireless Residential Gateway	**Date**	April 20, 2013
EUT Model	5268AC	**Temp / Hum in**	23° C / 34% rh
EUT Serial	09130M000104	**Temp / Hum out**	N/A
EUT Config.	Attached Antenna	**Line AC**	120 Vac/60 Hz
Standard	CFR47 Part 15.207	**RBW / VBW**	9 kHz / 30 kHz
Lab/LISN	Lab #2 /Com-Power, Line 2	**Performed by**	Jeremy Luong

150 kHz to 30 MHz Plot for Line 2 (Neutral)



Note: Meet FCC Class B Limit.

4.7 Frequency Stability

In accordance with 47 CFR Part 15.407(g) the frequency stability of U-NII devices must be 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 Manufacturer calls out operating temperature ranges of +0º to +40º C

4.7.1 Test Methodology

The manufacturer of the equipment is responsible for ensuring that the frequency stability is such that emissions are always maintained within the band of operation under all conditions. This test performs according to ANSI C63.10-2009 Section 6.8

4.7.2 Manufacturer Declaration

The frequency stability of the reference oscillator sets the frequency stability of the RF transceiver signals. Therefore all of the RF signal should have ±20ppm stability.

This stability accounts for room temp tolerance of the crystal oscillator circuit, frequency variation across temperature, and crystal ageing.

Worst case:
5.500 GHz - ±20ppm/104 kHz

±20ppm at 5 GHz translates to a maximum frequency shift of ±103 kHz. As the edge of the channels are at least one MHz from either of the band edges, ±103 kHz is more than sufficient to guarantee that the intentional emission will remain in the band over the entire operating range of the radio.

4.7.3 Limit

CFR47 Part 15.407(g) - 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.

4.7.4 Test results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s) since the maximum frequency drift was 8.977 ppm.

Table 9: Frequency Stability – Test Results

Temperature	Time	PPM
0° C	Start	8.977
	2 Min.	7.500
	5 Min	7.045
	10 min	8.409
10° C	Start	7.500
	2 Min.	4.318
	5 Min	3.750
	10 min	3.636
20° C	Start	5.341
	2 Min.	2.273
	5 Min	1.477
	10 min	1.591
30° C	Start	2.159
	2 Min.	0.341
	5 Min	0.114
	10 min	0.114
40° C	Start	0.455
	2 Min.	0.000
	5 Min	0.000
	10 min	0.114

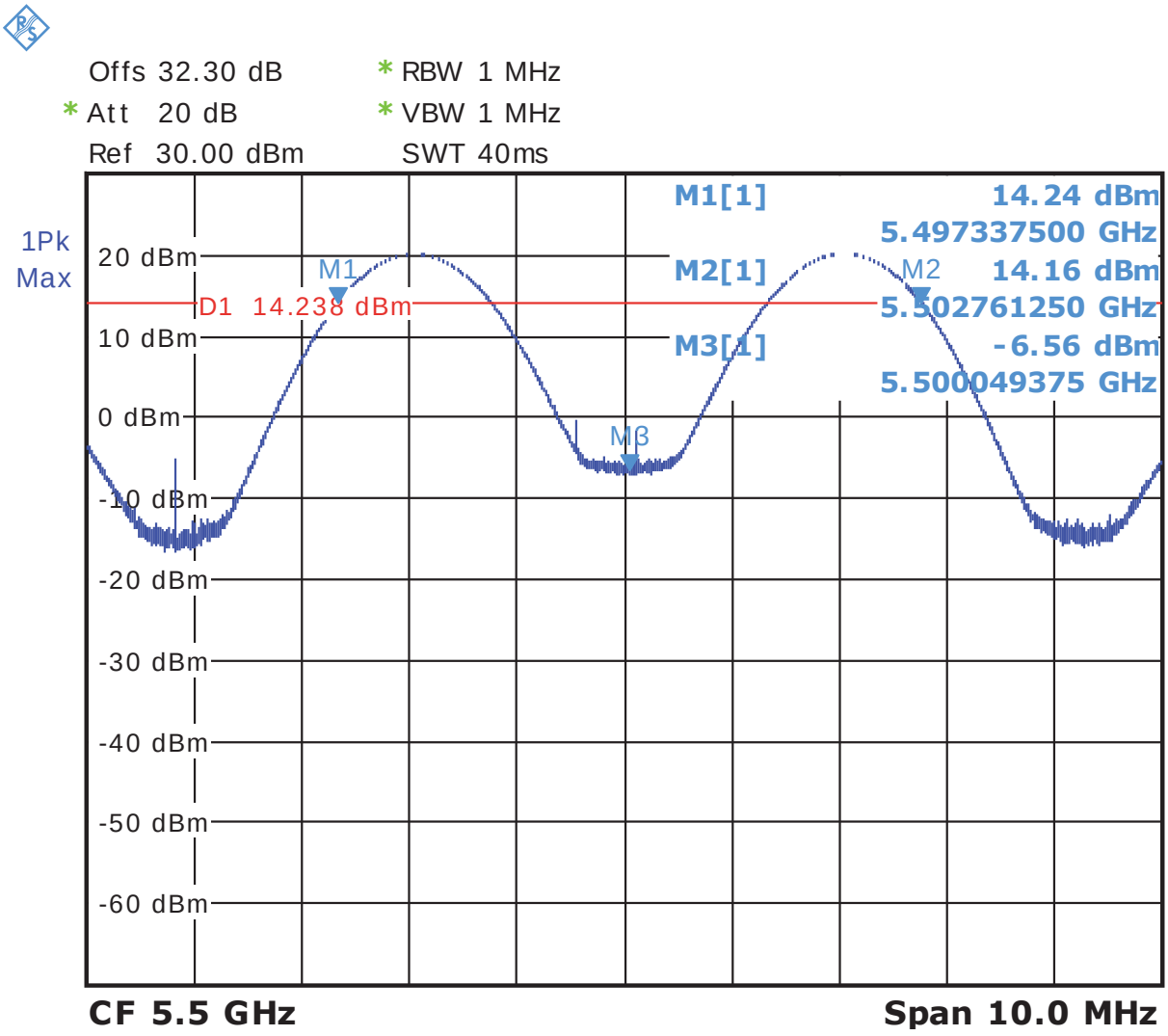


Figure 337: Frequency Stability – Worst Case

4.8 Voltage Variation

In accordance with 47 CFR Part 15.31 (e) intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.8.1 Test Methodology

The ac supply voltage was varied between 85% and 115% of the nominal rated supply voltage. The fundamental frequency was observed during the variation. The access point was powered 110V/60Hz by programmable power supply. The voltage was varied from 102Vac to 138Vac mean while the fundamental frequencies were observed and record for the maximum drift in ppm; part per millions.

4.8.2 Test results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s). The fundamental frequencies drifted less than ±20ppm.

Table 10: Voltage Variation – Test Results

Frequency MHz	**Nominal** (120Vac) ppm	**Lo Voltage** (102Vac) ppm	**Hi Voltage** (138Vac) ppm	**Max Drift** ppm
5500	0.568	0.227	0.341	0.568

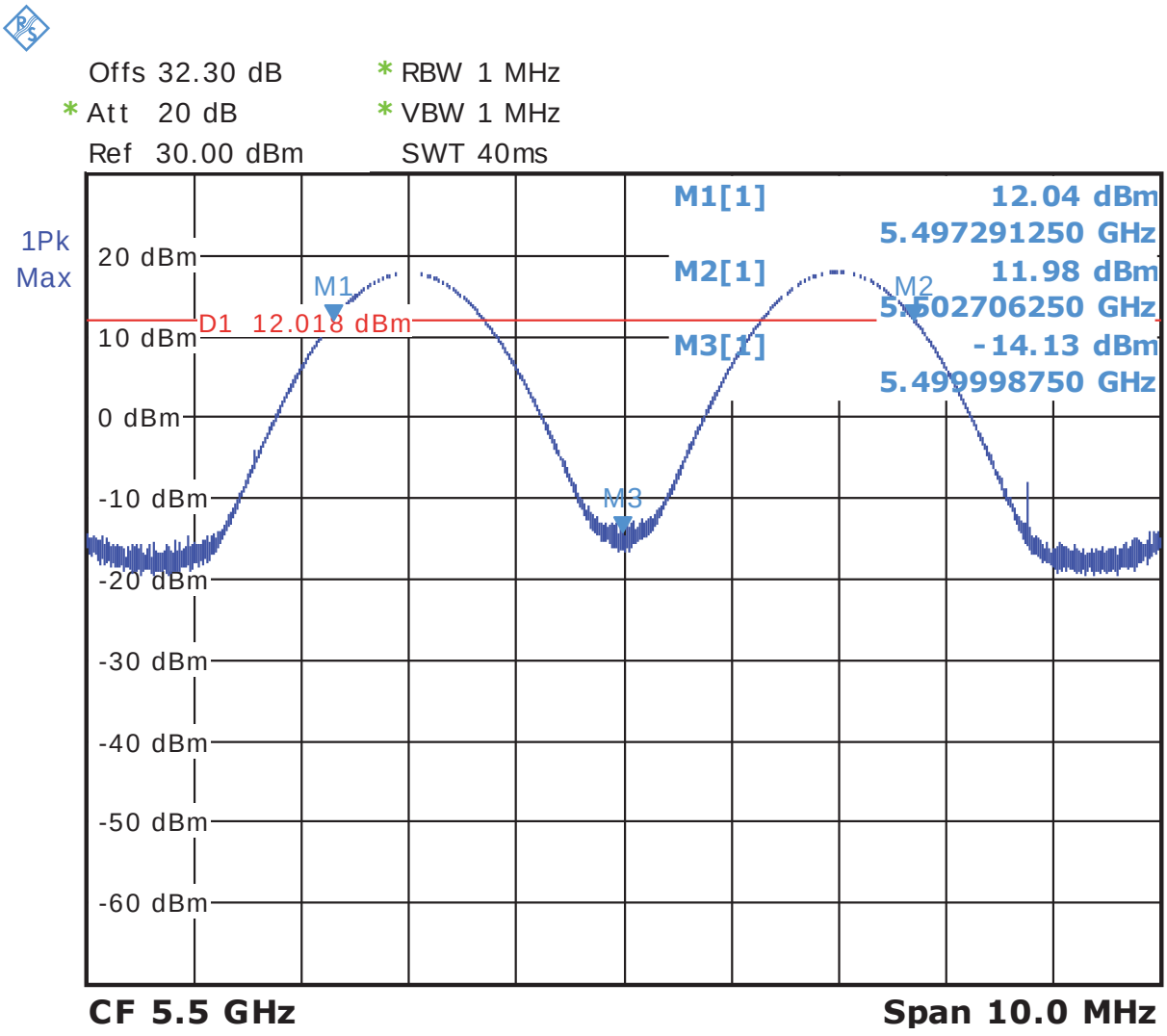


Figure 338: Voltage Variation – Worst Case

4.9 Maximum Permissible Exposure

4.9.1 Test Methodology

In this document, we try to prove the safety of radiation harmfulness to the human body for our product. The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The Gain of the antenna used in this calculation is declared by the manufacturer, and the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis transmission formula is a far field assumption, the calculated result of that is an over-prediction for near field power density. We will take that as the worst case to specify the safety range.

4.9.2 RF Exposure Limit

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
0.3 - 3.0	614	1.63	*(100)	6
3.0 - 30	1842/f	4.89/f	*($900/f^2$)	6
30 - 300	…	…	1.0	6
300 - 1500	…	…	f/300	6
1500 - 100,000	…	…	5	6
(B)Limits For General Population / Uncontrolled Exposure				
0.3 - 1.34	614	1.63	*(100)	30
1.34 - 30	824/f	2.19/f	*($180/f^2$)	30
30 - 300	27.5	0.037	0.2	30
300 - 1500	…	…	f/1500	30
1500 - 100,000	…	…	1.0	30

F = Frequency in MHz

* = Plane-wave equivalent power density

4.9.3 EUT Operating Condition

The software provided by Manufacturer enabled the EUT to transmit data at lowest, middle and highest channel individually.

4.9.4 Classification

The antenna of the product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance with the antenna should be included in user's manual. So, this device is classified as a **Mobile Device**.

4.9.5 Test Results

4.9.5.1 Antenna Gain

The transmitting antenna was integrated. The directional antenna gain was +8.08 dBi or 6.43 (numeric).

4.9.5.2 Output Power into Antenna & RF Exposure value at distance 20cm:

Calculations for this report are based on highest power measurement.

Limit for MPE (from FCC part 1.1310 table1) is 1.0 mW/cm^2

The highest measured total power is +28.06 dBm or 639.735mW

Using the Friss transmission formula, the EIRP is Pout*G, and R is 20cm.

Pd = (582.103 * 6.43) / (1600π) = 0.8188 mW/cm2, which is 0.1812 mW/cm2 below to the limit.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

4.9.6 Sample Calculation

The Friss transmission formula: $Pd = (Pout*G) / (4*\pi*R^2)$

Where;

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

$\pi \approx 3.1416$

R = distance between observation point and center of the radiator in cm

Ref. : David K. Cheng, *Field and Wave Electromagnetics*, Second Edition, Page 640, Eq. (11-133).

5 Test Equipment List

5.1 Equipment List

Equipment	Manufacturer	Model #	Serial/Inst #	Last Cal mm/dd/yy	Next Cal mm/dd/yy
Bilog Antenna	Sunol Sciences	JB3	A102606	05/15/2012	05/15/2014
Horn Antenna	Sunol Sciences	DRH-118	A040806	11/05/2012	11/05/2014
Antenna (18-26GHz)	CMT	RA42-K-F-4B-C	020131-004	06/19/2013	06/19/2014
Antenna (26-40 GHz)	CMT	RA28-K-F-4B-C	011469R-003	12/01/2013	12/01/2014
EMI Receiver	Hewlett Packard	8546A	3325A00168	11/14/2013	11/14/2014
Preselector	Hewlett Packard	85460A	3330A00174	11/14/2013	11/14/2014
Amplifier	Hewlett Packard	8447D	2944A07996	01/07/2014	02/07/2015
Spectrum Analyzer	Rohde & Schwarz	ESIB	832427/002	01/08/2014	02/08/2015
Amplifier	Miteq	TTA1800-30-4G	1842452	01/08/2014	02/08/2015
Amplifier	Rohde & Schwarz	TS-PR26	100011	06/19/2013	06/19/2014
Amplifier	Rohde & Schwarz	TS-PR40	100012	12/01/2013	12/01/2014
Signal Generator	Anritsu	MG3694A	42803	01/07/2013	02/07/2015
Notch Filter	Micro-Tronics	BRM50702	9	01/16/2014	02/16/2016
Notch Filter	Micro-Tronics	BRC50703	1	01/16/2014	02/16/2016
Notch Filter	Micro-Tronics	BRC50704	8	01/16/2013	01/16/2015
Notch Filter	Micro-Tronics	BRC50705	9	01/16/2013	01/16/2015
High Pass Filter (3.5 GHz)	Hewlett Packard	84300-80038	820004	01/16/2013	01/16/2015
High Pass Filter (8.5 GHz)	Micro-Tronics	HPM50107	4	01/16/2013	01/16/2015
Power Supplier	California Instruments	1001P-232	L06329	VBU	VBU
Digital Multimeter	Fluke	83 III	84590116	01/07/2014	02/07/2015
Power Meter	Agilent	E4418B	MY45103902	01/09/2014	02/09/2015
Power Sensor	Hewlett Packard	8482A	55-5131	01/09/2014	02/09/2015
LISN	Com-Power	LI-215	12111	01/07/2014	02/07/2015
Transient Limiter	Com-Power	LIT-930	531582	01/08/2014	02/08/2015
Thermometer	Fluke	52II	96480032	08/07/2013	08/07/2014
Thermo Chamber	Espec	BTZ-133	0613436	03/17/2014	03/17/2015
Spectrum Analyzer	Rohde & Schwarz	FSL6	100169	01/08/2014	02/08/2015
Spectrum Analyzer	Agilent	N9038A	MY52260210	01/08/2014	02/08/2015
Spectrum Analyzer	Agilent	E4446A	MY46180348	03/24/2014	03/24/2016
Vector Signal Generator	Rohde & Schwarz	SMU 200A	1141.2005.02	06/13/2013	06/13/2015
Amplifier	Hewlett Packard	8449B	30008A01014	01/06/2014	02/06/2015

* Calibration of equipment past due for re-calibration will be performed expeditiously. If any equipment is found to be out of tolerance at that time, affected customers will be notified accordingly.

6 EMC Test Plan

6.1 Introduction

This section provides a description of the Equipment Under Test (EUT), configurations, operating conditions, and performance acceptance criteria. It is an overview of information provided by the manufacturer so that the test laboratory may perform the requested testing.

6.2 Customer

Table 11: Customer Information

Company Name	Pace Americas
Address	310 Providence Mine Road, Ste. 200
City, State, Zip	Nevada City, CA 95959
Country	U.S.A.
Phone	(530) 274-5440
Fax	(530) 273-6340

Table 12: Technical Contact Information

Name	Mark Rieger
E-mail	Mark.Rieger@arris.com
Phone	(530) 274-5440
Fax	(530) 273-6340

6.3 Equipment Under Test (EUT)

Table 13: EUT Specifications

EUT Specifications	
Dimensions	239mm (9.41") x 177mm (6.97") x 67mm (2.64")
AC Adapter (M/N:EADP-36FB A)	Input Voltage: 120 Vac 50-60 Hz Input Current: 680 mA Output Voltage: 12 Vdc Output Current: 1.5 A
Environment	Indoor and Outdoor
Operating Temperature Range:	0 to 40 degrees C
Multiple Feeds:	☐ Yes and how many ☒ No
Hardware Version	4.0.8
Part Number	186-2173101
RF Software Version	Busy Box V1.10.3
802.11-radio modules	
Operating Mode	802.11a, b, g, n, and ac
Transmitter Frequency Band	2.412 GHz - 2.462 GHz 5.15 GHz - 5.25 GHz (Indoor Use) 5.25 GHz - 5.35 GHz 5.47 GHz - 5.725 GHz 5.725 GHz - 5.85 GHz
Max. Rated Power Output	See Channel Planning Table.
Power Setting @ Operating Channel	See Channel Planning Table.
Antenna Type	4 integrated metal stamped Antenna and 1 integrated PCB antenna (one metal stamped antenna used for both 2.4 GHz and 5 GHz ranges)
Antenna Gain	Ant1 = 1.95 dBi, Ant2 = 2.27dBi, Ant3 = 1.83 dBi, Ant4 = 2.03 dBi, Ant5 = 3.7 dBi, Ant6 = 1.9 dBi.
Modulation Type	☐ AM ☐ FM ☒ DSSS ☒ OFDM ☐ Other describe:

EUT Specifications	
Data Rate	*2.4 GHz Range:* 802.11b: 1, 2, 5.5, 11 Mbps at 1 Spatial Stream 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps at 1 Spatial Stream 802.11n HT20: 1 Spatial Stream: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps 2 Spatial Streams: 13, 26, 39, 58, 78, 104, 117, 130 Mbps 802.11n HT40: 1 Spatial Stream: 13.5, 27, 40.5, 54, 81, 108, 121.5, 135 Mbps 2 Spatial Streams: 27, 54, 81, 108, 162, 216, 243, 270 Mbps *5 GHz Range:* 802.11a: 4 Spatial Streams: 6, 9,12, 18, 24, 36, 48, 54 Mbps 802.11n HT20: 4 Spatial Streams: 26, 52, 78, 104, 156, 208, 234, 260 Mbps 802.11n HT40: 4 Spatial Streams: 54, 108, 162, 216, 324, 432, 486, 540 Mbps 802.11ac VHT20: 4 Spatial Streams: 26, 52, 78, 104, 156, 208, 234, 260, 312 Mbps 802.11ac VHT40: 4 Spatial Streams: 54, 108, 162, 216, 324, 432, 486, 540, 648, 720 Mbps 802.11ac VHT80: 4 Spatial Streams: 117, 234, 351, 468, 702, 936, 1053, 1170, 1404, 1560 Mbps
TX/RX Chain (s)	2x2 at 2.4 GHz Range 4x4 at 5 GHz Ranges.
Directional Gain Type	☒ Correlated ☒ Beam-Forming ☐ Other describe:
Type of Equipment	☒ Table Top ☐ Wall-mount ☐ Floor standing cabinet ☐ Other
Note: 1. All four chains will be on / transmitted at all time. 2.This report only documents the radio characteristics for 5725 – 5850 MHz band	

Table 14: EUT Channel Power Specifications

No.	Frequency (MHz)	Target Power Value for					
		802.11a	HT20	HT40	VHT20	VHT40	VHT80
36	5180	9	9	11	9	11	
40	5200	9	9		9		11
44	5220	9	9	11	9	11	
48	5240	9	9		9		
52	5260						
56	5280						
60	5300						
64	5320						
100	5500						
104	5520						
108	5540						
112	5560						
116	5580						
120	5600						
124	5620						
128	5640						
132	5660						
136	5680						
140	5700						
149	5745	22	22	22	22	22	
153	5765	22	22		22		21
157	5785	22	22	22	22	22	
161	5805	22	22		22		
165	5825	22	22		22		

Note: 1. The center operating frequency is shifted upward by 10 MHz for HT40, VHT40, and VHT80
2. The adjusted power target values are updated at the evaluated frequencies.

Table 15: Interface Specifications

Interface Type	Cabled with what type of cable?	Is the cable shielded?	Maximum potential length of the cable?	Metallic (M), Coax (C), Fiber (F), or Not Applicable?
RJ45	CAT-5 Ethernet	☐ No	☒ Metric: 10 m	☒ M

Table 16: Supported Equipment

Equipment	Manufacturer	Model	Serial	Used for
Laptop	Dell	PP23LB	9271001233	Setup EUT operating channel
Note: None.				

Table 17: Description of Sample used for Testing

Device	Serial	RF Connection	CFR47 Part 15.247
5268AC	121404000102	Integrated Antenna	Radiated Emission. AC Conducted Emission
	121404000111	Direct via Murada Connection	Output Power, Peak Power Spectral Density, Occupied Bandwidth Conducted Spurious Emission

Table 18: Description of Test Configuration used for Radiated Measurement.

Device	Antenna	Mode	Setup Photo (X-Axis)	Setup Photo (Y-Axis)	Setup Photo (Z-Axis)
5268AC	Integrated	Transmit	EUT laid flat.	EUT stood upright	N/A.
Note: Pre-scans were performed in 2 supporting axis, and Y-axis was worst.					

Table 19: Final Test Mode for 5725 - 5850 Band

Test	802.11a	HT20	HT40	VHT20	VHT40	VHT40
Occupied Bandwidth CFR47 15.407 (e),	5745, 5785, 5825 MHz 4 Streams, 6Mbps	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
Output Power CFR47 15.407 (a)(3)	5745, 5785, 5825 MHz 4 Streams, 6Mbps	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
Peak Power Spectral Density CFR47 15.407 (a)(3)	5745, 5785, 5825 MHz 4 Streams, 6Mbps	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
Out-of-Band (-30 dBr). CFR47 15.247 (d)	5745, 5785, 5825 MHz 4 Streams, 6Mbps	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
Band-Edge (Radiated) FCC Part 15.205, 15.209	5745, 5825 MHz 4 Streams, 6Mbps	5745, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
Transmitted Spurious Emission (30 MHz – 1 GHz) FCC Part 15.205, 15.209		Worst Case: 5785 MHz 4 Streams – 6Mbps/ stream (Y-Axis)				
Transmitted Spurious Emission (Above 1 GHz) FCC Part 15.205, 15.209	5745, 5785, 5825 MHz 4 Streams, 6Mbps	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5745, 5785, 5825 MHz 4 Streams, MCS0	5755, 5795 MHz 4 Streams, MCS0	5775 MHz 4 Streams, MCS0
AC Conducted Emission FCC Part 15.207			Worst Case: 5785 MHz at 4 Data Stream: 6.5Mbps			
Frequency Stability FCC Part 15.407 (g)	CW Tone at 5500 MHz, (Send_cw_signal 40 0 0 3 1 0).					
Voltage Variation FCC Part 15.31 (e)	CW Tone at 5500 MHz, (Send_cw_signal 40 0 0 3 1 0).					

Note: 1. This report is only documented the band 5725 MHz – 5850 MHz.
2. All radiated emission performed on Y-Axis.
3. All four chains will be on at all time.
4. All tests were pre-scanned for worst case before final testing.
5.CFR47 15.407(b)(4) tested with DTS procedure per CFR47 15.247(d); according to Memorandum Opinion and Order Released March 2, 2016 (FCC 16-24).

6.4 Test Specifications

Testing requirements

Table 20: Test Specifications

Emissions and Immunity	
Standard	Requirement
CFR 47 Part 15.407: 2016	All

END OF REPORT