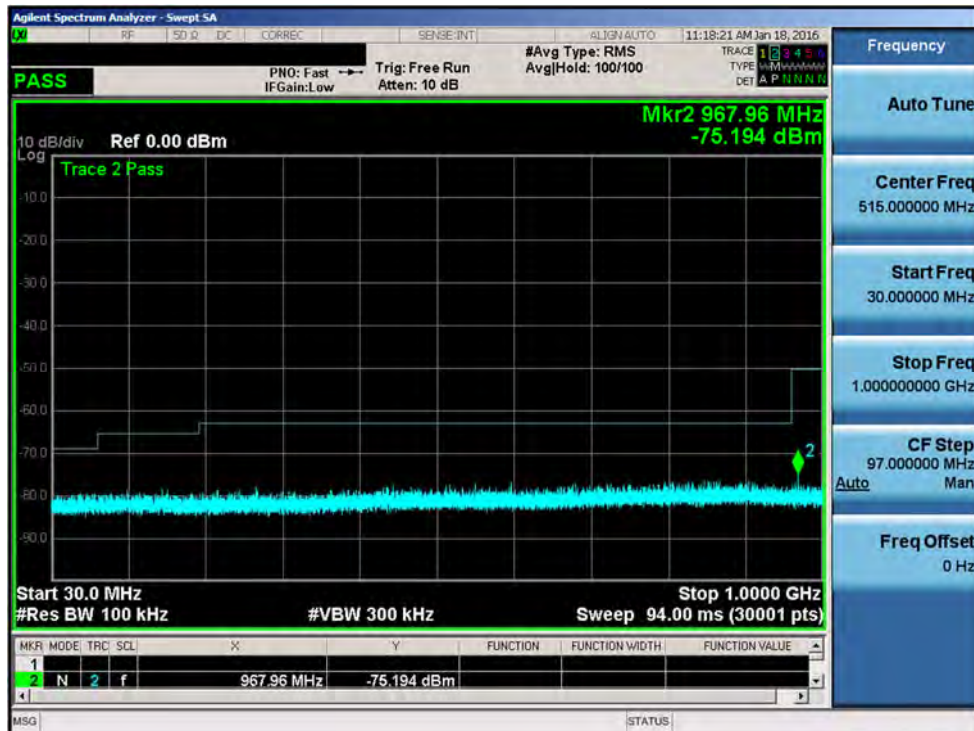
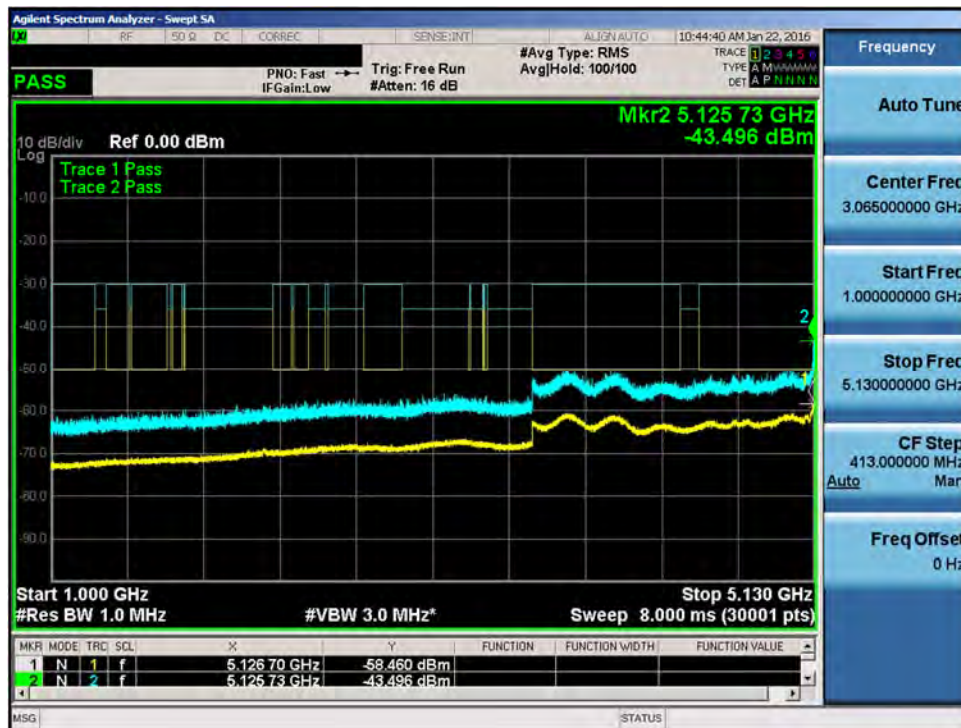


Conducted Band Edge Emissions (Cont'd)

Chain1

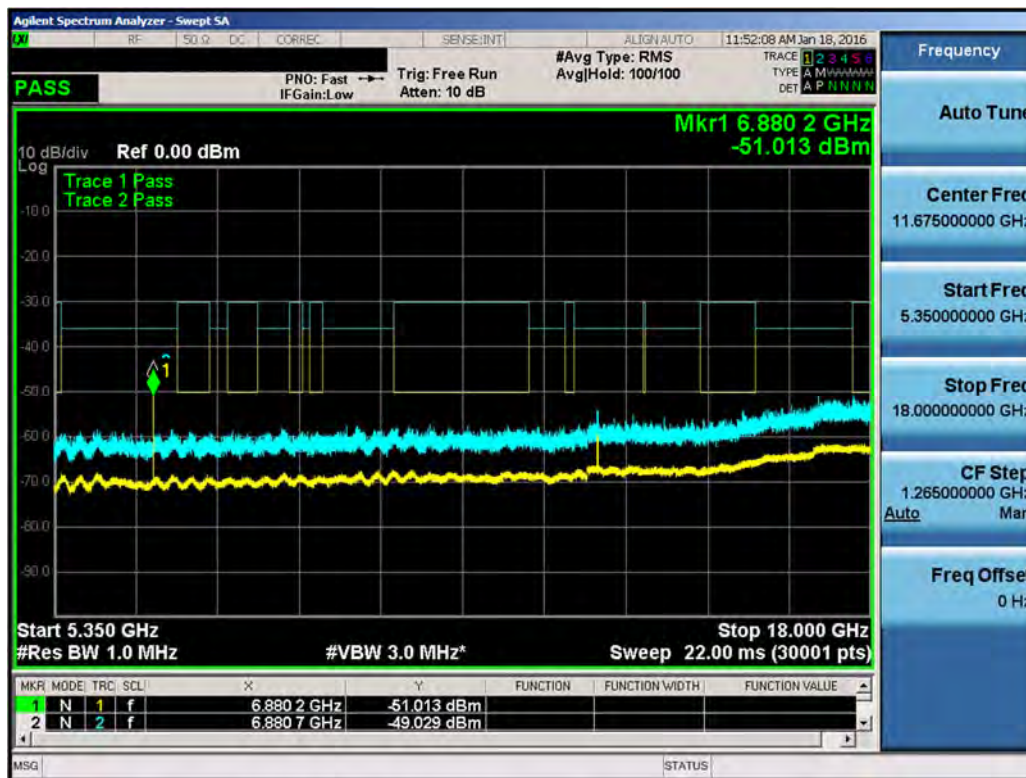


Plot 7-113. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 46890)

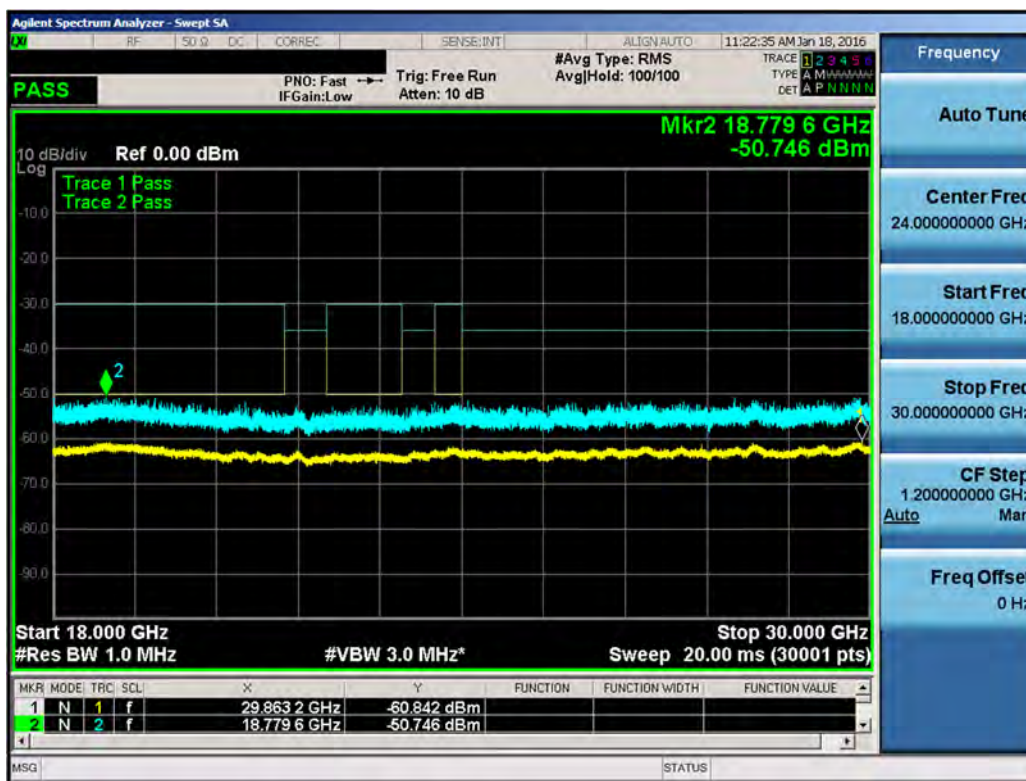


Plot 7-114. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 46890)


FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 82 of 145

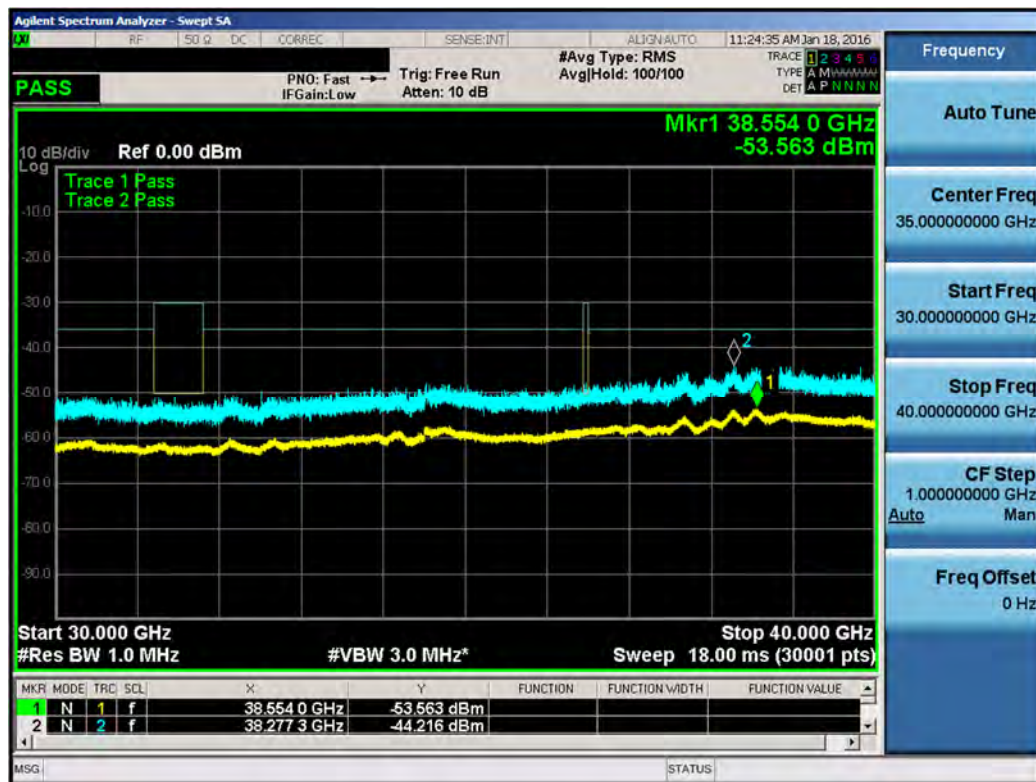


Plot 7-115. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 46890)

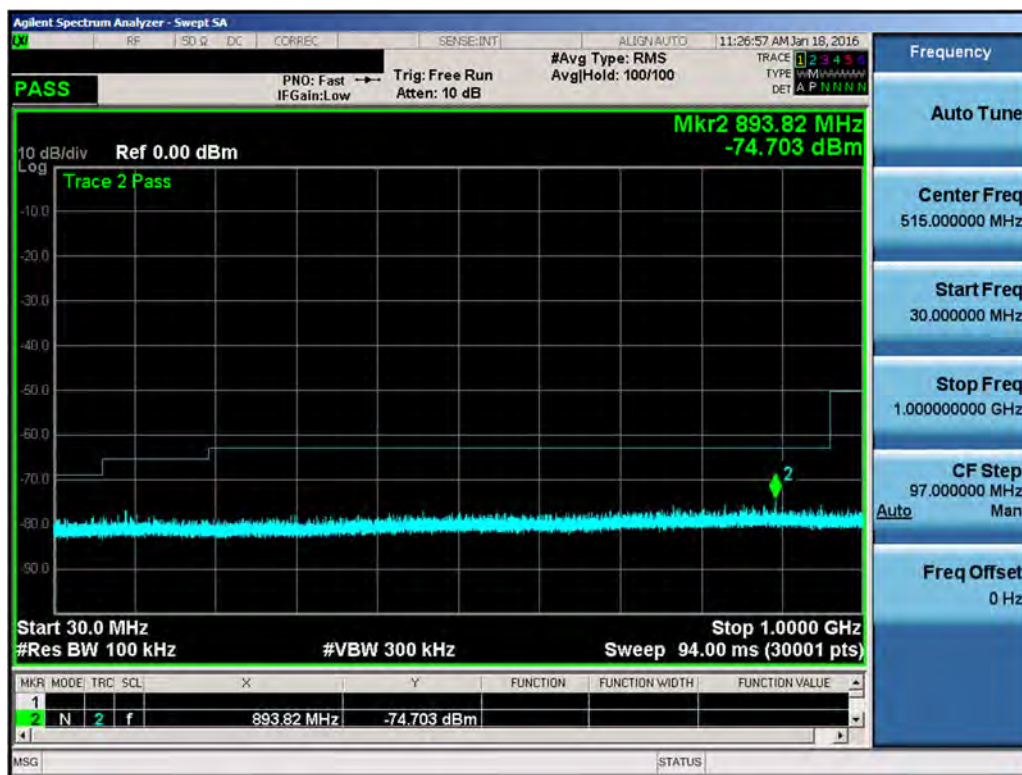


Plot 7-116. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 46890)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 83 of 145

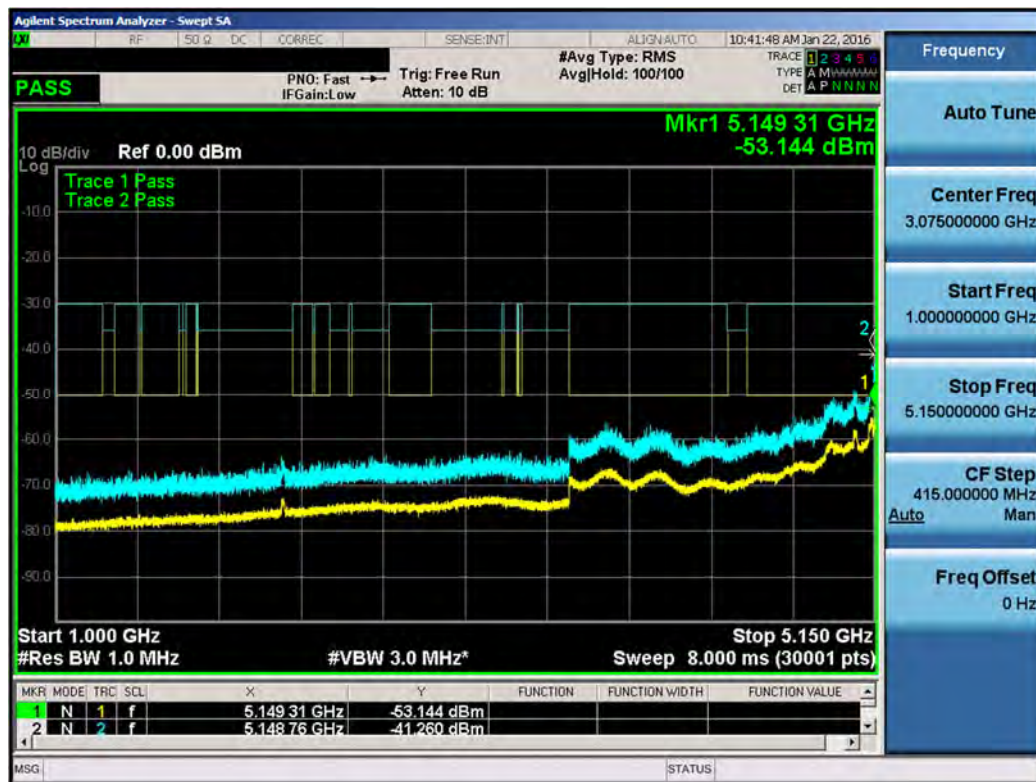


Plot 7-117. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 46890)

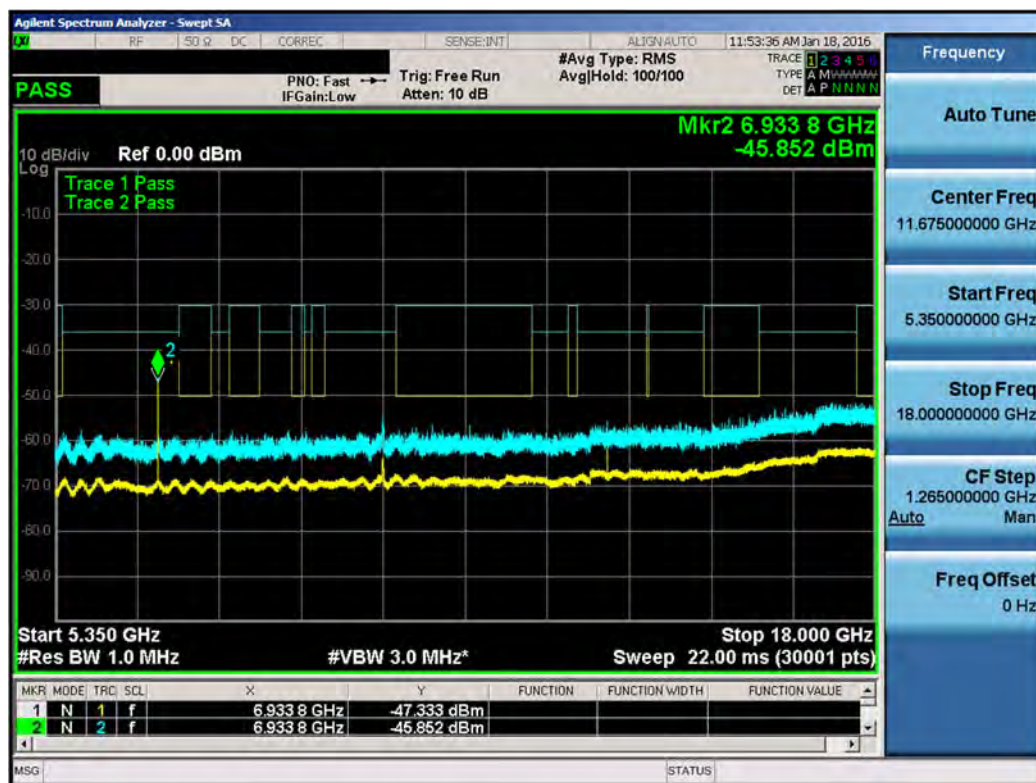


Plot 7-118. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47290)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 84 of 145

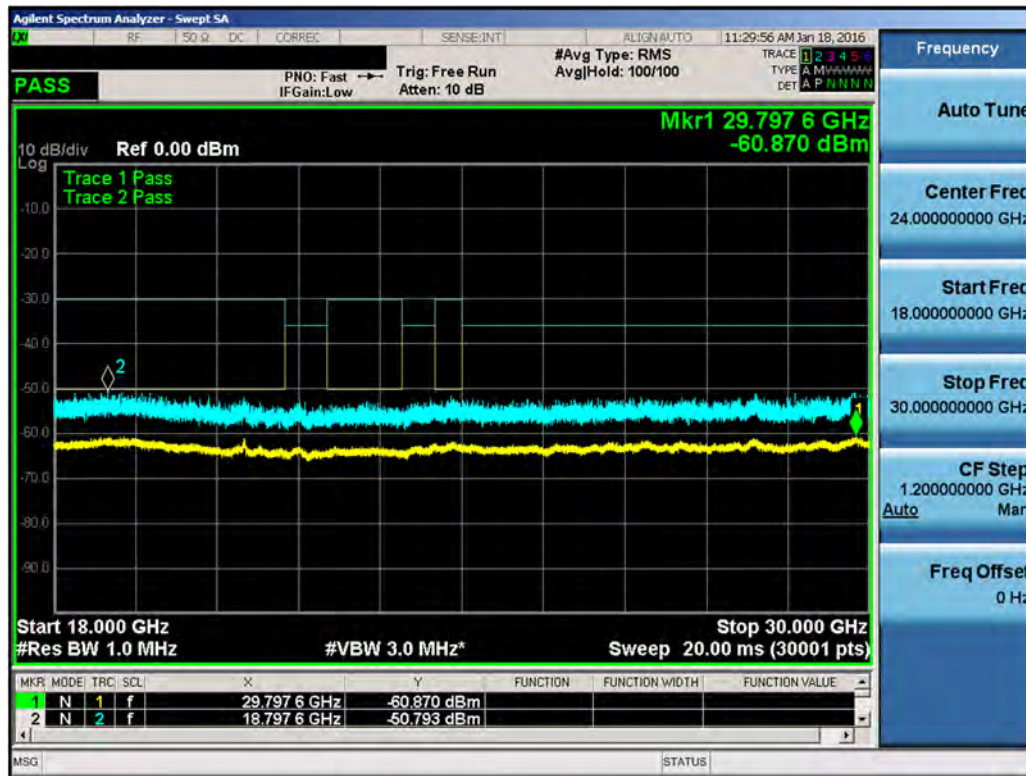


Plot 7-119. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47290)

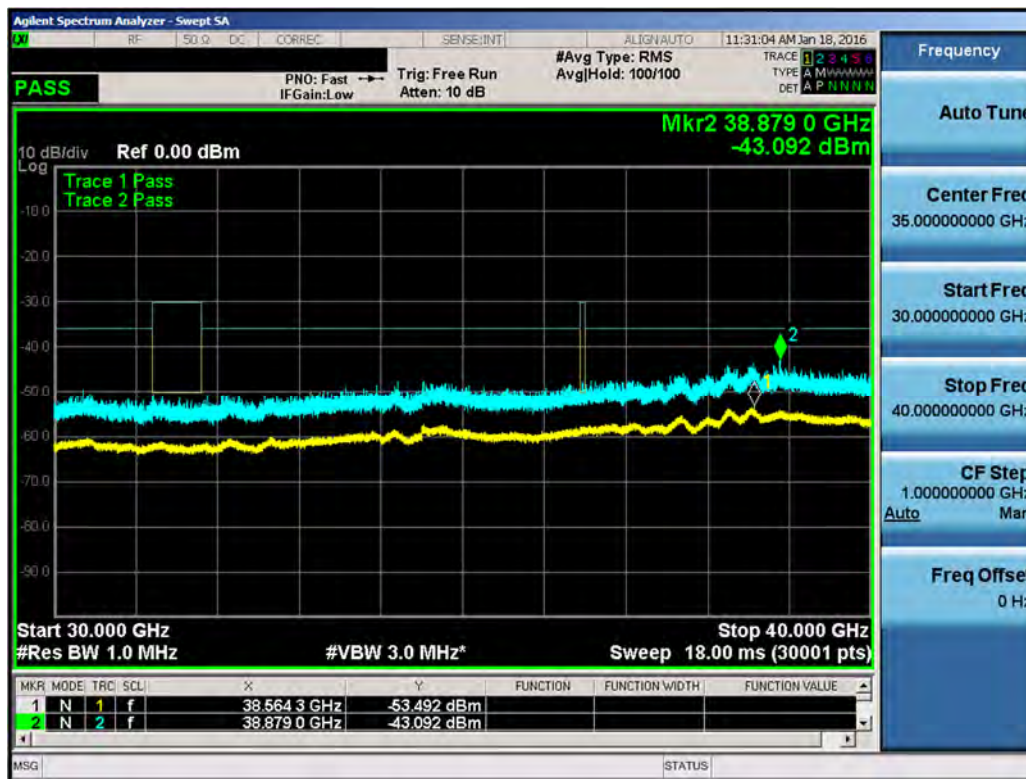


Plot 7-120. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47290)


FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 85 of 145

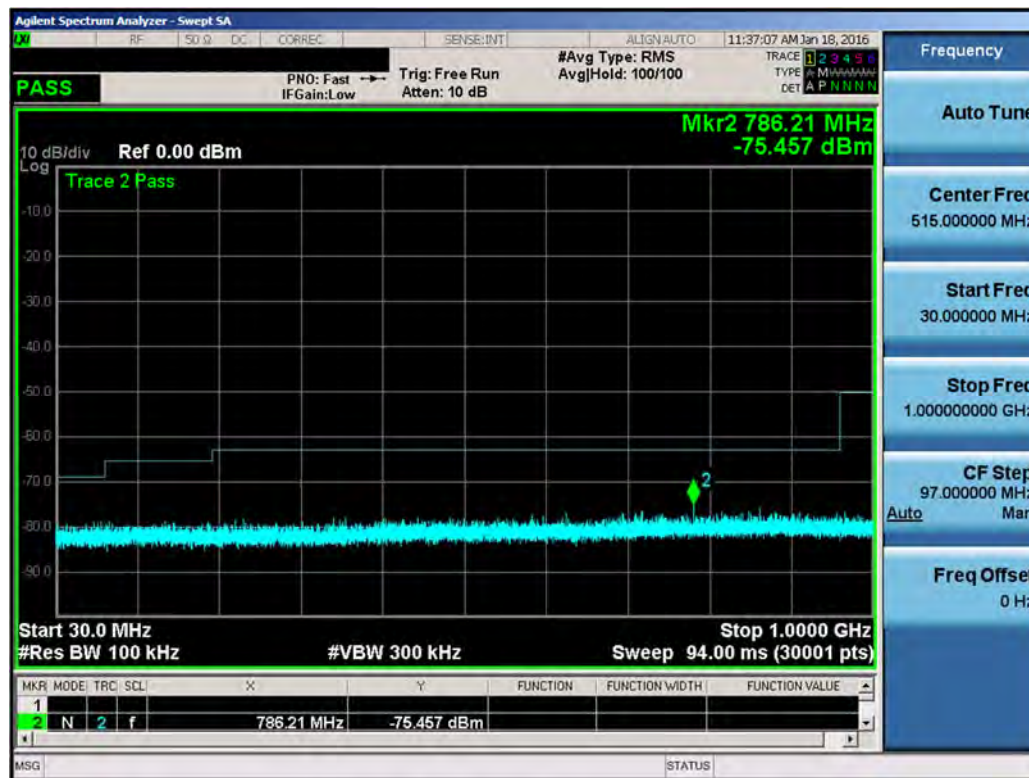


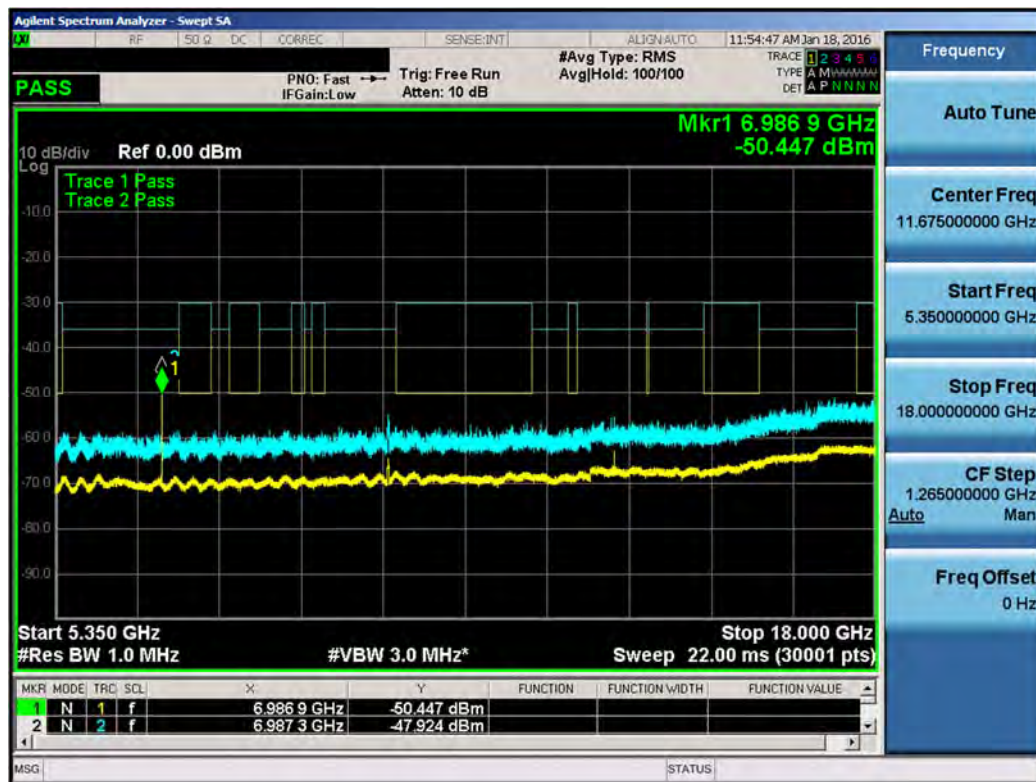
Plot 7-121. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47290)



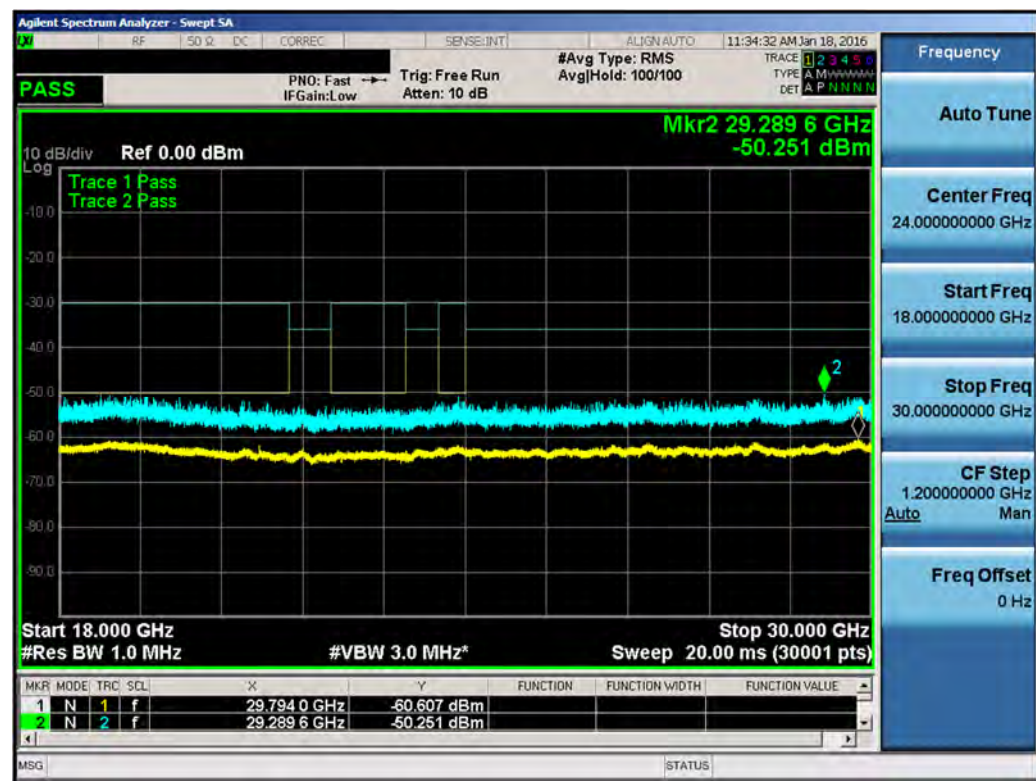
Plot 7-122. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47290)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 86 of 145




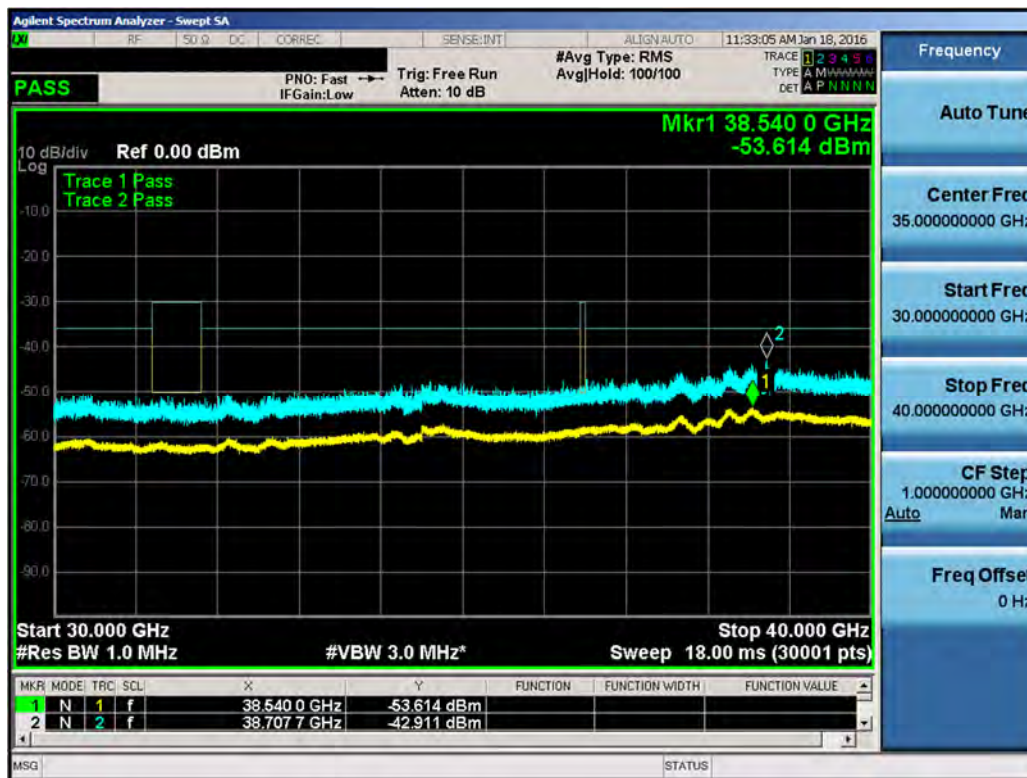


Plot 7-125. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47690)

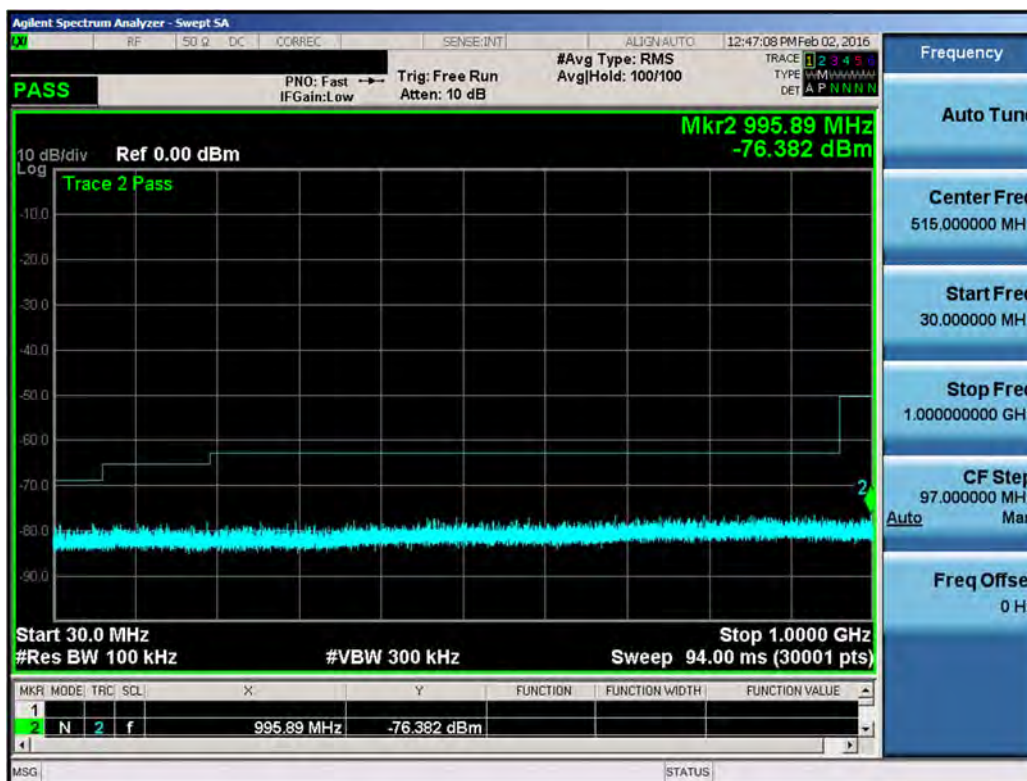


Plot 7-126. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47690)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 88 of 145

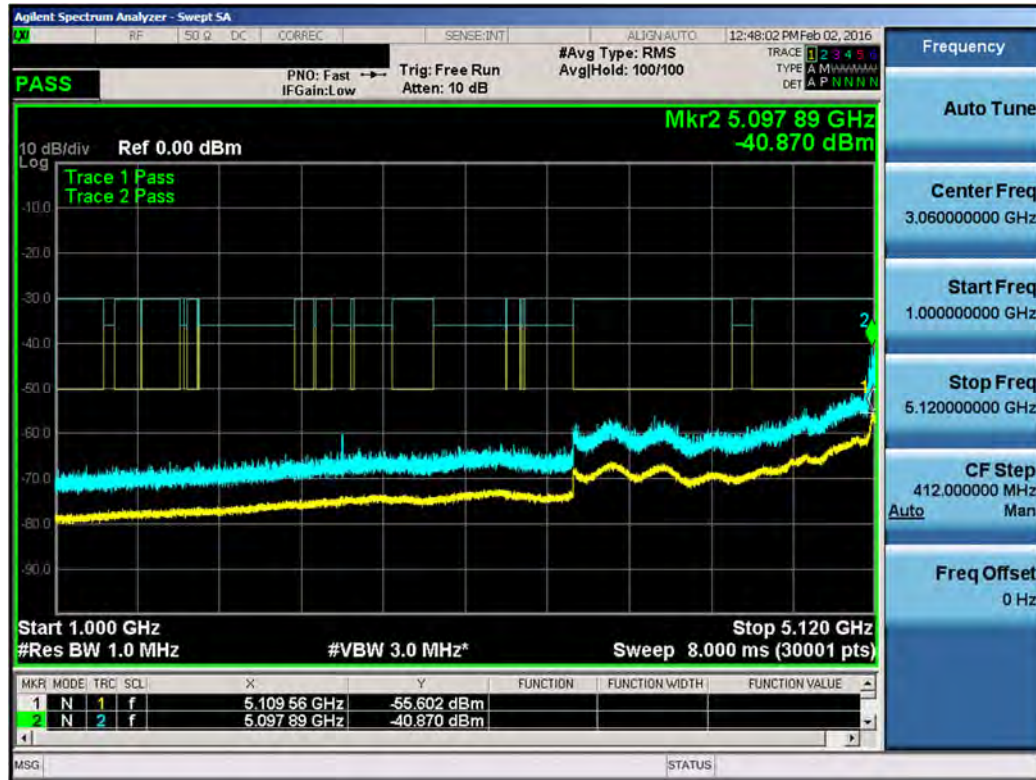


Plot 7-127. Conducted Spurious Plot (LAA (UNII Band 1, 20MHz BW) – Ch. 47690)

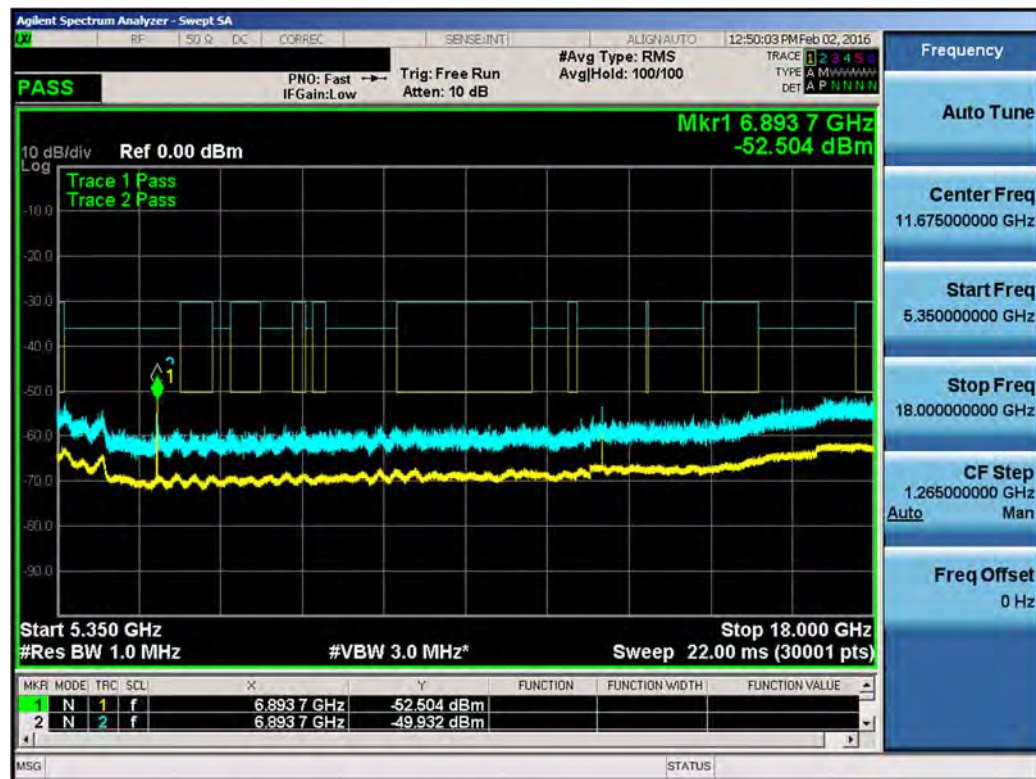


Plot 7-128. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 46890, 47090)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 89 of 145

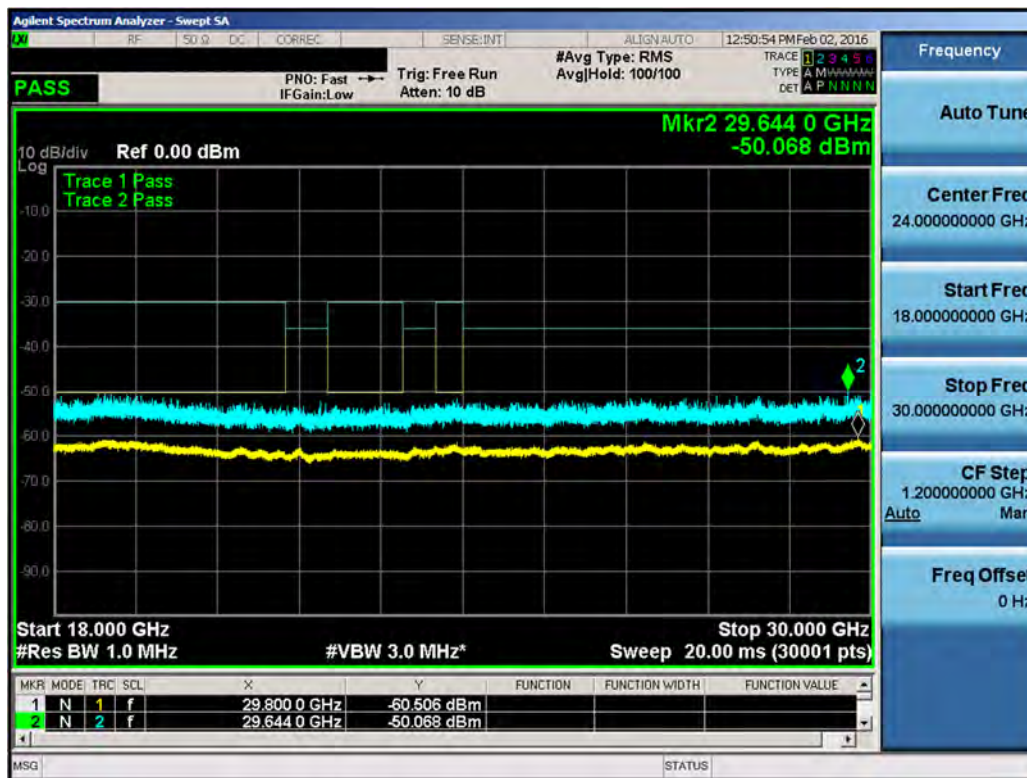


Plot 7-129. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 46890, 47090)

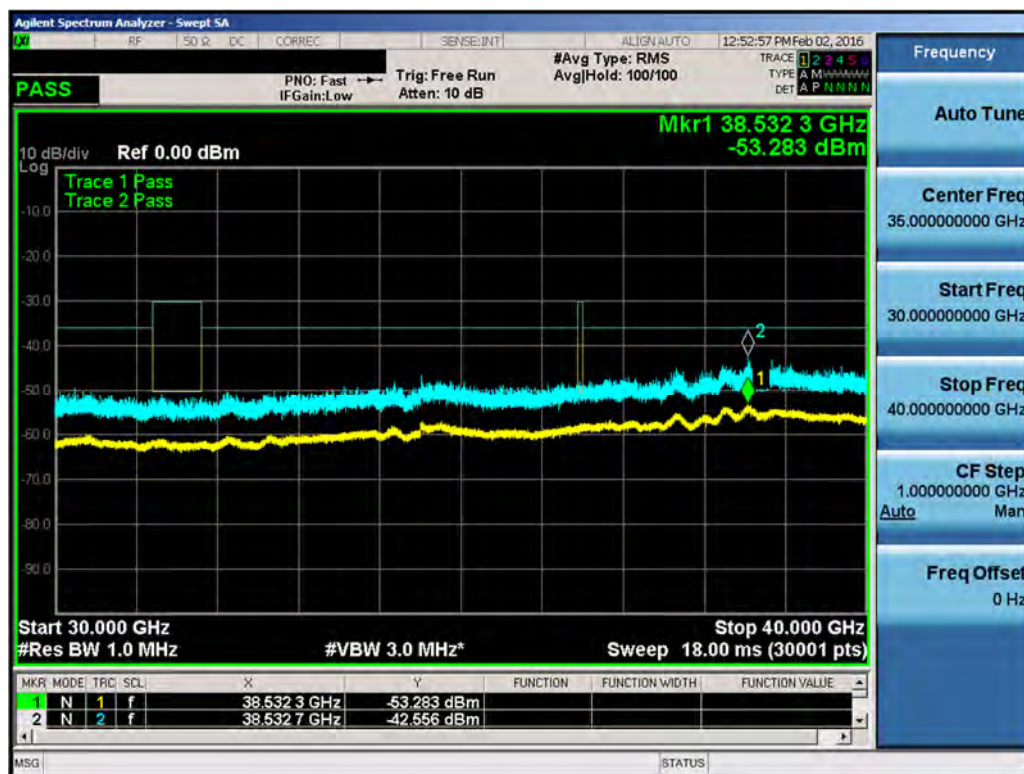


Plot 7-130. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 46890, 47090)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 90 of 145

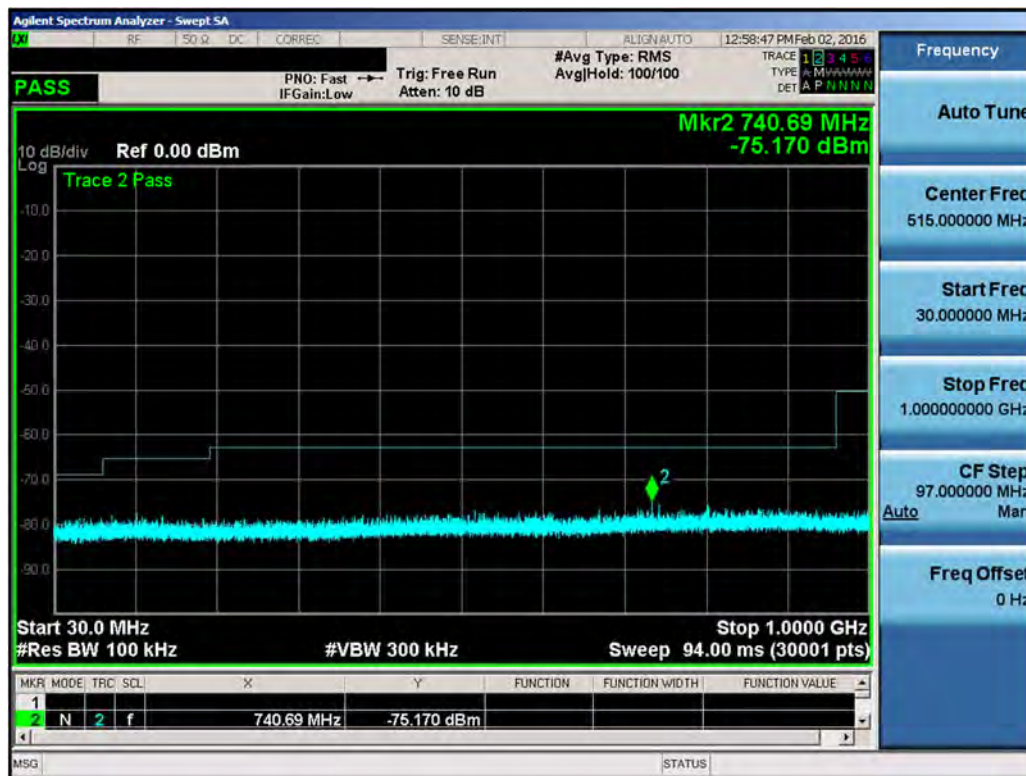


Plot 7-131. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 46890, 47090)

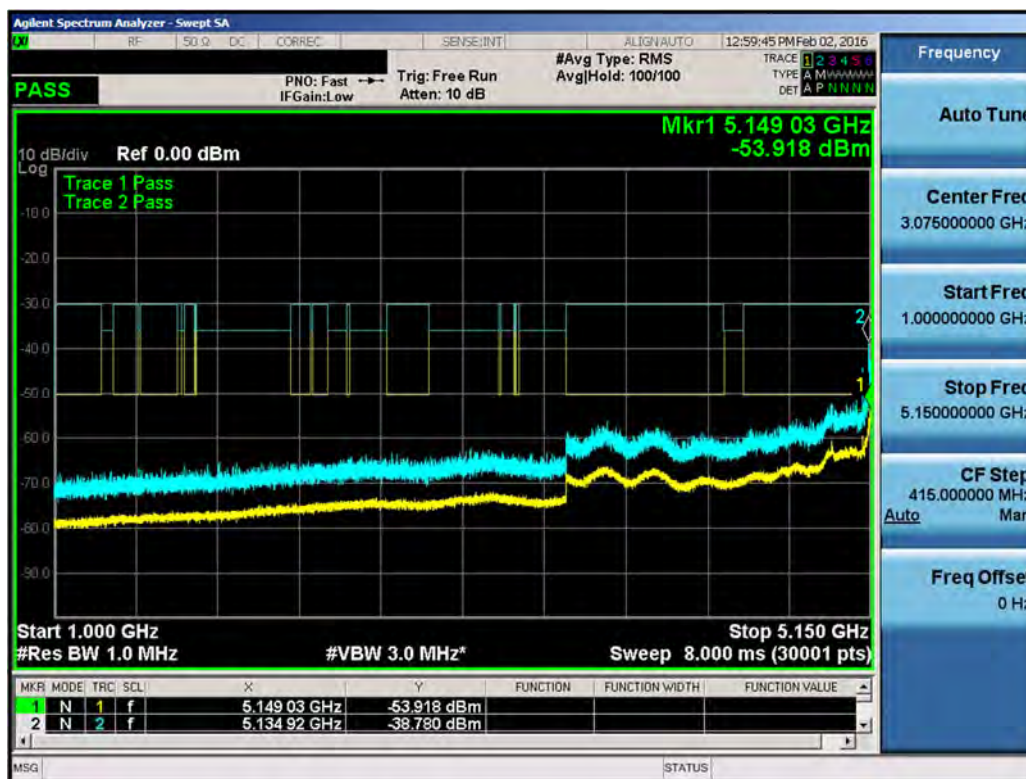


Plot 7-132. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 46890, 47090)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 91 of 145

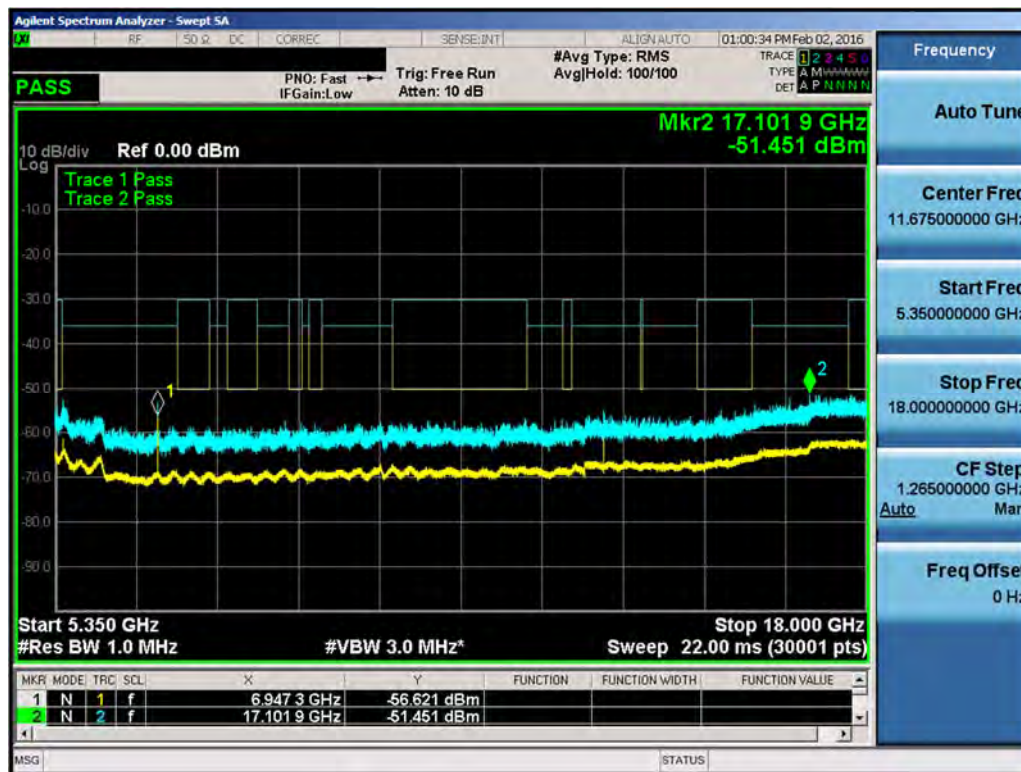


Plot 7-133. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47290, 47490)

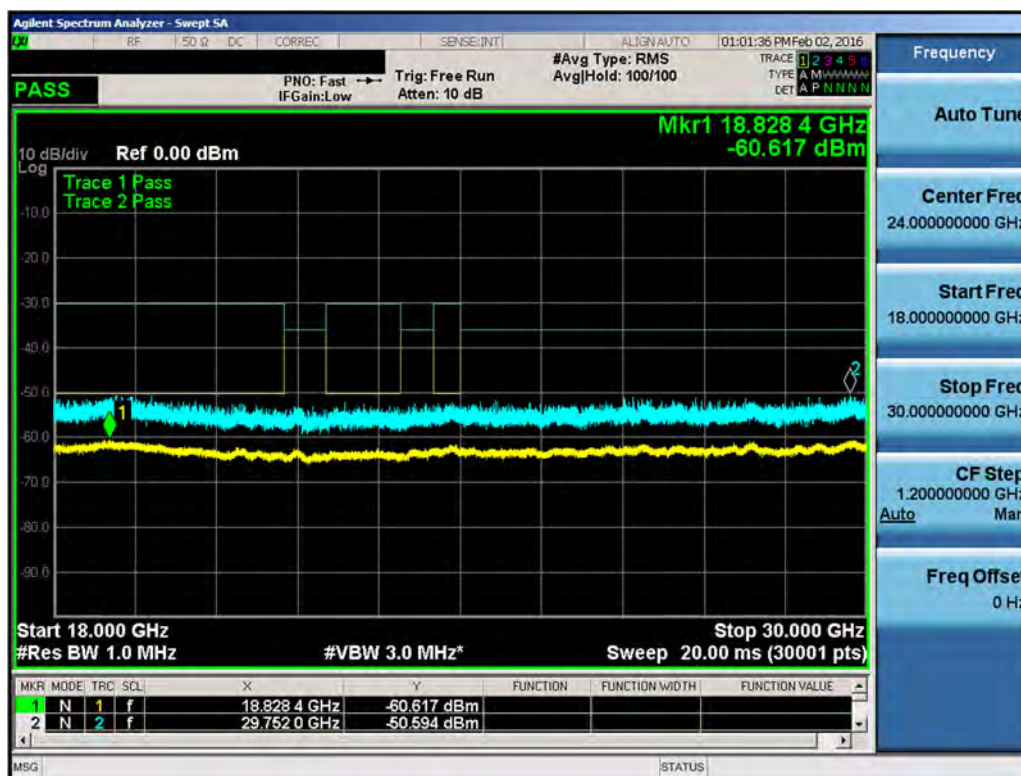


Plot 7-134. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47290, 47490)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 92 of 145



Plot 7-135. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47290, 47490)

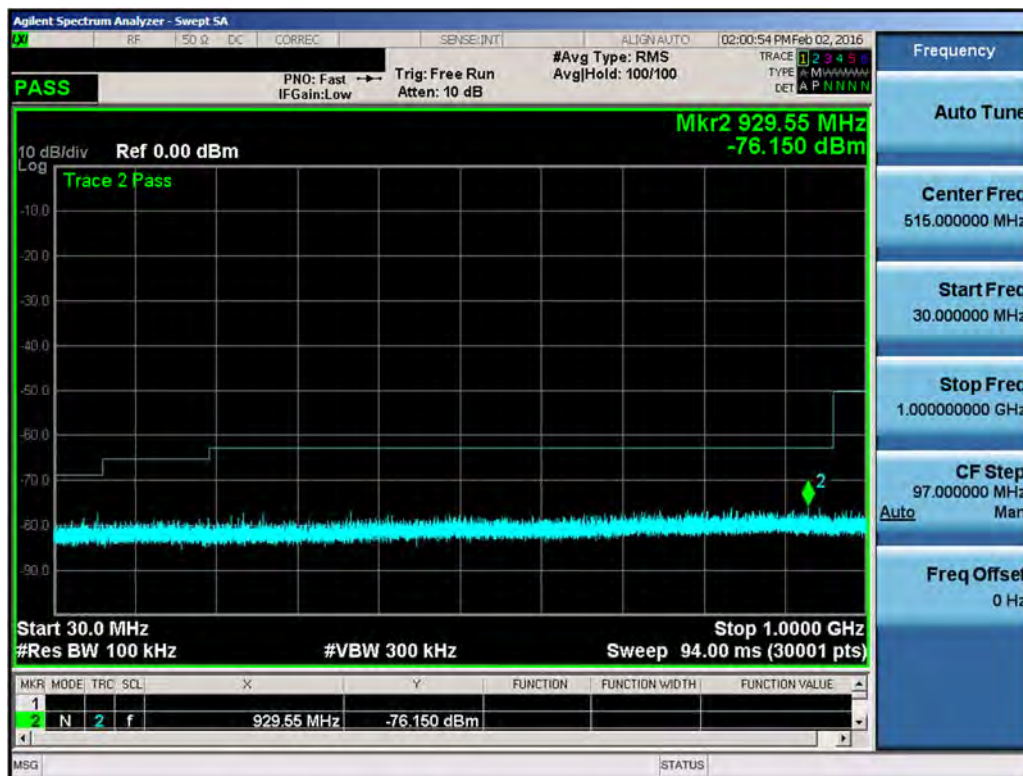


Plot 7-136. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47290, 47490)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 93 of 145

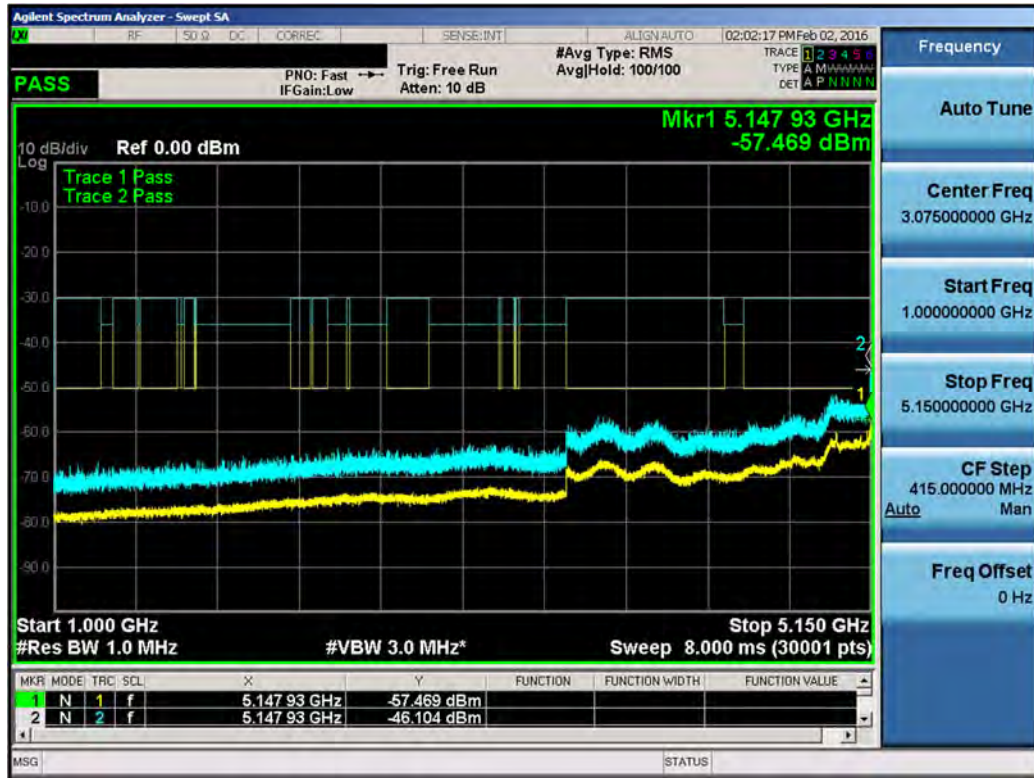


Plot 7-137. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47290, 47490)



Plot 7-138. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47490, 47690)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 94 of 145

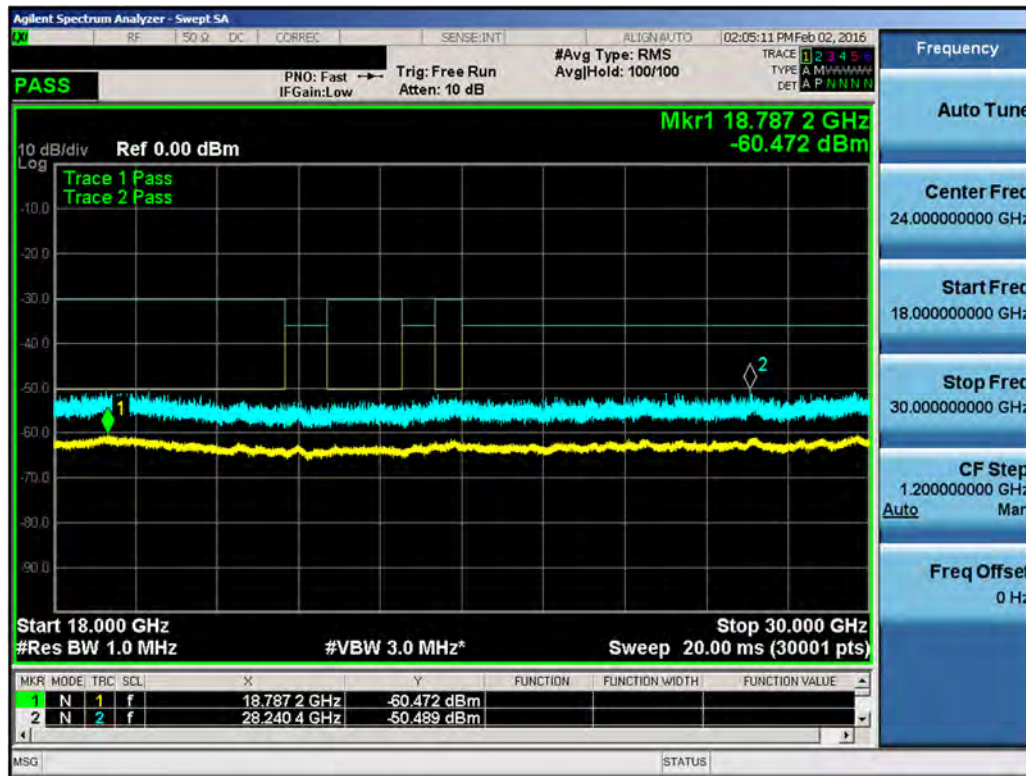


Plot 7-139. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47490, 47690)

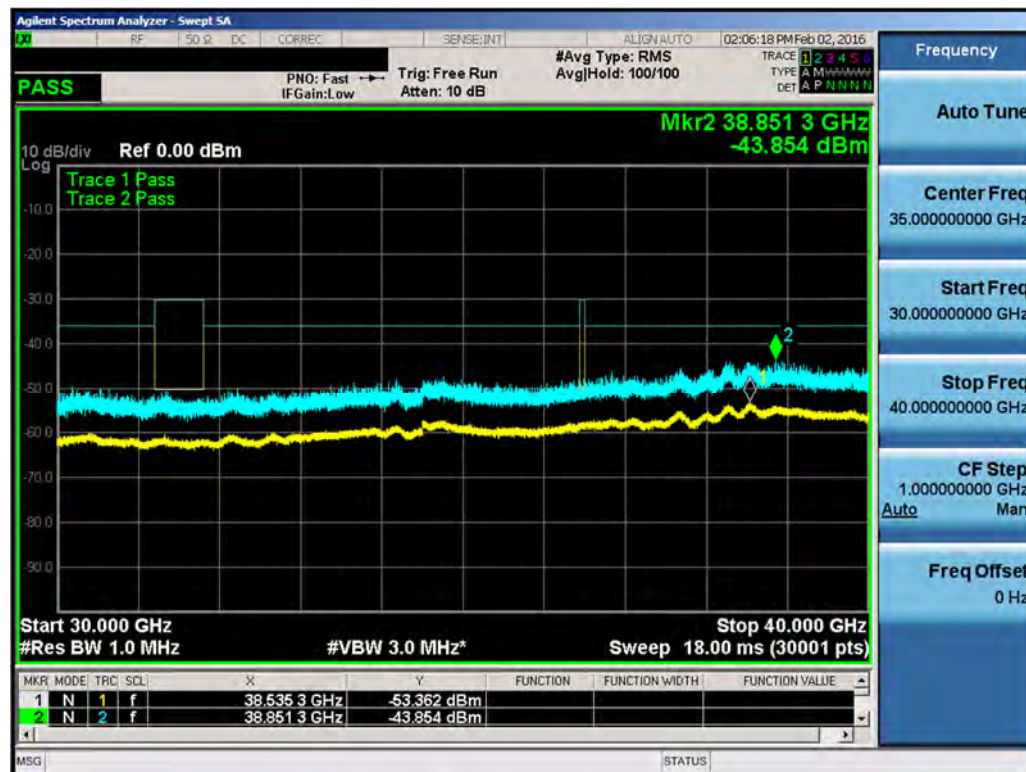


Plot 7-140. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47490, 47690)


FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 95 of 145	

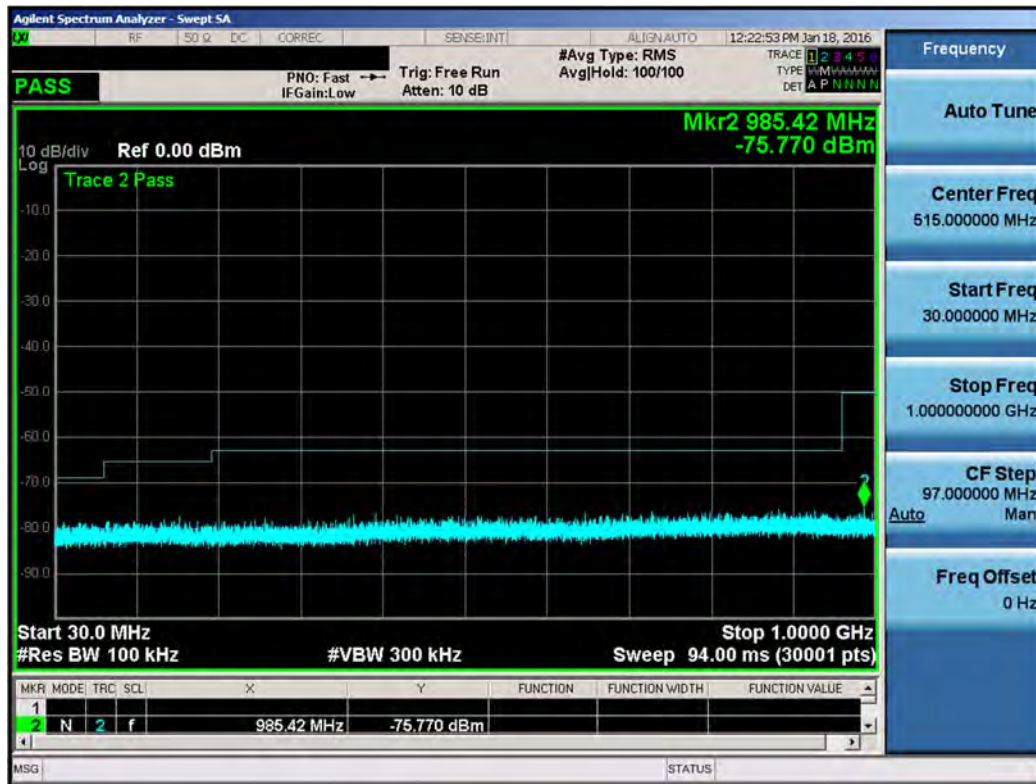


Plot 7-141. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47490, 47690)



Plot 7-142. Conducted Spurious Plot (LAA (UNII Band 1, 40MHz BW) – Ch. 47490, 47690)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 96 of 145

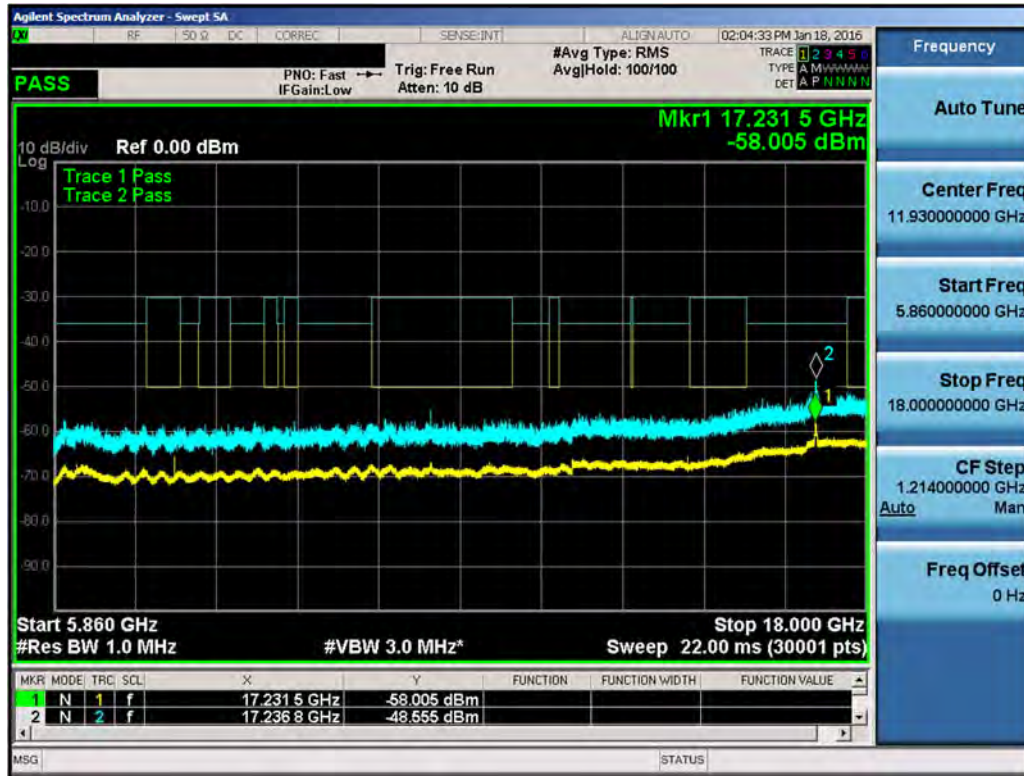


Plot 7-143. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 52740)

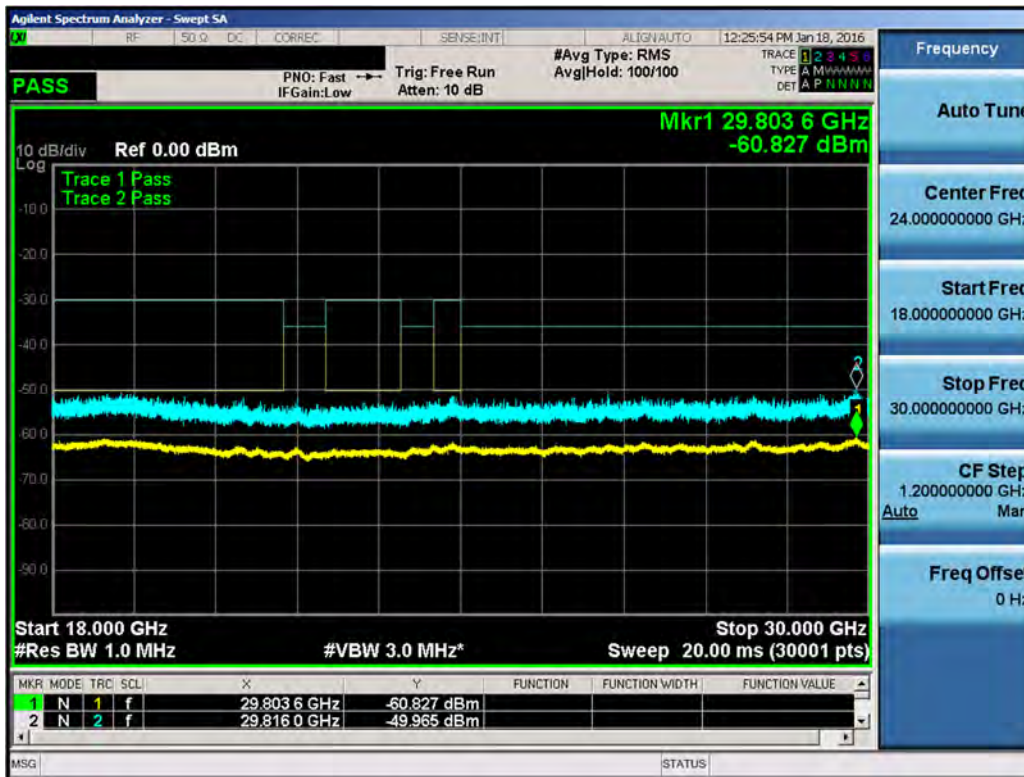


Plot 7-144. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 52740)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 97 of 145

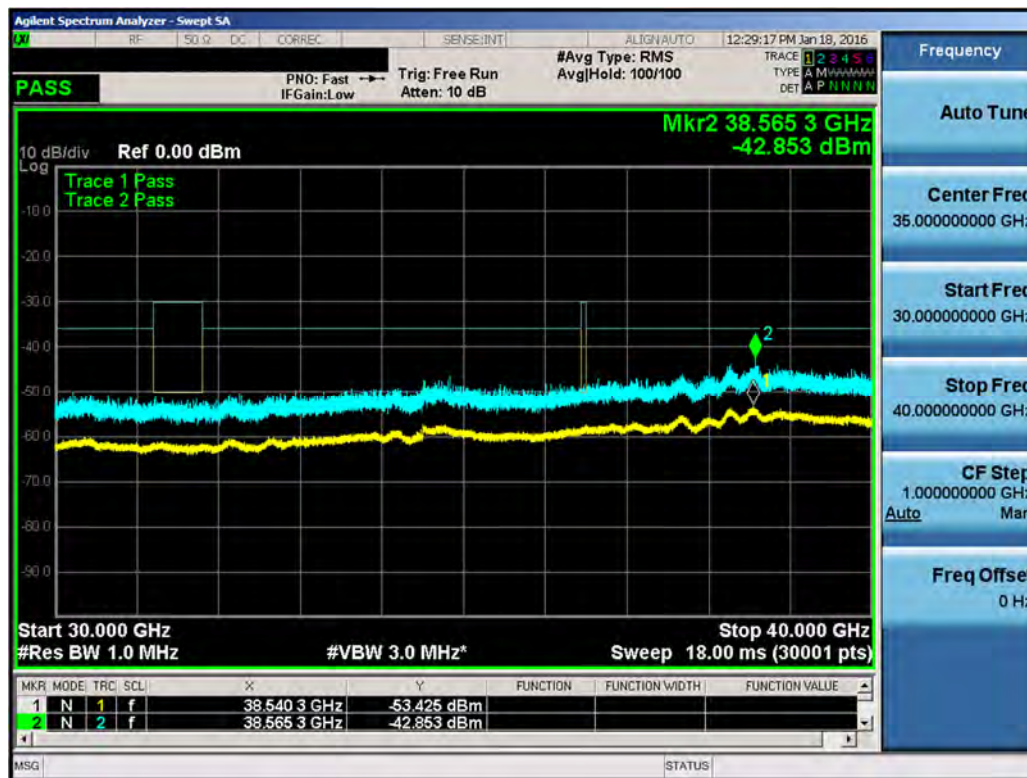


Plot 7-145. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 52740)

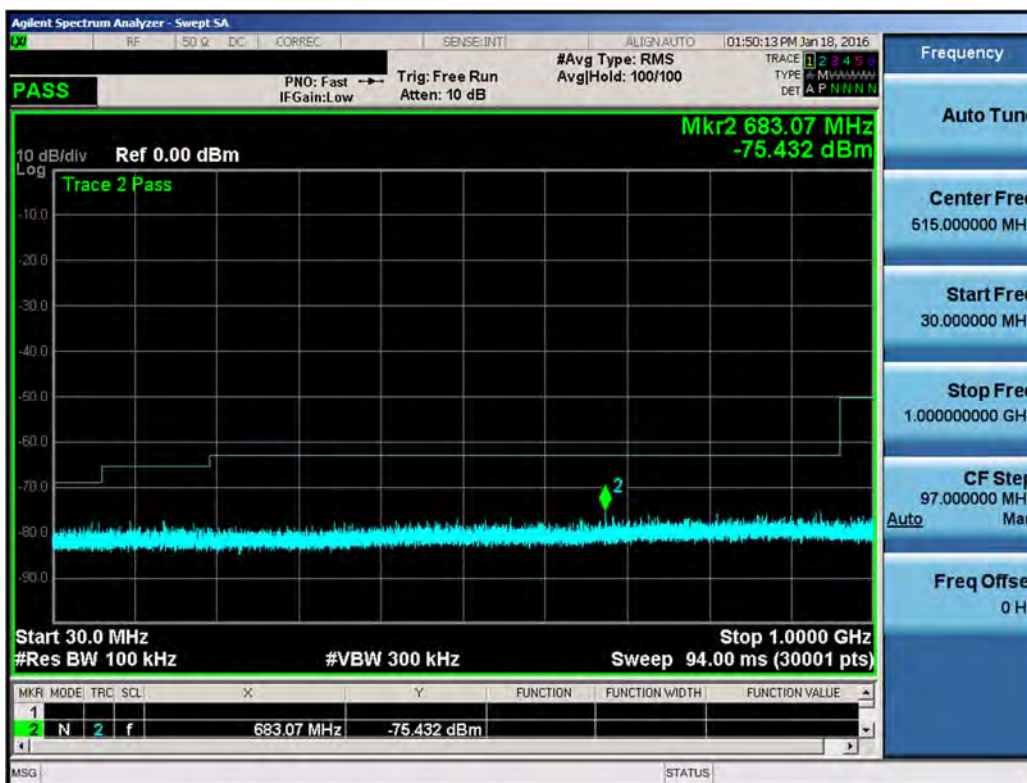


Plot 7-146. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 52740)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 98 of 145

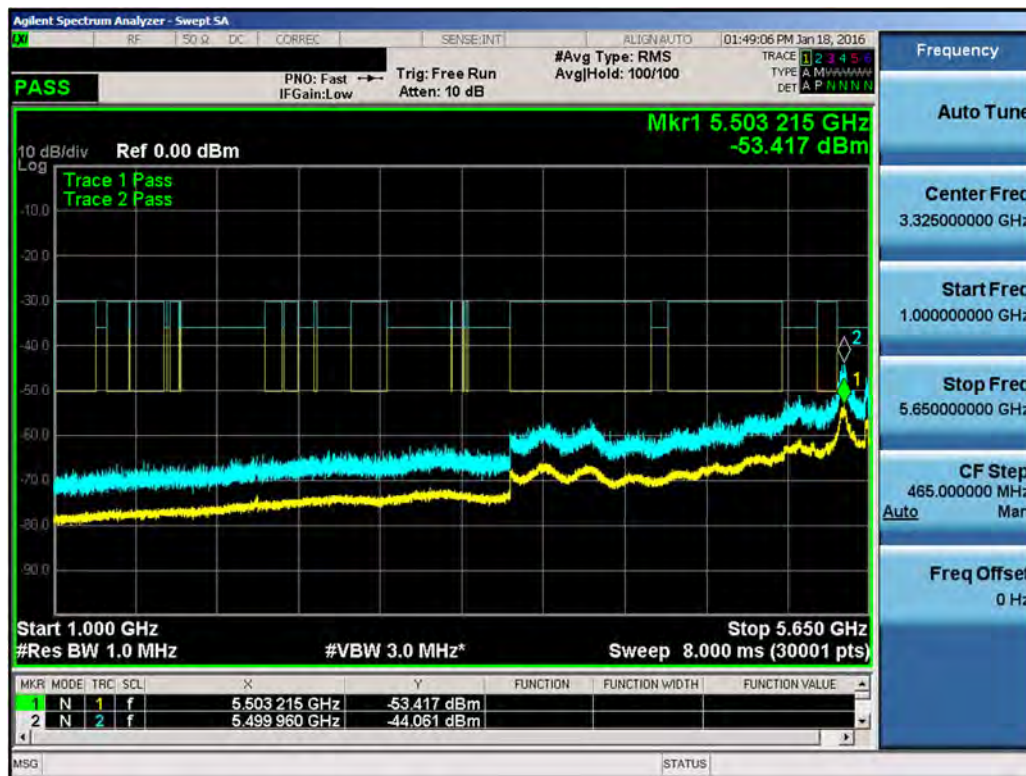


Plot 7-147. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 52740)

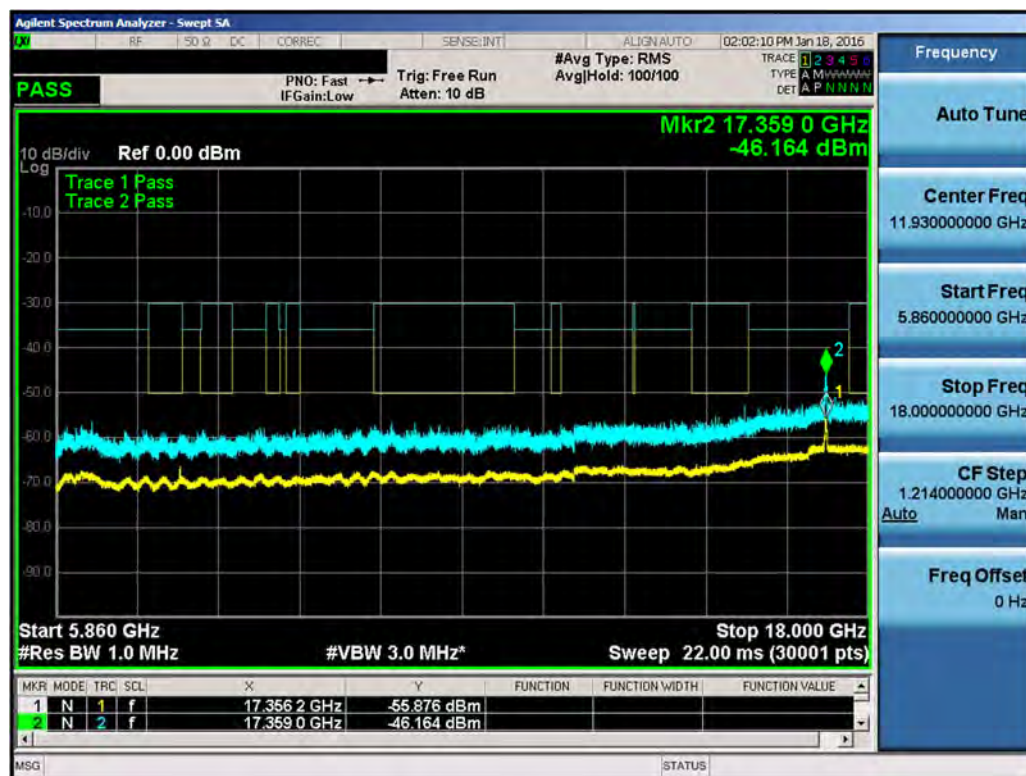


Plot 7-148. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53140)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 99 of 145

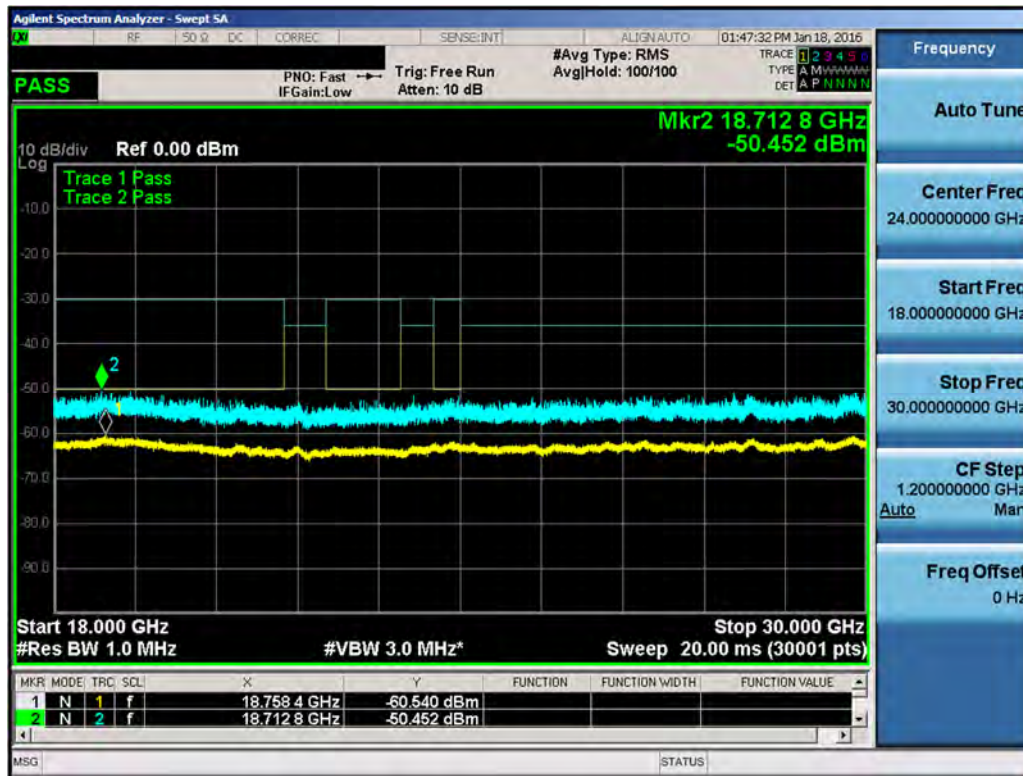


Plot 7-149. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53140)

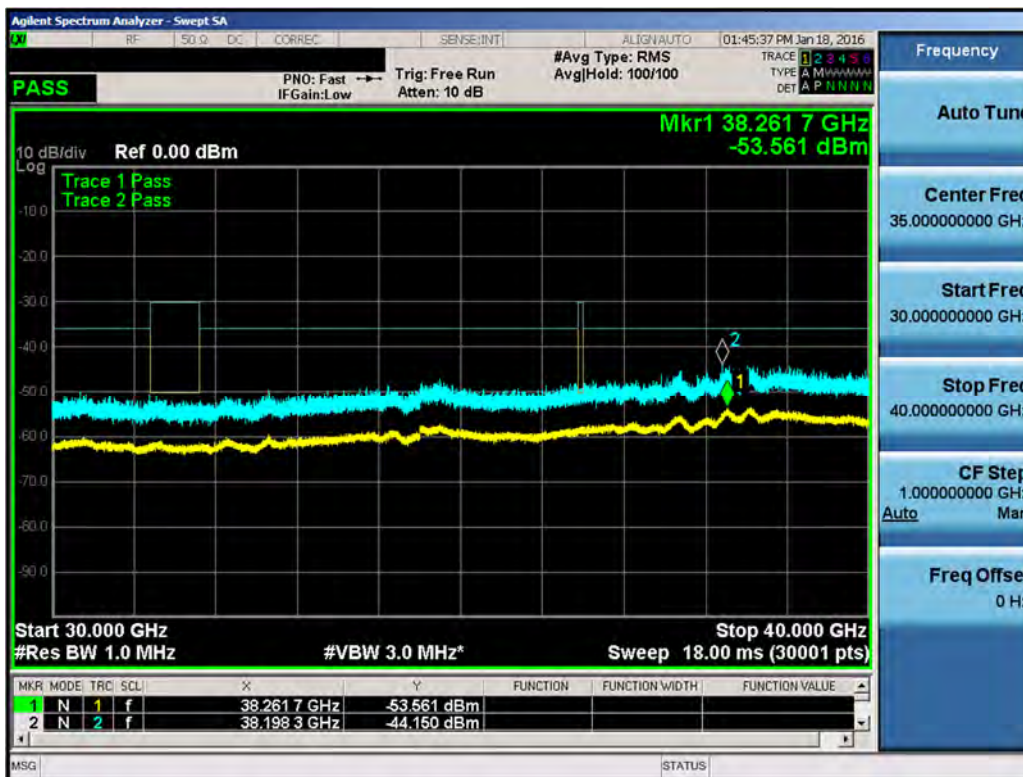


Plot 7-150. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53140)

FCC ID: J9CMTP9900LAA			FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 100 of 145	

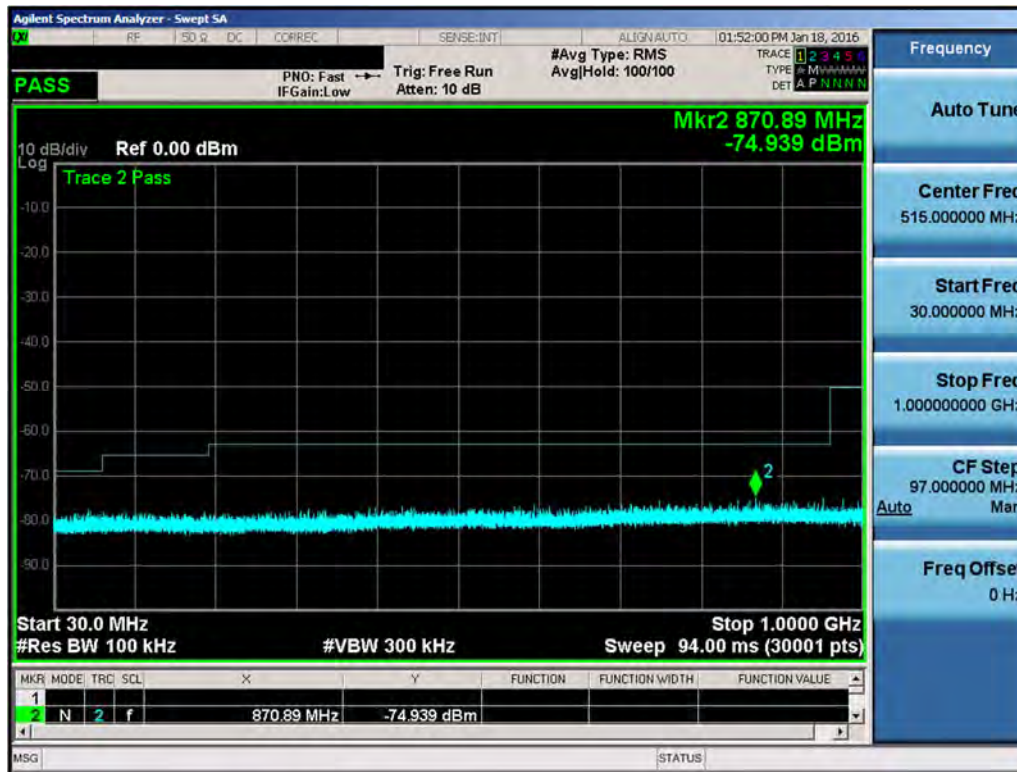


Plot 7-151. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53140)

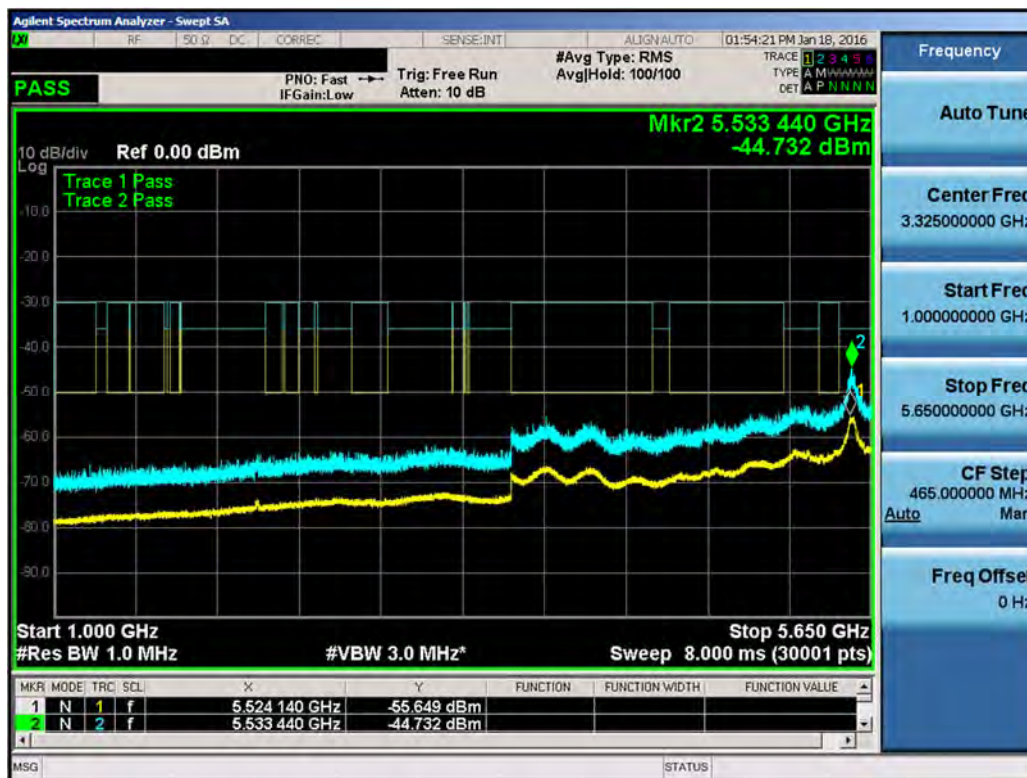


Plot 7-152. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53140)


FCC ID: J9CMTP9900LAA			FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell		Page 101 of 145

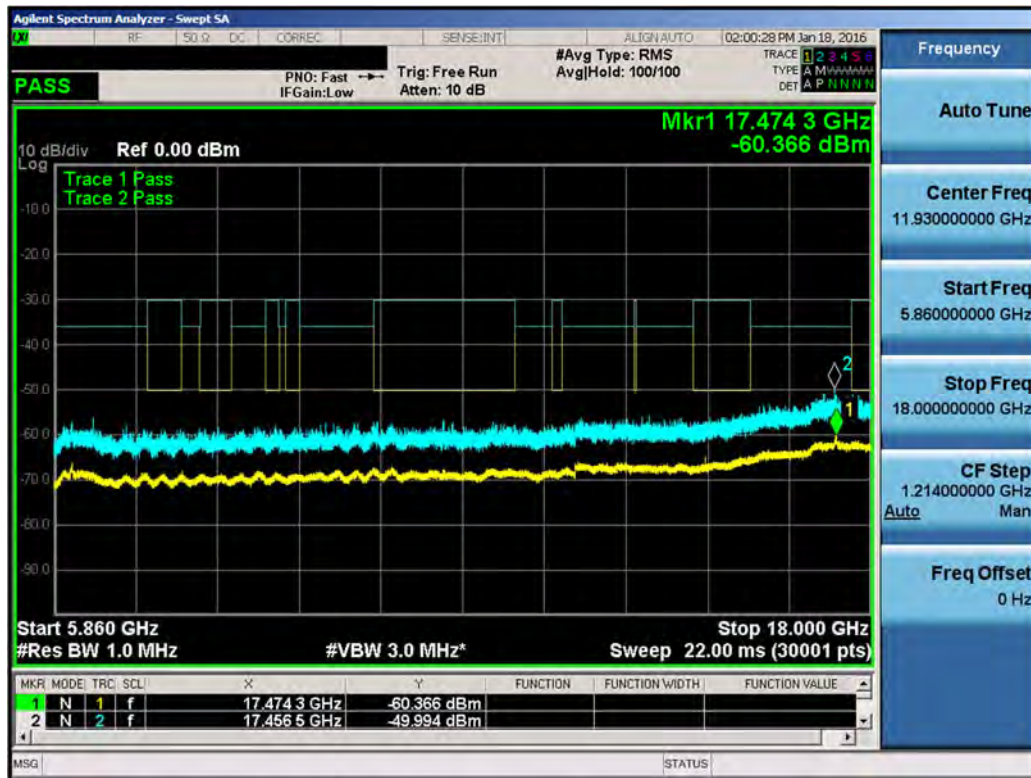


Plot 7-153. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53540)

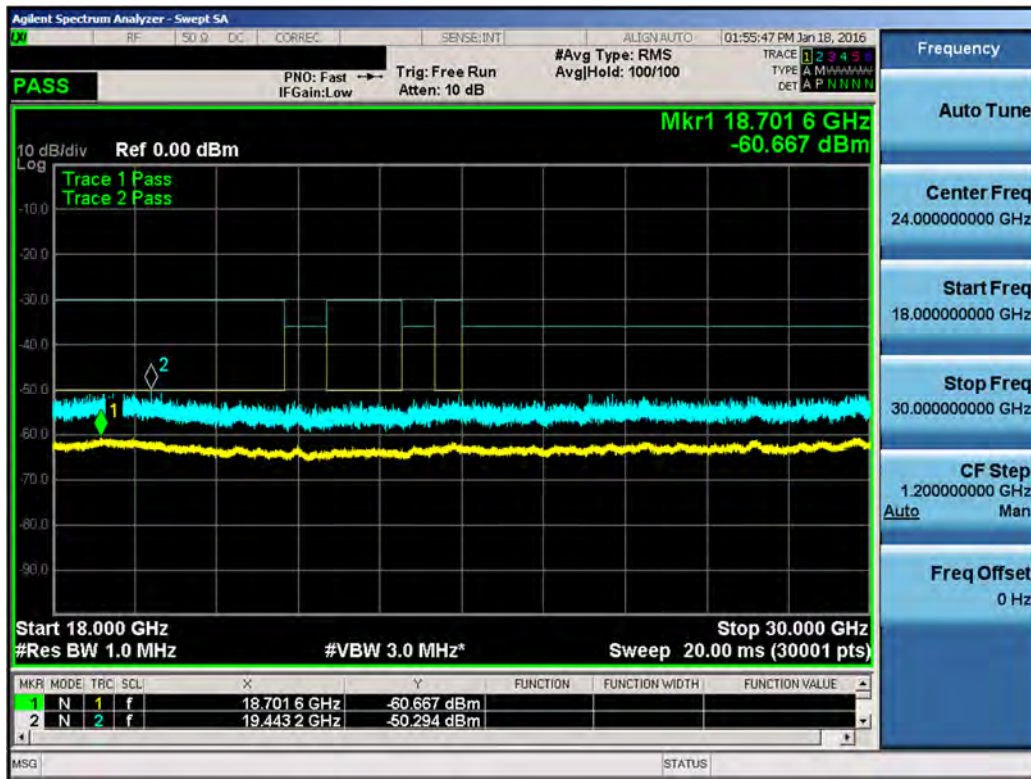


Plot 7-154. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53540)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 102 of 145

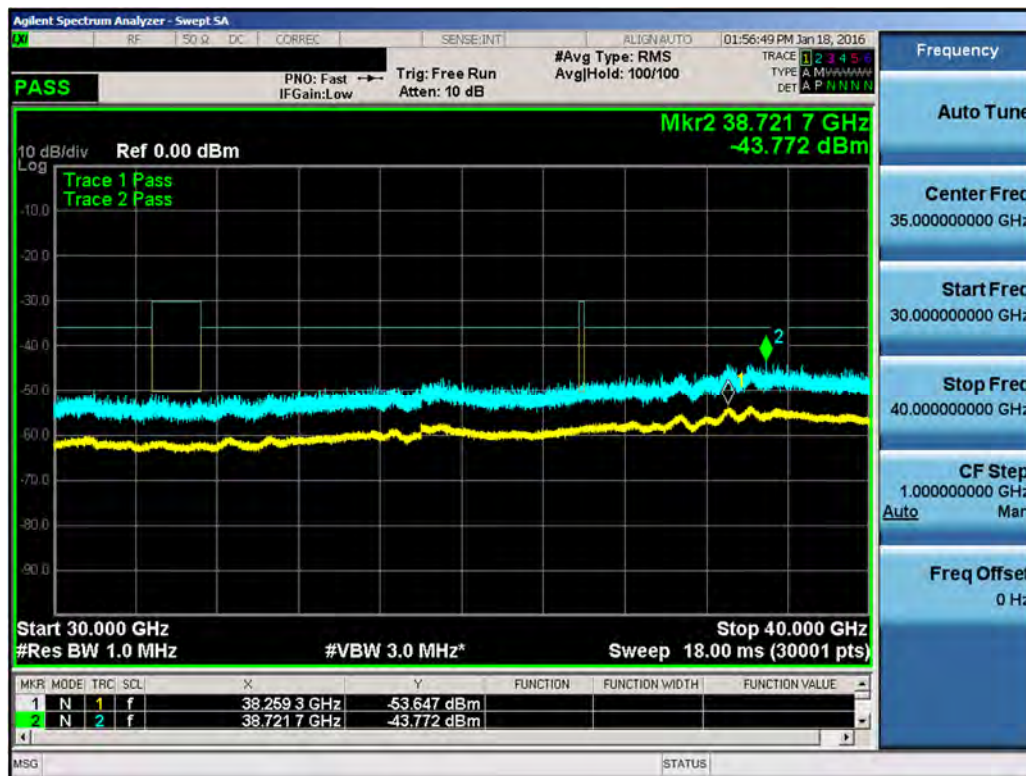


Plot 7-155. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53540)

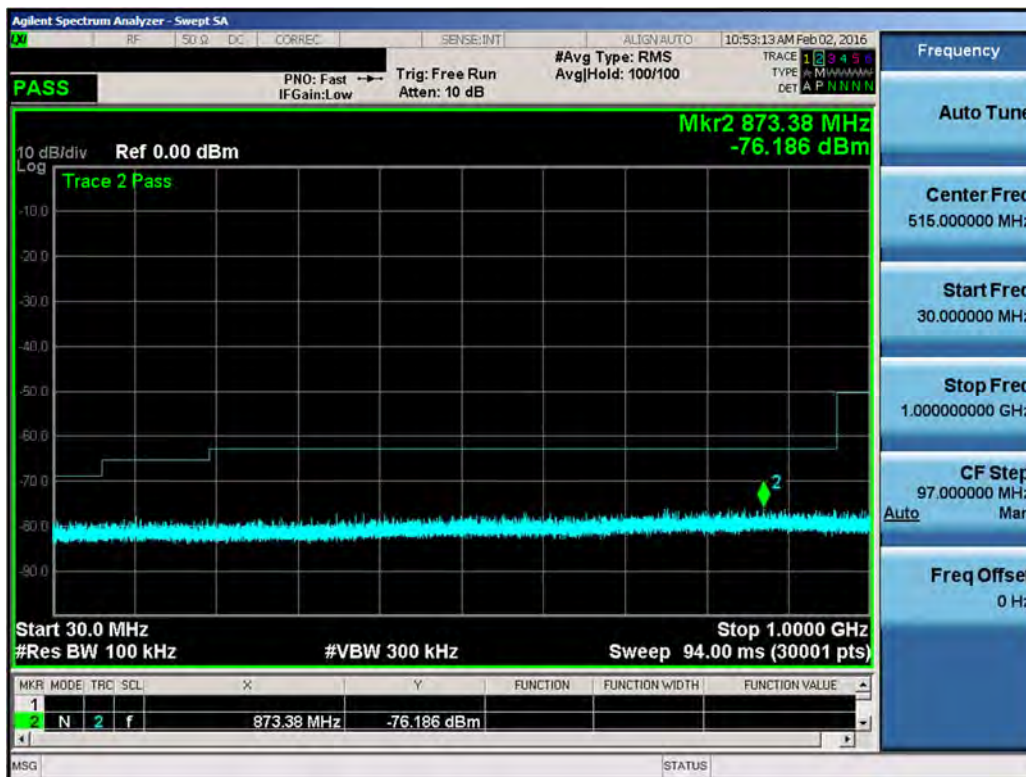


Plot 7-156. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53540)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 103 of 145

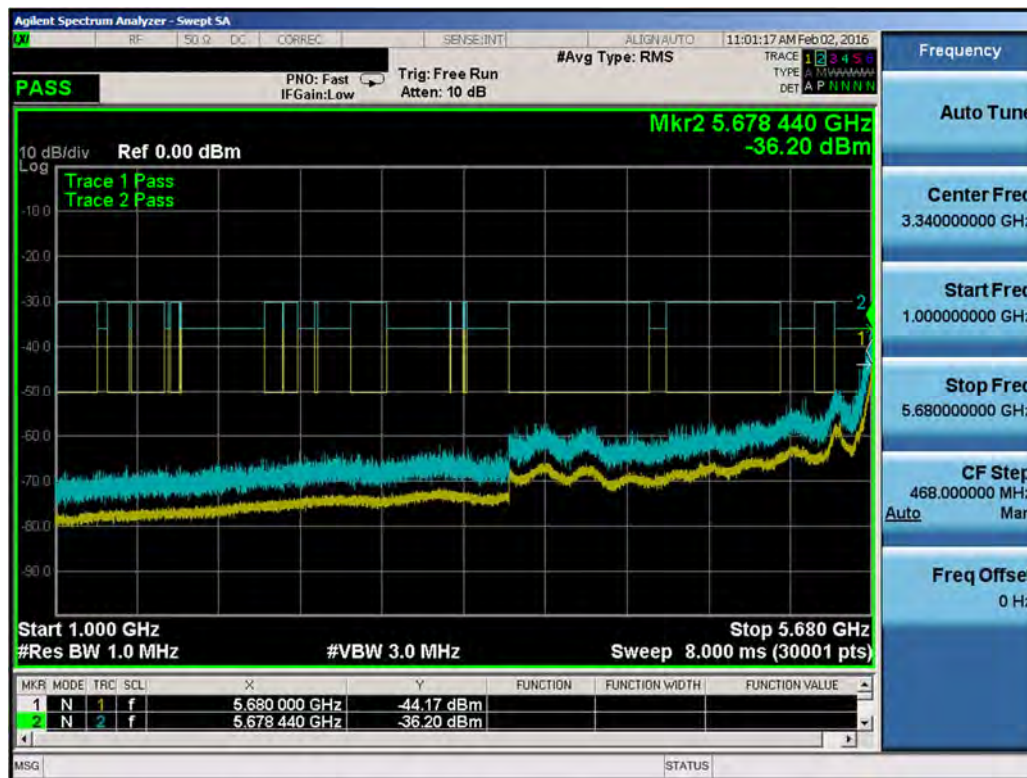


Plot 7-157. Conducted Spurious Plot (LAA (UNII Band 3, 20MHz BW) – Ch. 53540)

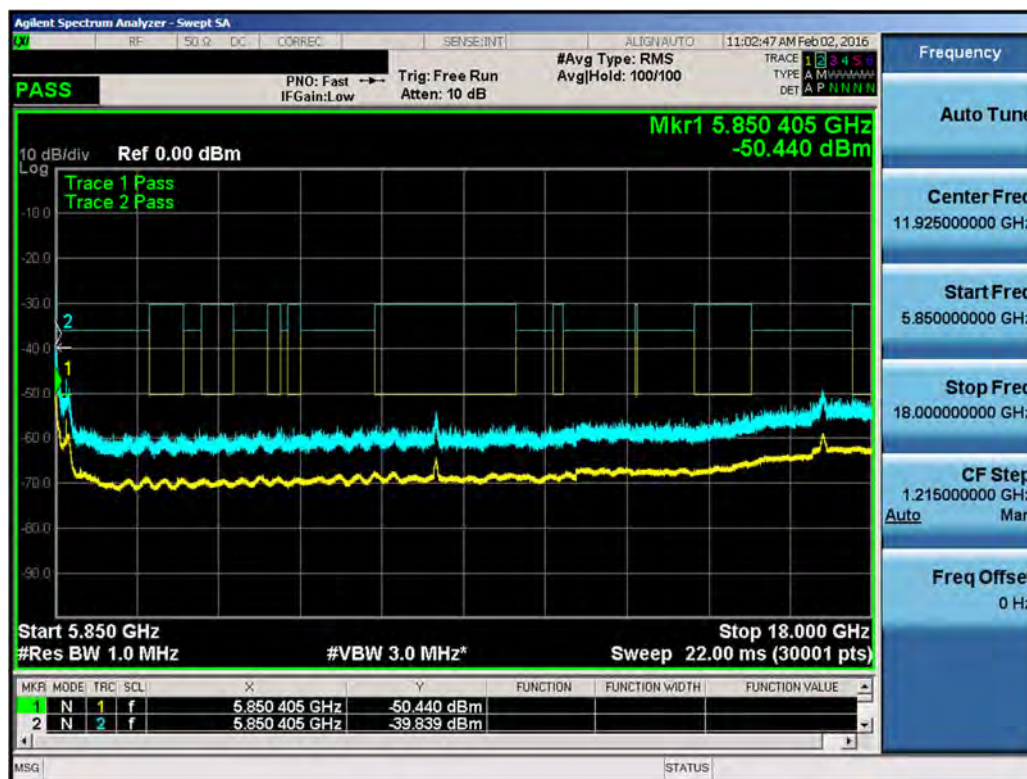


Plot 7-158. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 52740, 52940)


FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 104 of 145

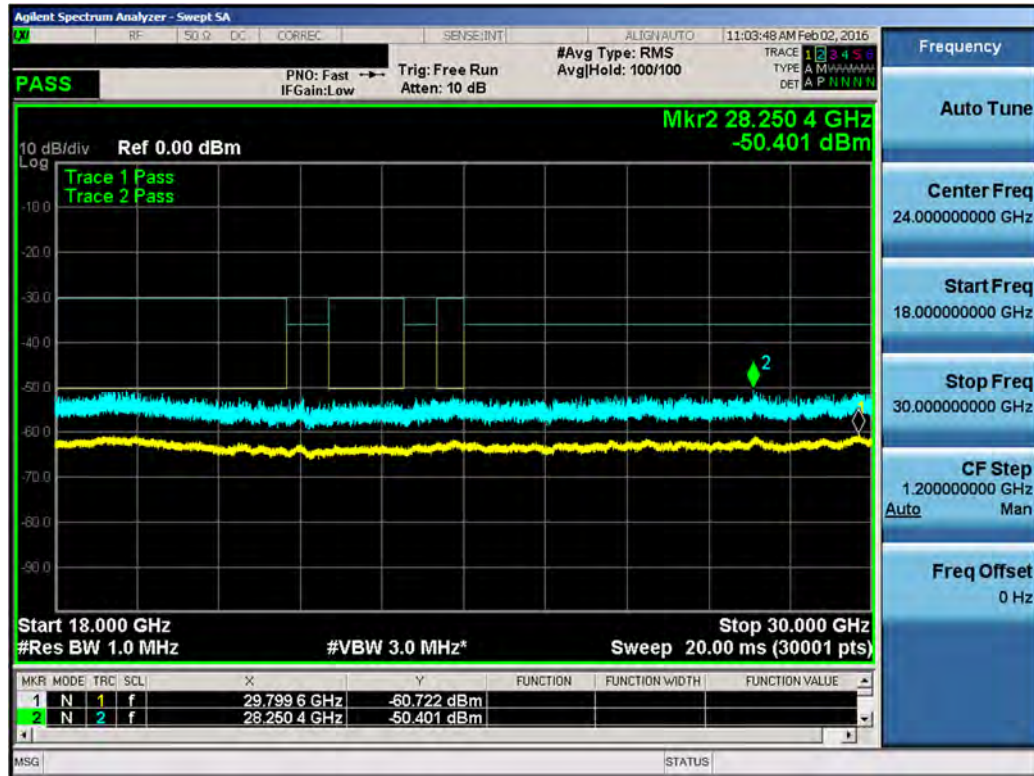


Plot 7-159. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 52740, 52940)



Plot 7-160. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 52740, 52940)

FCC ID: J9CMT9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 105 of 145

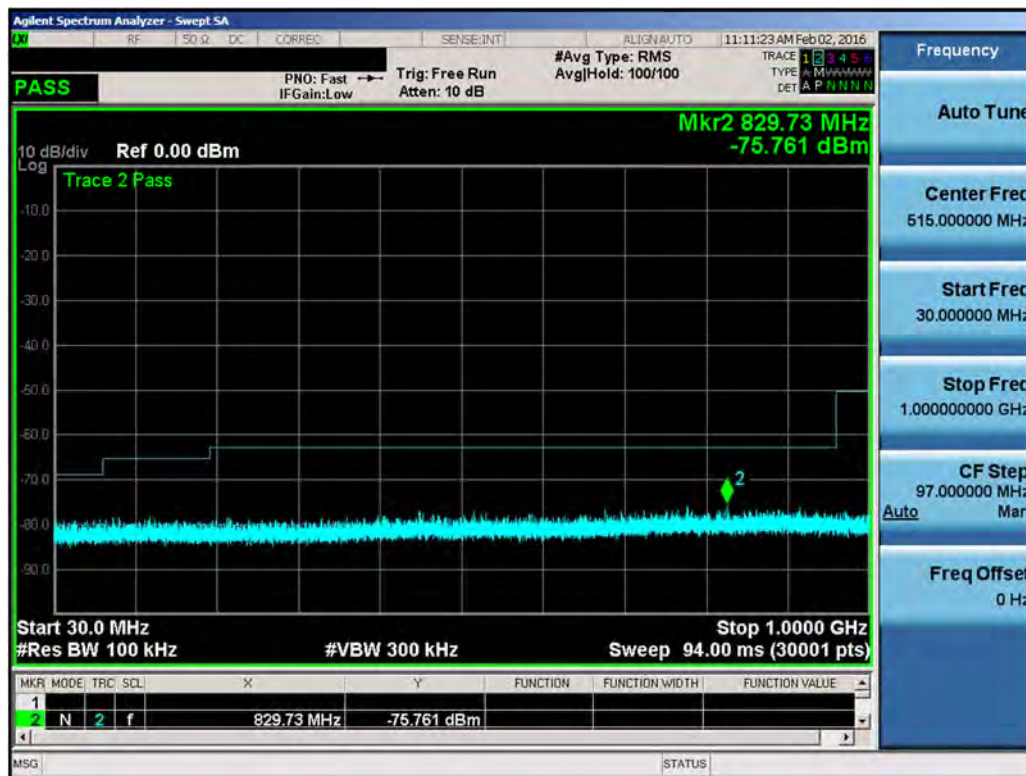


Plot 7-161. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 52740, 52940)

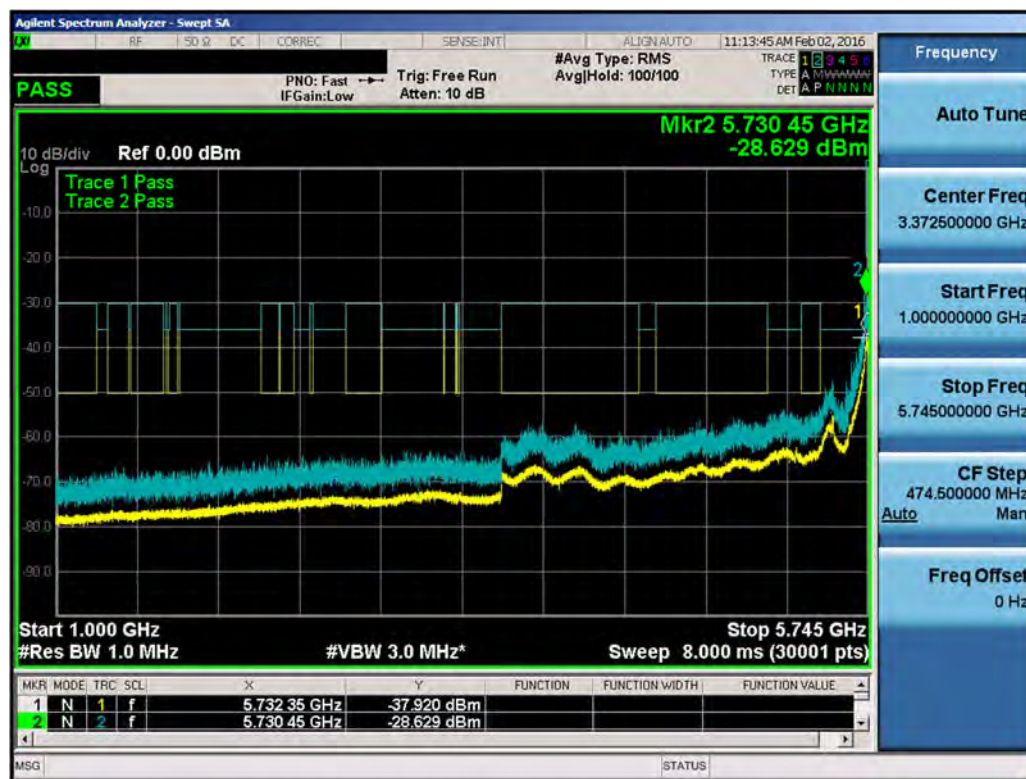


Plot 7-162. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 52740, 52940)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 106 of 145

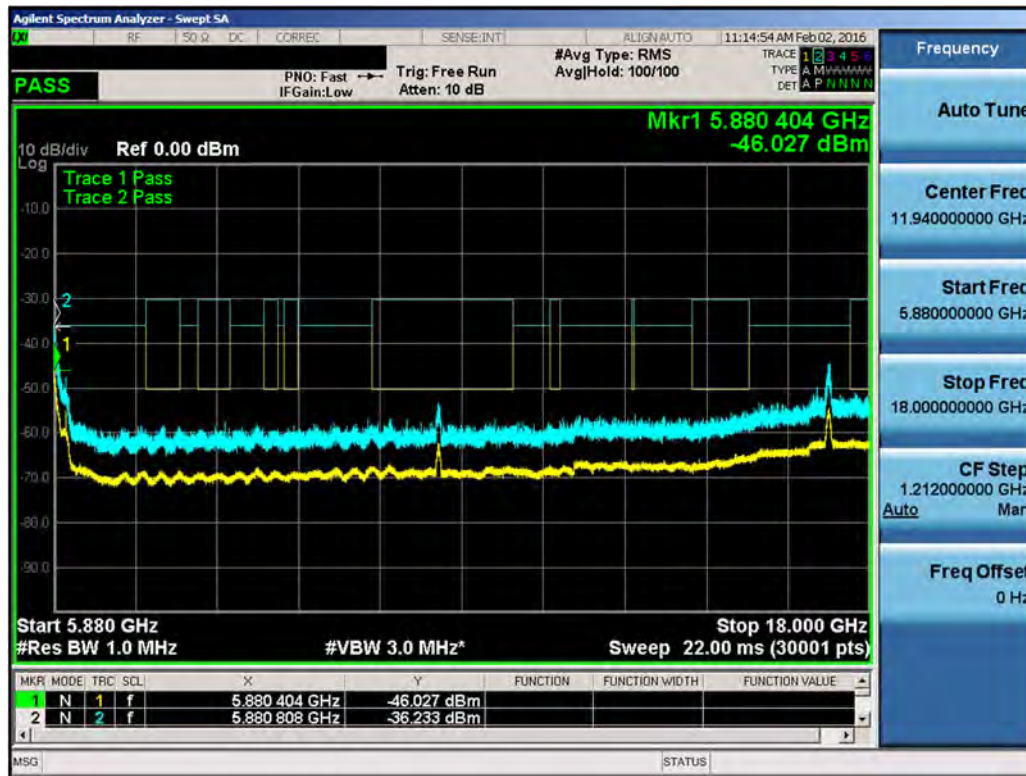


Plot 7-163. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53140, 53340)

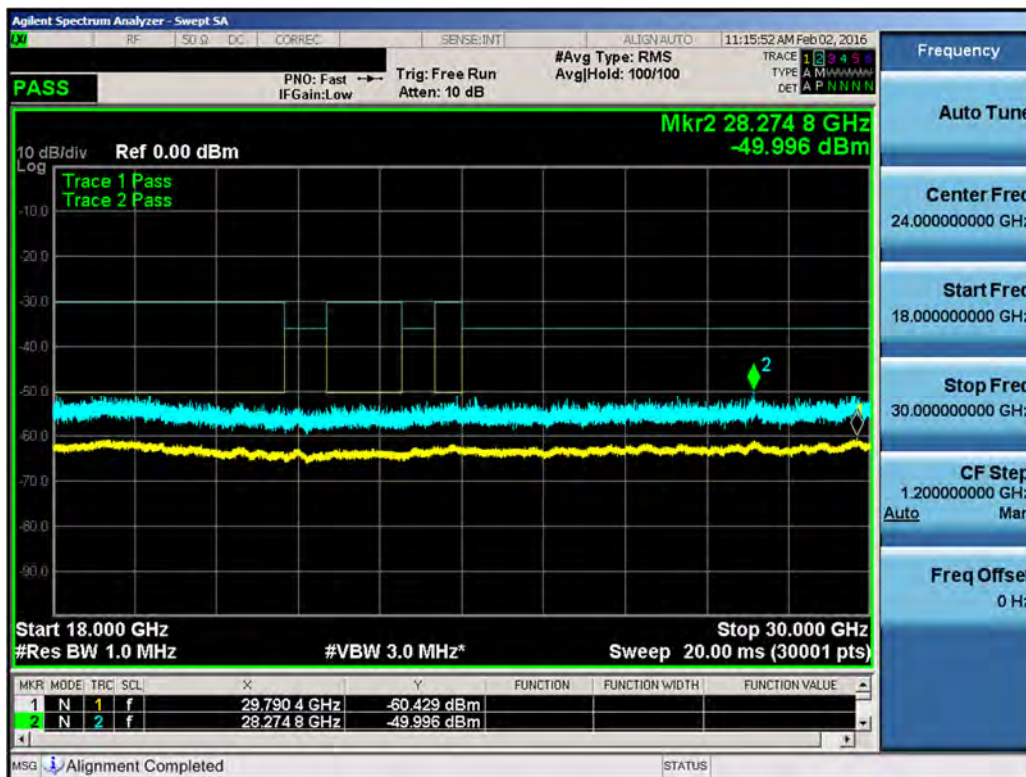


Plot 7-164. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53140, 53340)

FCC ID: J9CMTP9900LAA			FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell		Page 107 of 145

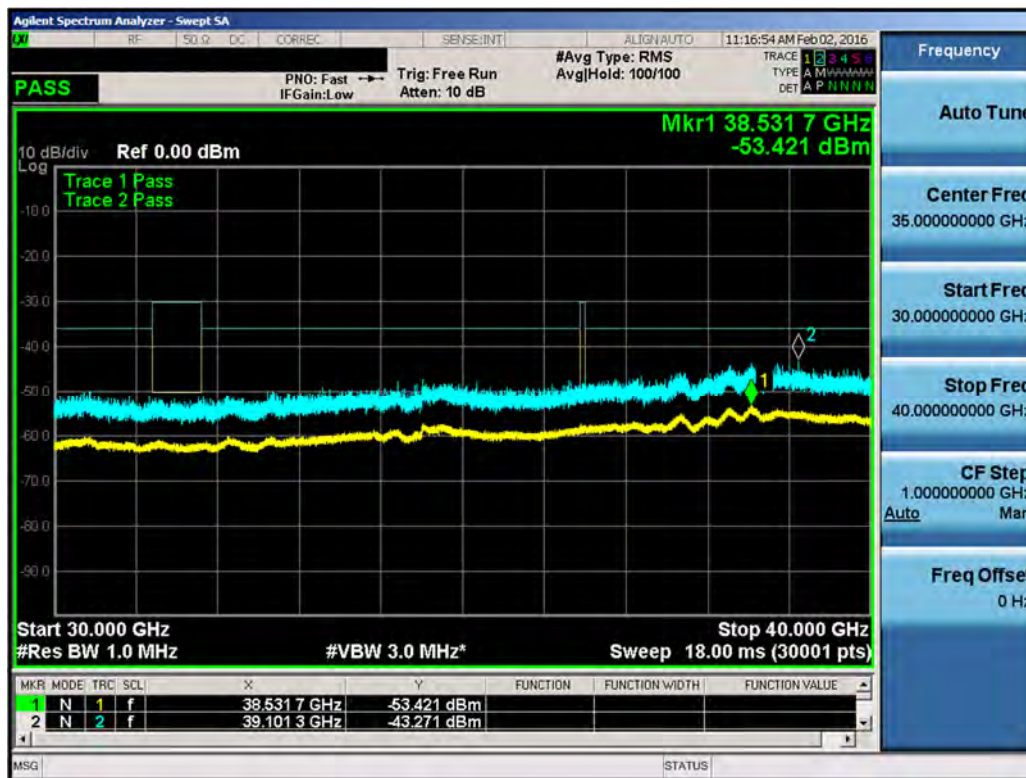


Plot 7-165. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53140, 53340)

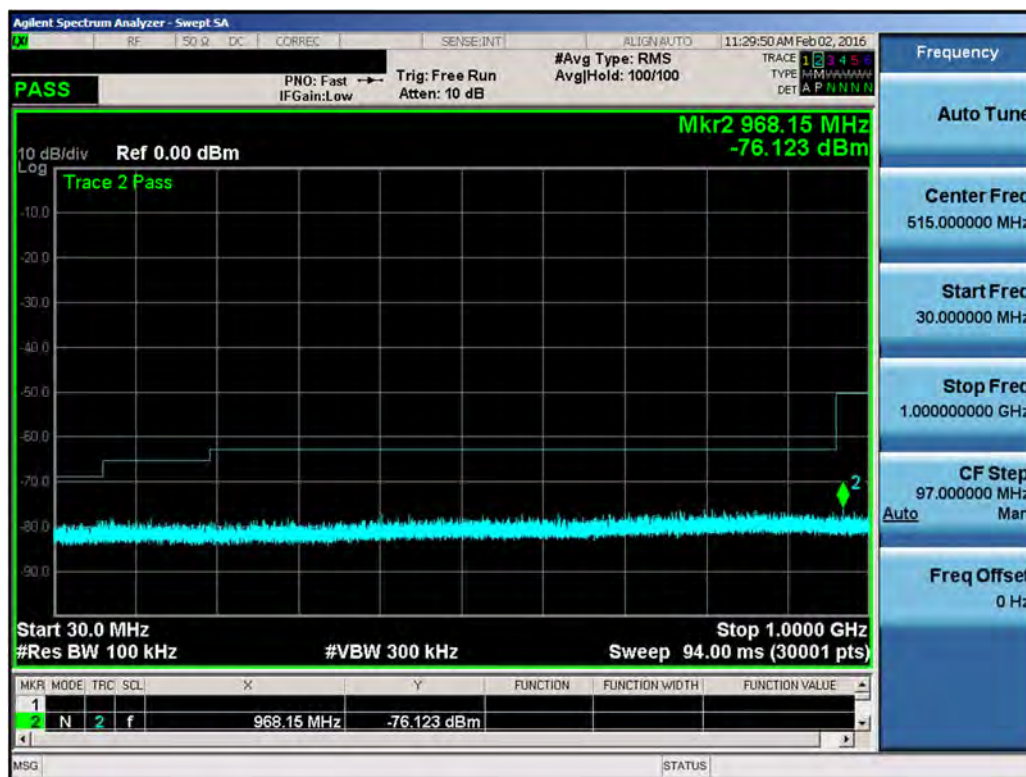


Plot 7-166. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53140, 53340)


FCC ID: J9CMTP9900LAA			FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell		Page 108 of 145

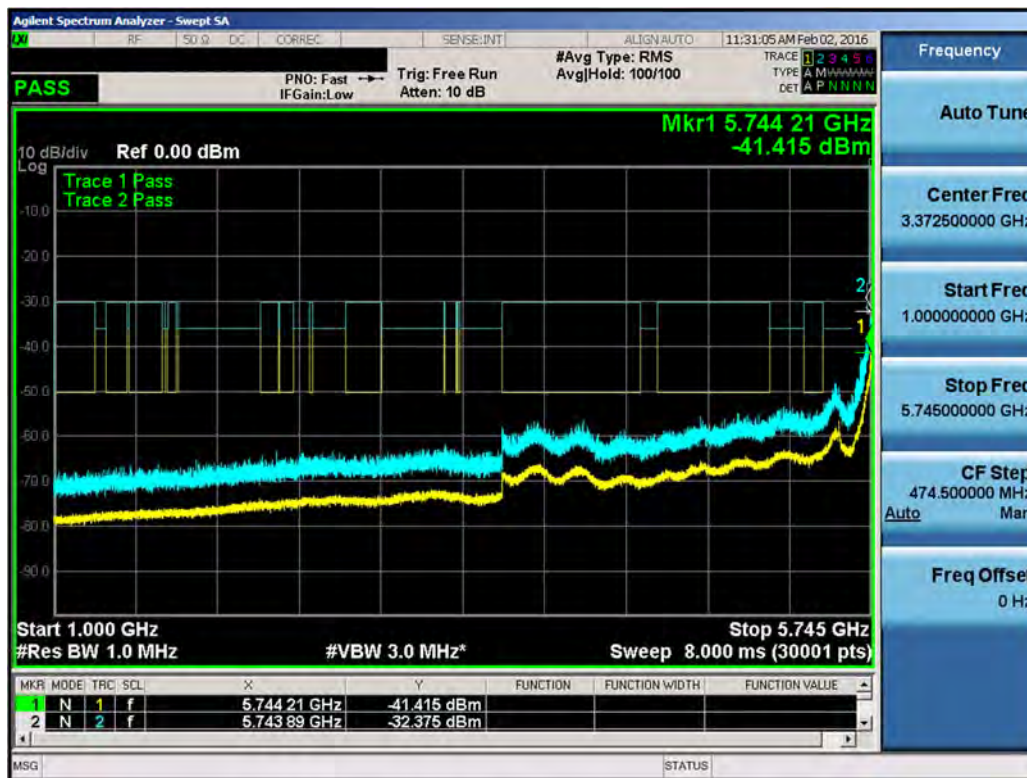


Plot 7-167. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53140, 53340)

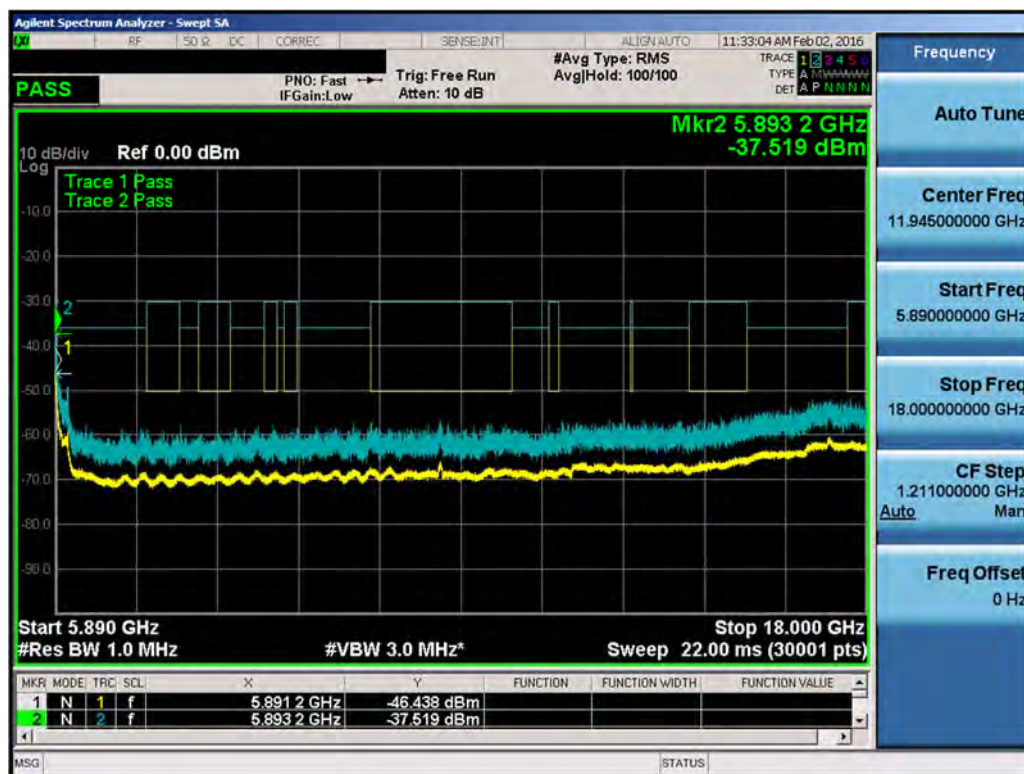


Plot 7-168. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53340, 53540)


FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 109 of 145

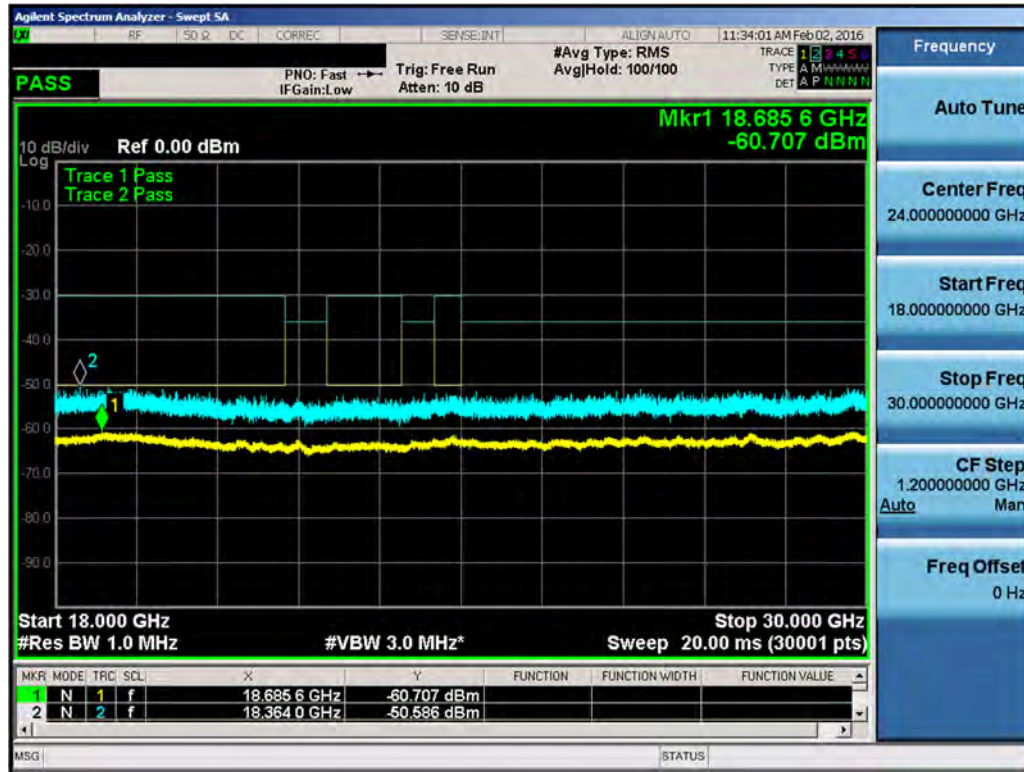


Plot 7-169. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53340, 53540)

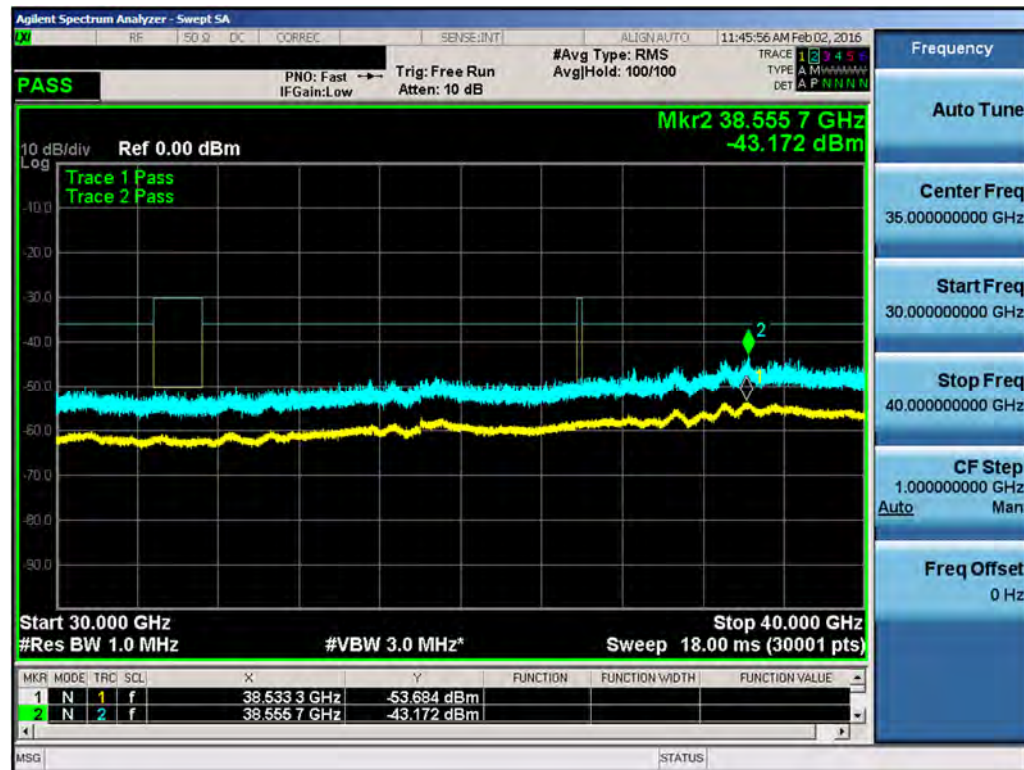


Plot 7-170. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53340, 53540)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 110 of 145



Plot 7-171. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53340, 53540)



Plot 7-172. Conducted Spurious Plot (LAA (UNII Band 3, 40MHz BW) – Ch. 53340, 53540)

FCC ID: J9CMTP9900LAA	 FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 111 of 145

7.8 Frequency Stability

§15.407(g)

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -30°C and +50°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

OPERATING FREQUENCY: 5,200,000,000 Hz
 3GPP CHANNEL: 47290
 REFERENCE VOLTAGE: 120.00 VAC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	120.00	+ 20 (Ref)	5,200,028,500	28,500	0.00054808
100 %		- 30	5,200,017,750	17,750	0.00034135
100 %		- 20	5,200,046,500	46,500	0.00089423
100 %		- 10	5,200,048,250	48,250	0.00092788
100 %		0	5,200,008,000	8,000	0.00015385
100 %		+ 10	5,200,054,750	54,750	0.00105288
100 %		+ 20	5,200,095,000	95,000	0.00182692
100 %		+ 30	5,200,027,500	27,500	0.00052885
100 %		+ 40	5,200,059,750	59,750	0.00114904
100 %		+ 50	5,200,078,750	78,750	0.00151442
85 %	102.00	+ 20	5,200,024,750	24,750	0.00047596
115 %	138.00	+ 20	5,200,031,750	31,750	0.00061058

Table 7-9. Frequency Stability Measurements for UNII Band 1 (Ch. 47290)

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore, the device is determined to remain operating in band over the temperature and voltage range as tested.

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7.9 Cabinet Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b.1), §15.205, §15.209

Test Overview and Limit

All out of band cabinet radiated spurious emissions measurements are performed with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power level and at the appropriate frequencies. The EUT is also set to transmit from two antennas simultaneously while all of its outputs are terminated into 50Ω. All LAA channels, modes and bandwidths were investigated. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-10 per Section 15.209.

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-10. Radiated Limits

Test Procedures Used

KDB 789033 D02 v01r02 – Section G
ANSI C63.10-2013


Test Settings

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span/RBW}$)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

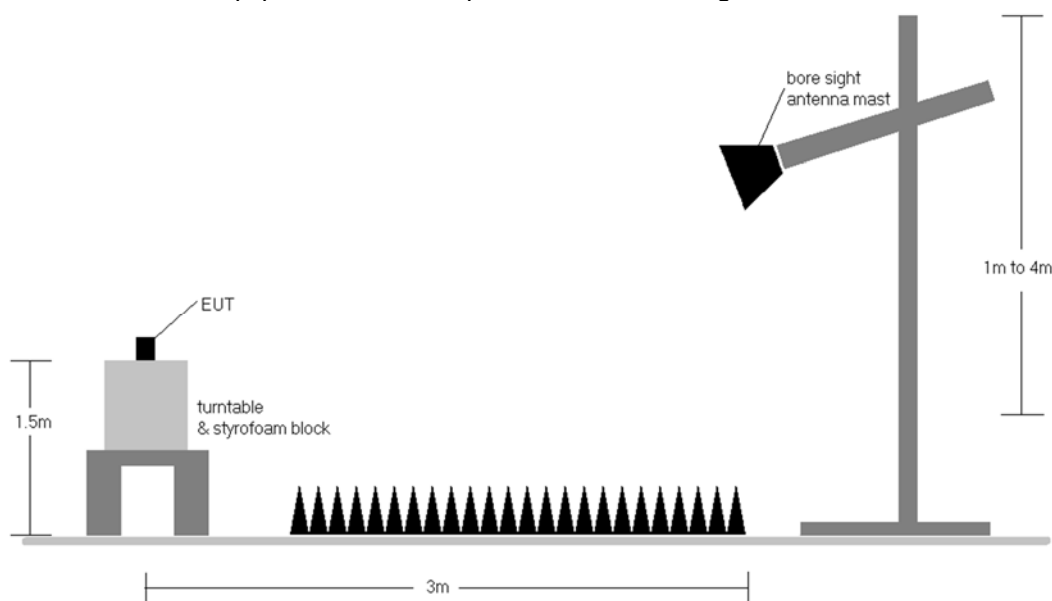



Figure 7-7. Test Instrument & Measurement Setup

Test Notes

1. All radiated spurious emissions levels were measured in a radiated test setup per the guidance of KDB 789033 D02 v01r02 Section G.
2. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 7-10.
3. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 6-11. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB μ V/m.


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4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested while powered by an AC power source.
6. The spectrum is measured from 9kHz up to 40GHz per 15.33(a). Below 1GHz, a CISPR quasi peak detector is used and, above 1 GHz, average and peak detectors are used. Measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. The “-” shown in the “Antenna Height” and “Turntable Azimuth” columns of the following RSE tables are used to denote a noise floor measurement.
9. The wide spectrum spurious emissions plots shown on the following pages were taken at a 1m test distance and are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
10. An emission was found around 26.96GHz that was present as a result of the EUT being powered on. The emission did not seem to be affected by power setting, operating channel, antenna height, or turntable azimuth.
11. Cabinet radiated emissions were performed for two different test scenarios. In Test Scenario #1, Chain0 was active. In Test Scenario #2, Chain1 was active. Both scenarios were used to measure cabinet radiated emissions with the antenna ports terminated in 50Ω. The test scenarios are labeled throughout this section.
12. Radiated emission measurements were made with LAA transmitting using 20MHz and 40MHz nominal channel bandwidths. It was determined that the 20MHz BW emissions were worse than the 40MHz BW emissions, so all final measurement data in this section was recorded using 20MHz BW.

Sample Calculations

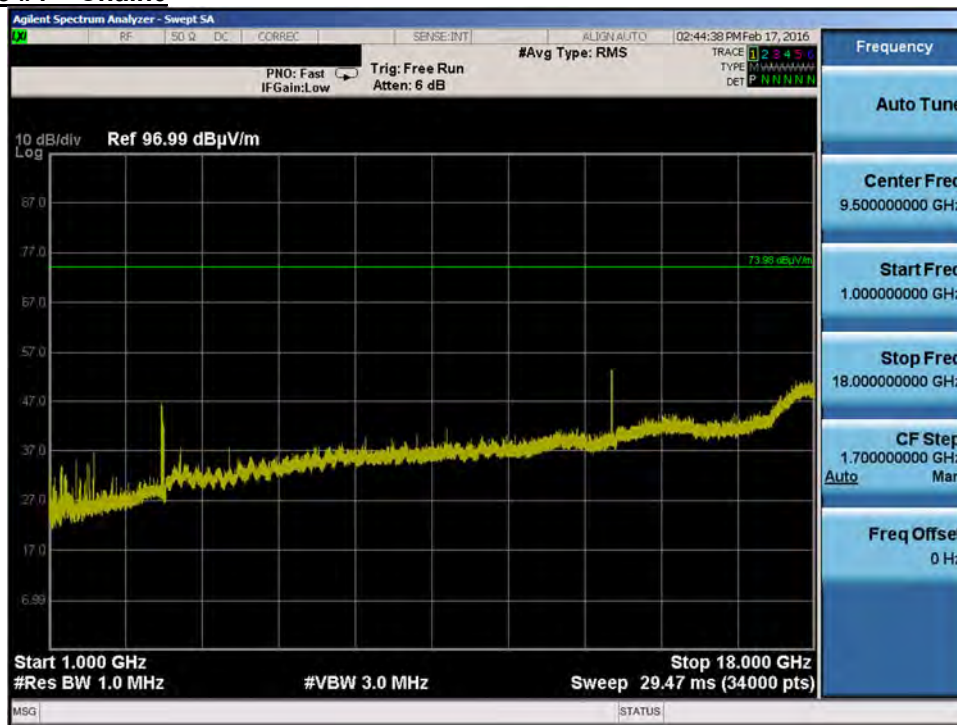
Determining Spurious Emissions Levels

- Field Strength Level [dB μ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dB μ V/m] – Limit [dB μ V/m]

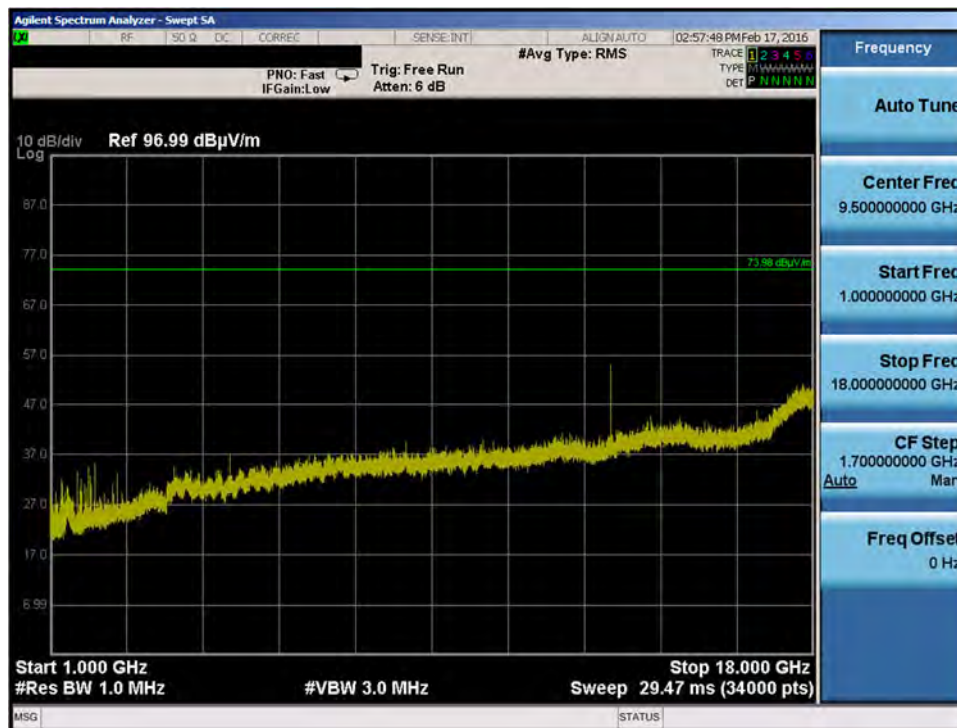
FCC ID: J9CMTP9900LAA		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Cabinet Radiated Spurious Emission Measurements – Above 1GHz (Cont'd)

Test Scenario #1 – Chain0

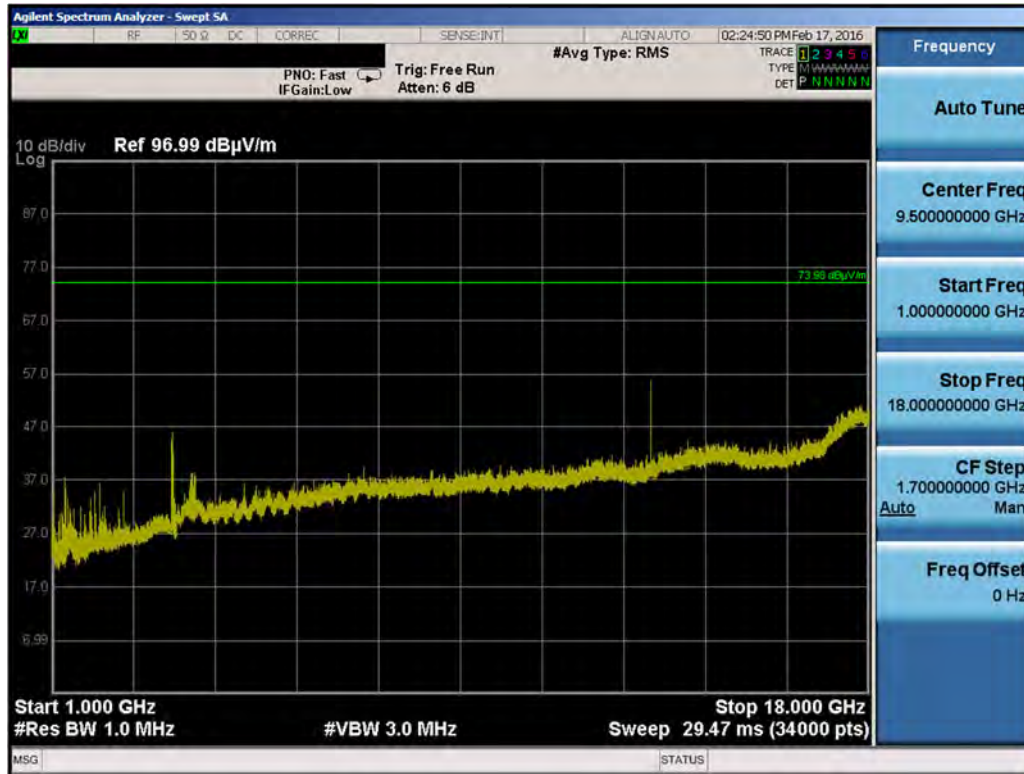


Plot 7-173. Radiated Spurious Plot > 1GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)

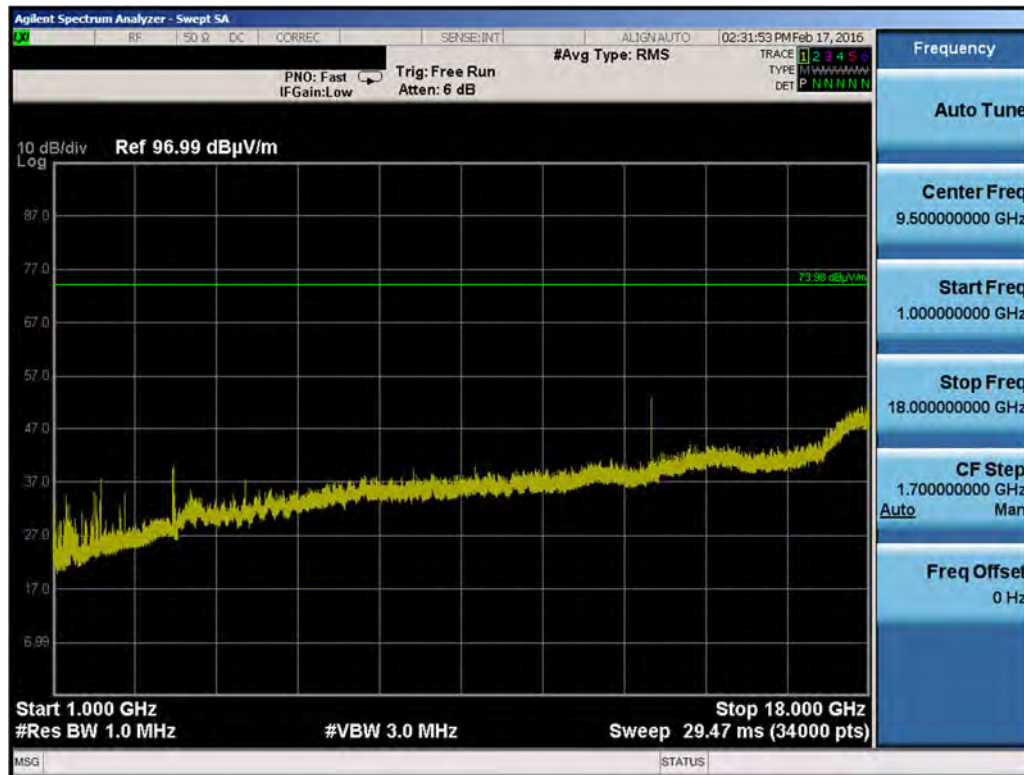


Plot 7-174. Radiated Spurious Plot > 1GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)

FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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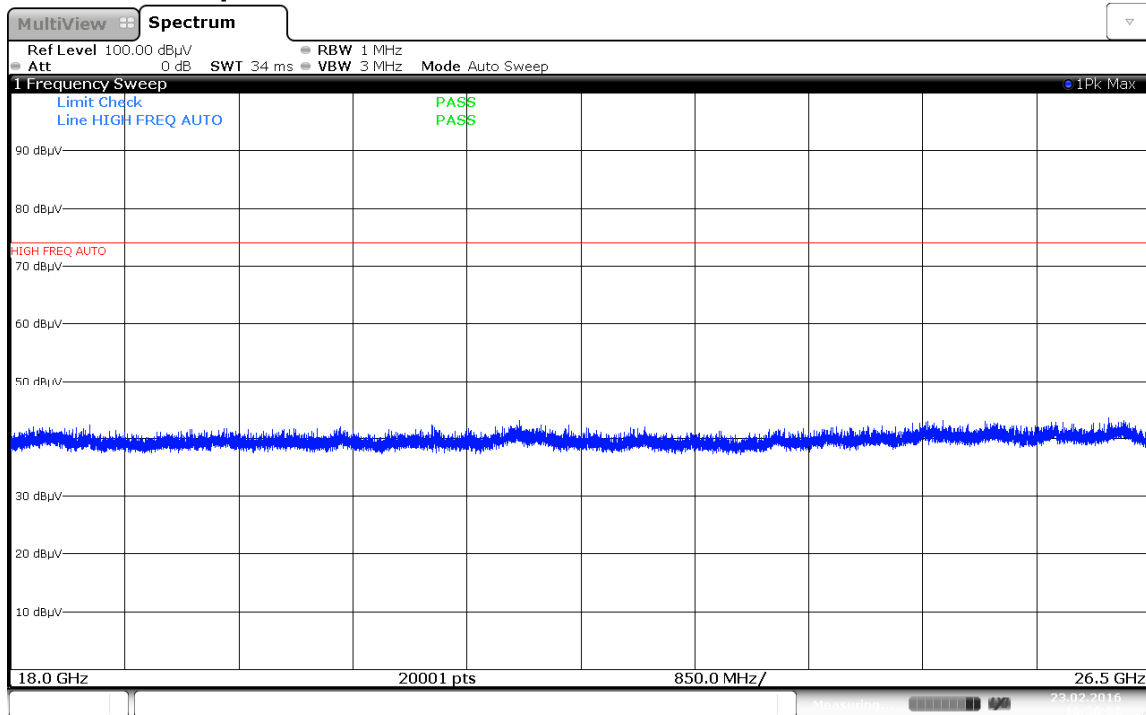
Plot 7-175. Radiated Spurious Plot > 1GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)



Plot 7-176. Radiated Spurious Plot > 1GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)

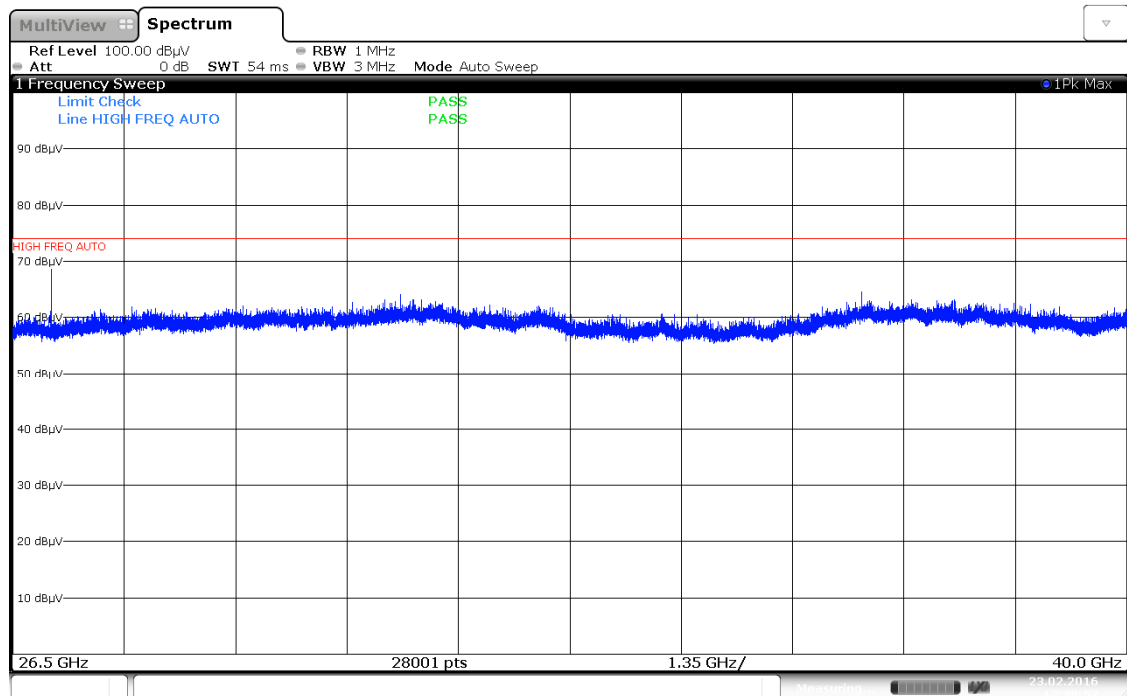
FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 117 of 145

Cabinet Radiated Spurious Emission Measurements – Above 18GHz




Date: 23.FEB.2016 16:36:51

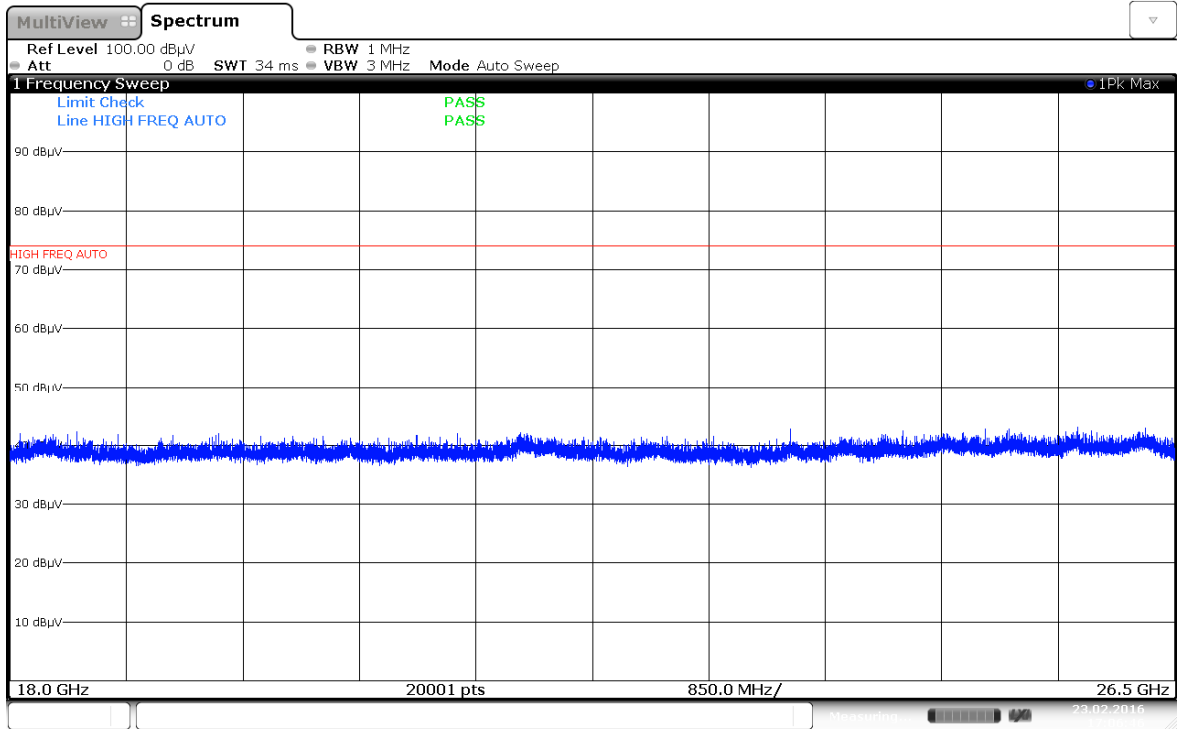
Plot 7-177. Radiated Spurious Plot > 18GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)



Date: 23.FEB.2016 17:38:57

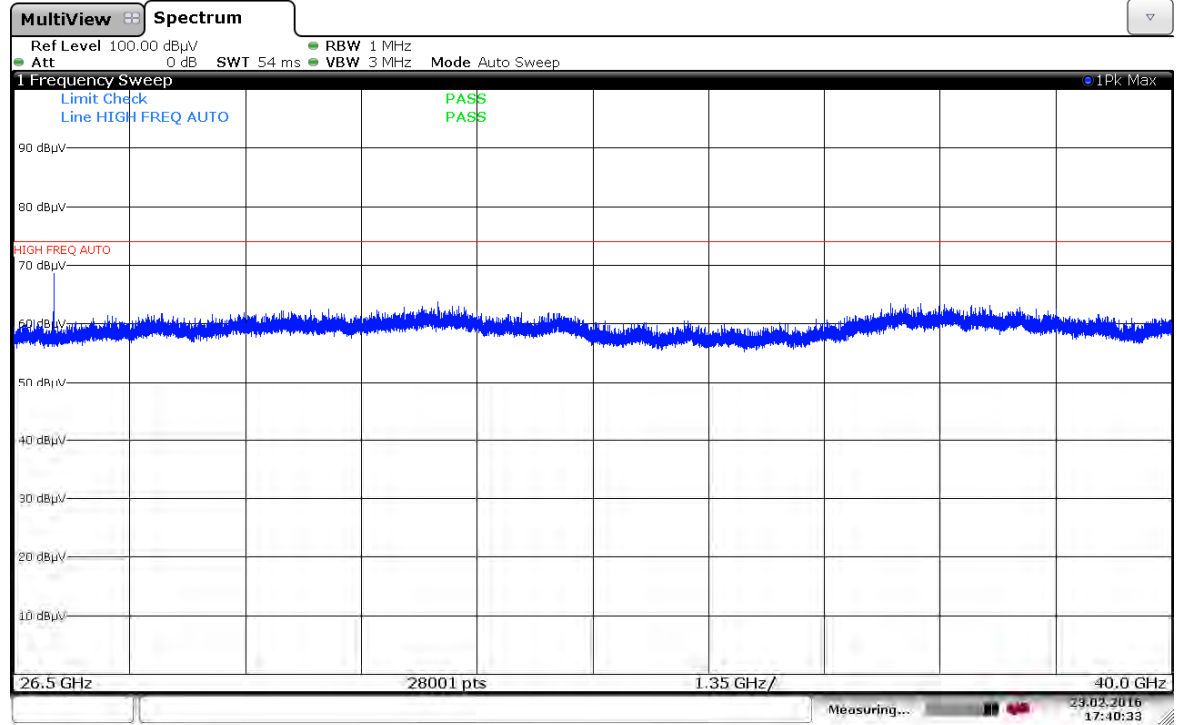
Plot 7-178. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)

FCC ID: J9CMT9900LAA		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 118 of 145



Date: 23.FEB.2016 17:06:46

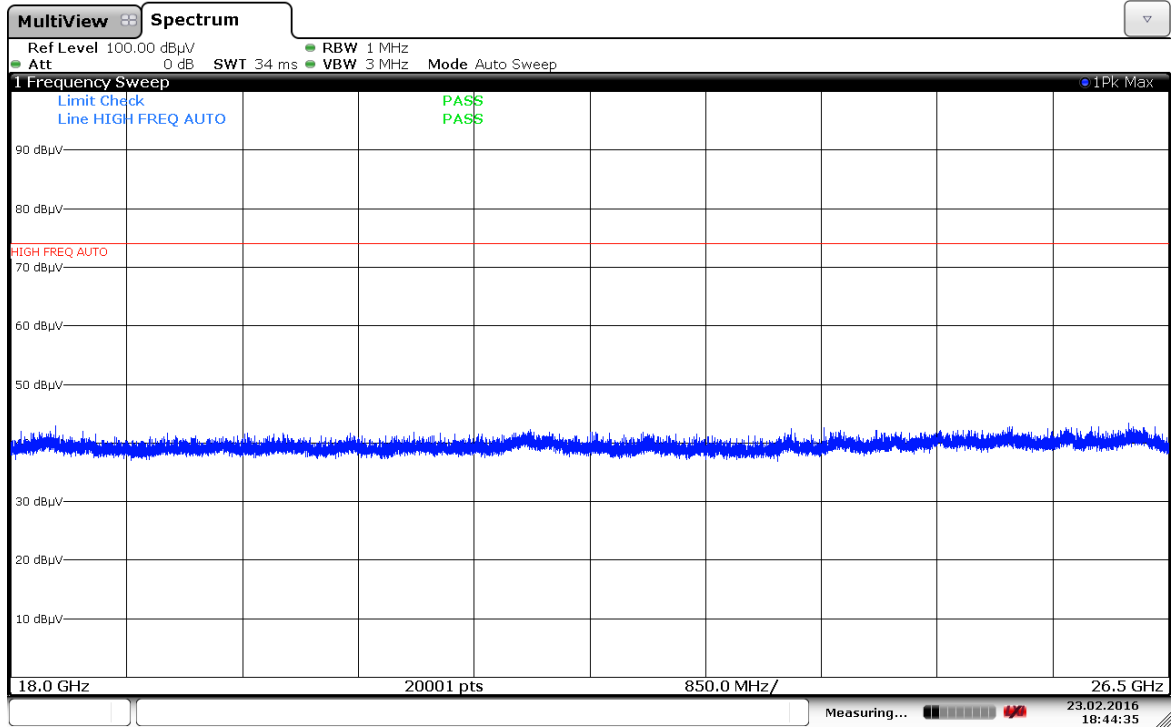
Plot 7-179. Radiated Spurious Plot > 18GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)



Date: 23.FEB.2016 17:40:33

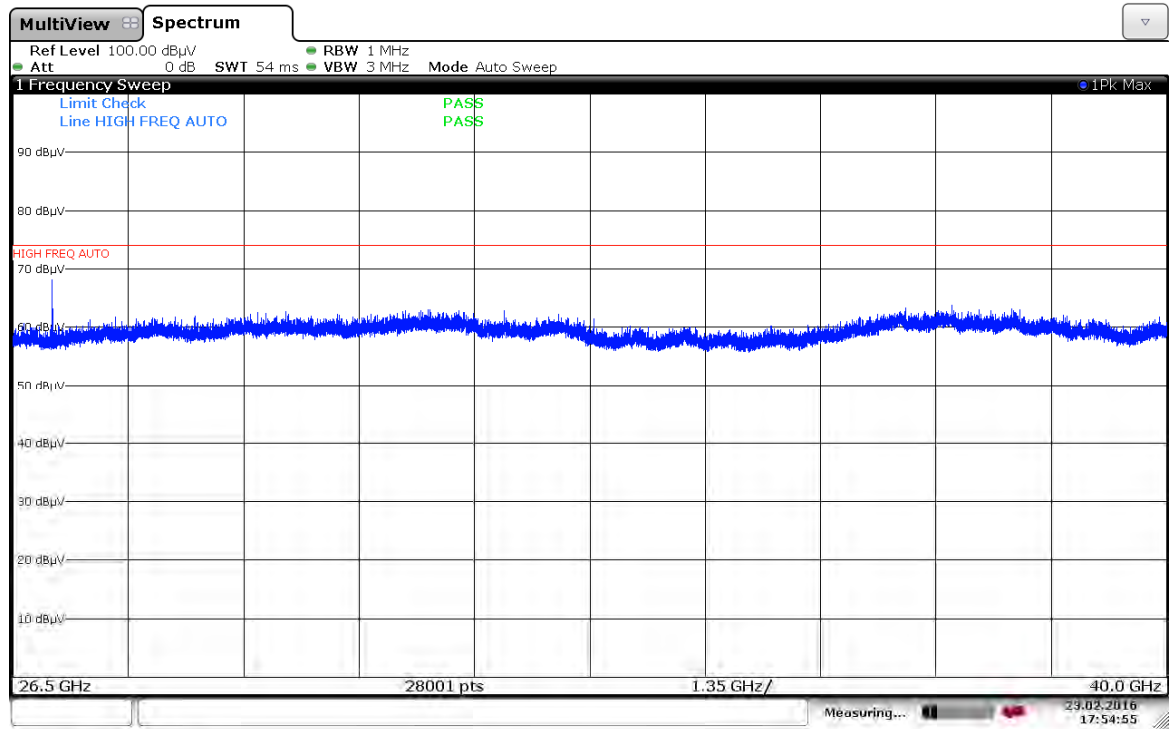
Plot 7-180. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)

FCC ID: J9CMT9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Date: 23.FEB.2016 18:44:35

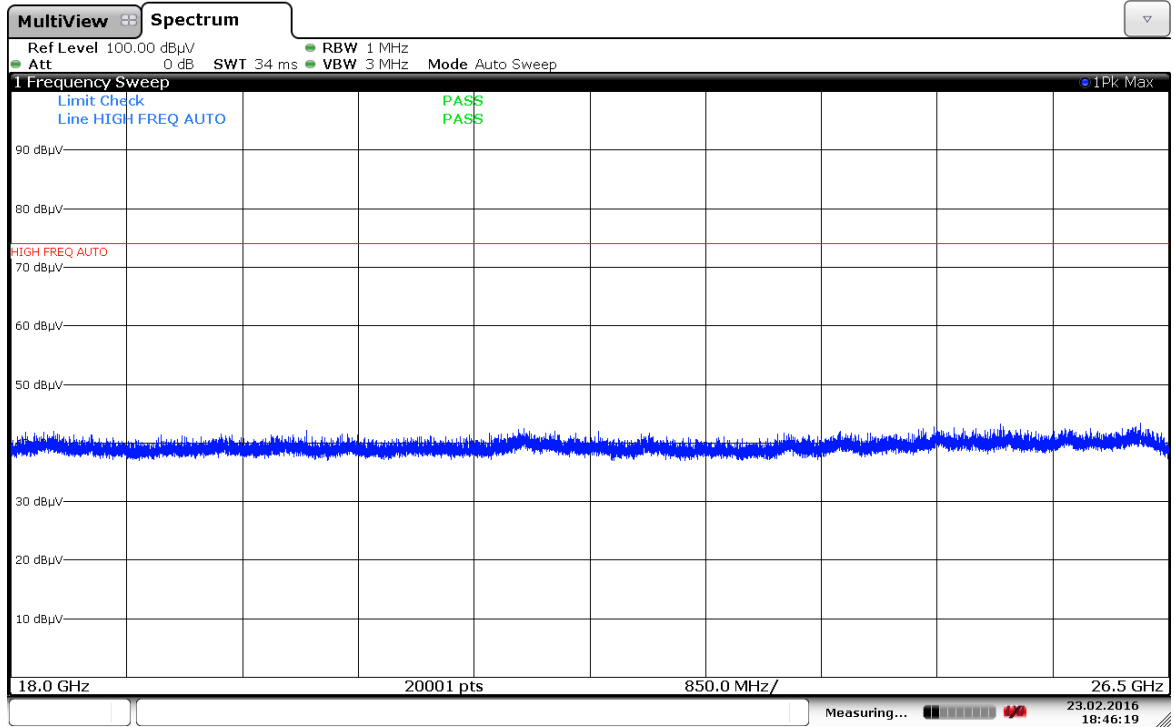
Plot 7-181. Radiated Spurious Plot > 18GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)



Date: 23.FEB.2016 17:54:55

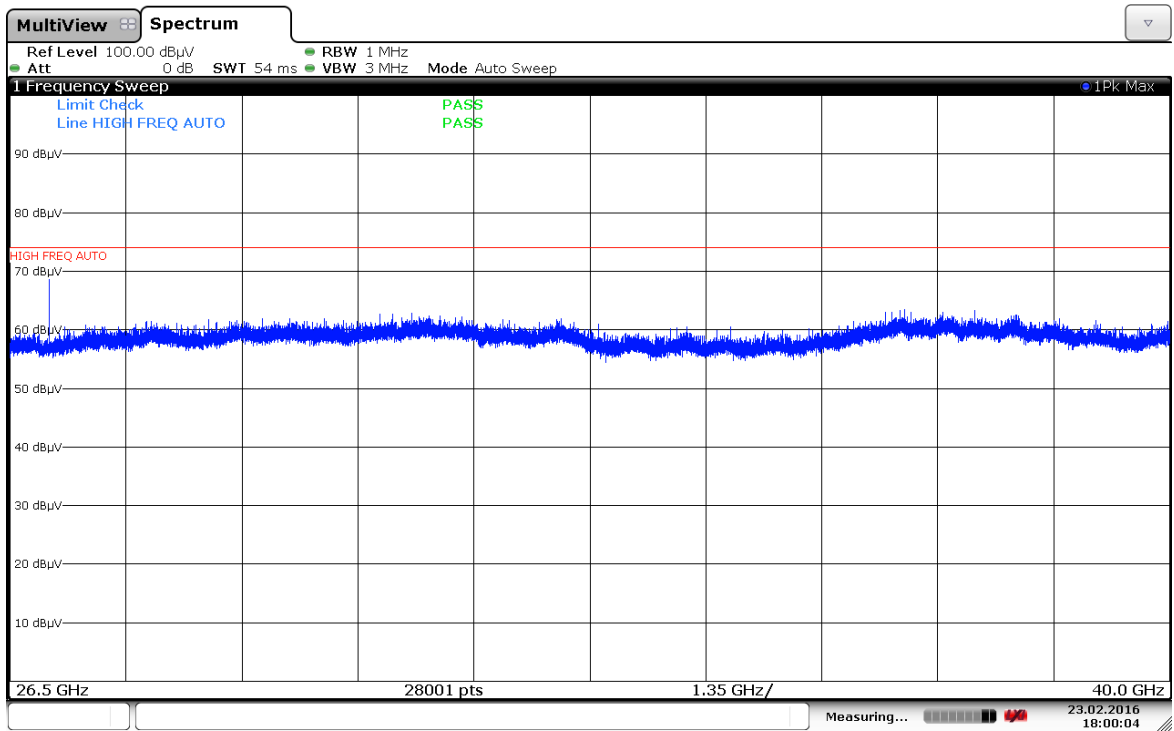
Plot 7-182. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)

FCC ID: J9CMT9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Date: 23.FEB.2016 18:46:19

Plot 7-183. Radiated Spurious Plot > 18GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)



Date: 23.FEB.2016 18:00:04

Plot 7-184. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)

FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1607131258-R3.J9C	Test Dates: 12/23/2015-3/5/2016	EUT Type: LAA Release 13 Small Cell	Page 121 of 145

Cabinet Radiated Spurious Emission Measurements – Above 1GHz (Cont'd)

§15.407(b.6), §15.205, §15.209

Test Scenario #1 – Chain0

Operating Mode:	LAA
Channel Bandwidth:	20MHz
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5160MHz
Channel:	46890


Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-98.88	47.61	55.73	68.20	-12.47
* 15540.00	Average	H	-	-	-111.18	52.56	48.38	53.98	-5.60
* 15540.00	Peak	H	-	-	-99.37	52.56	60.19	73.98	-13.79

Table 7-11. Radiated Measurements

Operating Mode:	LAA
Channel Bandwidth:	20MHz
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	47290

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-98.89	47.75	0.00	55.85	68.20	-12.35
* 15600.00	Average	H	-	-	-110.74	52.71	0.00	48.96	53.98	-5.02
* 15600.00	Peak	H	-	-	-98.55	52.71	0.00	61.15	73.98	-12.83
26960.00	Peak	H	100	315	-93.19	47.68	-9.54	51.95	68.20	-16.25

Table 7-12. Radiated Measurements

FCC ID: J9CMTP9900LAA			FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 47690


Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-99.83	47.89	55.06	68.20	-13.14
* 15720.00	Average	H	-	-	-110.69	51.88	48.19	53.98	-5.79
* 15720.00	Peak	H	-	-	-99.25	51.88	59.63	73.98	-14.35

Table 7-13. Radiated Measurements

Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 52740

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-110.70	47.91	44.22	53.98	-9.76
* 11490.00	Peak	H	-	-	-98.71	47.91	56.21	73.98	-17.77
17235.00	Peak	H	-	-	-99.80	53.70	60.91	68.20	-7.29

Table 7-14. Radiated Measurements

FCC ID: J9CMTP9900LAA		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Operating Mode: LAA
 Channel Bandwidth: 20MHz
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 53140

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-110.96	48.14	0.00	44.18	53.98	-9.80
* 11570.00	Peak	H	-	-	-99.39	48.14	0.00	55.75	73.98	-18.23
17355.00	Peak	H	-	-	-99.04	53.80	0.00	61.76	68.20	-6.44
26960.00	Peak	H	100	285	-93.82	47.68	-9.54	51.32	68.20	-16.88

Table 7-15. Radiated Measurements

Operating Mode: LAA
 Channel Bandwidth: 20MHz
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 53540

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.85	48.44	44.59	53.98	-9.38
* 11650.00	Peak	H	-	-	-99.74	48.44	55.70	73.98	-18.27
17475.00	Peak	H	-	-	-99.95	54.35	61.40	68.20	-6.80

Table 7-16. Radiated Measurements

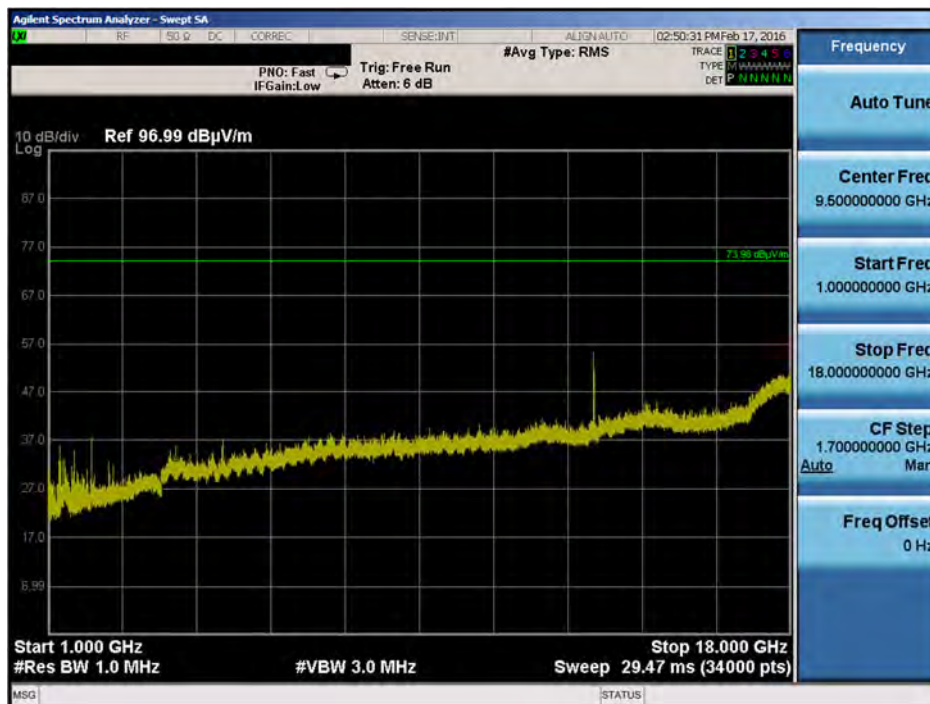
Cabinet Radiated Spurious Emission Measurements – Above 1GHz (Cont'd)

§15.407(b.6) §15.205 & §15.209

Test Scenario #2 – Chain1

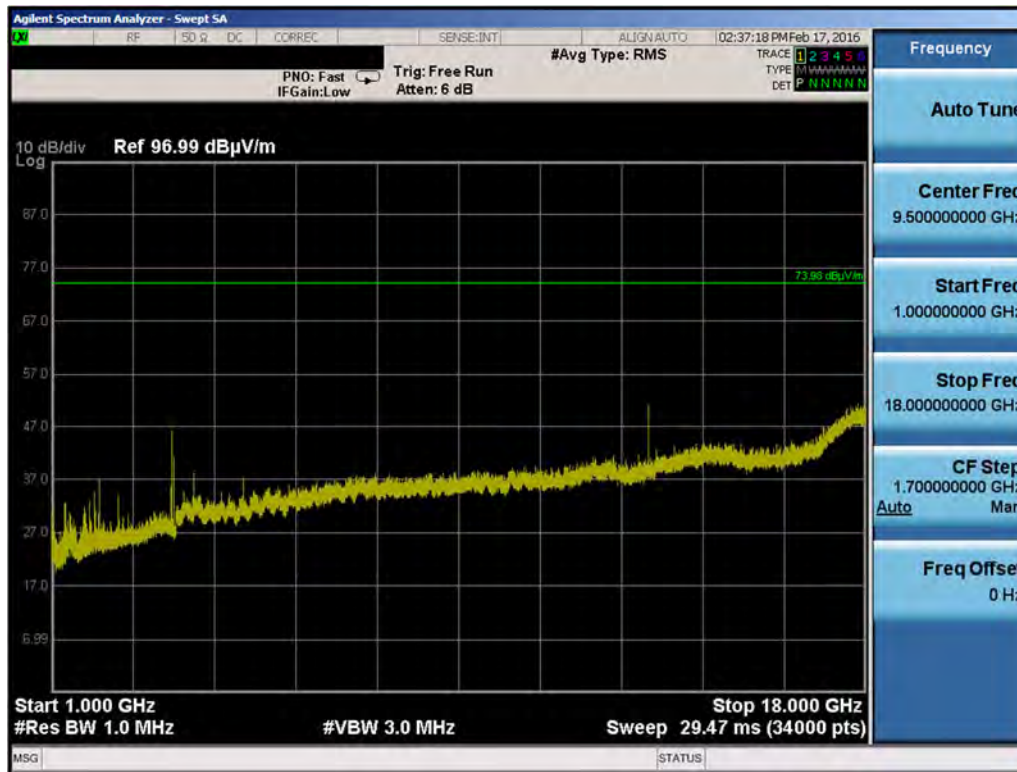


Plot 7-185. Radiated Spurious Plot > 1GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)

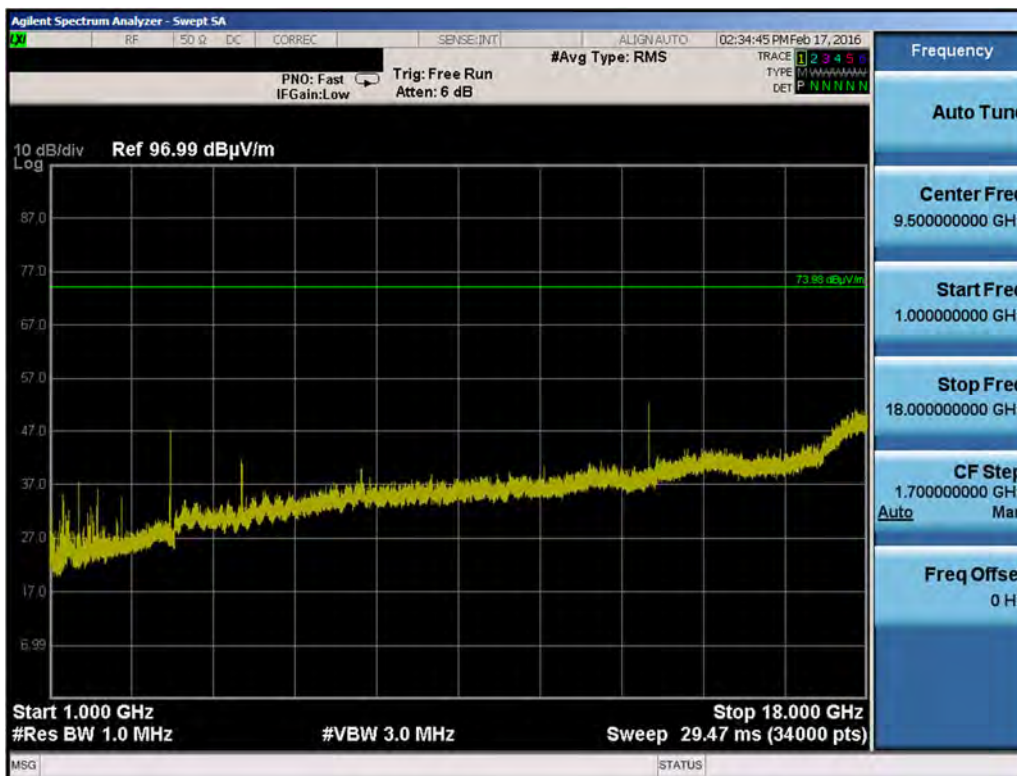


Plot 7-186. Radiated Spurious Plot > 1GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)

FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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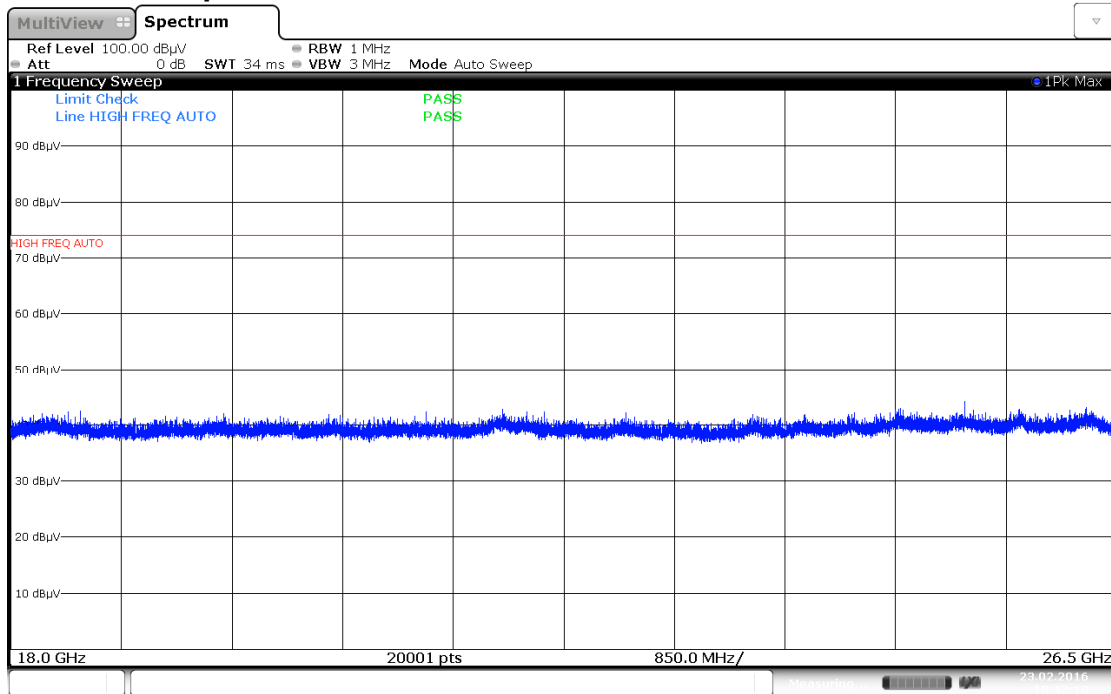
Plot 7-187. Radiated Spurious Plot > 1GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)



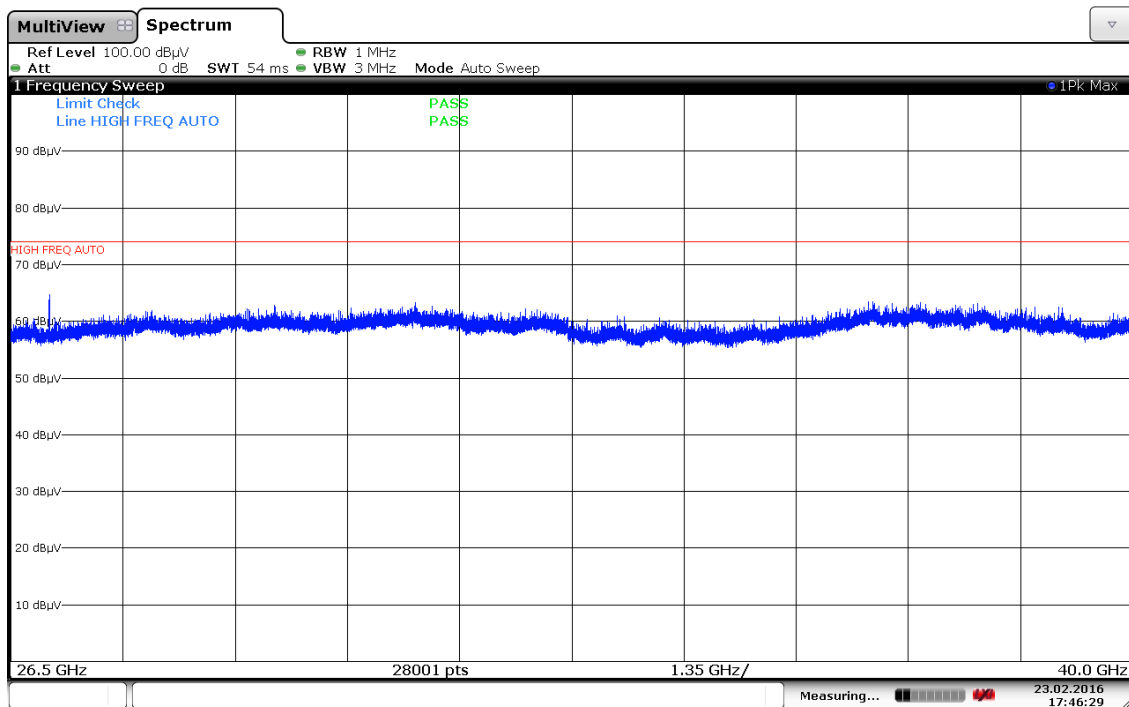
Plot 7-188. Radiated Spurious Plot > 1GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)

FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Cabinet Radiated Spurious Emission Measurements – Above 18GHz

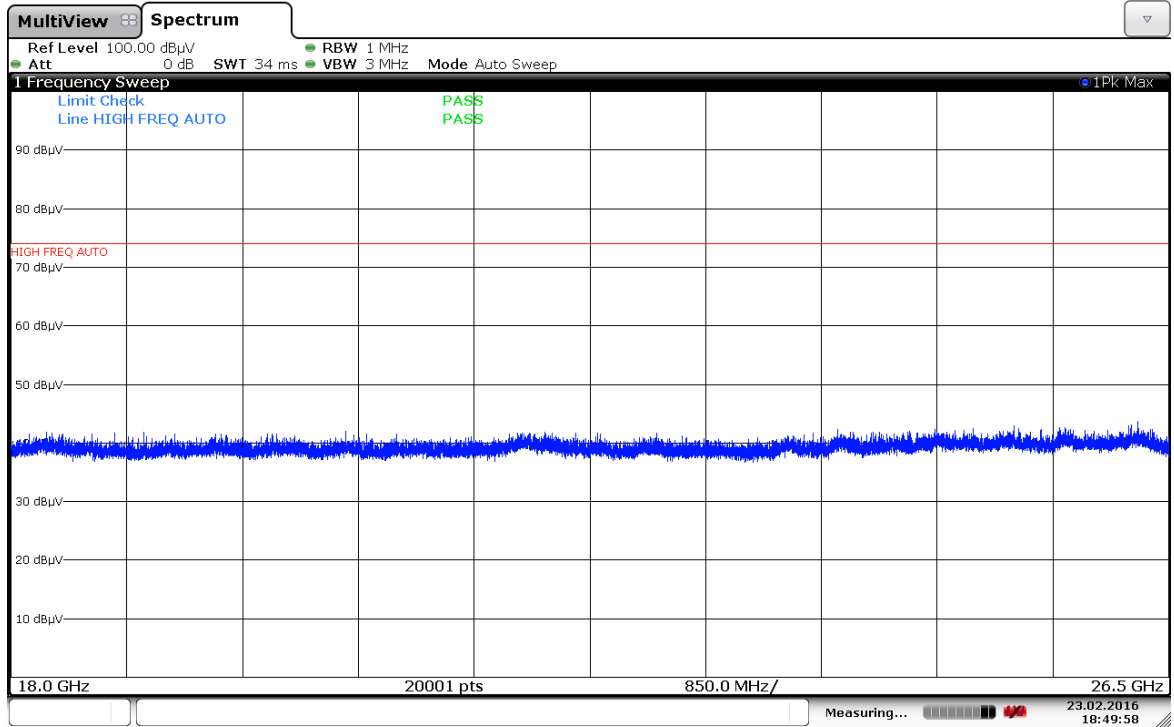


Plot 7-189. Radiated Spurious Plot > 18GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)



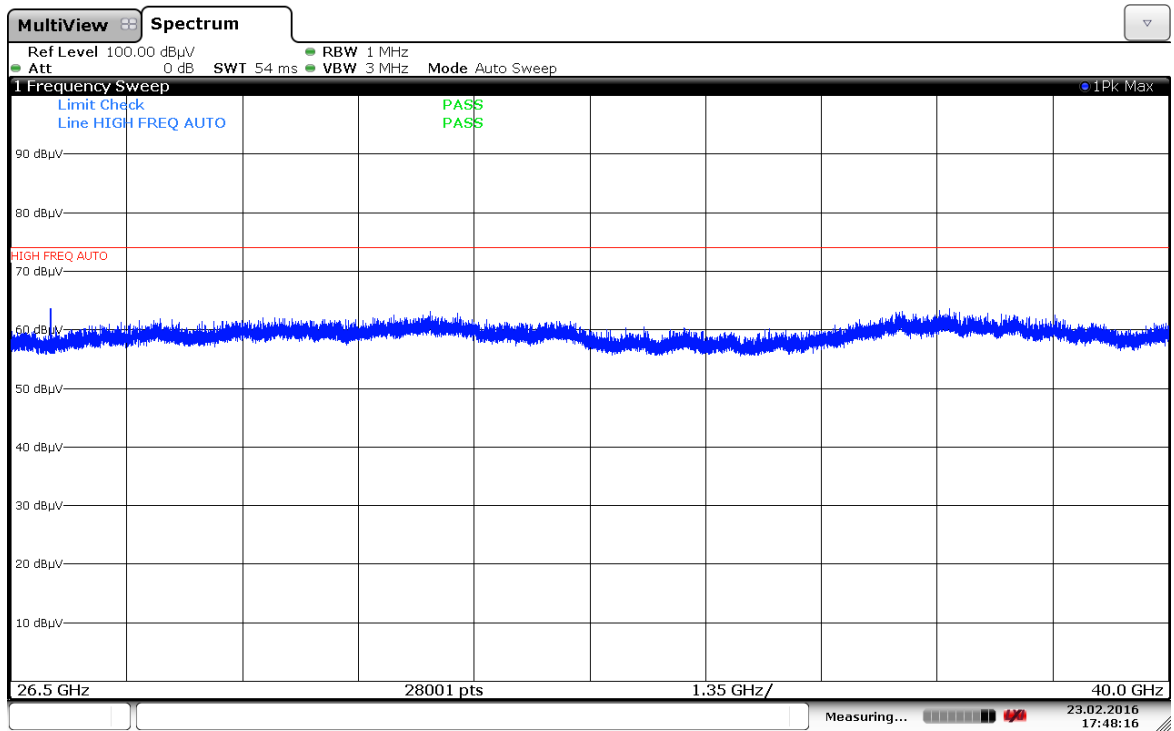
Plot 7-190. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 1, 20MHz BW), Ch. 47290)

FCC ID: J9CMTP9900LAA		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Date: 23.FEB.2016 18:49:59

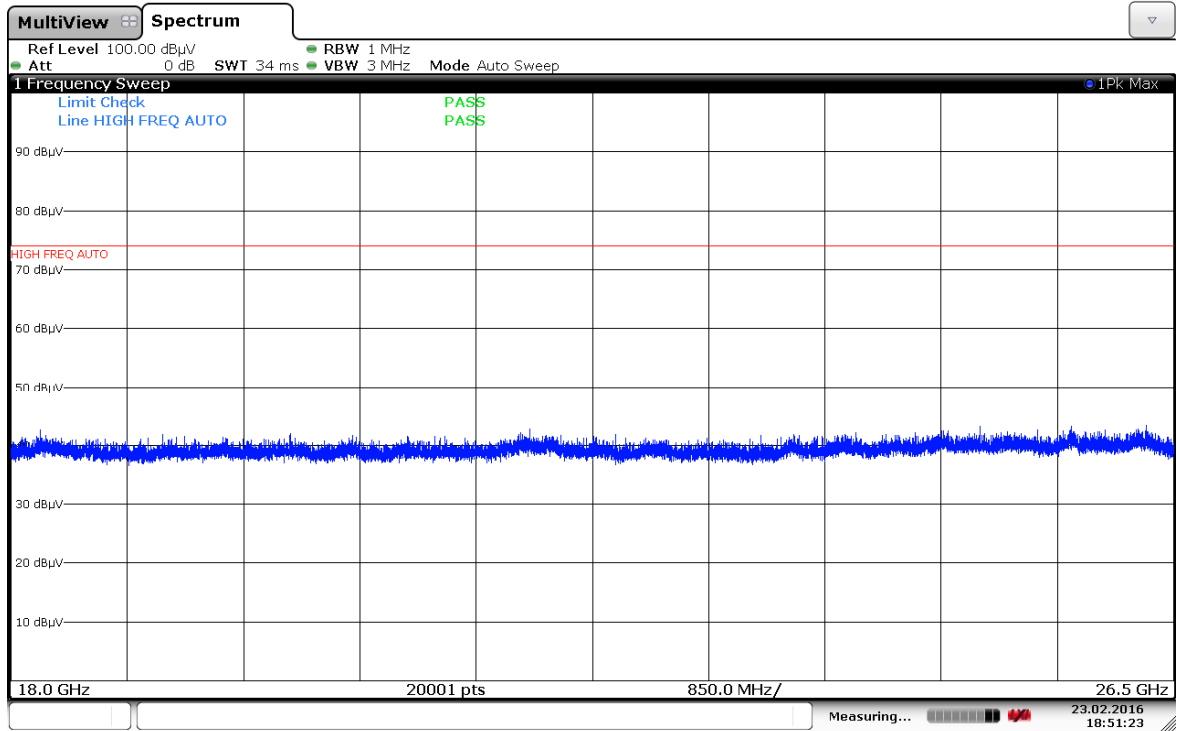
Plot 7-191. Radiated Spurious Plot > 18GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)



Date: 23.FEB.2016 17:48:16

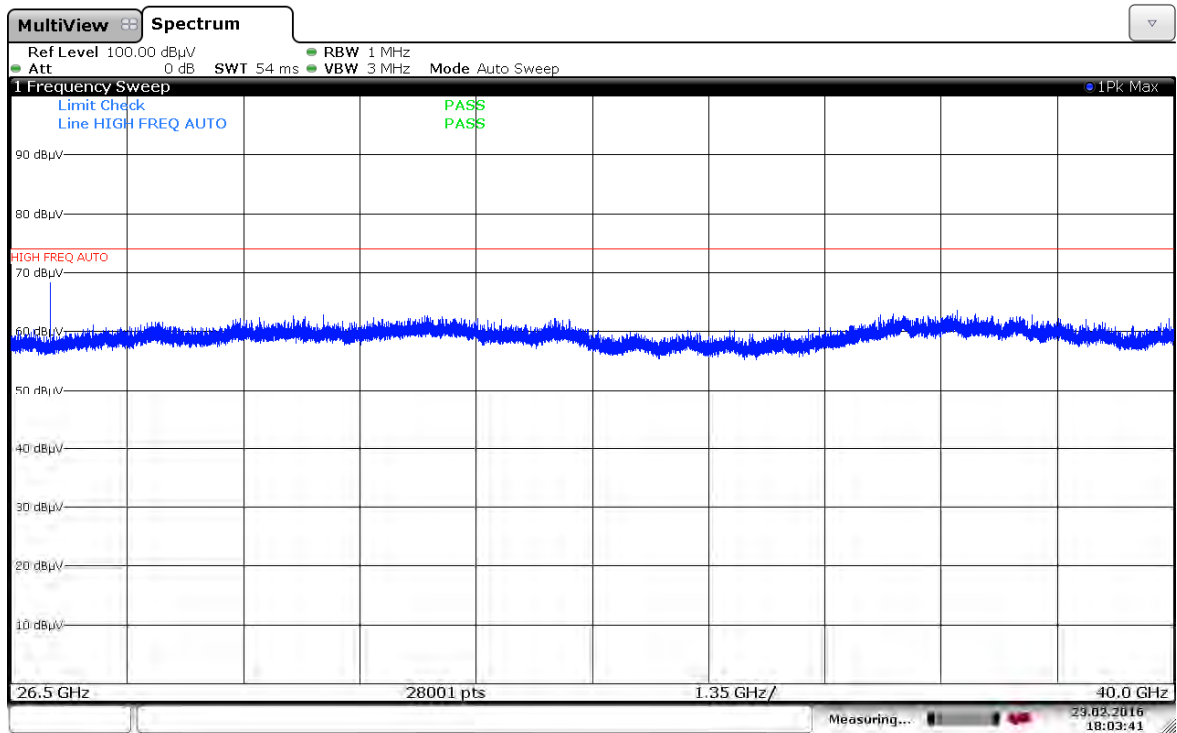
Plot 7-192. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 3, 20MHz BW), Ch. 53140)

FCC ID: J9CMT9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Date: 23.FEB.2016 18:51:23

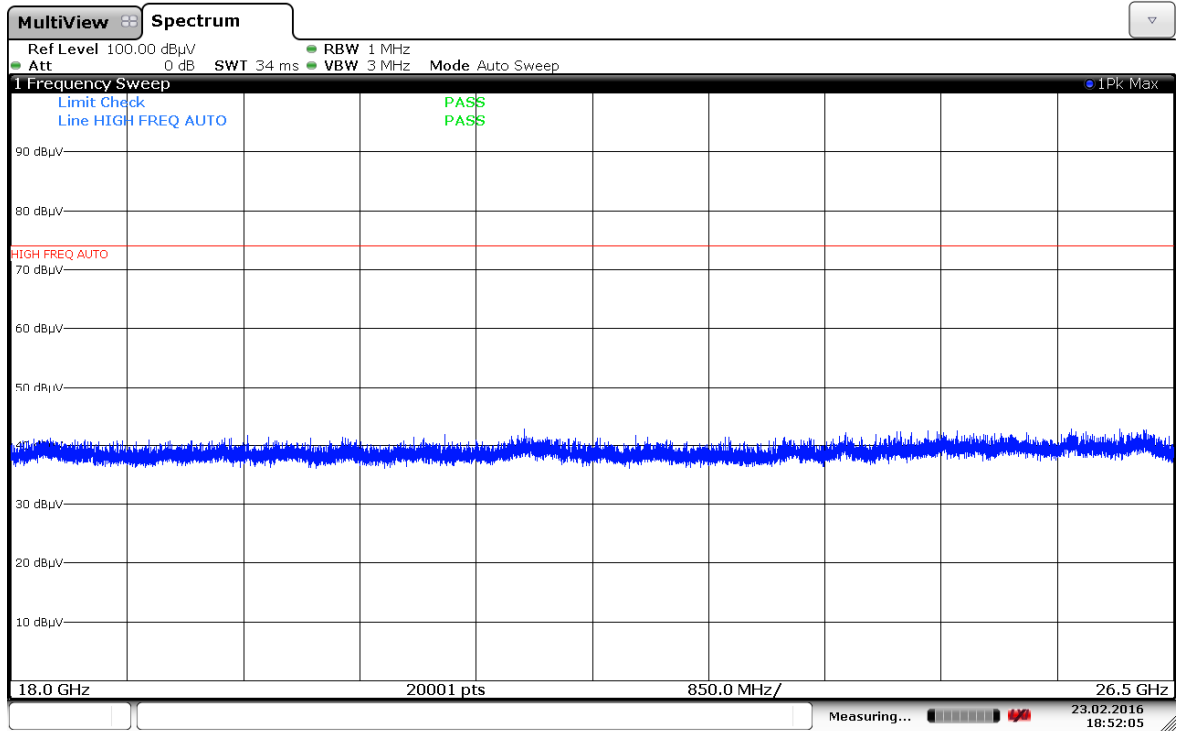
Plot 7-193. Radiated Spurious Plot > 18GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)



Date: 23.FEB.2016 18:03:41

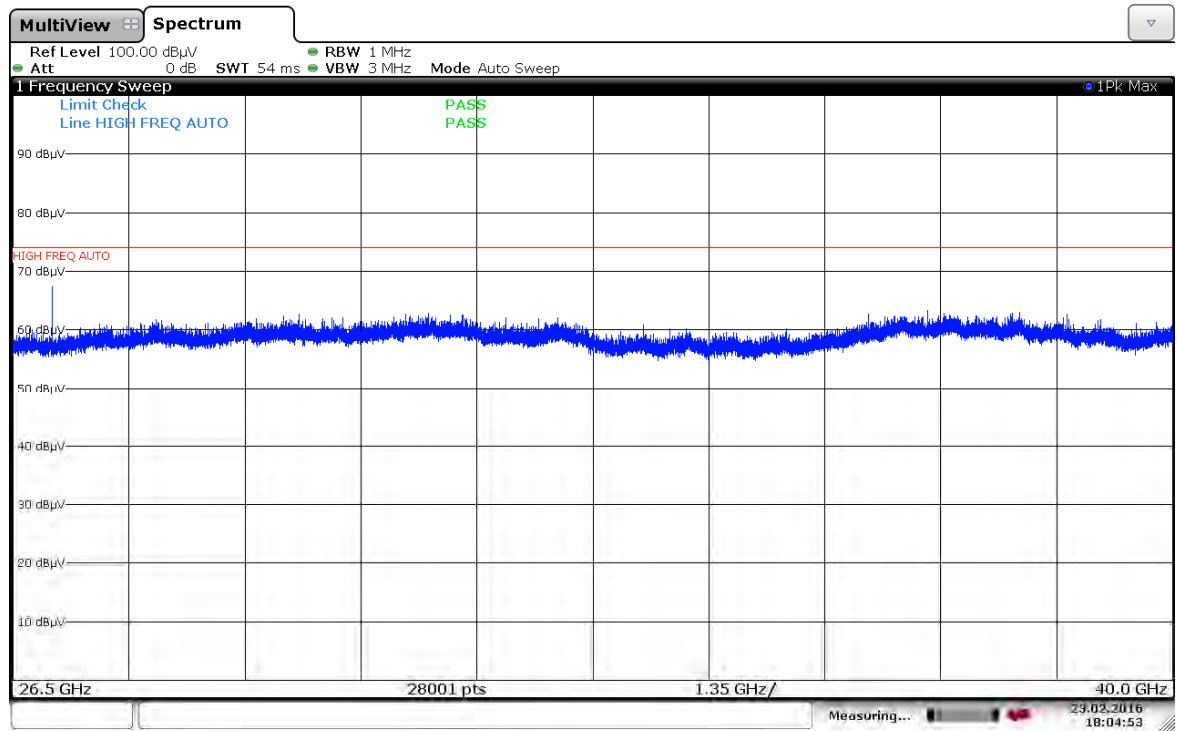
Plot 7-194. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 1, 40MHz BW), Ch. 47290, 47490)

FCC ID: J9CMT9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Date: 23.FEB.2016 18:52:05

Plot 7-195. Radiated Spurious Plot > 18GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)



Date: 23.FEB.2016 18:04:52

Plot 7-196. Radiated Spurious Plot > 26.5GHz (LAA (UNII Band 3, 40MHz BW), Ch. 53140, 53340)

FCC ID: J9CMTP9900LAA	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Test Scenario #2 – Chain1

Operating Mode: LAA
 Channel Bandwidth: 20MHz
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5160MHz
 Channel: 46890


Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	H	-	-	-99.58	47.61	55.03	68.20	-13.17
* 15540.00	Average	H	-	-	-111.18	52.56	48.38	53.98	-5.60
* 15540.00	Peak	H	-	-	-98.90	52.56	60.66	73.98	-13.32

Table 7-17. Radiated Measurements

Operating Mode: LAA
 Channel Bandwidth: 20MHz
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5200MHz
 Channel: 47290

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	H	-	-	-98.41	47.75	0.00	56.33	68.20	-11.87
* 15600.00	Average	H	-	-	-110.68	52.71	0.00	49.02	53.98	-4.96
* 15600.00	Peak	H	-	-	-98.86	52.71	0.00	60.84	73.98	-13.14
26960.00	Peak	H	100	285	-93.81	47.68	-9.54	51.33	68.20	-16.87

Table 7-18. Radiated Measurements

FCC ID: J9CMTP9900LAA		FCC Pt. 15.407 LAA MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 47690


Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	H	-	-	-99.56	47.89	55.33	68.20	-12.87
* 15720.00	Average	H	-	-	-110.71	51.88	48.17	53.98	-5.81
* 15720.00	Peak	H	-	-	-99.31	51.88	59.57	73.98	-14.41

Table 7-19. Radiated Measurements

Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5745MHz
Channel: 52740

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	H	-	-	-111.05	47.91	43.87	53.98	-10.11
* 11490.00	Peak	H	-	-	-99.37	47.91	55.55	73.98	-18.43
17235.00	Peak	H	-	-	-99.46	53.70	61.25	68.20	-6.95

Table 7-20. Radiated Measurements

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Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5785MHz
Channel: 53140

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	H	-	-	-111.06	48.14	0.00	44.08	53.98	-9.90
* 11570.00	Peak	H	-	-	-99.52	48.14	0.00	55.62	73.98	-18.36
17355.00	Peak	H	-	-	-99.80	53.80	0.00	61.00	68.20	-7.20
26960.00	Peak	H	100	275	-92.80	47.68	-9.54	52.34	68.20	-15.86

Table 7-21. Radiated Measurements

Operating Mode: LAA
Channel Bandwidth: 20MHz
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5825MHz
Channel: 53540

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	H	-	-	-110.99	48.44	44.45	53.98	-9.52
* 11650.00	Peak	H	-	-	-99.79	48.44	55.65	73.98	-18.32
17475.00	Peak	H	-	-	-99.04	54.35	62.31	68.20	-5.89

Table 7-22. Radiated Measurements

7.10 Cabinet Radiated Spurious Emission Measurements – Below 1GHz

§15.209

Test Overview and Limit

All out of band cabinet radiated spurious emissions measurements are performed with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power level and at the appropriate frequencies. The EUT is also set to transmit from two antennas simultaneously while all of its outputs are terminated into antennas. All LAA channels, modes and bandwidths were investigated. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-23 per Section 15.209.

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-23. Radiated Limits


Test Procedures Used

ANSI C63.10-2013

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagrams below.

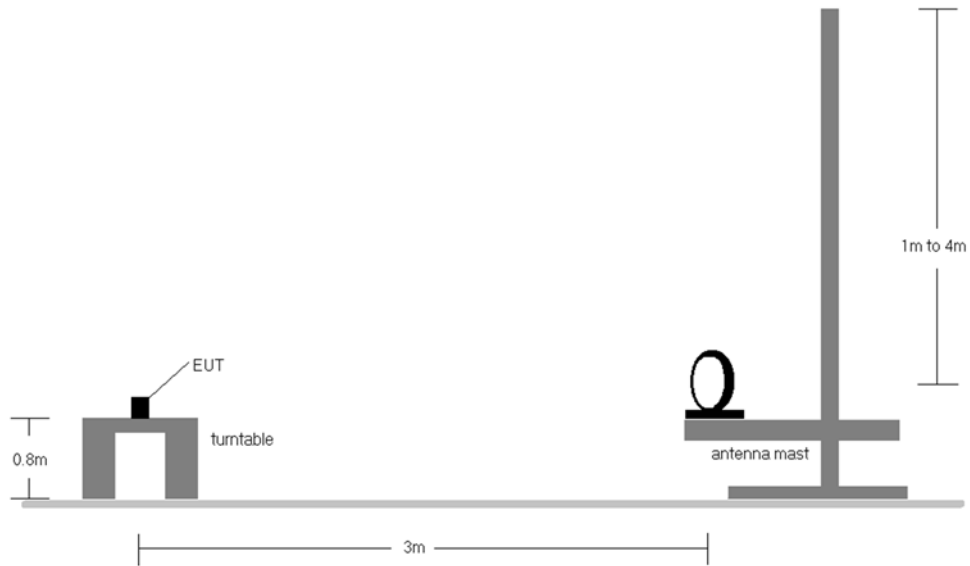


Figure 7-8. Radiated Test Setup < 30MHz

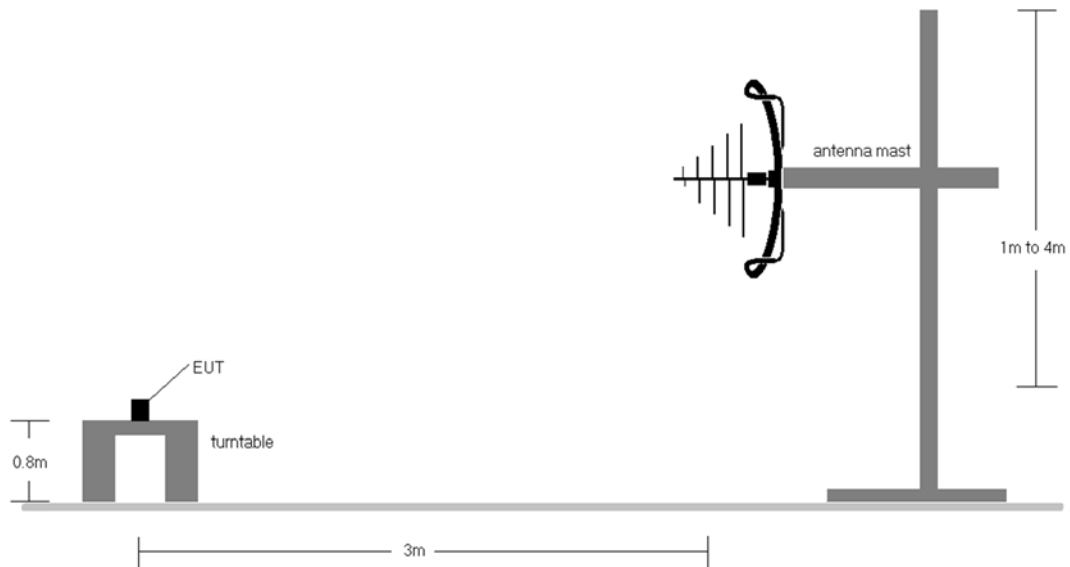



Figure 7-9. Radiated Test Setup < 1GHz

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Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-23.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested while powered by an AC power source.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.


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Cabinet Radiated Spurious Emission Measurements (Below 1GHz)

§15.209

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
54.07	Quasi-Peak	H	1.00	232	-87.08	8.41	28.34	40.00	-11.66
102.70	Quasi-Peak	H	1.22	15	-89.07	12.53	30.46	43.52	-13.06
152.53	Quasi-Peak	H	2.39	76	-94.86	14.09	26.23	43.52	-17.29
212.37	Quasi-Peak	H	1.92	114	-94.21	12.48	25.27	43.52	-18.25
704.30	Quasi-Peak	H	1.47	0	-109.65	22.37	19.71	46.02	-26.31
785.20	Quasi-Peak	H	3.26	0	-110.40	23.40	20.00	46.02	-26.02

Table 7-24. Radiated Spurious Emissions below 1GHz

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7.11 Line-Conducted Test Data

§15.407

Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at maximum power and at the appropriate frequencies. All modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

All conducted emissions must not exceed the limits shown in the table below, per Section 15.207.

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

Table 7-25. Conducted Limits

*Decreases with the logarithm of the frequency.

Test Procedures Used

ANSI C63.10-2013, Section 6.2


Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

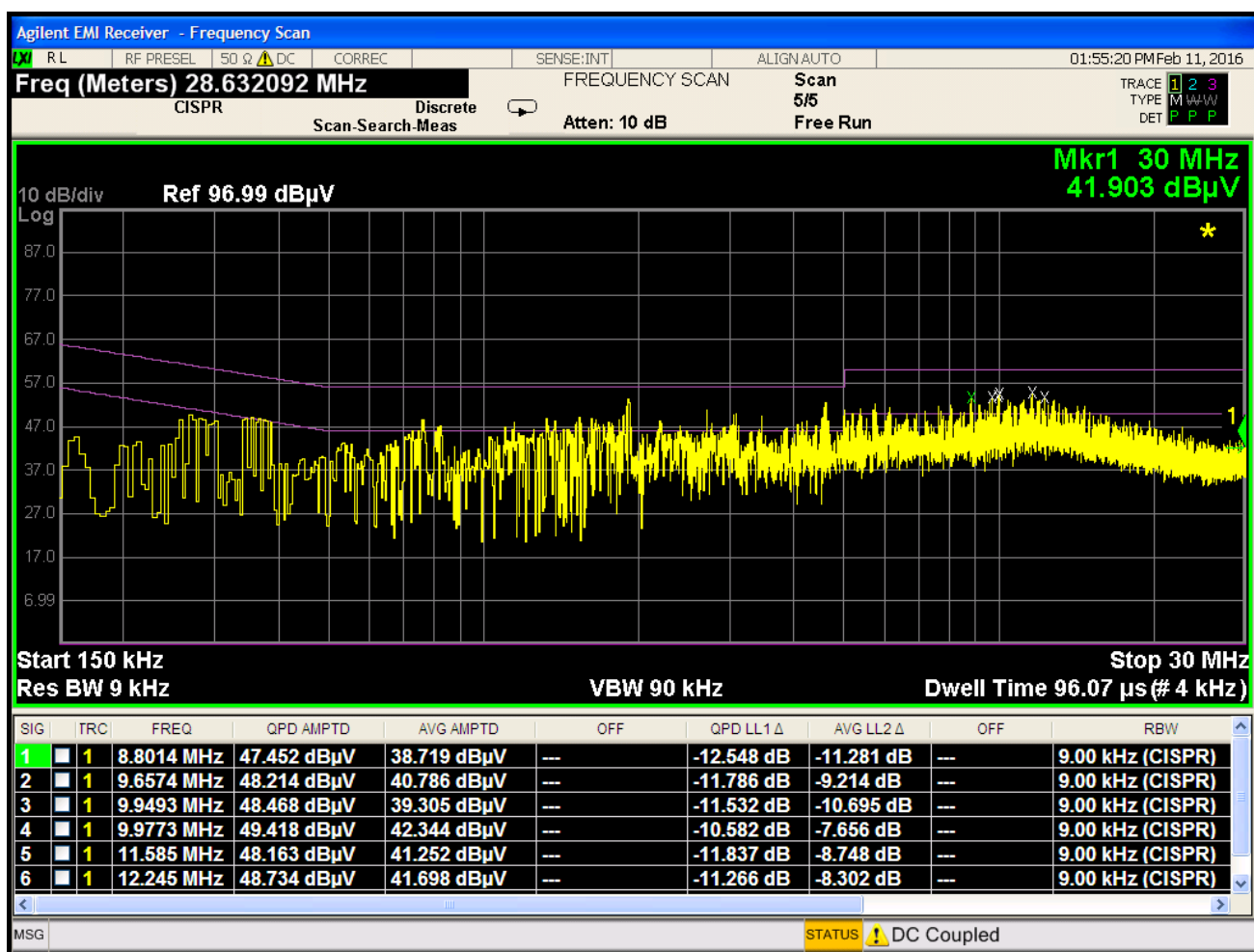
Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize


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Test Notes

1. All modes of operation were investigated and the worst-case emissions are reported using mid channel. The emissions found were not affected by the choice of channel used during testing.
2. The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207.
3. $\text{Corr. (dB)} = \text{Cable loss (dB)} + \text{LISN insertion factor (dB)}$
4. $\text{QP/AV Level (dB}\mu\text{V)} = \text{QP/AV Analyzer/Receiver Level (dB}\mu\text{V)} + \text{Corr. (dB)}$
5. $\text{Margin (dB)} = \text{QP/AV Limit (dB}\mu\text{V)} - \text{QP/AV Level (dB}\mu\text{V)}$
6. Traces shown in plot are made using a peak detector.
7. Deviations to the Specifications: None.

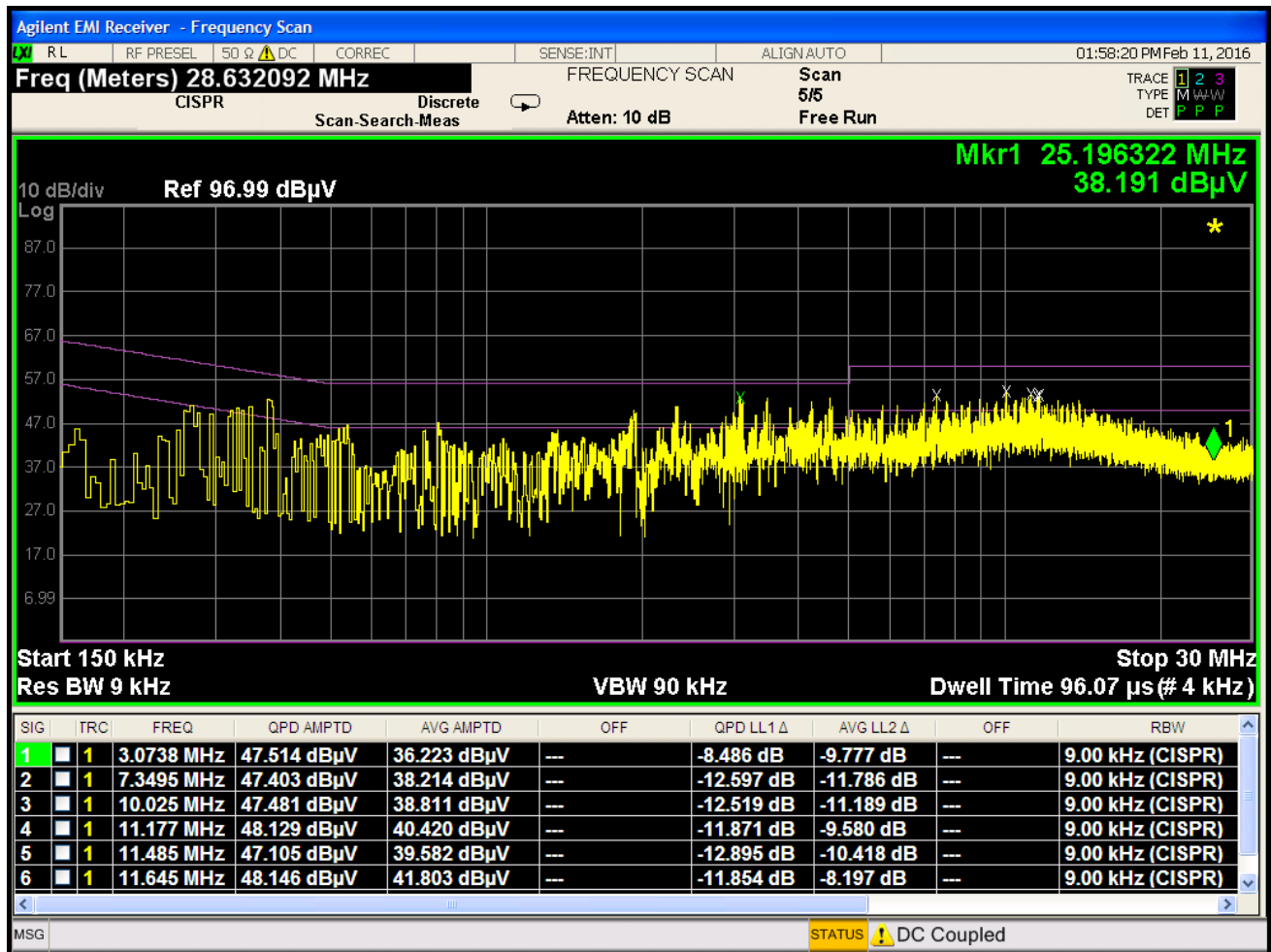


Plot 7-197. Line Conducted Plot with LAA (Line 1)


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Line-Conducted Test Data

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Plot 7-198. Line Conducted Plot with LAA (Neutral)


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7.12 Antenna Data

Description: The MTP9900 LAA device uses a directional patch antenna manufactured by Terrawave (Model Number: M6060060MP1D43602). The antenna radiation pattern and other relevant parameters documented in this section are from the antenna data sheet, with key antenna parameters summarized below:

- ☐ Peak gain not exceeding 6 dBi in 5 GHz bands.
- ☐ Vertical gain pattern with normalized loss at +60 degrees elevation of at least 15 dB.
- ☐ Installed with 30 degrees or more of downward tilt angle from the horizon.

Outdoor installation of the MTP9900 LAA device and antenna requires a professional installer. Please refer to the *MTP9900 LAA FCC UserGuide* document for antenna installation instructions.

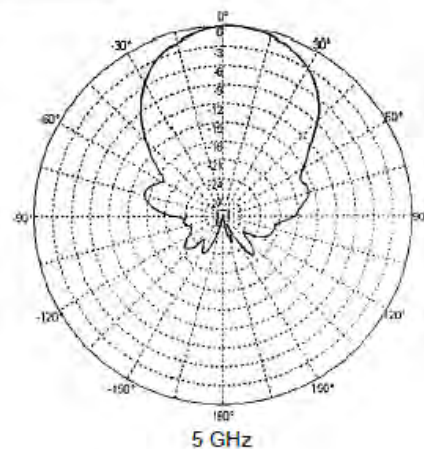
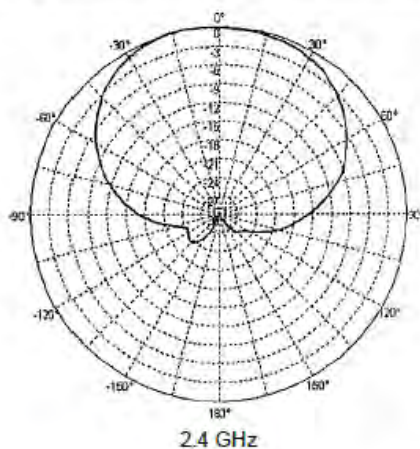
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802.11n Quad Patch Antenna With RPTNC Plug Connectors

TerraWave's 2.4/5 GHz 6 dBi quad patch multiple-input and multiple-output (MIMO) antenna is designed to be operated with any manufacturer's enterprise-class 802.11n MIMO access points. The antenna comes with four RPTNC Plug connectors and 36" cables. With dual-band leads, each cable supports both 2.4 and 5 GHz, making it an ideal and aesthetically pleasing antenna to support demanding outdoor applications in next generation IEEE 802.11n wireless communication systems. The antenna radome is designed to withstand challenging environments where there is exposure to moisture and dust and comes with an articulating mount. All TerraWave antennas are covered by the Company's two-year TerraNet warranty program. For questions and to purchase product, contact a regional account executive at 210-375-8482, 800-851-4965 or sales@terrawave.com. Visit www.terrawave.com for additional information.

Specifications		
Model	M6060060MP1D43602	
Frequency Range	2400 ~ 2500 MHz	5150 ~ 5850 MHz
Gain	6 dBi	
Vertical Beamwidth	80°±20°	45°±20°
Horizontal Beamwidth	80°±20°	45°±20°
VSWR	≤ 2.0	≤ 2.5
Front-to-back ratio	≥18	
Polarization	Vertical	
Max Power	100 Watts	
Connector	RPTNC Plug	
Pigtail Length	36" (w/ Connector)	
Dimensions	9.2" x 9.0" x 1.1"	
Weight	2.65 lbs	
Operating Temperature Range	-40°F to +140°F	
Rated Wind Velocity	134.2 mph	
Mount Style	Wall or Mast/Pole	



www.terrawave.com

sales@terrawave.com

1-800-851-4965

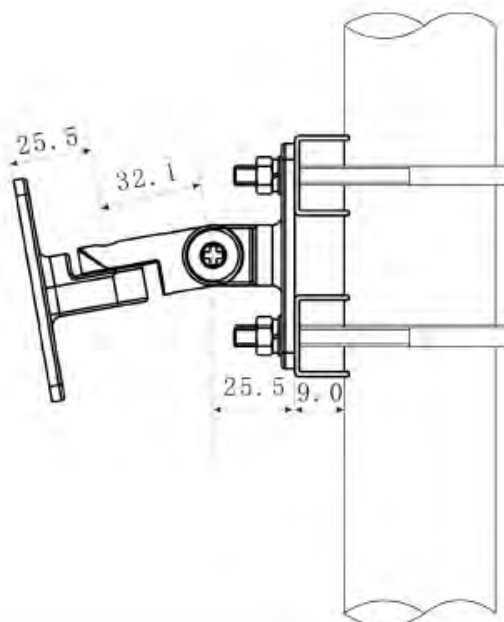
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802.11n Quad Patch Antenna With RPTNC Plug Connectors

Wall Mount with screws:




Mast Mount with Articulating Mount:
Note: Articulating Mount can also be Wall Mounted



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8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Qualcomm LAA Release 13 Small Cell FCC ID: J9CMTP9900LAA** is in compliance with Part 15E of the FCC Rules.

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