

Figure 85. Antenna Conducted Emissions Channel 100 802.11n, Part 2

$EIRP = -38.00 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.60 \text{ dBm}$

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-34.60) dBm/MHz= 7.6 dB

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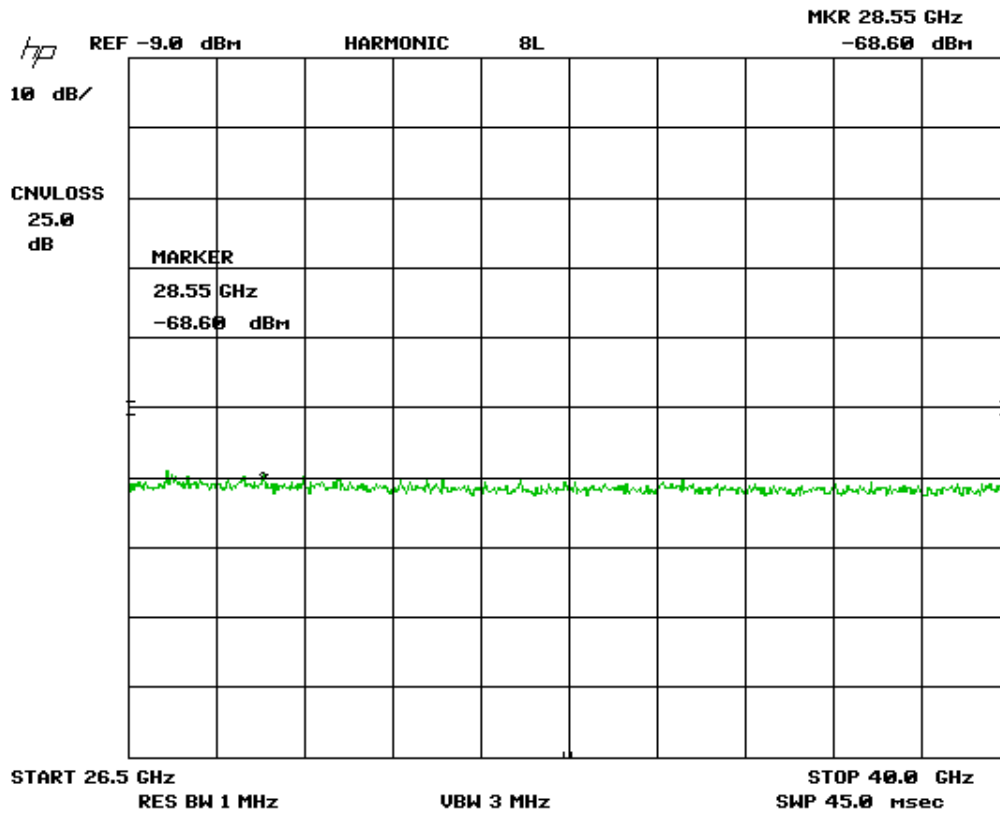


Figure 86. Antenna Conducted Emissions Channel 100 802.11n, Part 3

EIRP= -68.60 dBm + 3.4 dBi (applied antenna gain) + 0 dB (ground reflection factor)= -65.20 dBm

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-65.20) dBm/MHz= 38.2 dB

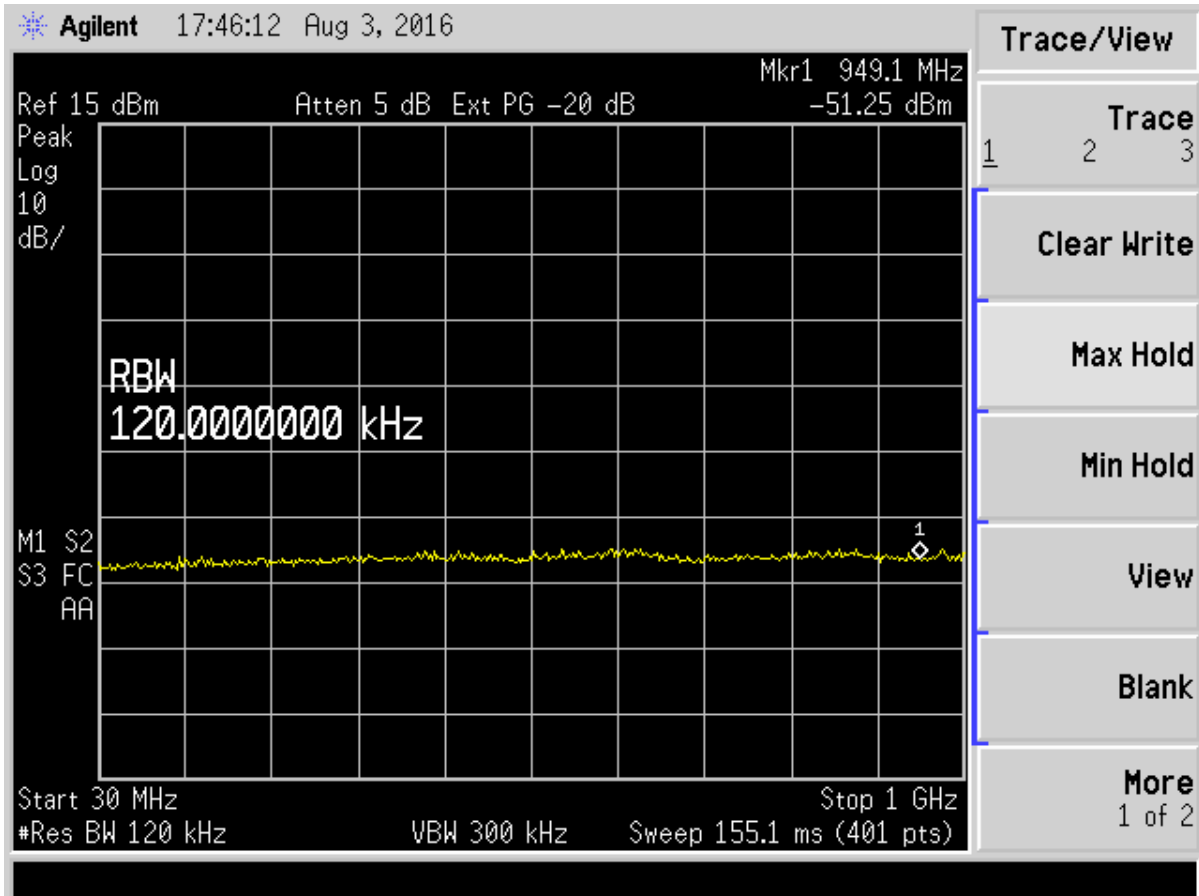


Figure 87. Antenna Conducted Emissions Channel 140 802.11n, Part 1

$EIRP = -51.25 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -43.15 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-43.15) \text{ dBm/MHz} = 16.2 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 6.2 \text{ dB}$

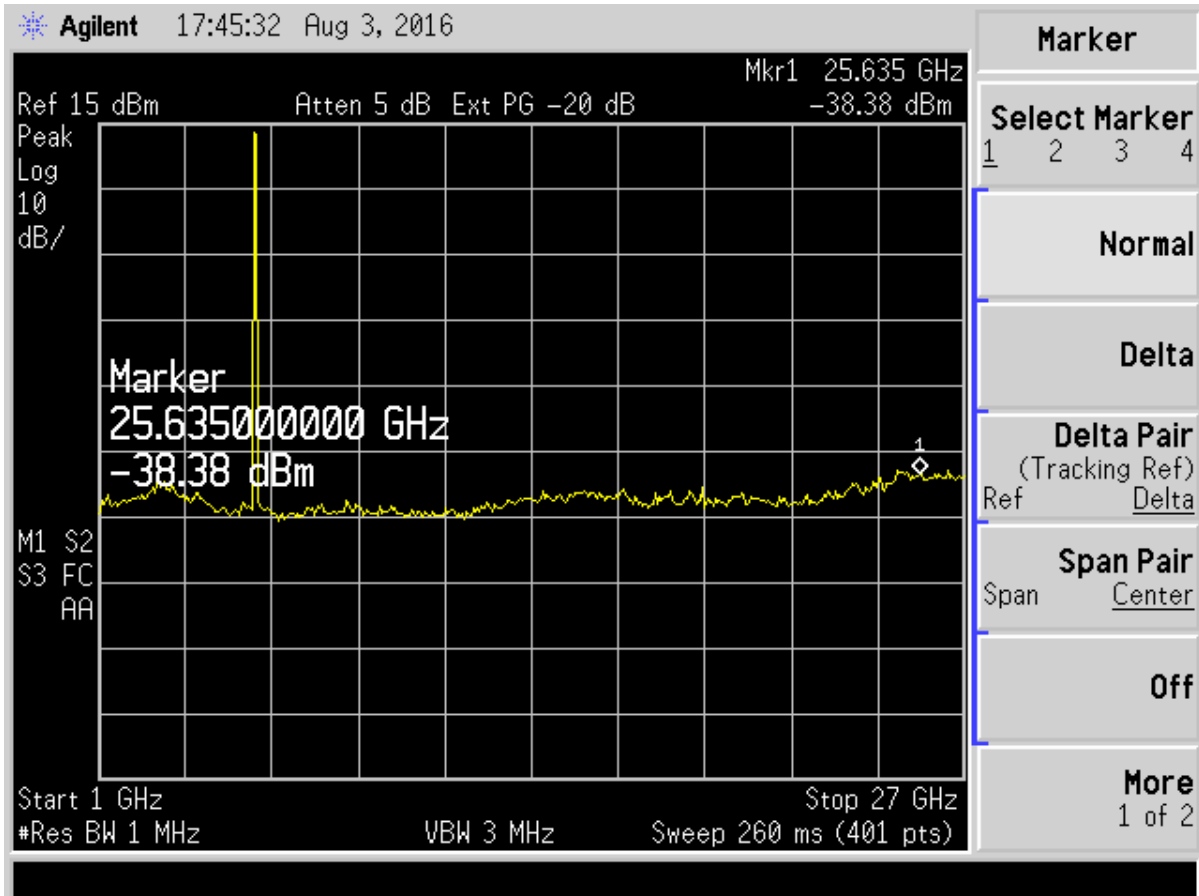


Figure 88. Antenna Conducted Emissions Channel 140 802.11an, Part 2

$EIRP = -38.38 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.98 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-34.98) \text{ dBm/MHz} = 7.9 \text{ dB}$

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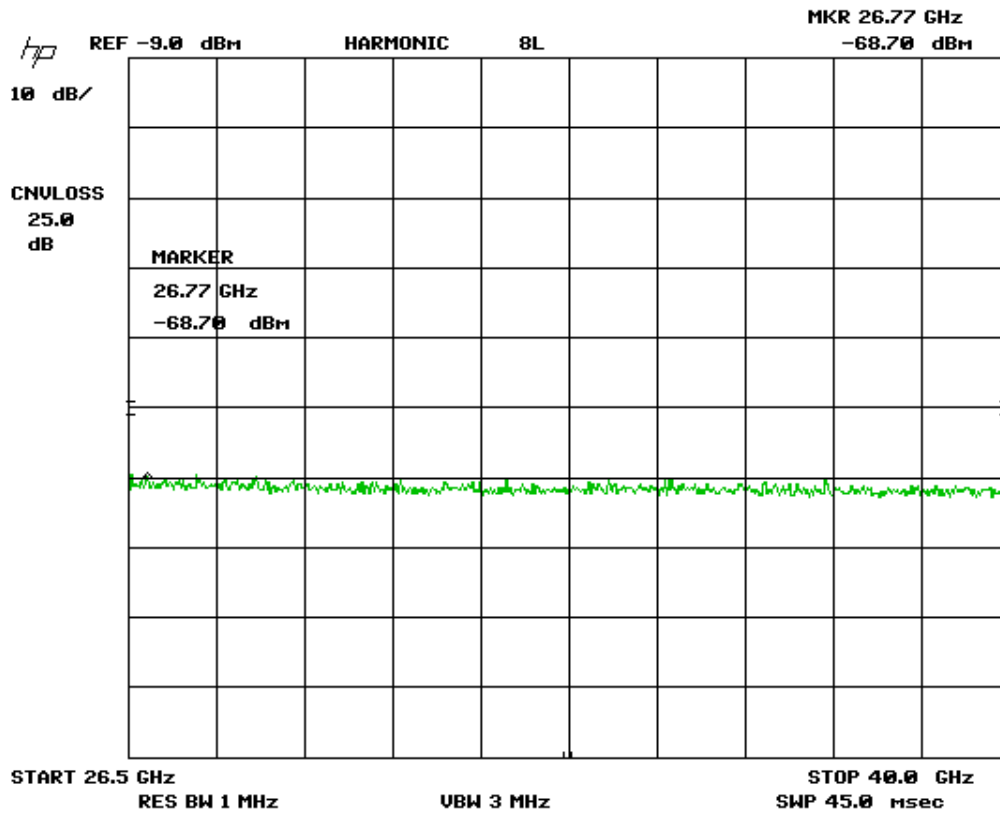


Figure 89. Antenna Conducted Emissions Channel 140 802.11n, Part 3

Note: The large signal seen in the above figure is the fundamental emission

$EIRP = -68.70 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -65.30 \text{ dBm}$

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-65.30) dBm/MHz= 38.3 dB

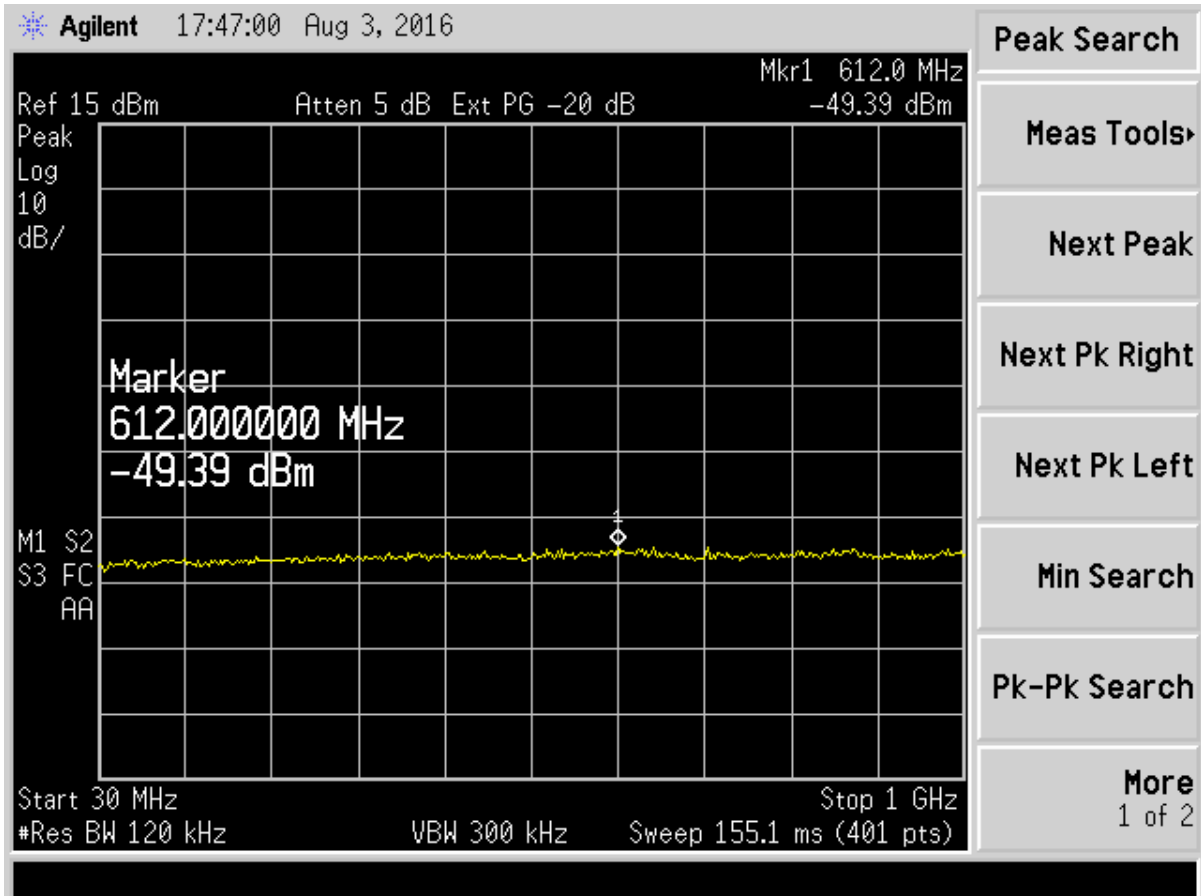


Figure 90. Antenna Conducted Emissions Channel 149 802.11n, Part 1

EIRP= -49.39 dBm + 3.4 dBi (applied antenna gain) + 4.7 dB (ground reflection factor)= -41.29 dBm

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-41.29) dBm/MHz= 14.3 dB – 10 dB (correction factor for RBW: 120 k to 1 MHz) = 4.3 dB

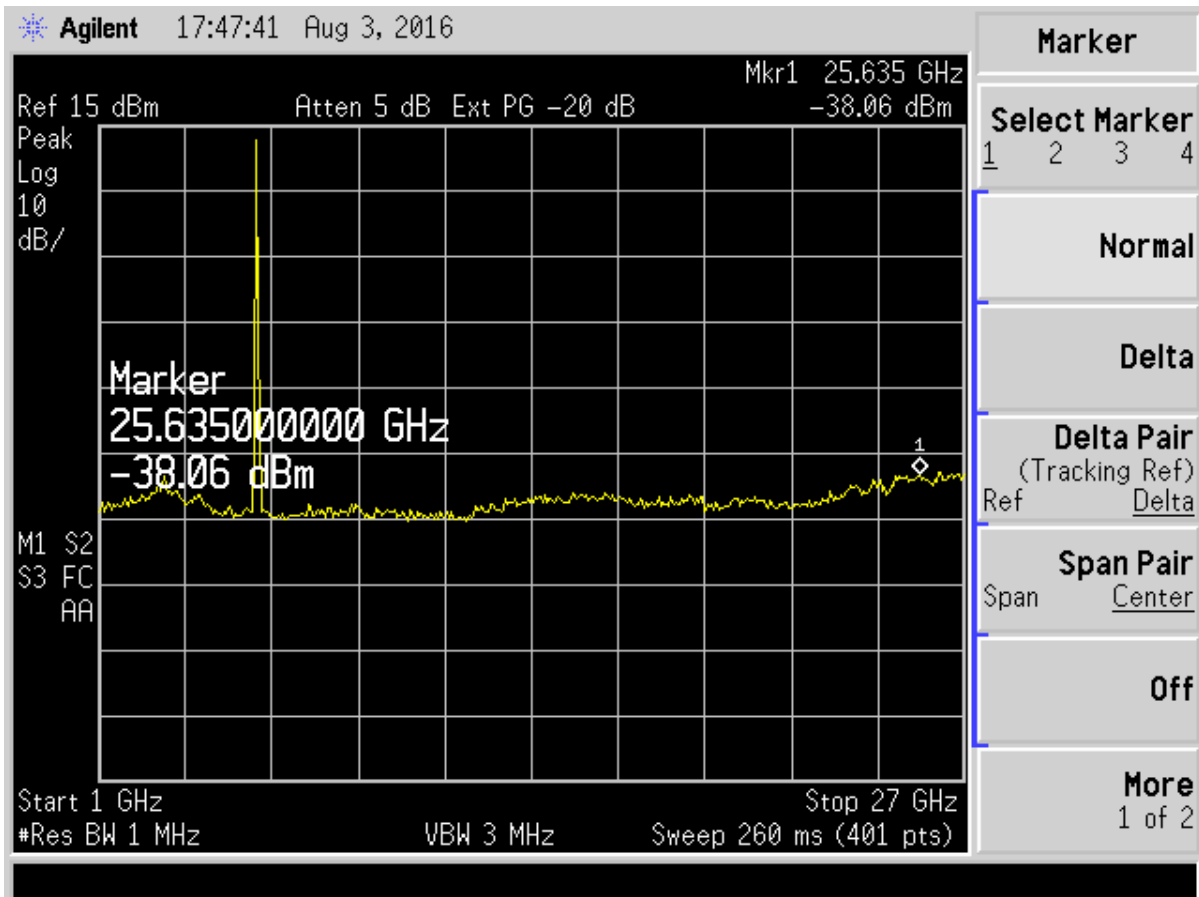


Figure 91. Antenna Conducted Emissions Channel 149 802.11n, Part 2

$EIRP = -38.06 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.66 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-34.66) \text{ dBm/MHz} = 7.7 \text{ dB}$

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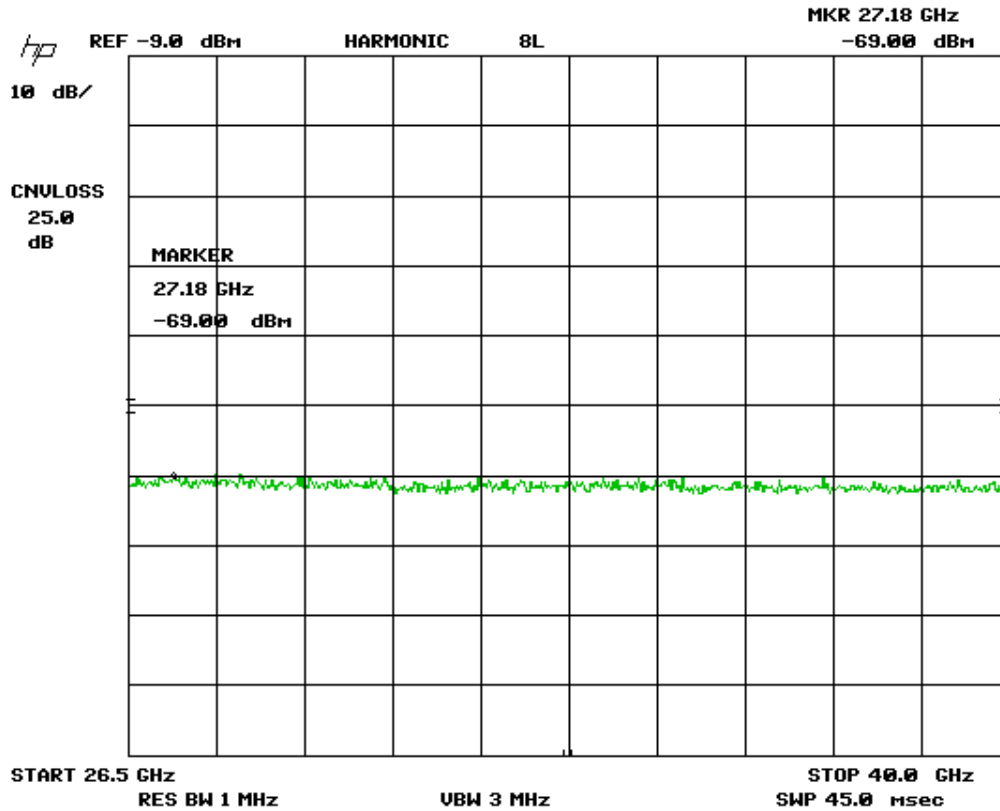


Figure 92. Antenna Conducted Emissions Channel 149 802.11n, Part 3

$EIRP = -69.00 \text{ dBm/MHz} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -65.60 \text{ dBm}$

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-65.60) dBm/MHz= 38.6 dB

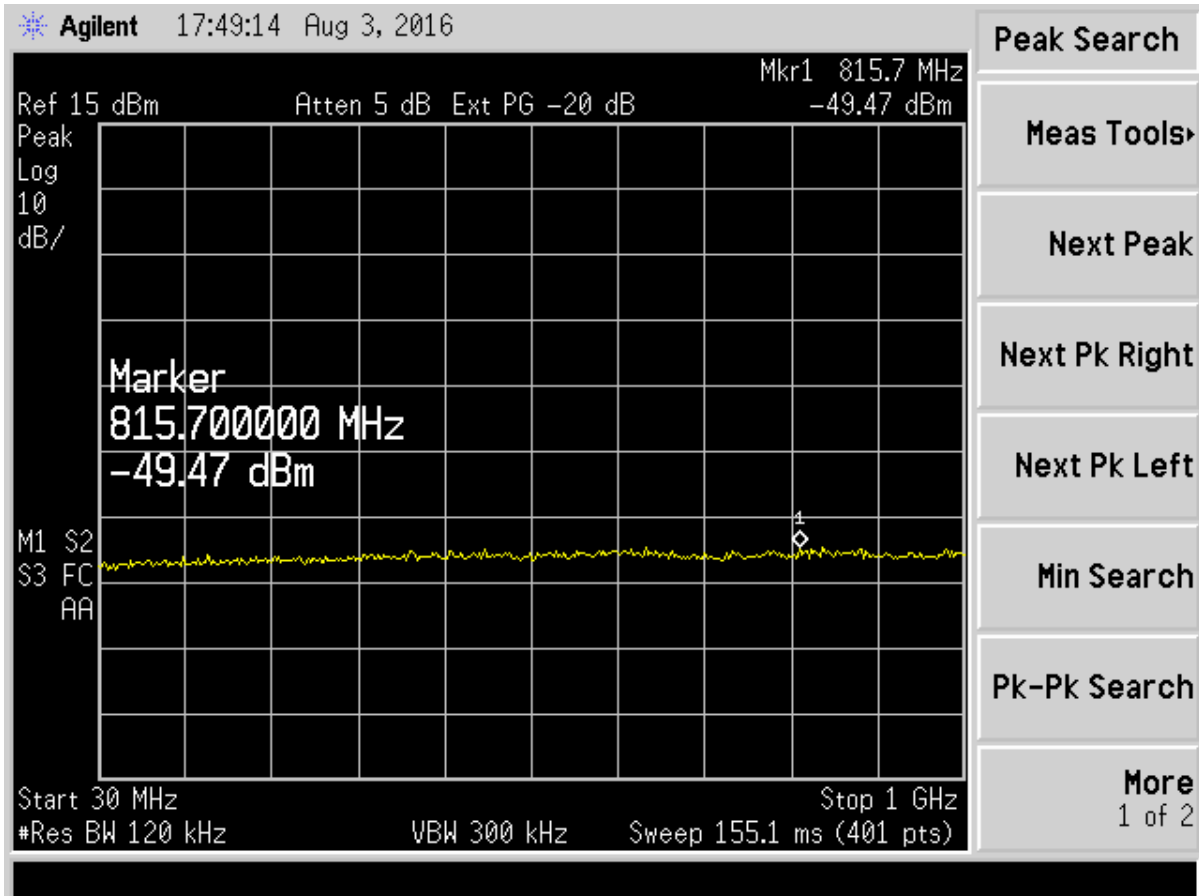


Figure 93. Antenna Conducted Emissions Channel 165 802.11n, Part 1

$EIRP = -49.47 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.37 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.37) \text{ dBm/MHz} = 14.4 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.4 \text{ dB}$

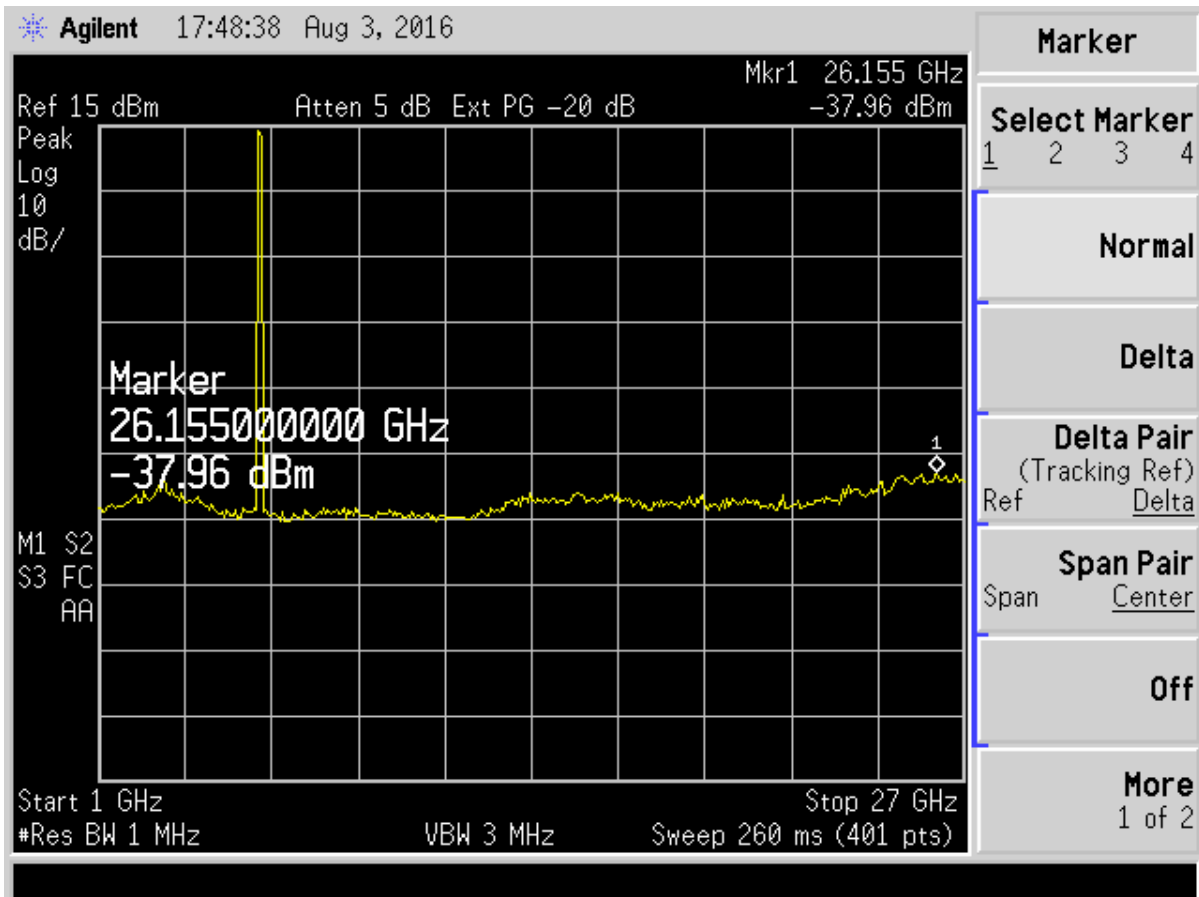


Figure 94. Antenna Conducted Emissions Channel 165 802.11n, Part 2

$EIRP = -37.96 \text{ dBm/MHz} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.56 \text{ dBm}$

Limit = -27 dBm/MHz (15.407 (b))

Margin = $-27 \text{ dBm/MHz} - (-34.56) \text{ dBm/MHz} = 7.6 \text{ dB}$

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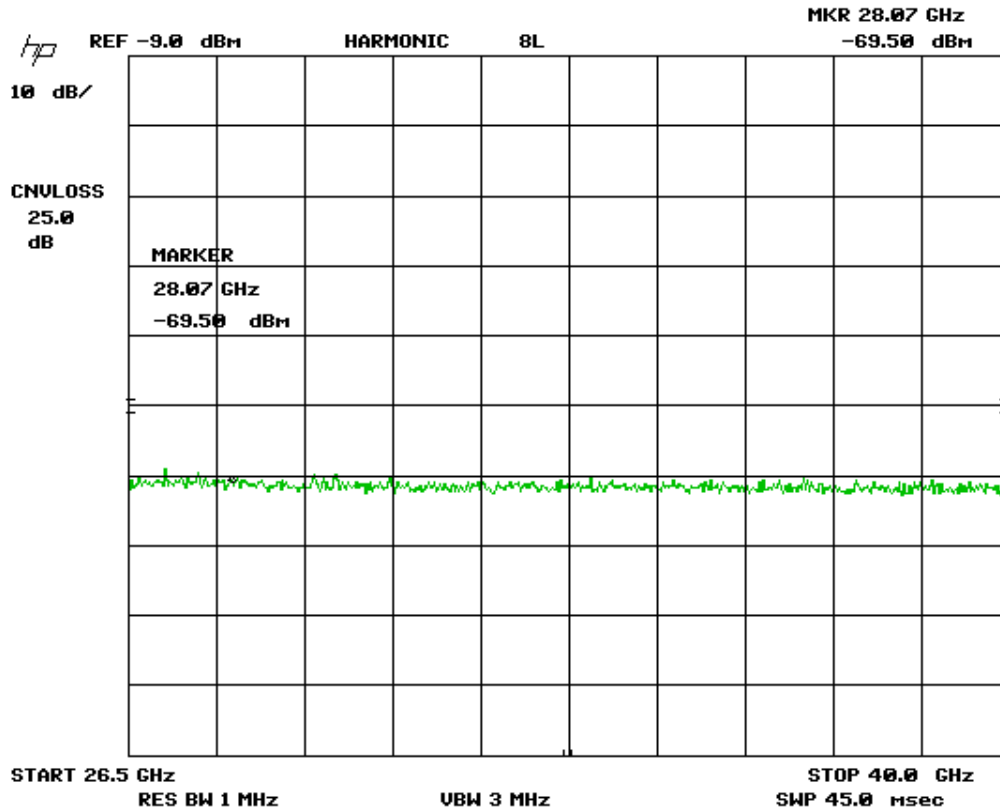


Figure 95. Antenna Conducted Emissions Channel 165 802.11n, Part 3

$EIRP = -69.50 \text{ dBm}/\text{MHz} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -66.10 \text{ dBm}$

Limit = $-27 \text{ dBm}/\text{MHz}$ (15.407 (b))

Margin = $-27 \text{ dBm}/\text{MHz} - (-66.10) \text{ dBm}/\text{MHz} = 39.1 \text{ dB}$

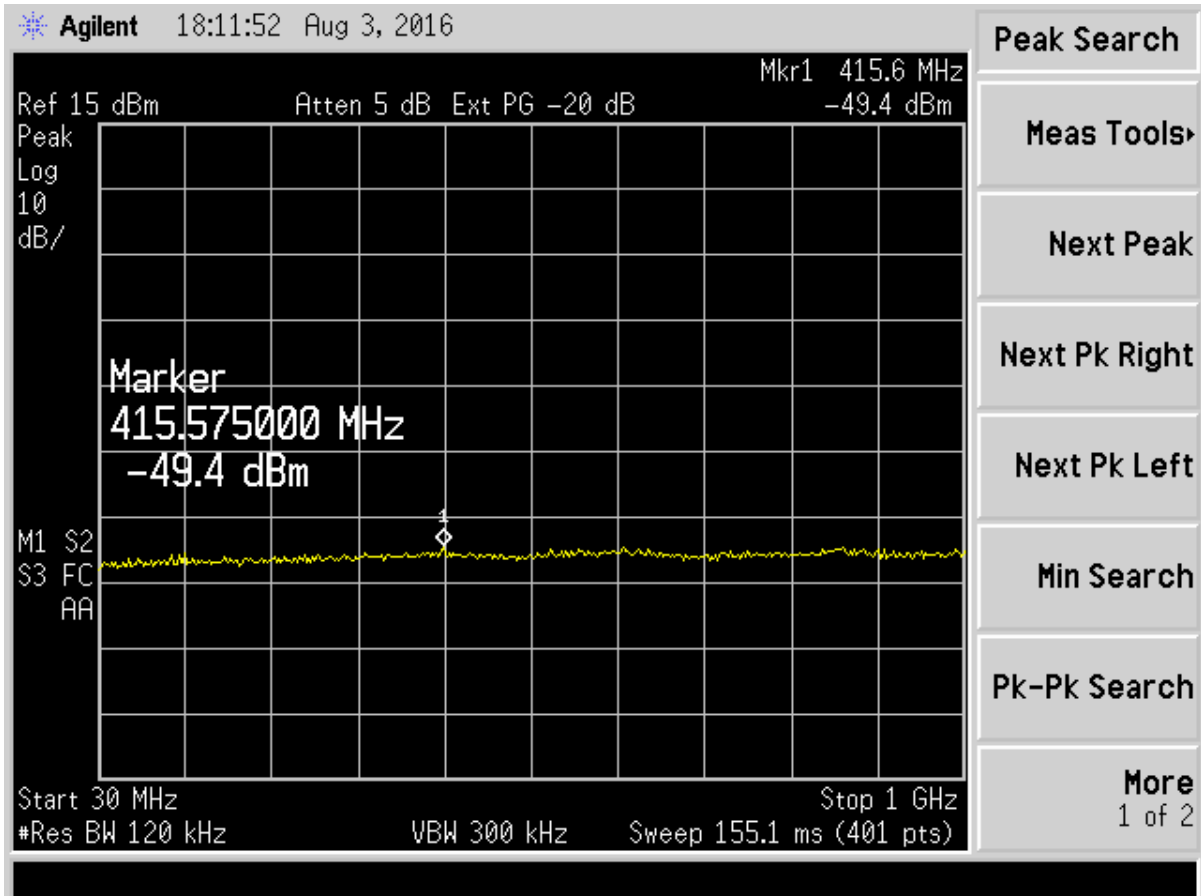


Figure 96. Antenna Conducted Emissions Channel 38 802.11n, Part 1

$EIRP = -49.40 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.30 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.30) \text{ dBm/MHz} = 14.3 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.3 \text{ dB}$

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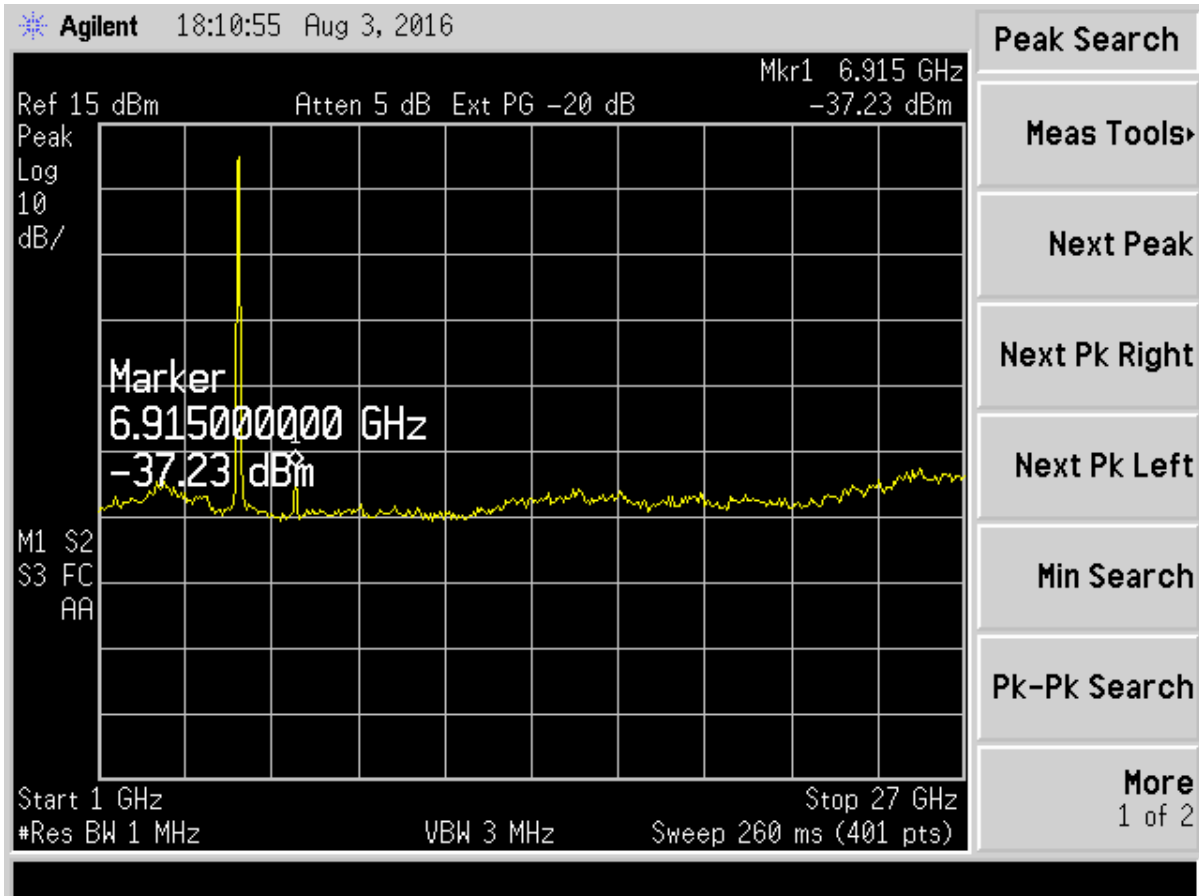


Figure 97. Antenna Conducted Emissions Channel 38 802.11n, Part 2

$EIRP = -37.23 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -33.83 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-33.83) \text{ dBm/MHz} = 6.8 \text{ dB}$

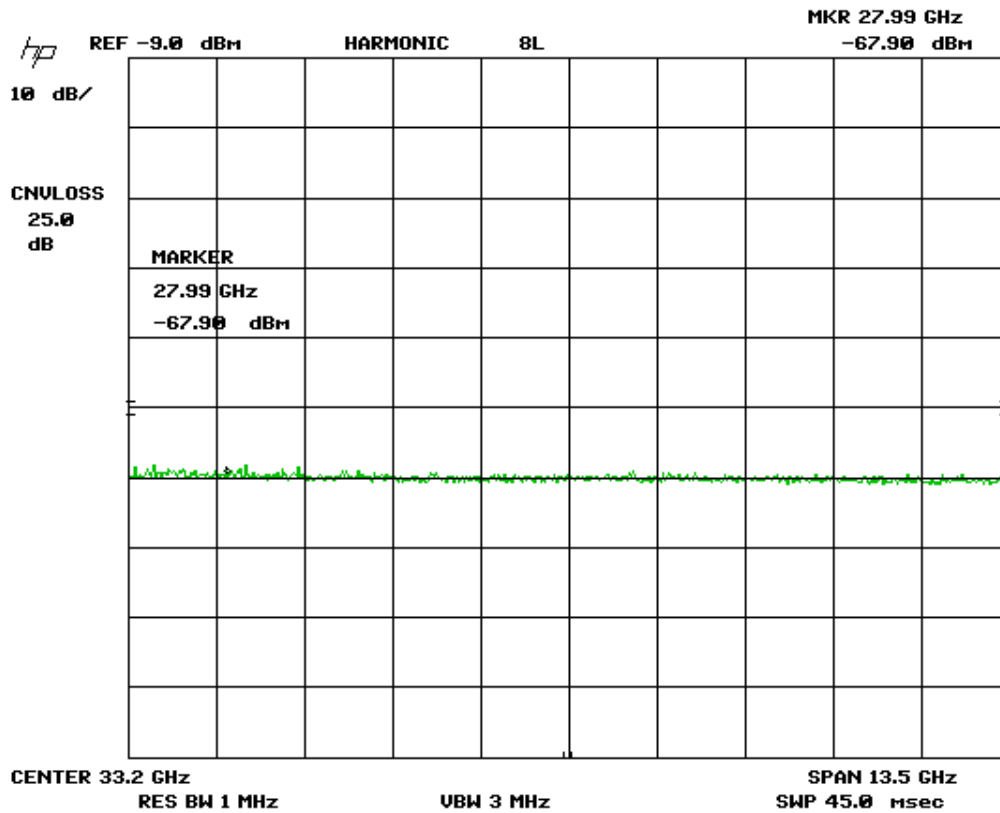


Figure 98. Antenna Conducted Emissions Channel 38 802.11n, Part 3

Note: Large signal seen in the figure above is the fundamental emission

$EIRP = -67.90 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -64.50 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-64.50) \text{ dBm/MHz} = 37.5 \text{ dB}$

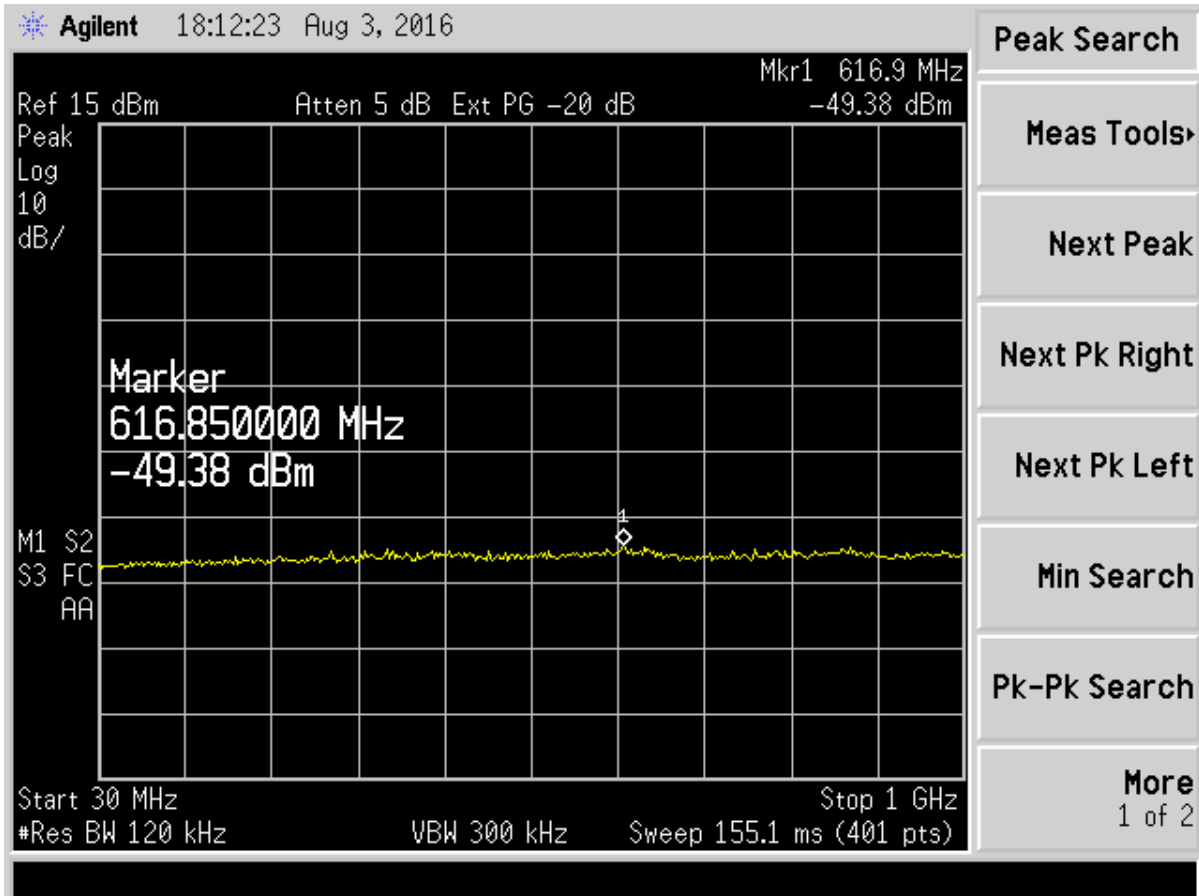


Figure 99. Antenna Conducted Emissions Channel 62 802.11n, Part 1

$EIRP = -49.38 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.28 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.28) \text{ dBm/MHz} = 14.3 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.3 \text{ dB}$

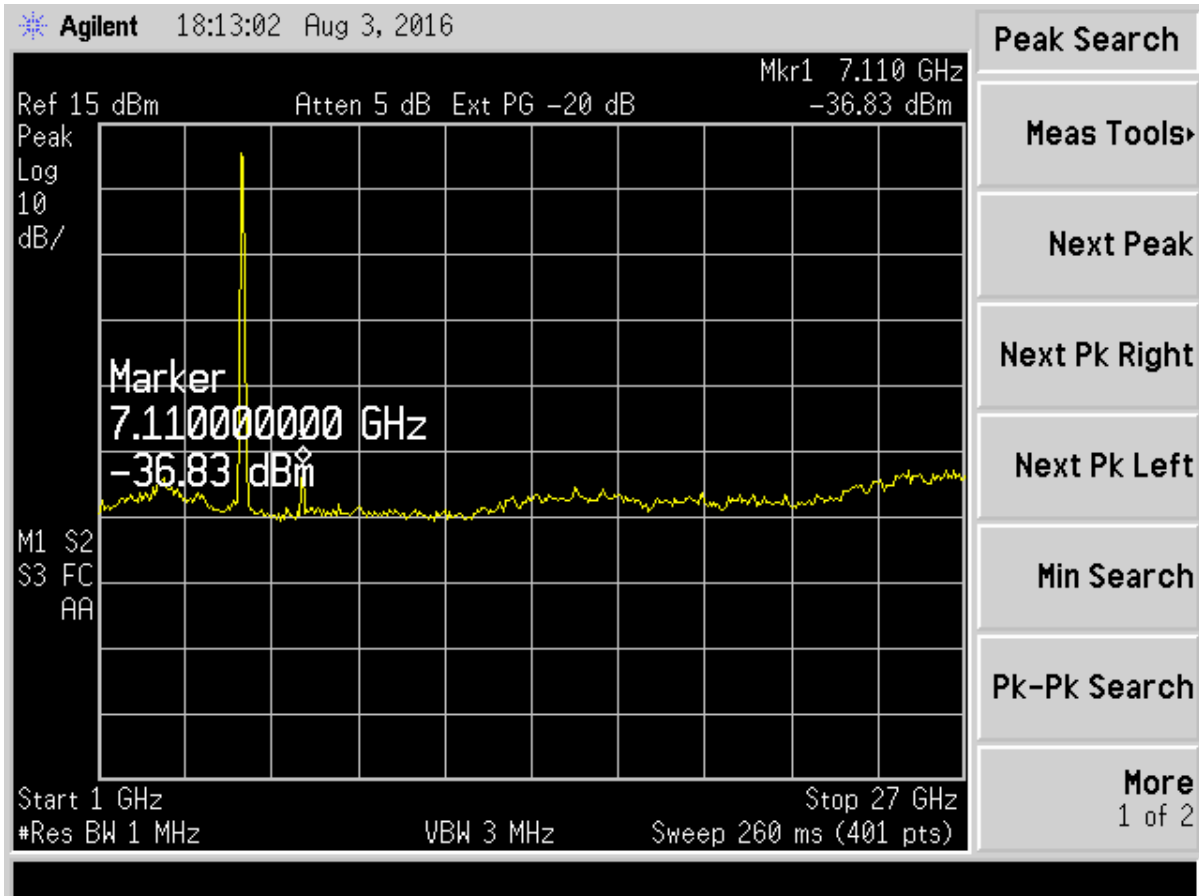


Figure 100. Antenna Conducted Emissions Channel 62 802.11n, Part 2

$EIRP = -36.83 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -33.43 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-33.43) \text{ dBm/MHz} = 6.4 \text{ dB}$

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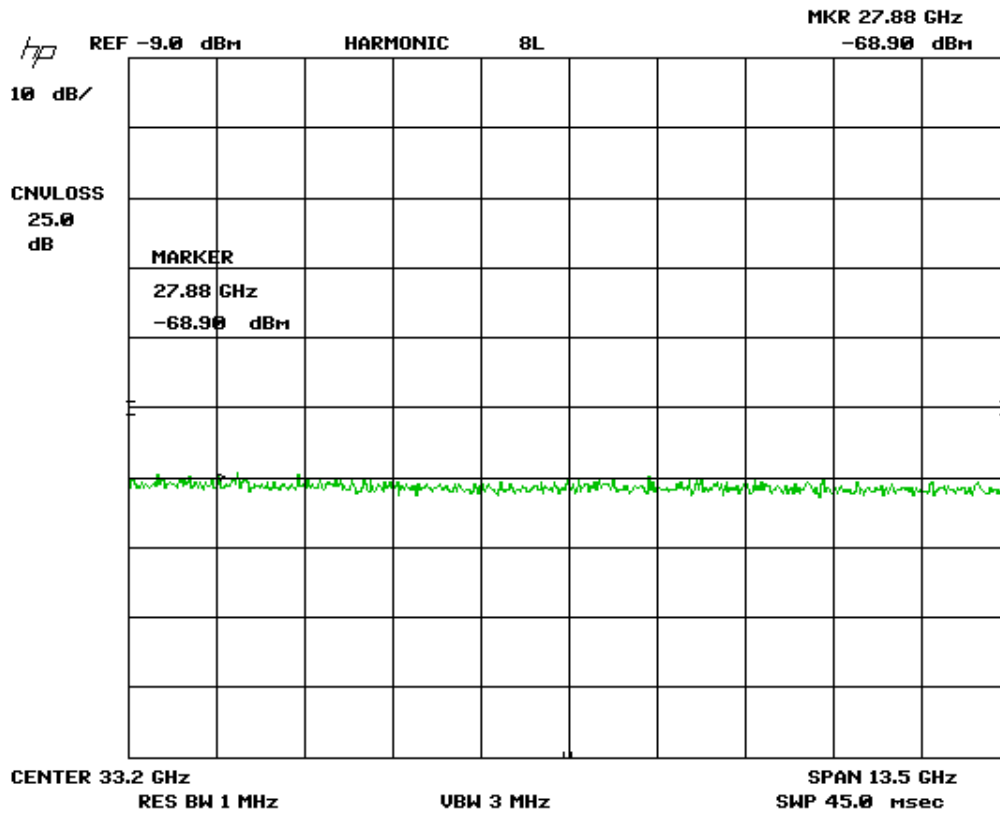


Figure 101. Antenna Conducted Emissions Channel 62 802.11n, Part 3

$EIRP = -68.90 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -65.50 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-65.50) \text{ dBm/MHz} = 38.5 \text{ dB}$

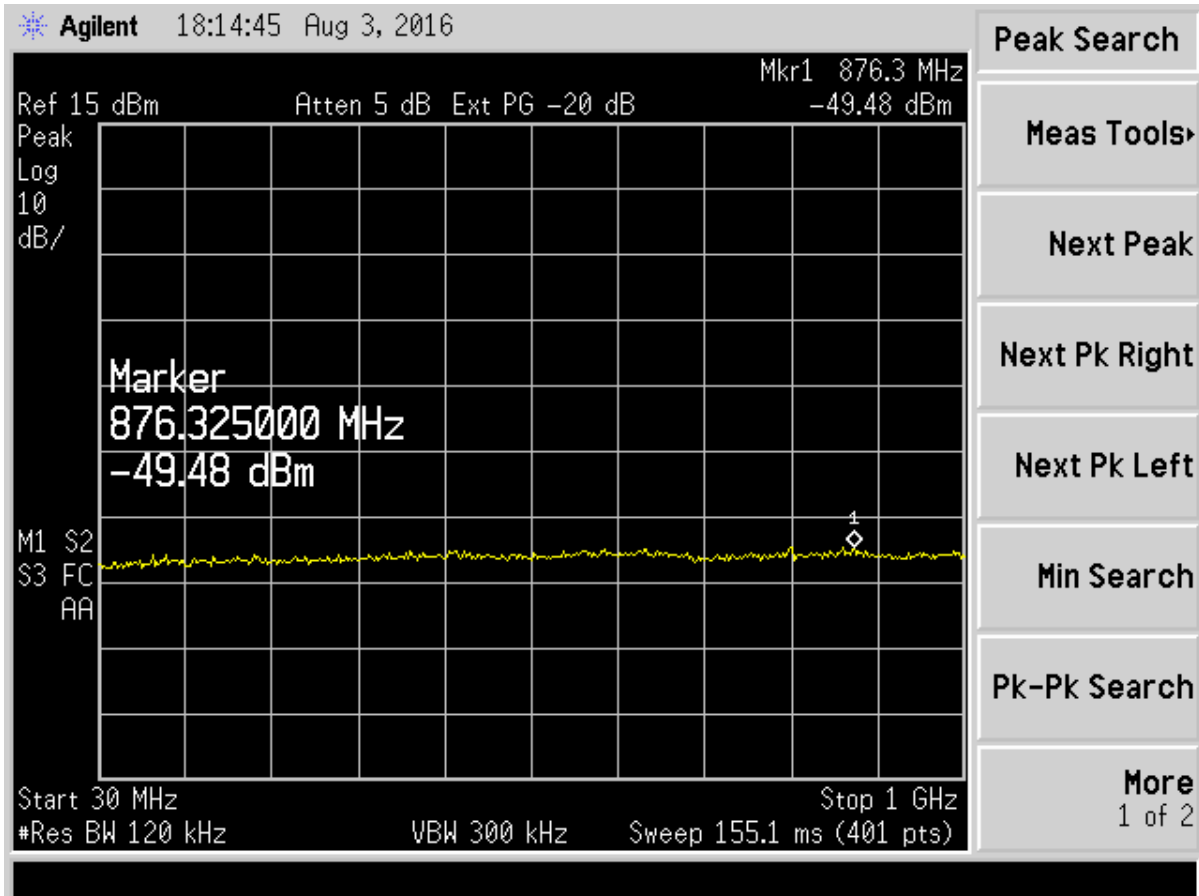


Figure 102. Antenna Conducted Emissions Channel 102 802.11n, Part 1

$EIRP = -49.48 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.38 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.38) \text{ dBm/MHz} = 14.4 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.4 \text{ dB}$

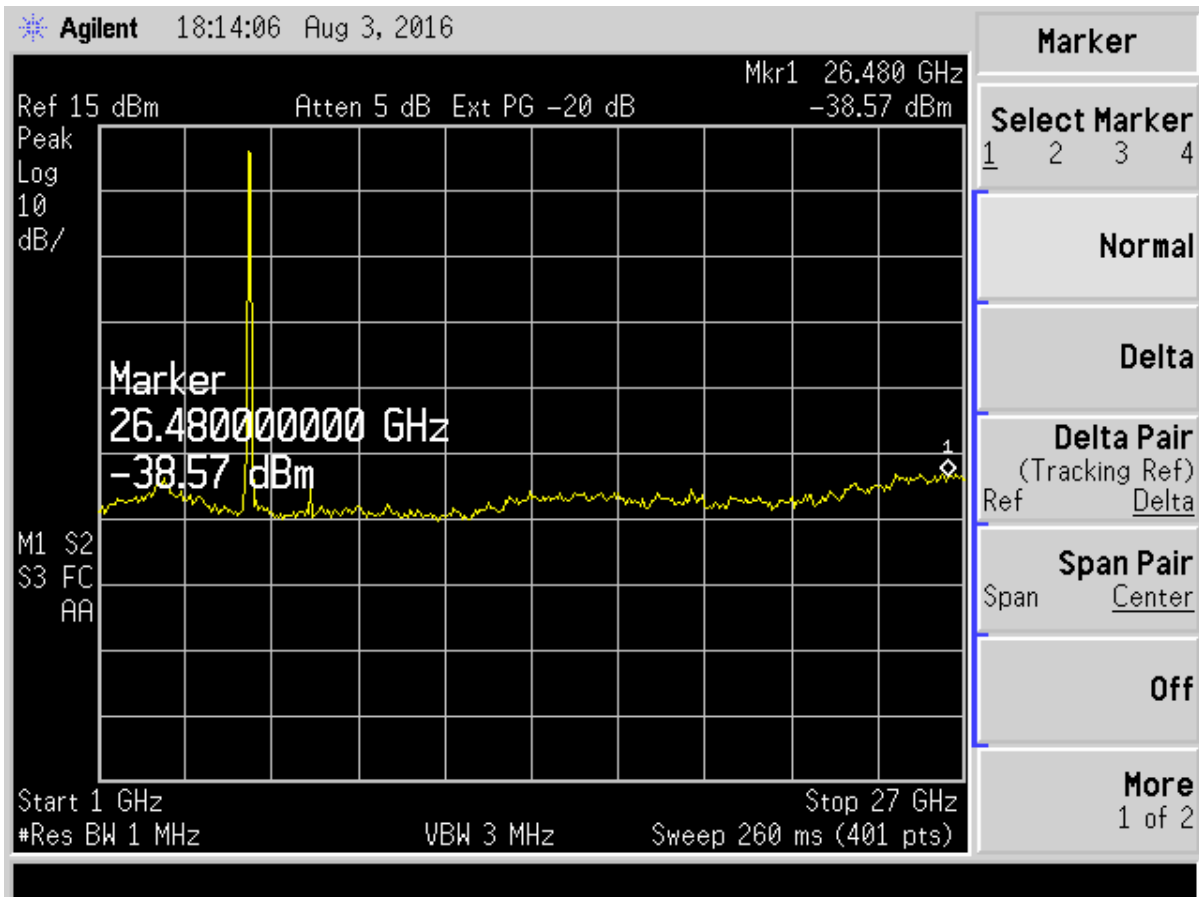


Figure 103. Antenna Conducted Emissions Channel 102 802.11n, Part 2

$EIRP = -38.57 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -35.17 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-35.17) \text{ dBm/MHz} = 8.2 \text{ dB}$

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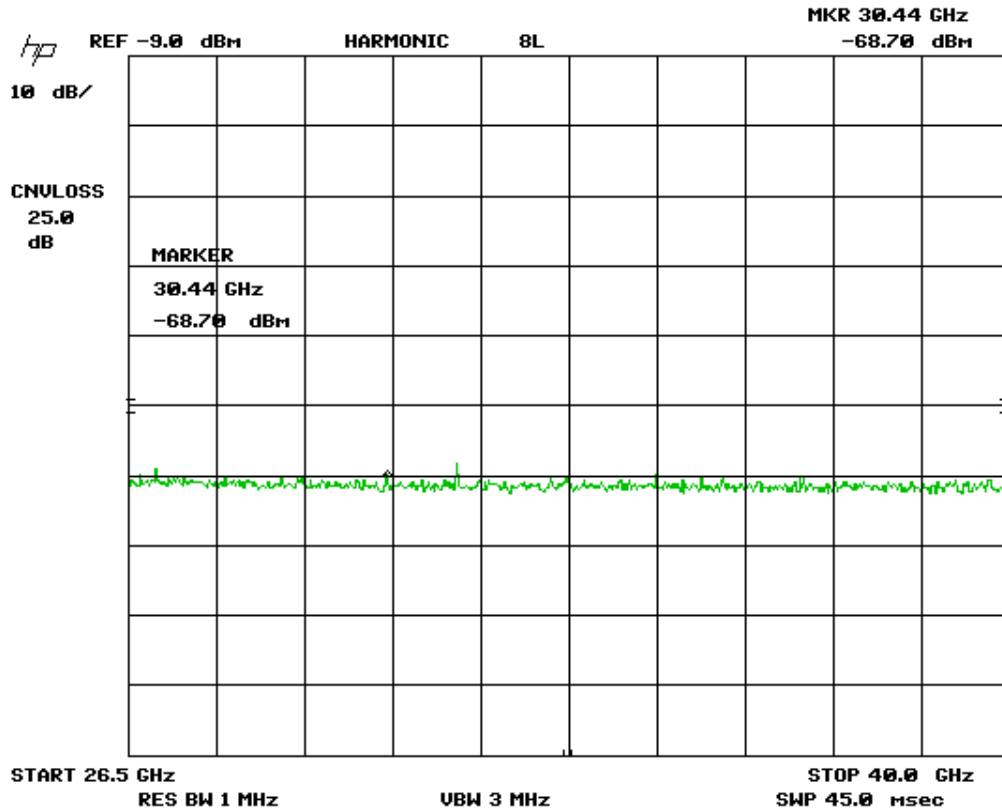


Figure 104. Antenna Conducted Emissions Channel 102 802.11n, Part 3

$EIRP = -68.70 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -65.30 \text{ dBm}$

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-65.30) dBm/MHz= 38.3 dB

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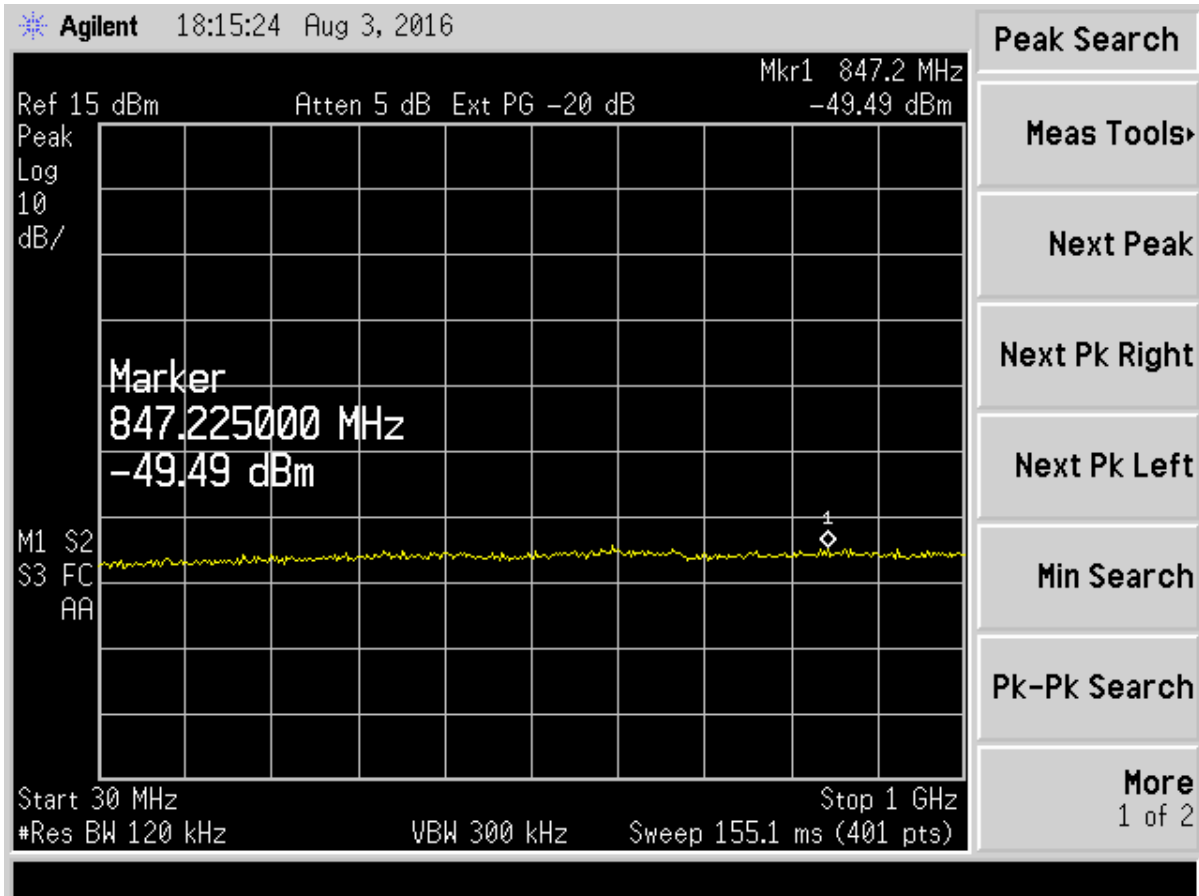


Figure 105. Antenna Conducted Emissions Channel 110 802.11n, Part 1

$EIRP = -49.49 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.39 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.39) \text{ dBm/MHz} = 14.4 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.4 \text{ dB}$

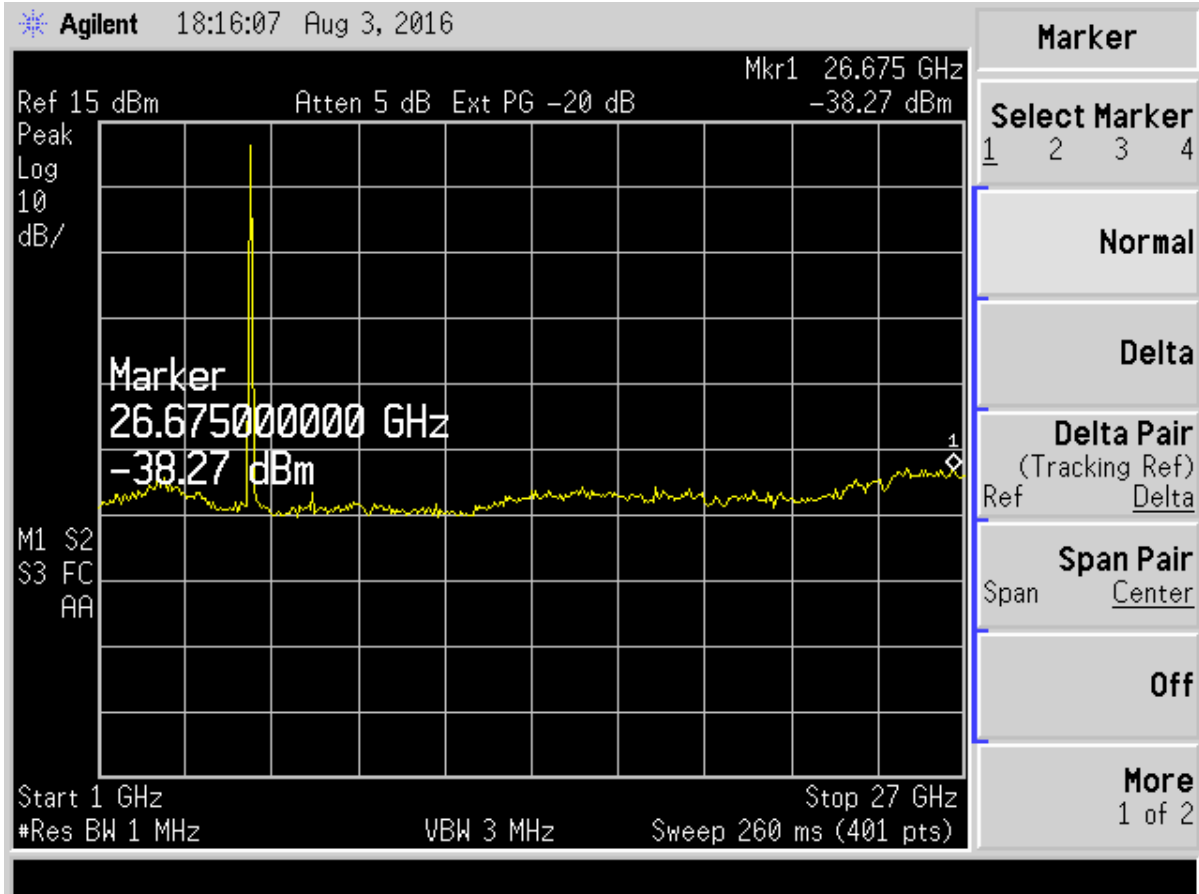


Figure 106. Antenna Conducted Emissions Channel 110 802.11n, Part 2

$EIRP = -38.27 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.87 \text{ dBm}$

Limit = $-27 \text{ dBm/MHz (15.407 (b))}$

Margin = $-27 \text{ dBm/MHz} - (-34.87) \text{ dBm/MHz} = 7.9 \text{ dB}$

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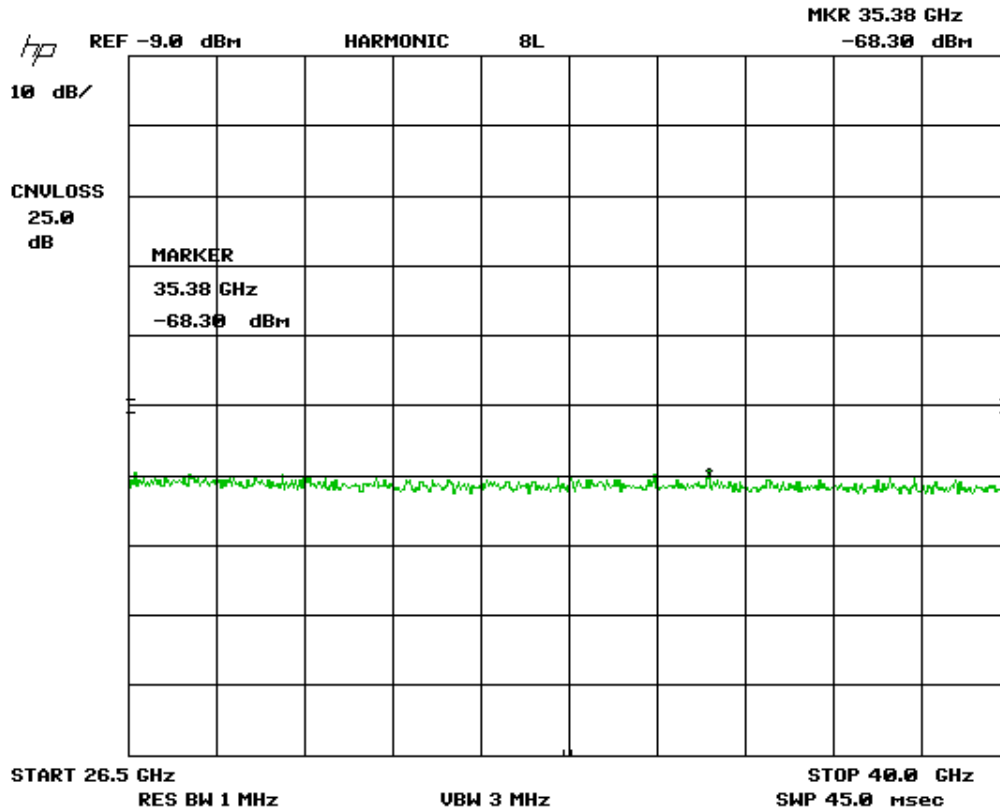


Figure 107. Antenna Conducted Emissions Channel 110 802.11n, Part 3

EIRP= -68.30 dBm + 3.4 dBi (applied antenna gain) + 0 dB (ground reflection factor)= -64.90 dBm

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-64.9) dBm/MHz= 37.9 dB

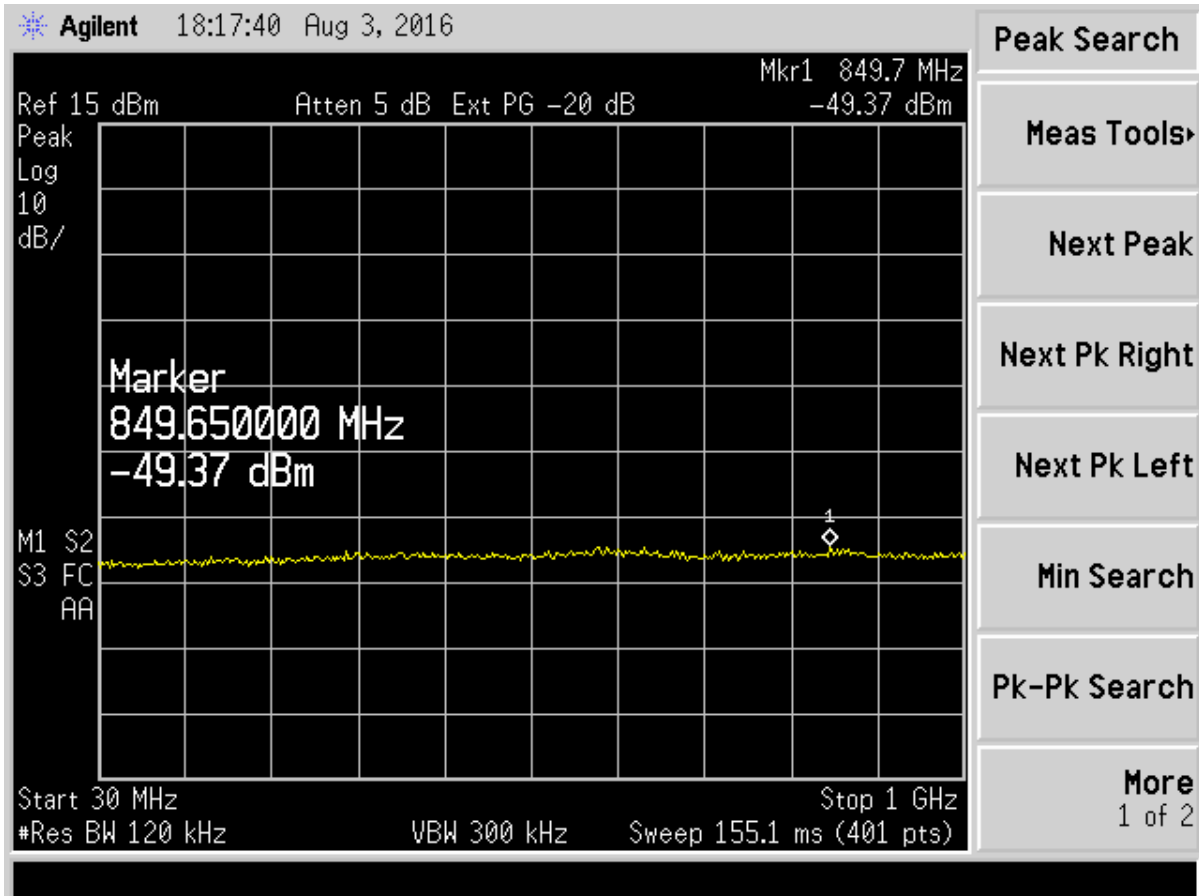


Figure 108. Antenna Conducted Emissions Channel 159 802.11n, Part 1

$EIRP = -49.37 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 4.7 \text{ dB (ground reflection factor)} = -41.27 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-41.27) \text{ dBm/MHz} = 14.3 \text{ dB} - 10 \text{ dB (correction factor for RBW: 120 k to 1 MHz)} = 4.3 \text{ dB}$

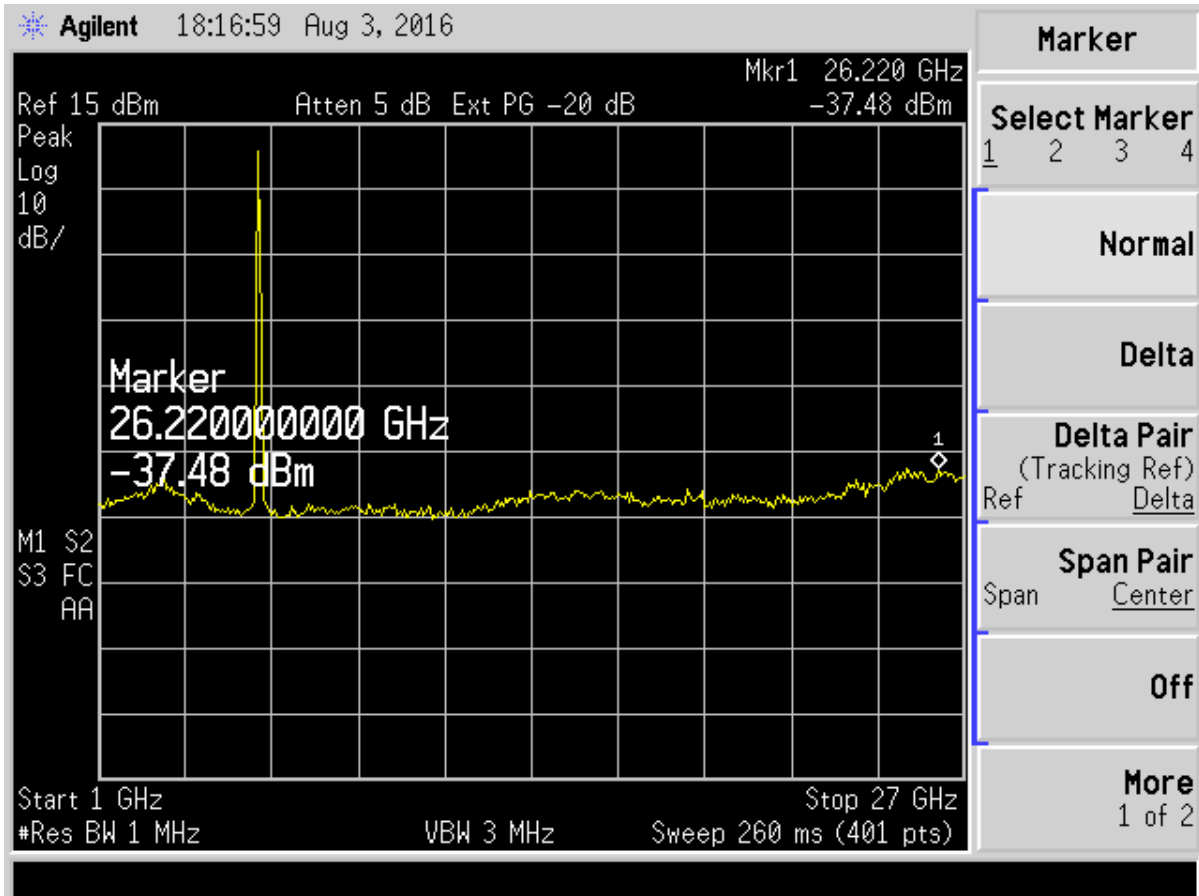


Figure 109. Antenna Conducted Emissions Channel 159 802.11n, Part 2

$EIRP = -37.48 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -34.08 \text{ dBm}$

$Limit = -27 \text{ dBm/MHz (15.407 (b))}$

$Margin = -27 \text{ dBm/MHz} - (-34.08) \text{ dBm/MHz} = 7.1 \text{ dB}$

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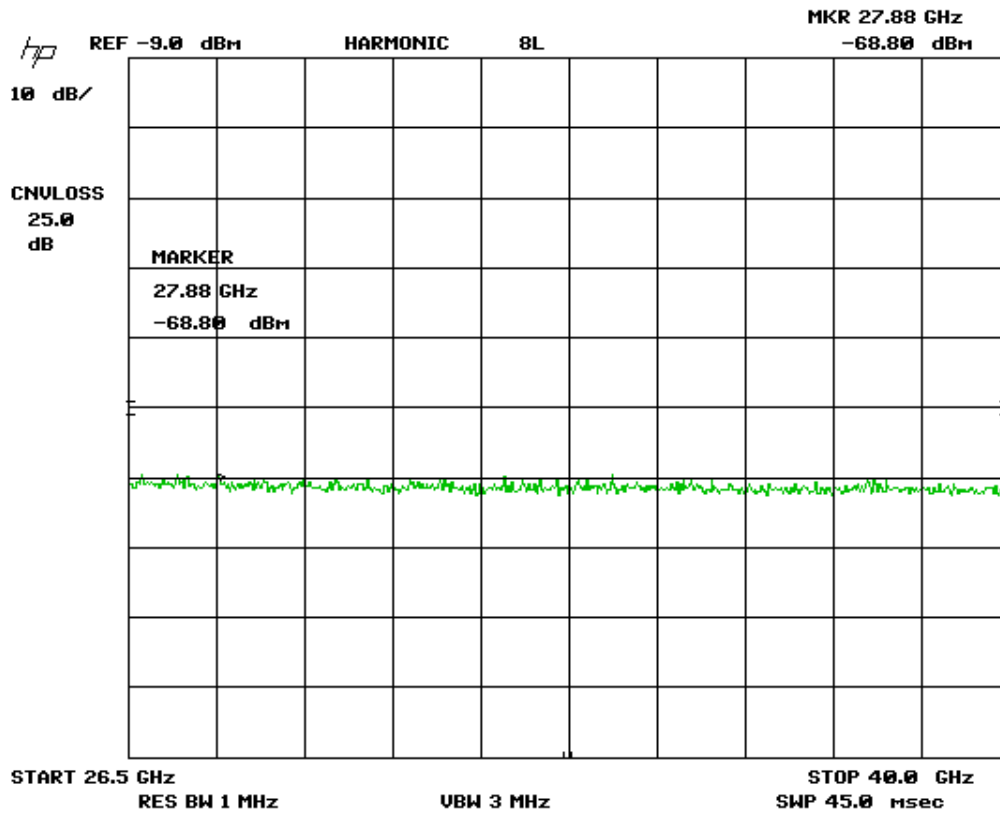


Figure 110. Antenna Conducted Emissions Channel 159 802.11n, Part 3

$EIRP = -68.80 \text{ dBm} + 3.4 \text{ dBi (applied antenna gain)} + 0 \text{ dB (ground reflection factor)} = -65.40 \text{ dBm}$

Limit= -27 dBm/MHz (15.407 (b))

Margin= -27 dBm/MHz – (-65.40) dBm/MHz= 38.4 dB

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2.13 Undesired Emissions (Part 15.407(b))

Band Edge measurements are made following the guidelines in FCC KDB Publication No. 789033 D02 v01r02 with the EUT initially operating on the Lowest Channel and then operating on the Highest Channel within its band of operation for all modes of operation. Antenna port conducted measurements are performed to demonstrate compliance with the requirement of 15.407(b) that all emissions outside of the band edges do not exceed an e.i.r.p of -27 dBm/MHz.

The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

To capture the band edge the Spectrum Analyzer frequency span was set to 2.5 MHz to capture the peak level of the emission operating on the channel closest to the band edge as well as any modulation products falling outside of the authorized band of operation. Conducted measurements are performed with RBW = 100 kHz. In all cases, the VBW is set $\geq 3 \cdot \text{RBW}$. The integration function on the spectrum analyzer was used to calculate the Band edge measurement over 1 MHz. See figure and calculations below for more detail.

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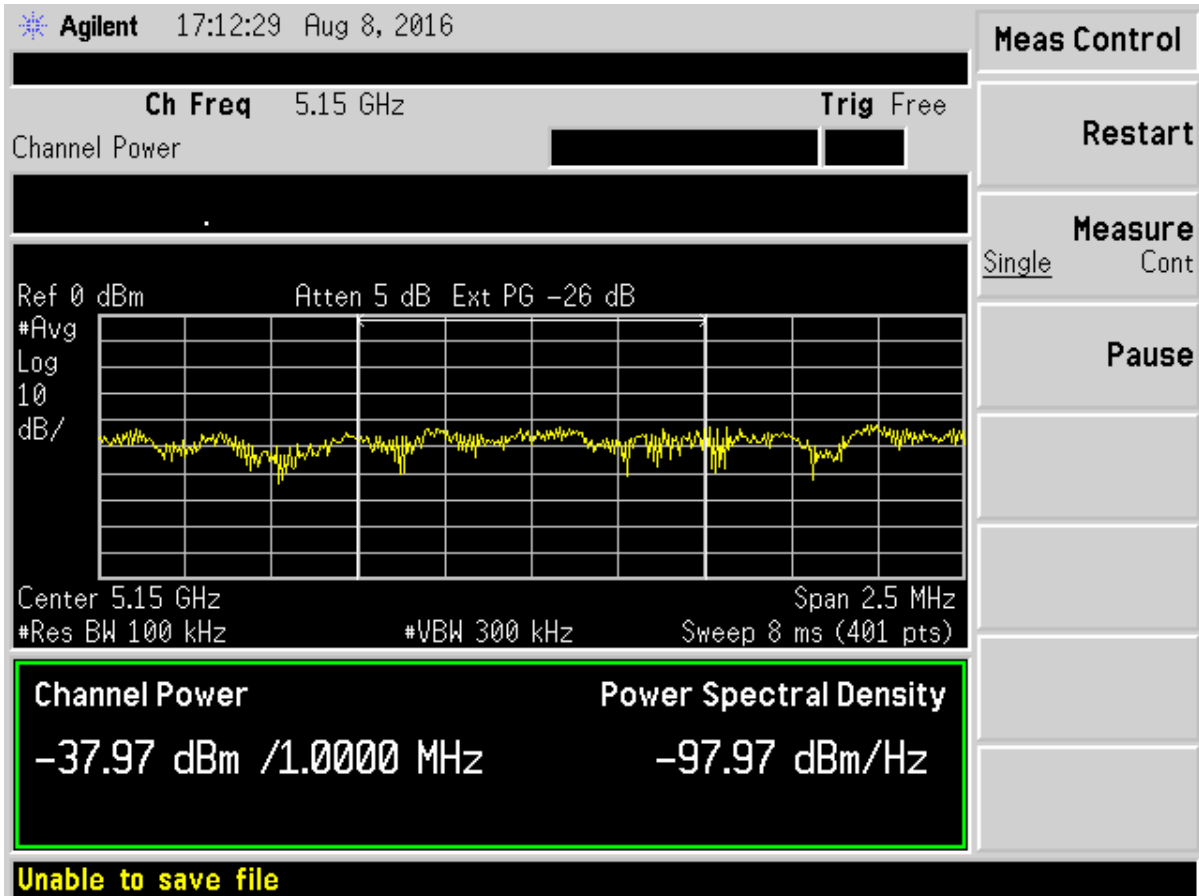


Figure 111. 5.15 GHz Band Edge Compliance, 802.11a

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-37.97 dBm/MHz
Band Edge Margin	10.97 dB

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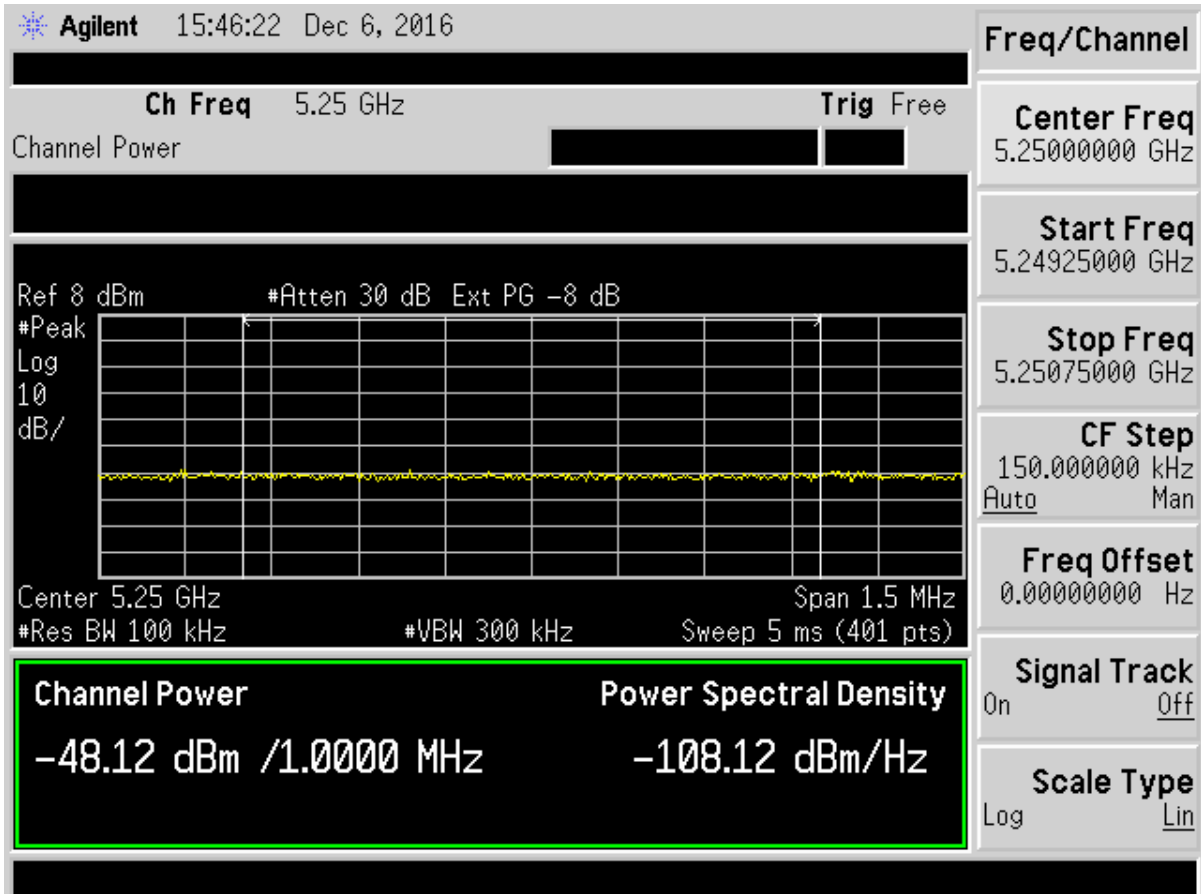


Figure 112. 5.25 GHz Band Edge Compliance, 802.11a

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-48.12 dBm/MHz
Band Edge Margin	21.12 dB

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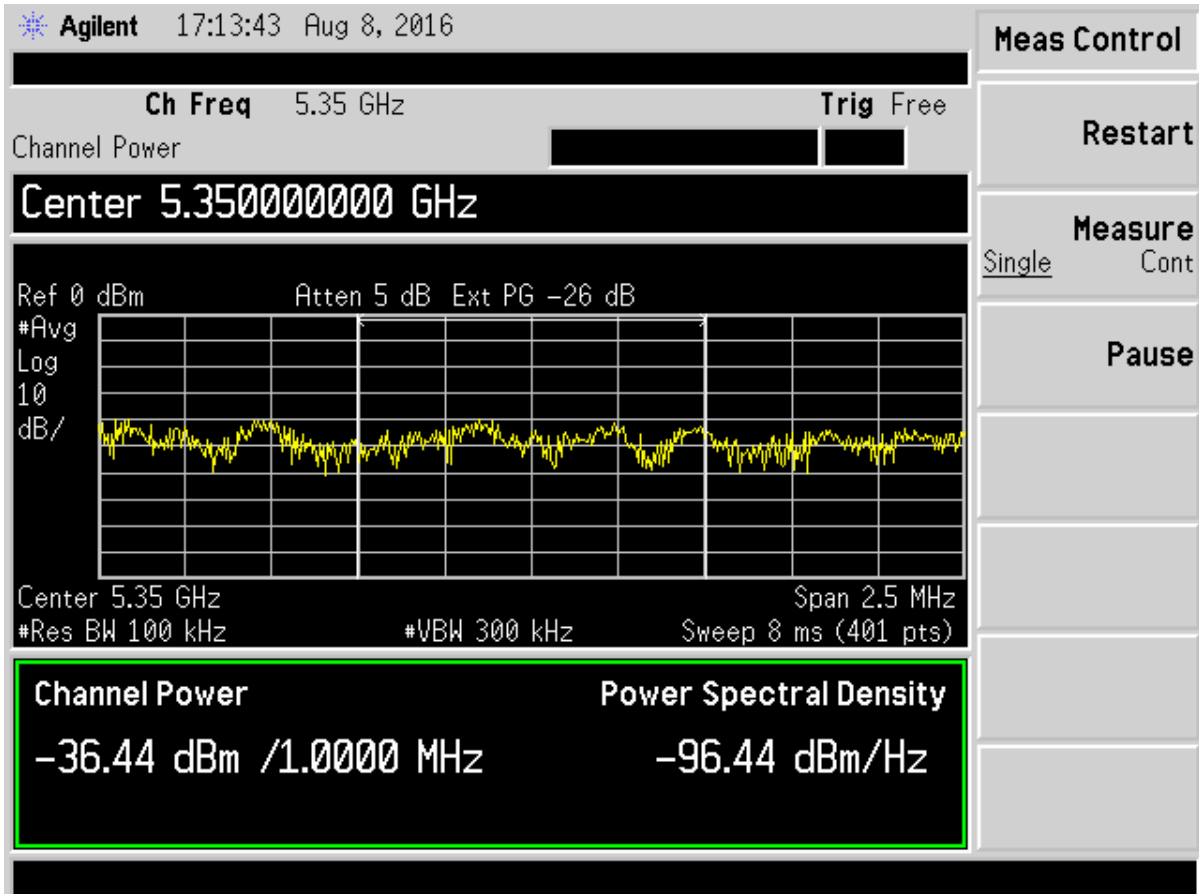


Figure 113. 5.35 GHZ Band Edge Compliance, 802.11a

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-36.44 dBm/MHz
Band Edge Margin	9.44 dB

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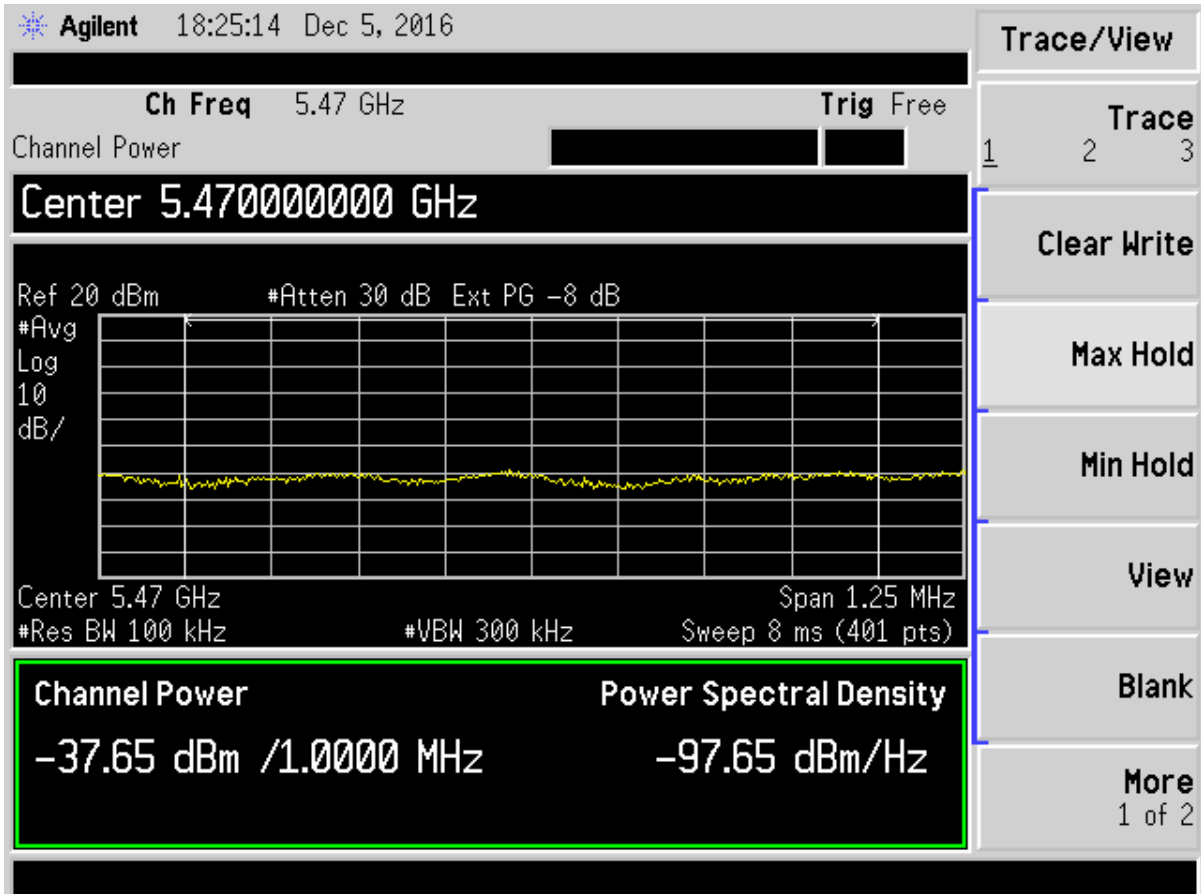


Figure 114. 5.47 GHZ Band Edge Compliance, 802.11a

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-37.65 dBm/MHz
Band Edge Margin	10.65 dB

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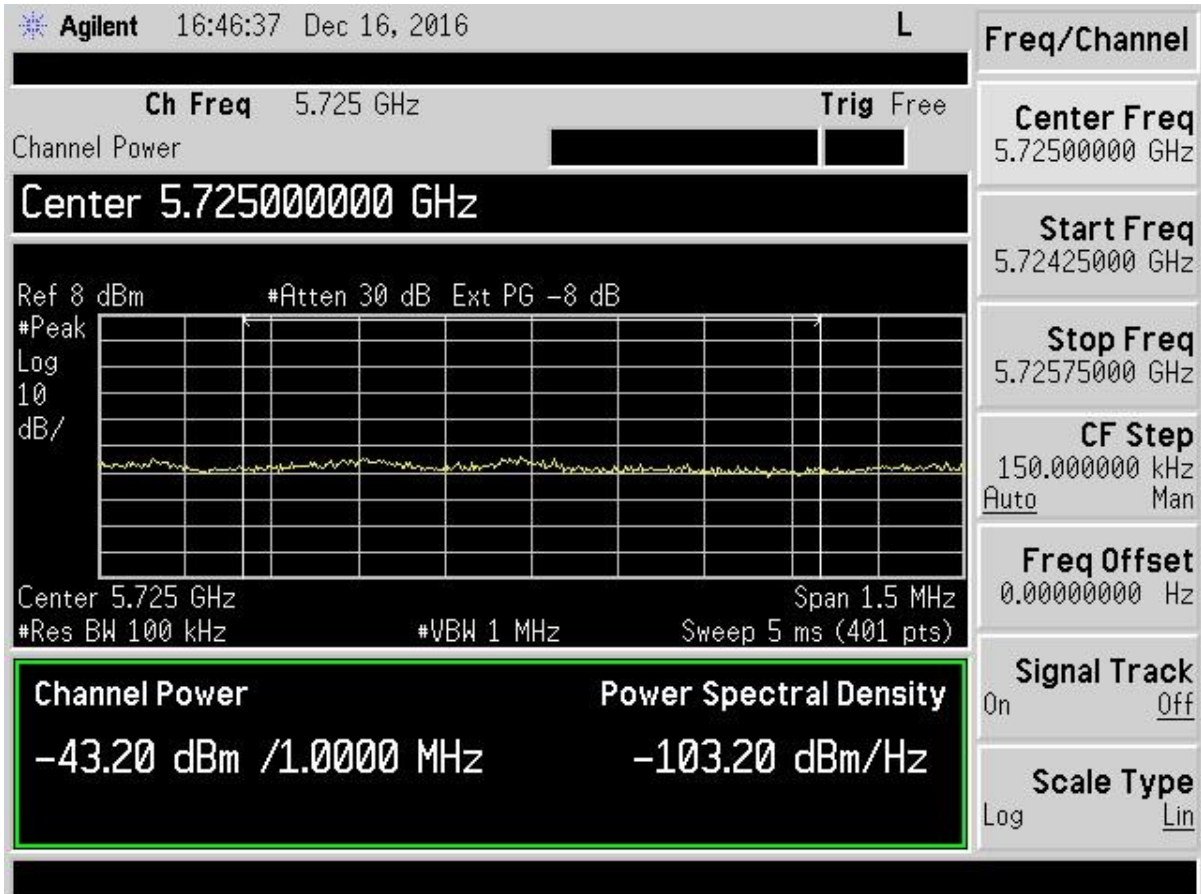


Figure 115. 5.725 GHZ Band Edge Compliance, 802.11a

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-43.20 dBm/MHz
Band Edge Margin	16.20 dB

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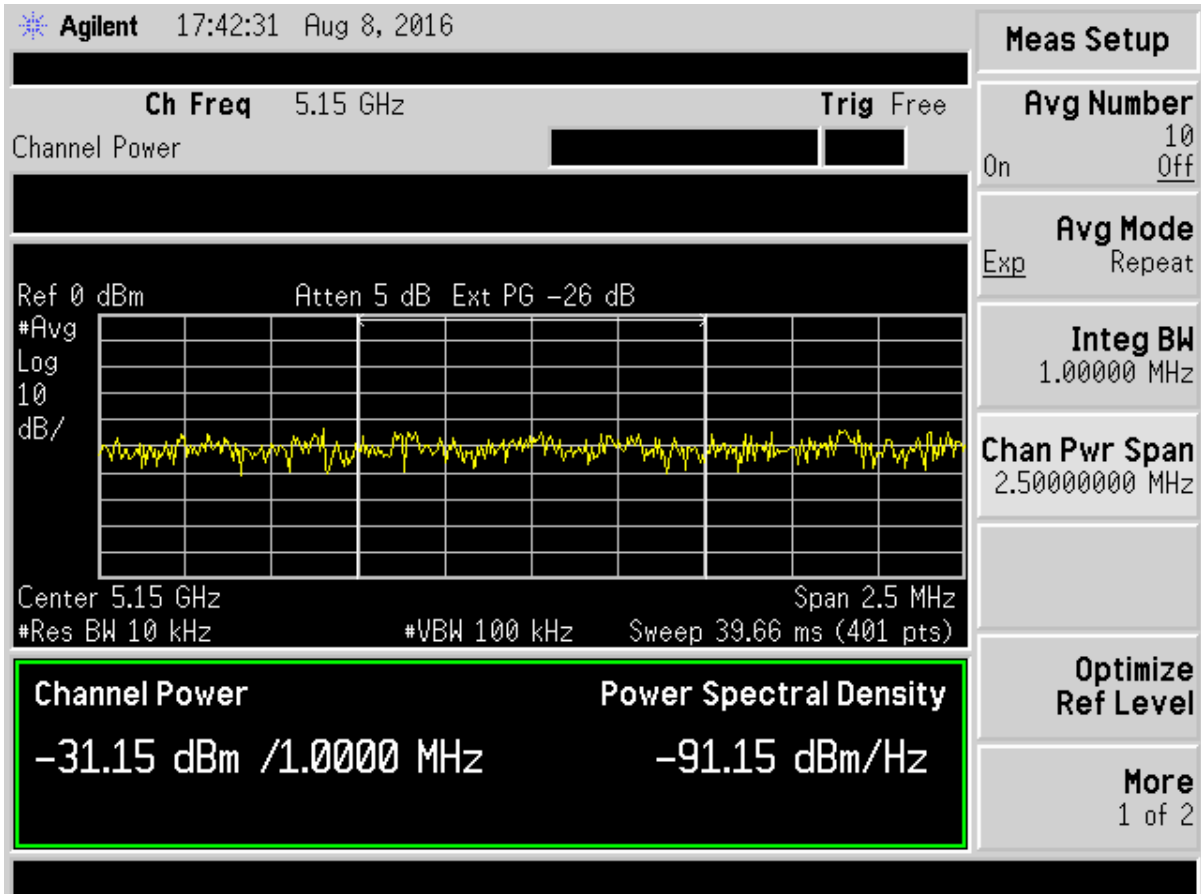


Figure 116. 5.15 GHz Band Edge Compliance 802.11a 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-31.15 dBm/MHz
Band Edge Margin	4.15 dB

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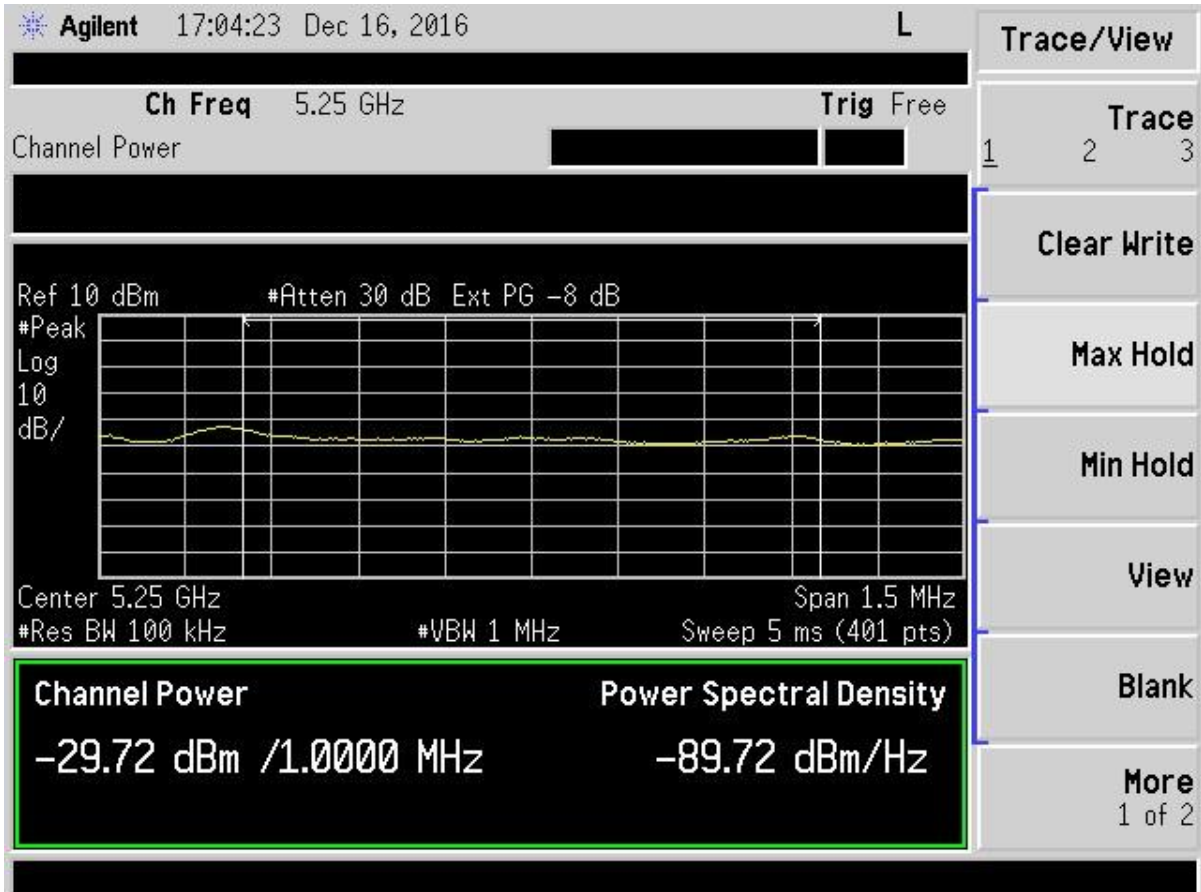


Figure 117. 5.25 GHz Band Edge Compliance 802.11a 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-29.72 dBm/MHz
Band Edge Margin	2.72 dB

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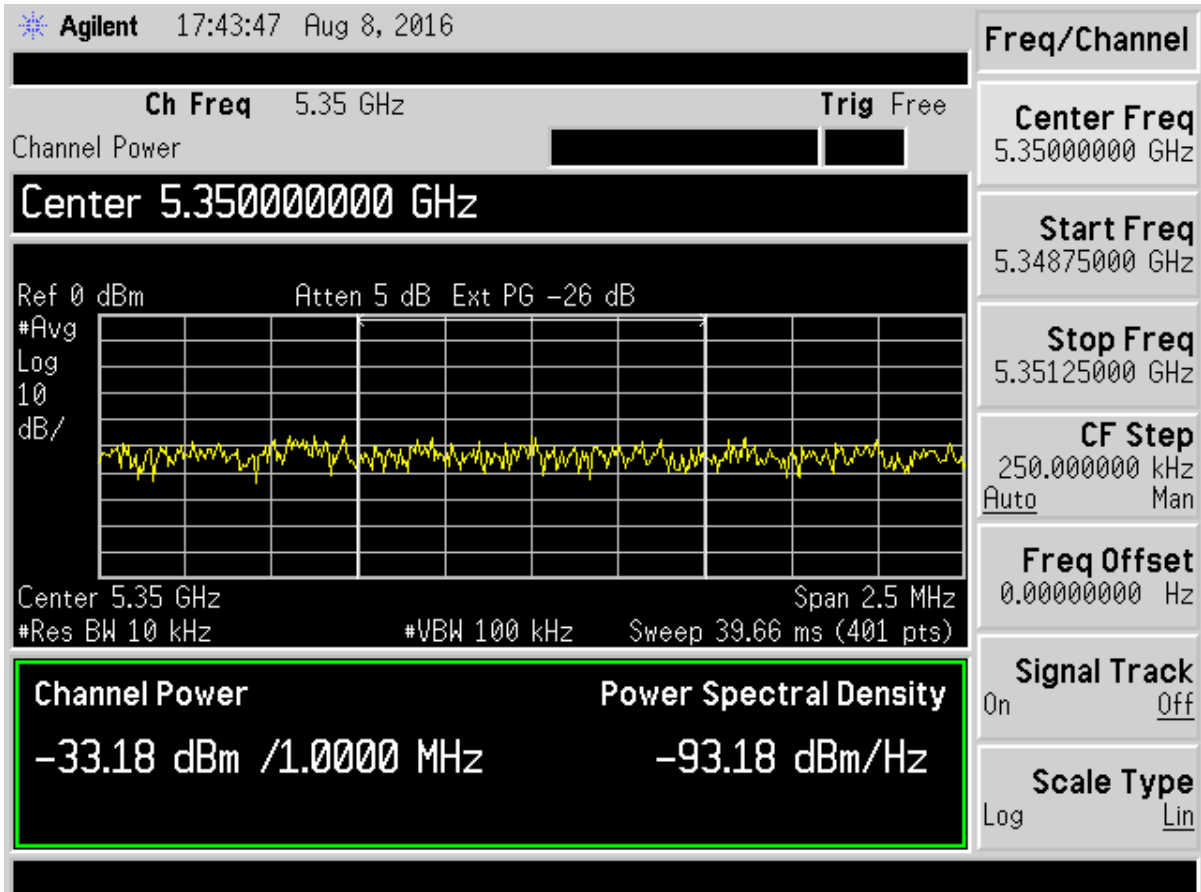


Figure 118. 5.35 GHz Band Edge Compliance 802.11a 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-33.18 dBm/MHz
Band Edge Margin	6.18 dB

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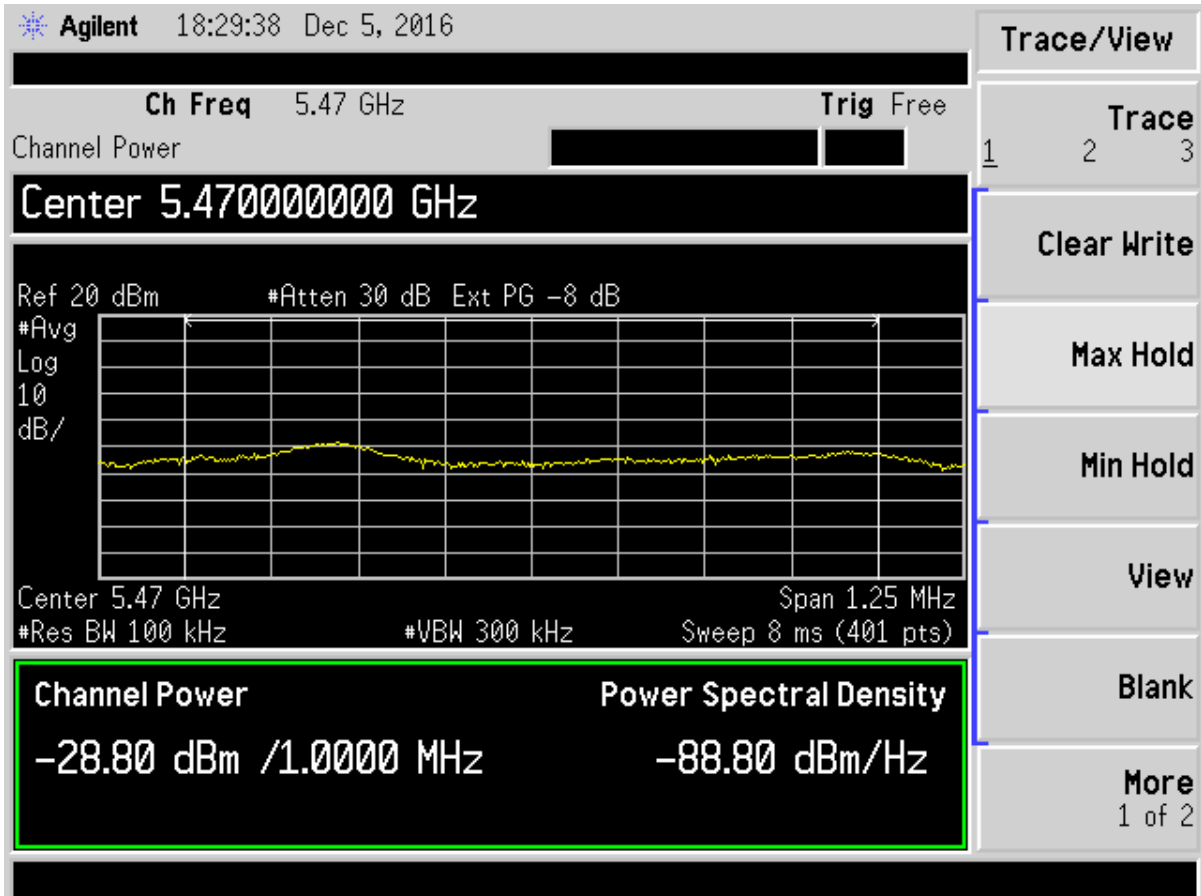


Figure 119. 5.47 GHz Band Edge Compliance 802.11a 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-28.80 dBm/MHz
Band Edge Margin	1.80 dB

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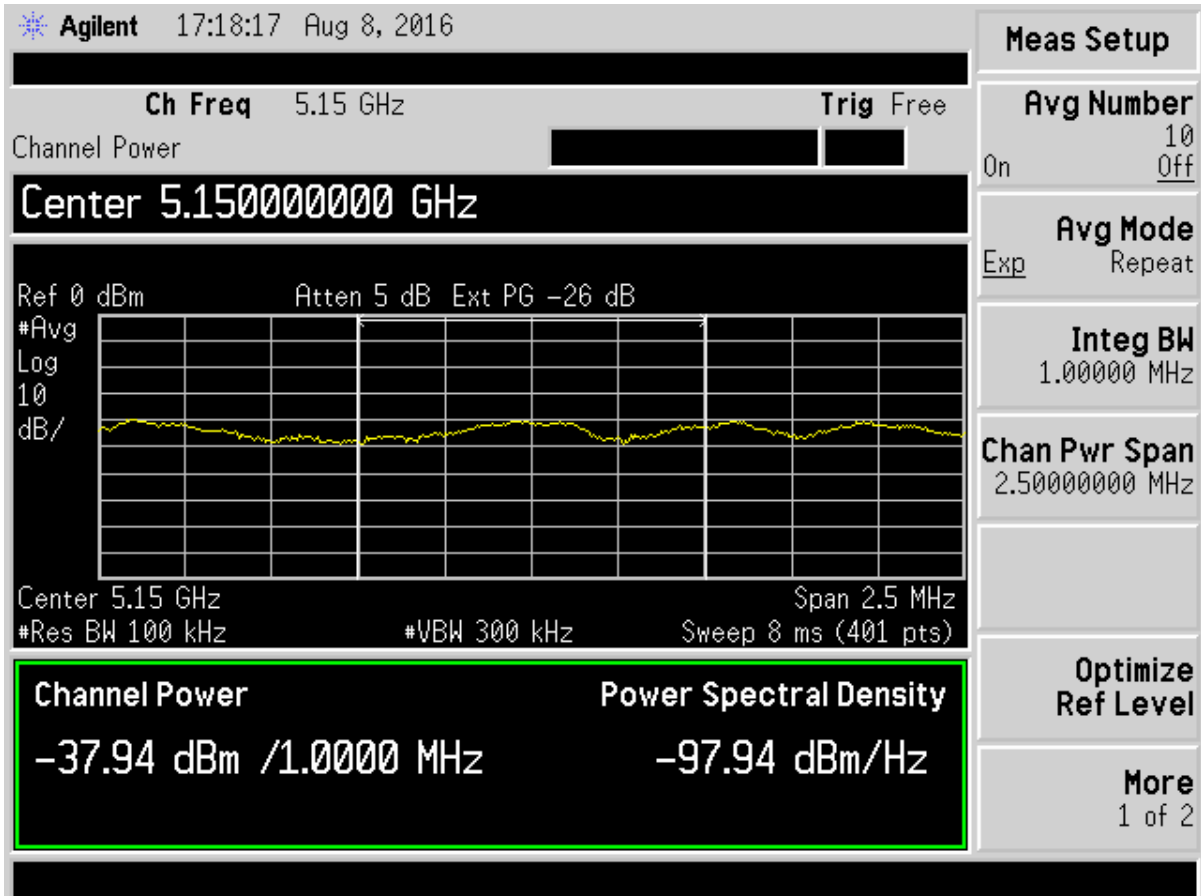


Figure 120. 5.15 GHZ Band Edge Compliance, 802.11n

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-37.94 dBm/MHz
Band Edge Margin	10.94 dB

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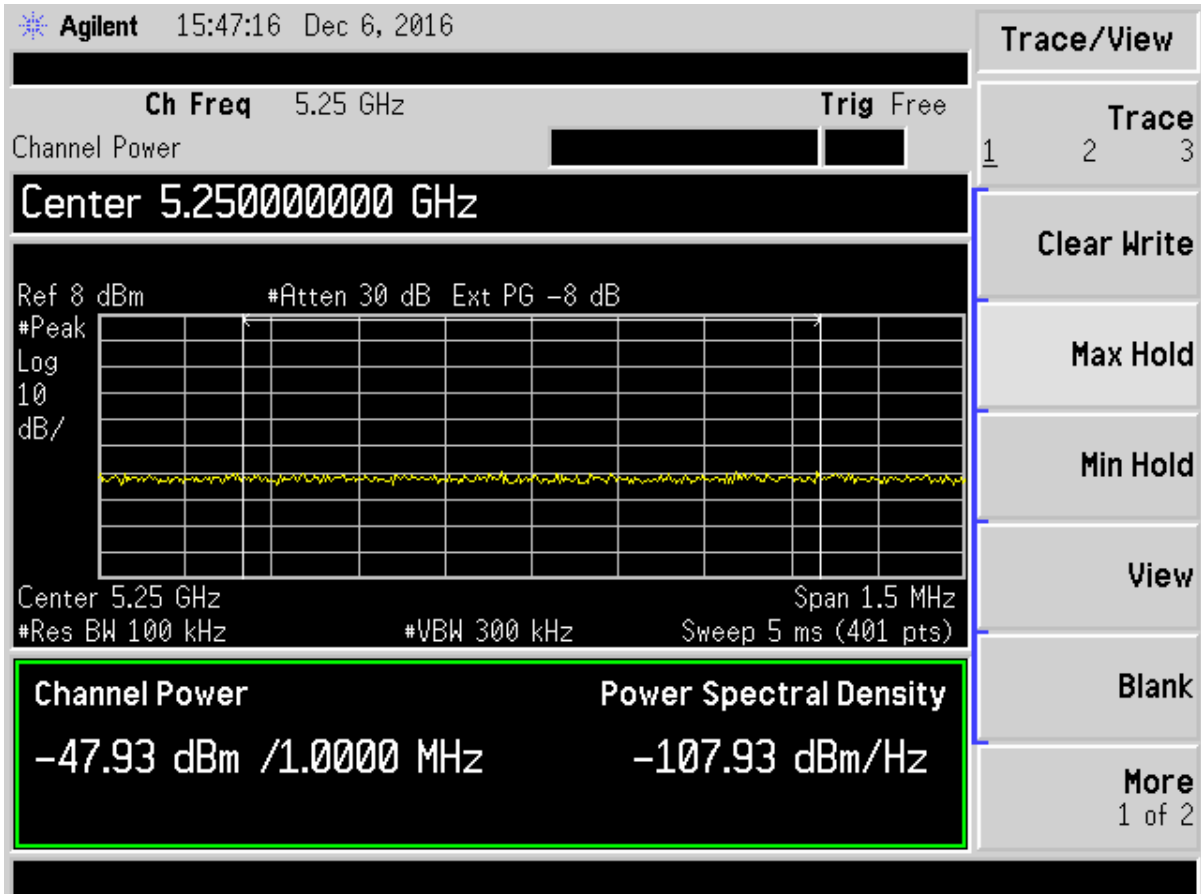


Figure 121. 5.25 GHZ Band Edge Compliance, 802.11n

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-47.93 dBm/MHz
Band Edge Margin	20.93 dB

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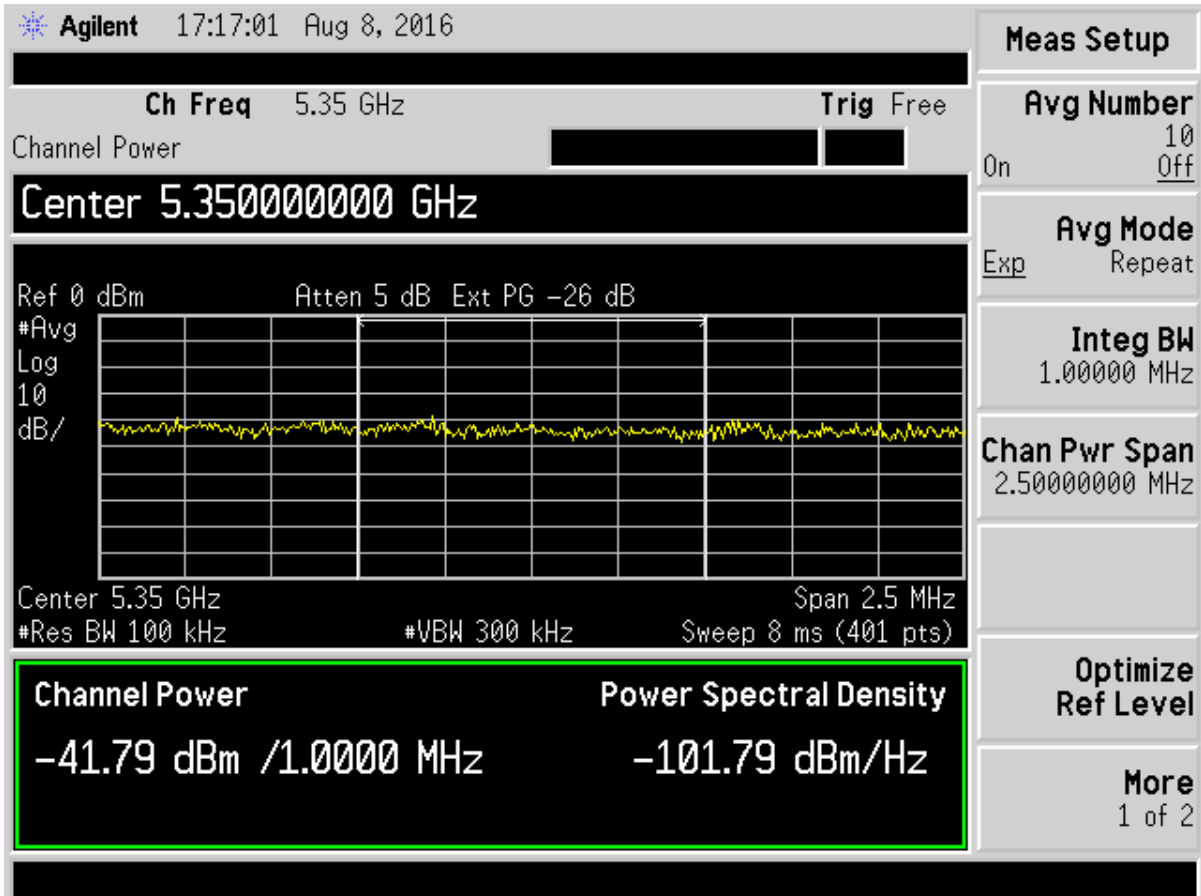


Figure 122. 5.35 GHZ Band Edge Compliance, 802.11n

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-41.79 dBm/MHz
Band Edge Margin	14.79 dB

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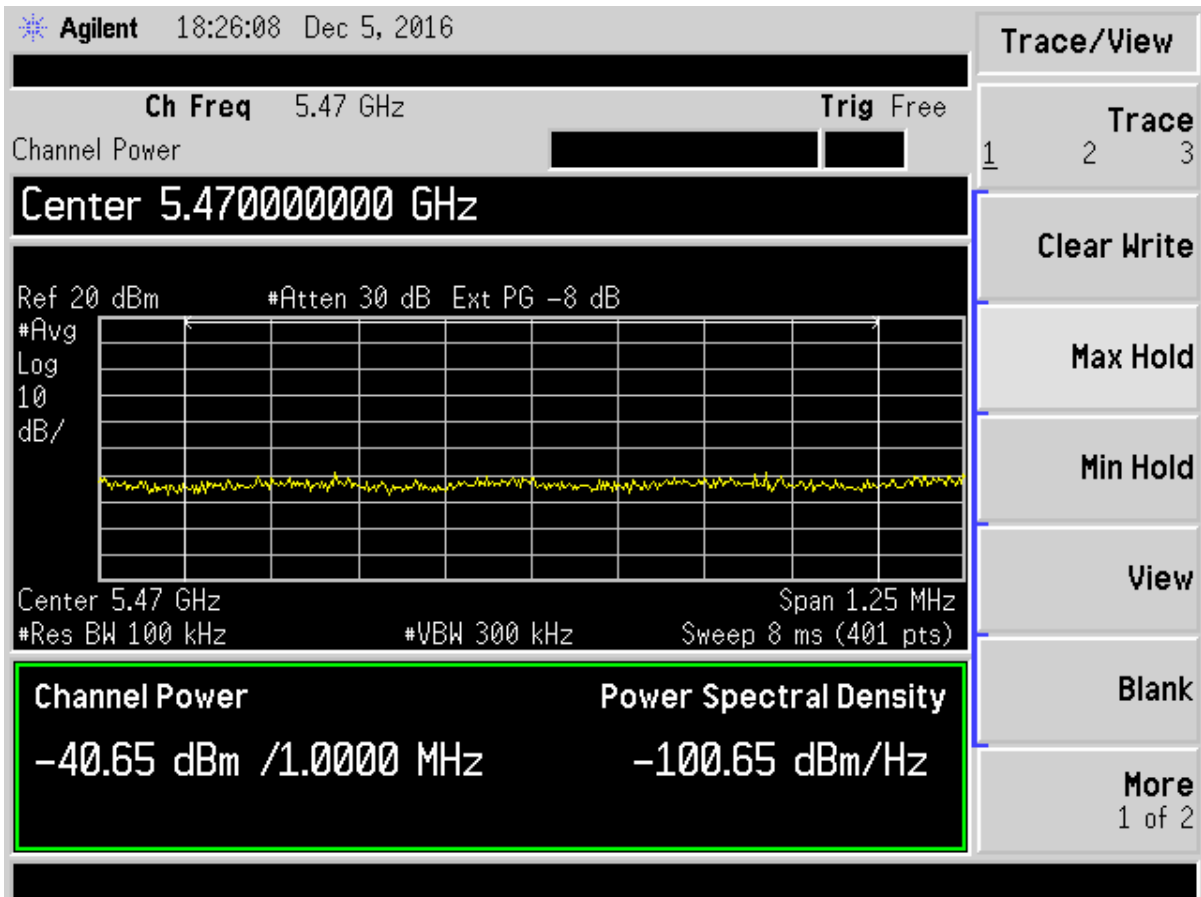


Figure 123. 5.47 GHZ Band Edge Compliance, 802.11n

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-40.65 dBm/MHz
Band Edge Margin	13.65 dB

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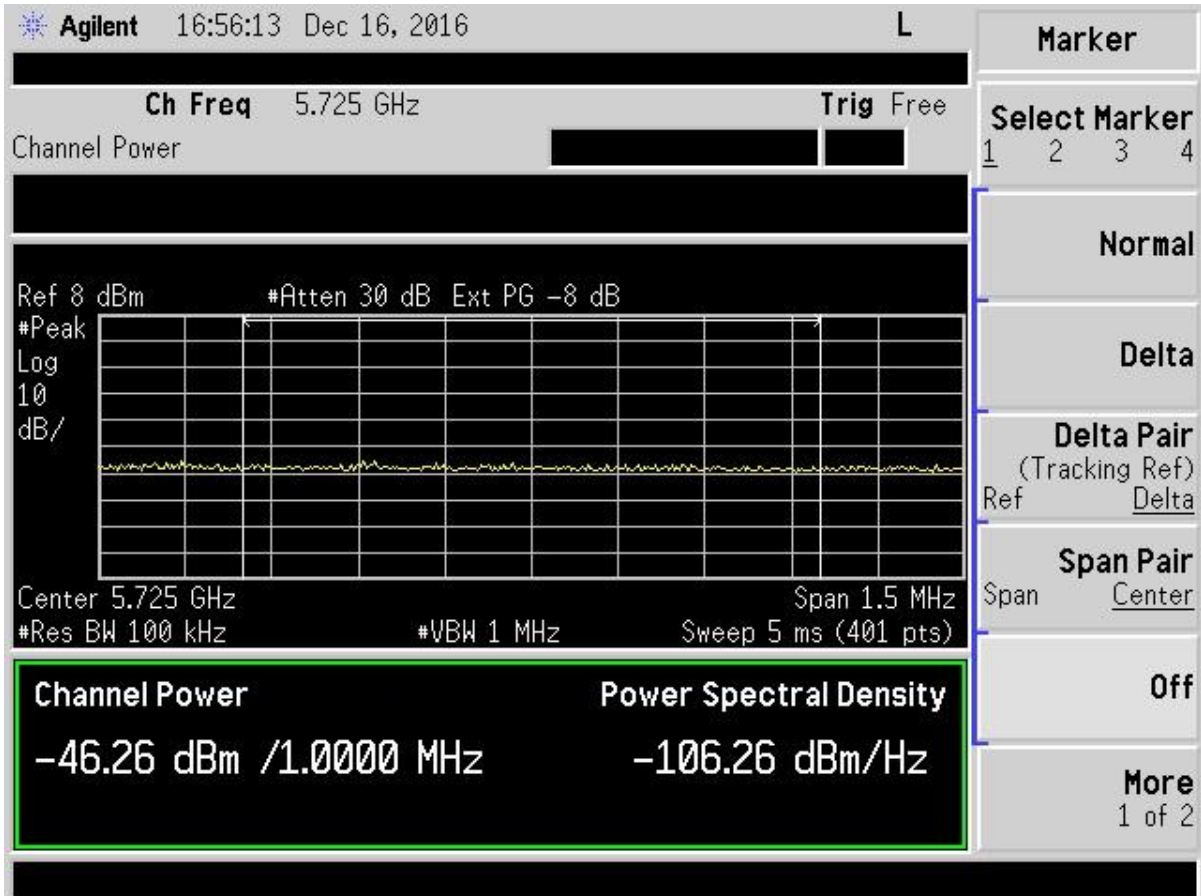


Figure 124. 5.725 GHZ Band Edge Compliance, 802.11n

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-42.26 dBm/MHz
Band Edge Margin	15.26 dB

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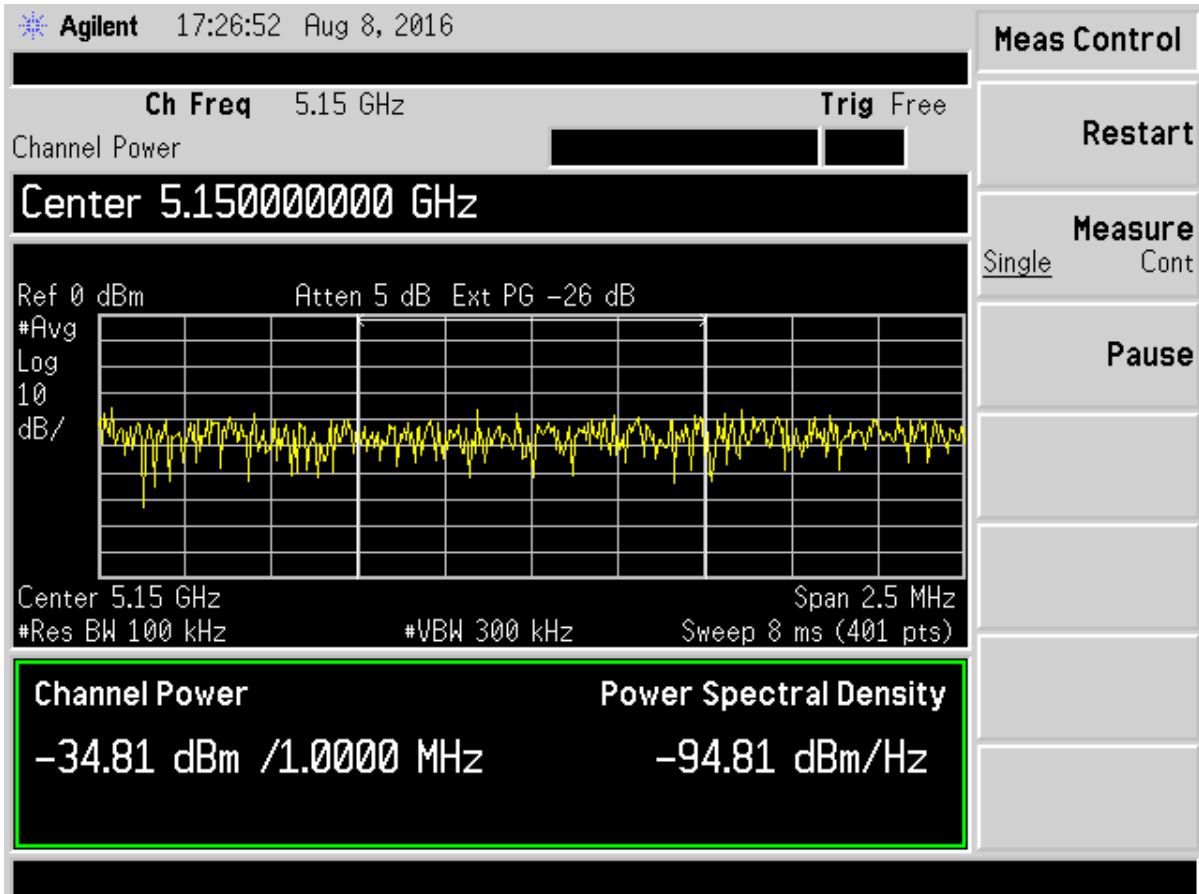


Figure 125. 5.15 GHz Band Edge Compliance 802.11n 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-34.81 dBm/MHz
Band Edge Margin	7.81 dB

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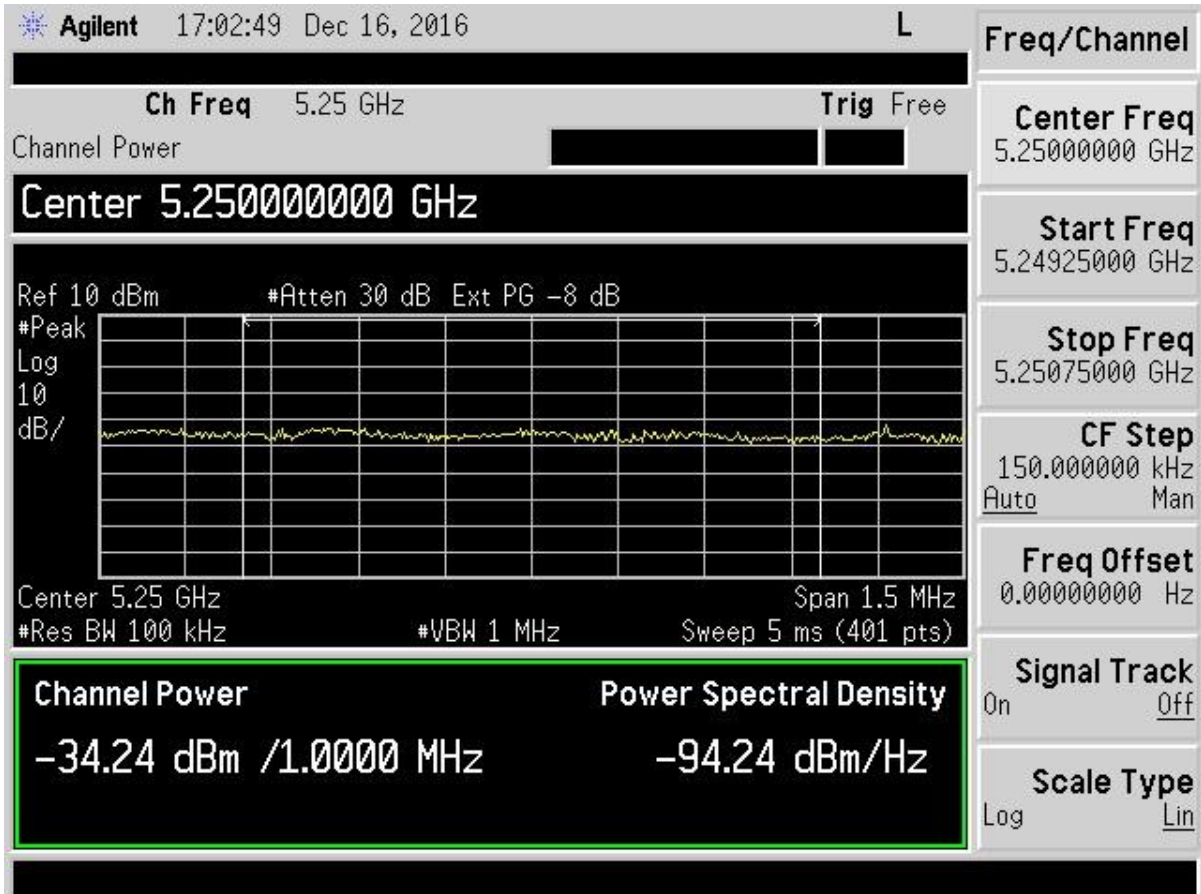


Figure 126. 5.25 GHz Band Edge Compliance 802.11n 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-34.24 dBm/MHz
Band Edge Margin	7.24 dB

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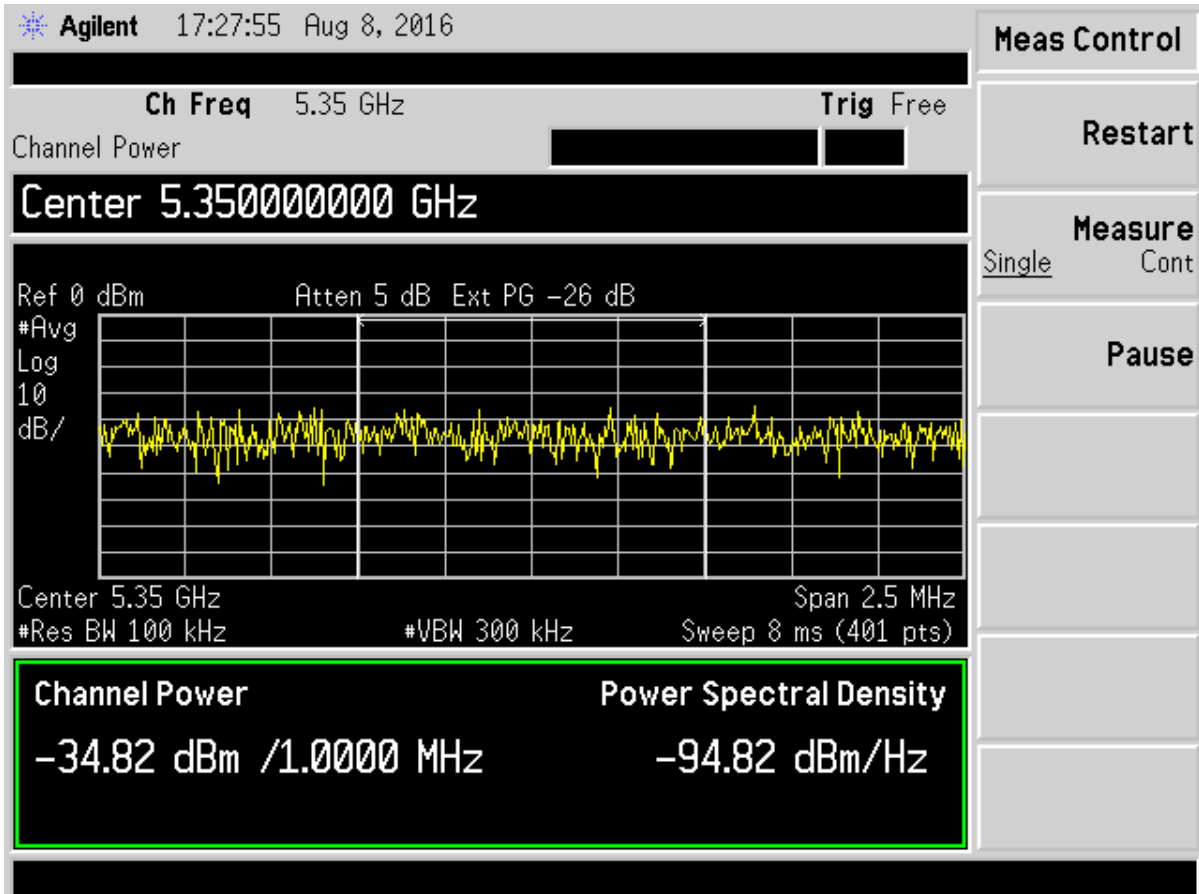


Figure 127. 5.35 GHz Band Edge Compliance 802.11n 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-34.82 dBm/MHz
Band Edge Margin	7.82 dB

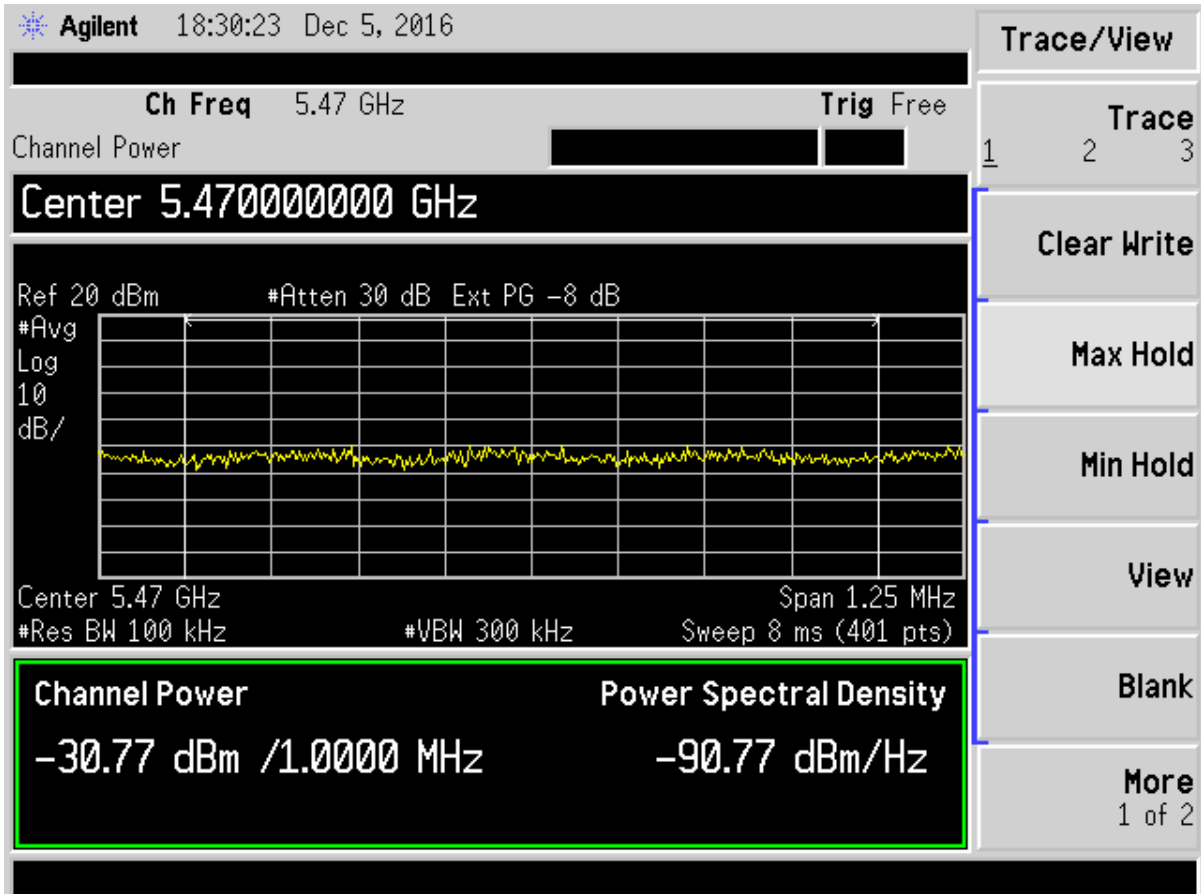


Figure 128. 5.47 GHz Band Edge Compliance 802.11n 40 MHz BW

Calculation of worst case lower band edge measurement:

Band Edge Limit	-27.00 dBm/MHz
-Calculated Result	-30.77 dBm/MHz
Band Edge Margin	3.77 dB

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For transmitters operating in the 5.725-5.85 GHz band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

For compliance to RSS-247 in the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p. For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz.

The plots below show that emissions at the band edge to beyond 10 MHz above and below the band edges meet the requirements outlined above.

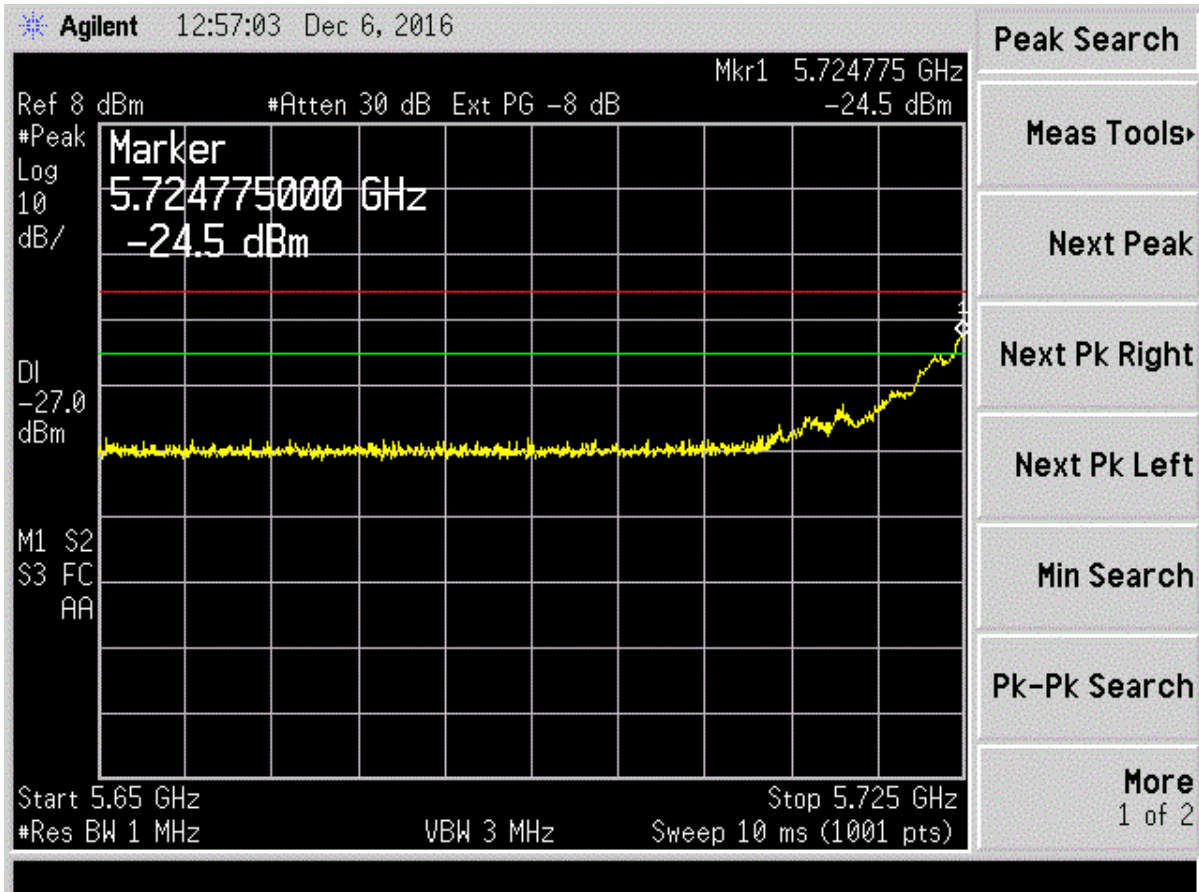


Figure 129. 802.11a 5.725 GHz Band edge

RED= -17dBm/MHz limit
 Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -24.5 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -20.9 \text{ dBm} < -17 \text{ dBm}$$

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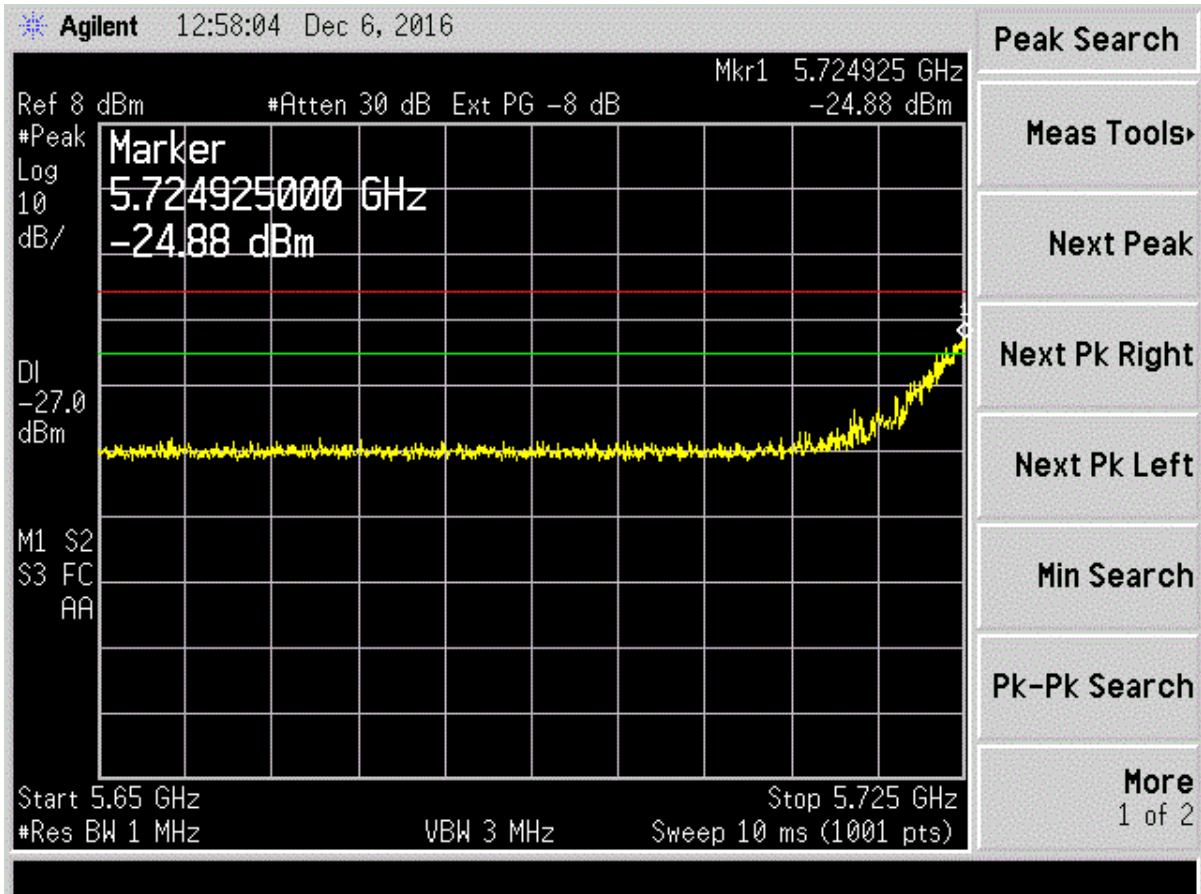


Figure 130. 802.11n 5.725 GHz Band edge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -24.9 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -21.5 \text{ dBm} < -17 \text{ dBm}$$

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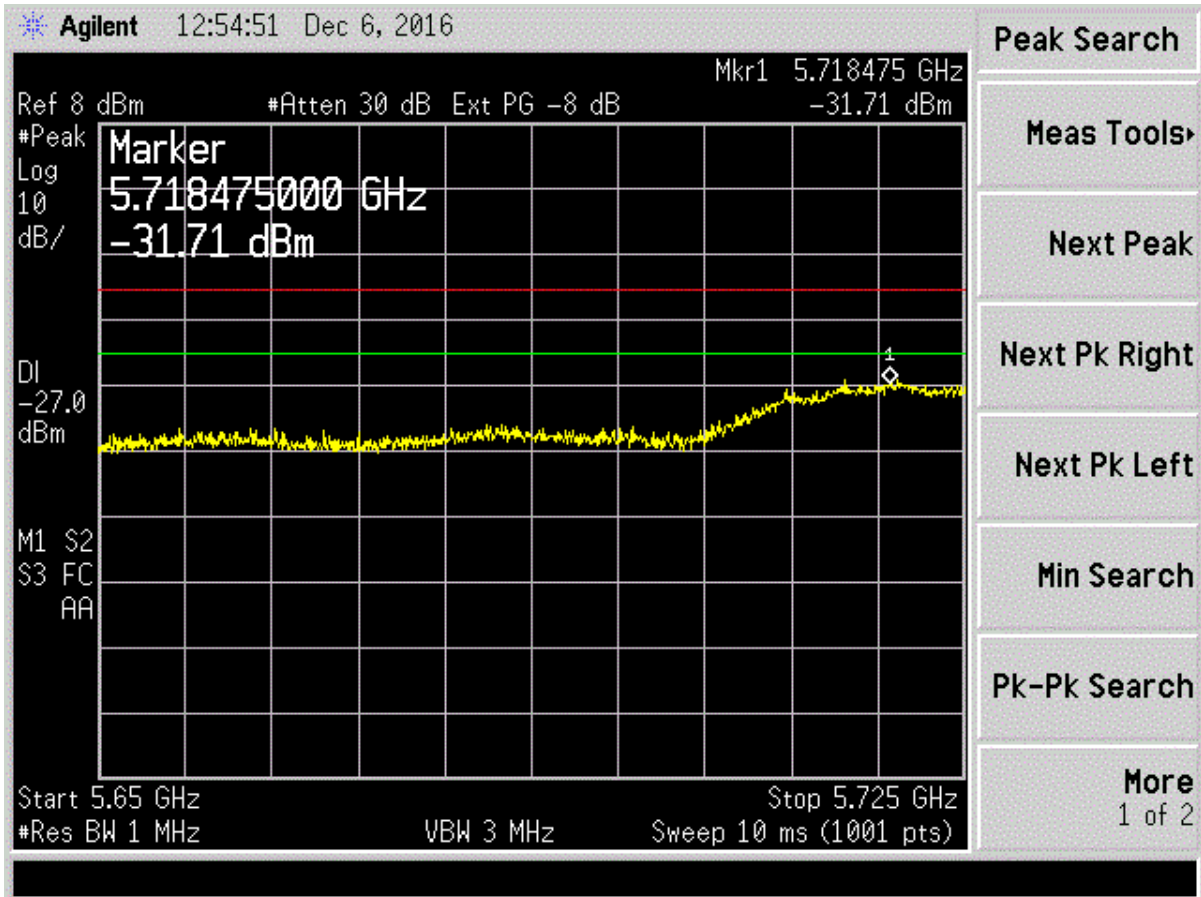


Figure 131. 802.11a(40) 5.725 GHz Band Edge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -31.7 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -28.3 \text{ dBm} < -17 \text{ dBm}$$

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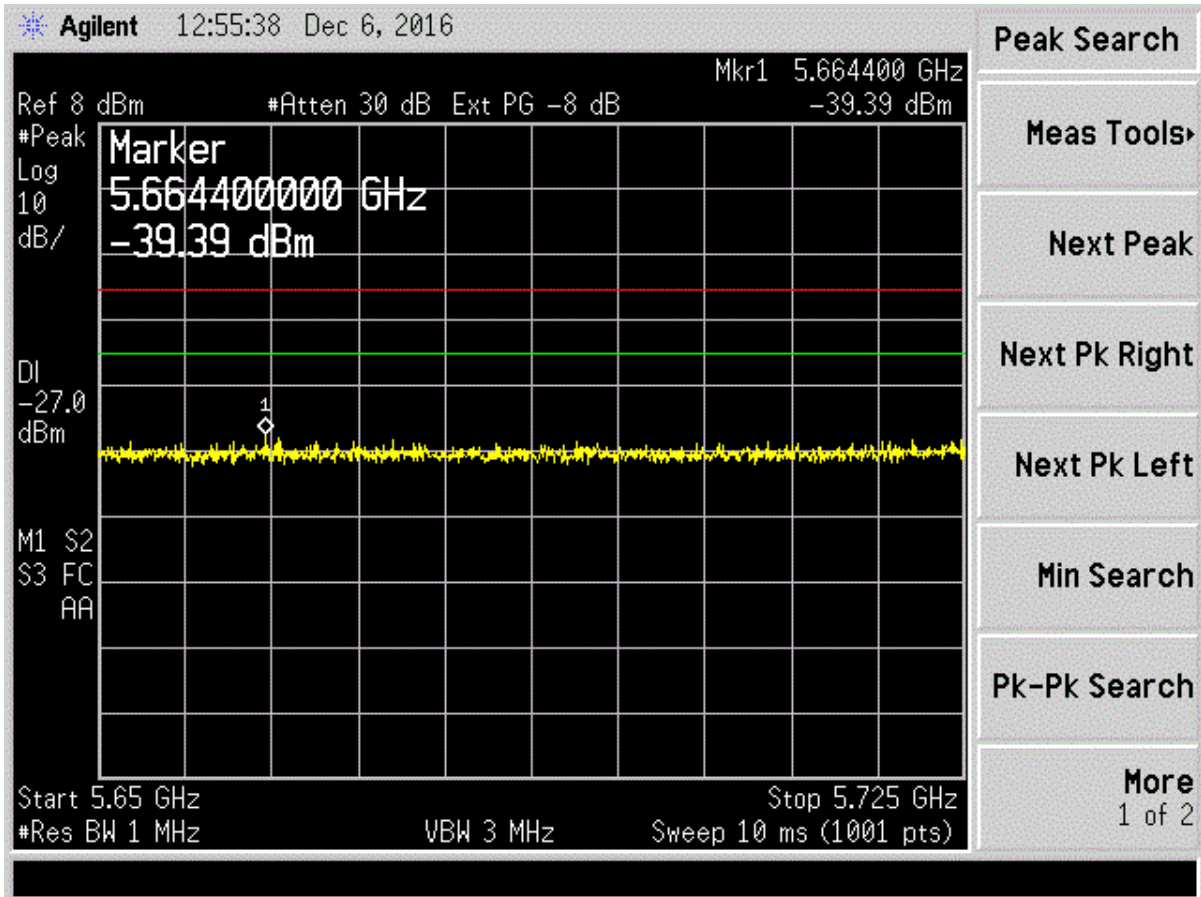


Figure 132. 802.11n(40) 5.725 GHz Band edge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -39.4 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -36 \text{ dBm} < -17 \text{ dBm}$$

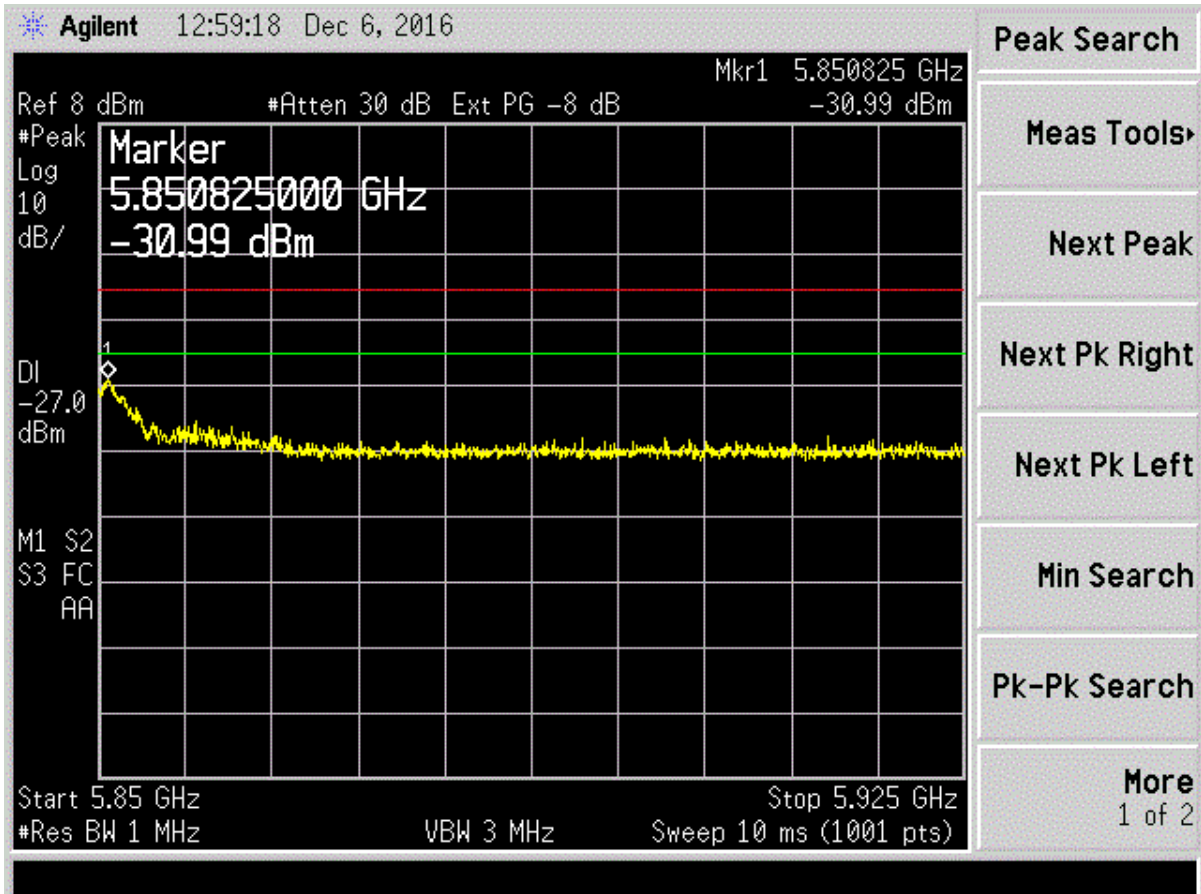


Figure 133. 802.11a 5.85 GHz Band edge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -31 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -27.6 \text{ dBm} < -17 \text{ dBm}$$

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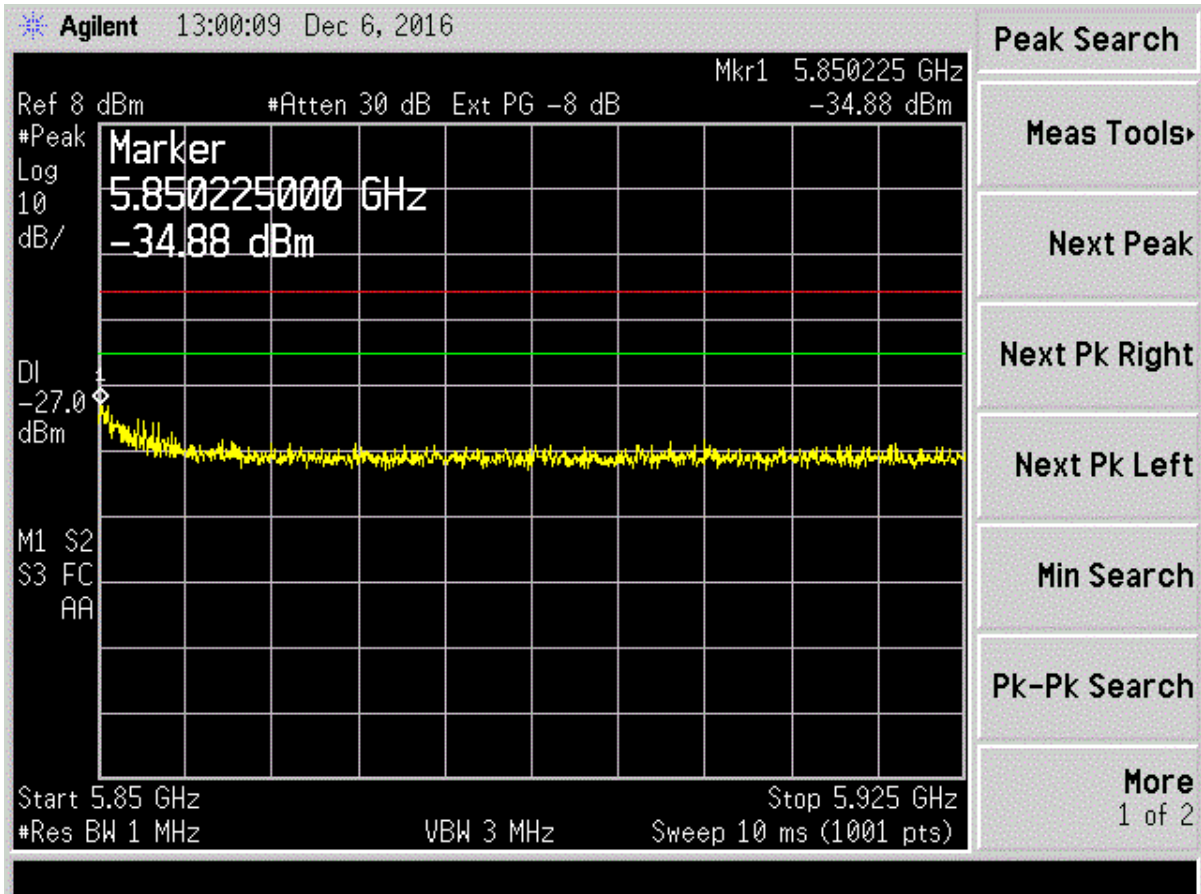


Figure 134. 802.11n 5.85 GHz Band edge

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -34.9 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -31.5 \text{ dBm} < -17 \text{ dBm}$$

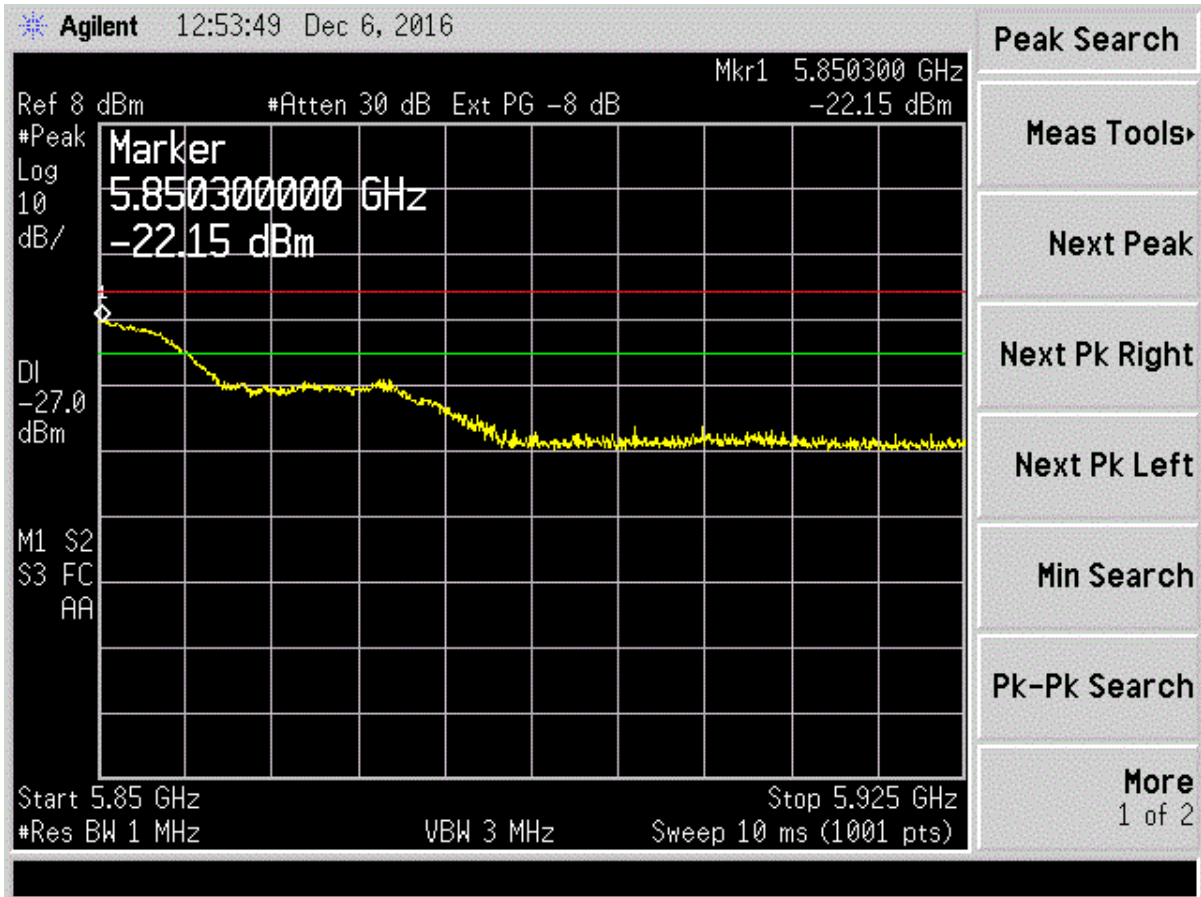


Figure 135. 802.11a(40), 5.85 GHz Band edge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -22.15 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -18.8 \text{ dBm} < -17 \text{ dBm}$$

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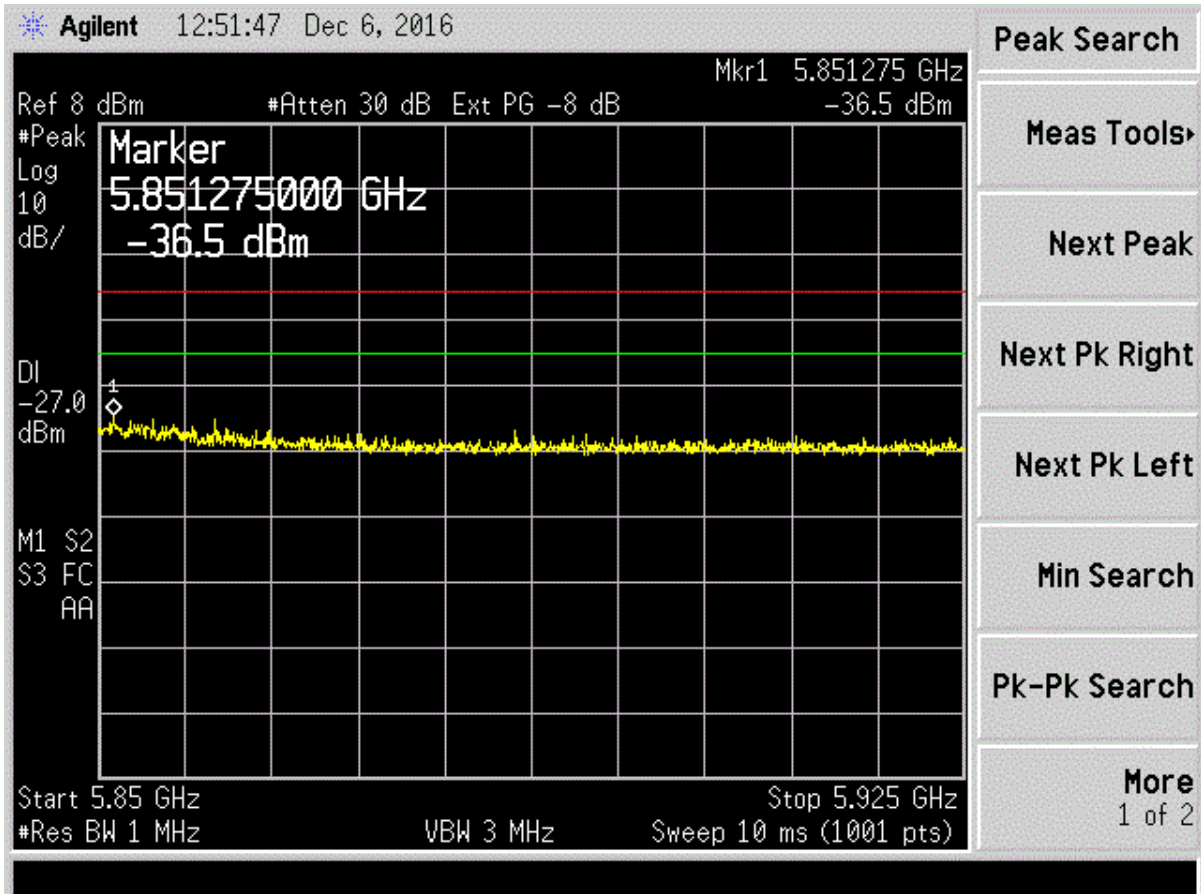


Figure 136. 802.11n(40), 5.85 GHz Bandedge

RED= -17dBm/MHz limit
Green= -27 dBm/MHz limit

Calculation for compliance to RSS-247:

$$\text{EIRP} = (\text{highest level} = -36.5 \text{ dBm}) + (\text{highest antenna gain} = 3.4 \text{ dBi}) = -33.1 \text{ dBm} < -17 \text{ dBm}$$

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2.14 Unwanted Emissions in the Restricted Bands (Part 15.205, 15.209)

Unwanted Emissions in the Restricted Bands were made following the guidelines in FCC KDB Publication No. 789033 D02 v01r02 with the EUT operating on the channels closest to the restricted bands of operation. These measurements were performed with the EUT transmitting at >98% duty Cycle.

To capture the unwanted emissions the Spectrum Analyzer frequency span was set to cover the full restricted band. Radiated measurements are performed with RBW = 1 MHz. In all cases, the VBW is set $\geq 3 \cdot \text{RBW}$.

2.14.1 Antenna 1 Measurements

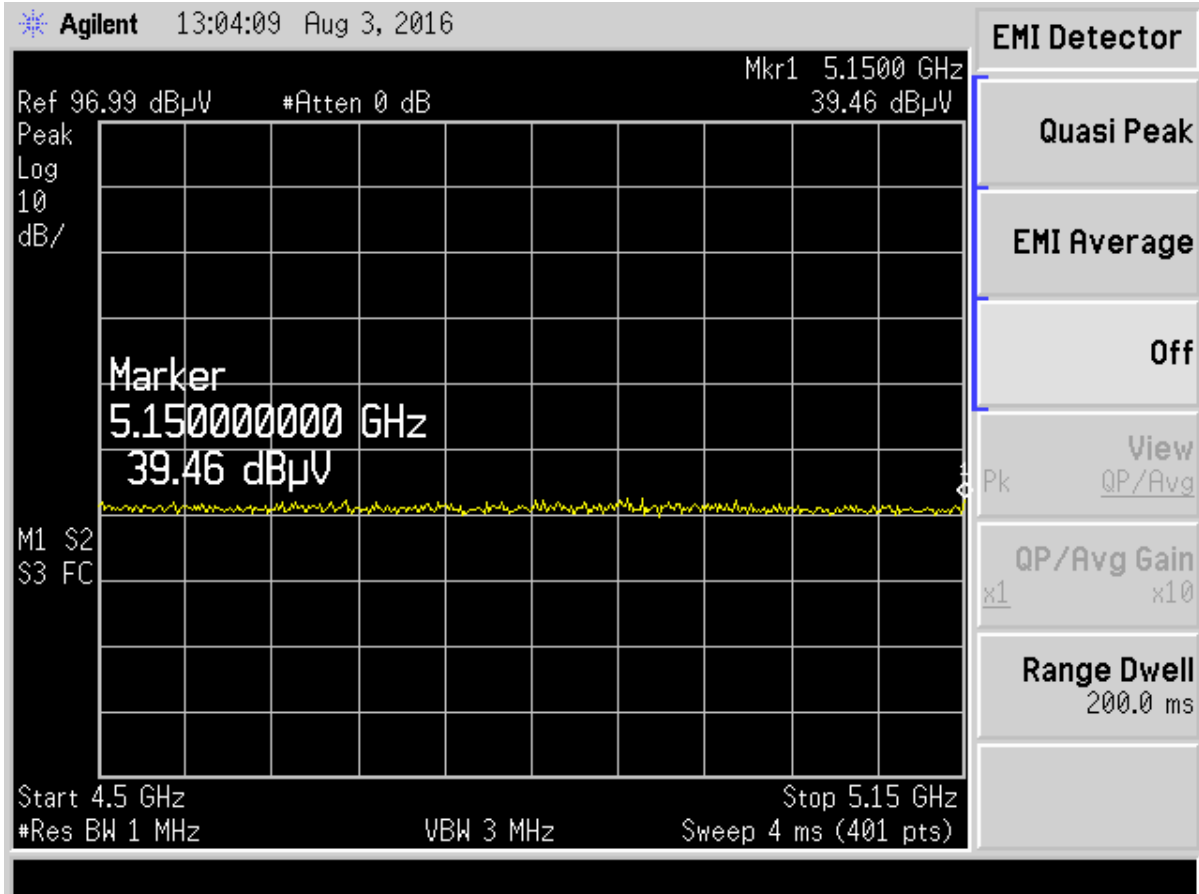


Figure 137. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11a – Peak

Table 37. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11a – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	39.46	30.19	69.65	74.0	1.0m./HORZ	4.3	PK

*DC= Distance Correction of -9.5

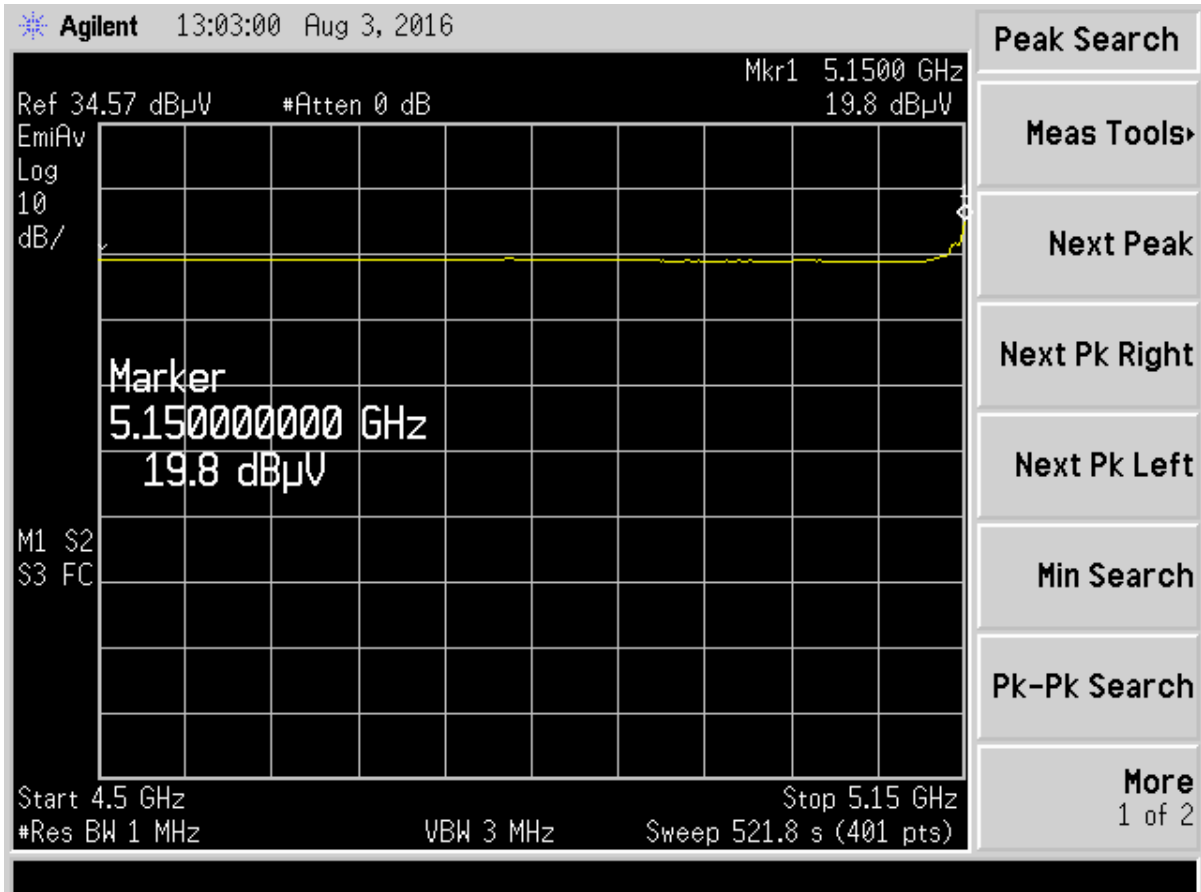


Figure 138. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11a - Average

Table 38. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11a – Average

4.5 GHz to 5.15 GHz Restricted Band AVG Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.0	19.80	30.19	49.99	54.0	1.0m./HORZ	4.0	AVG

*DC= Distance Correction of -9.5

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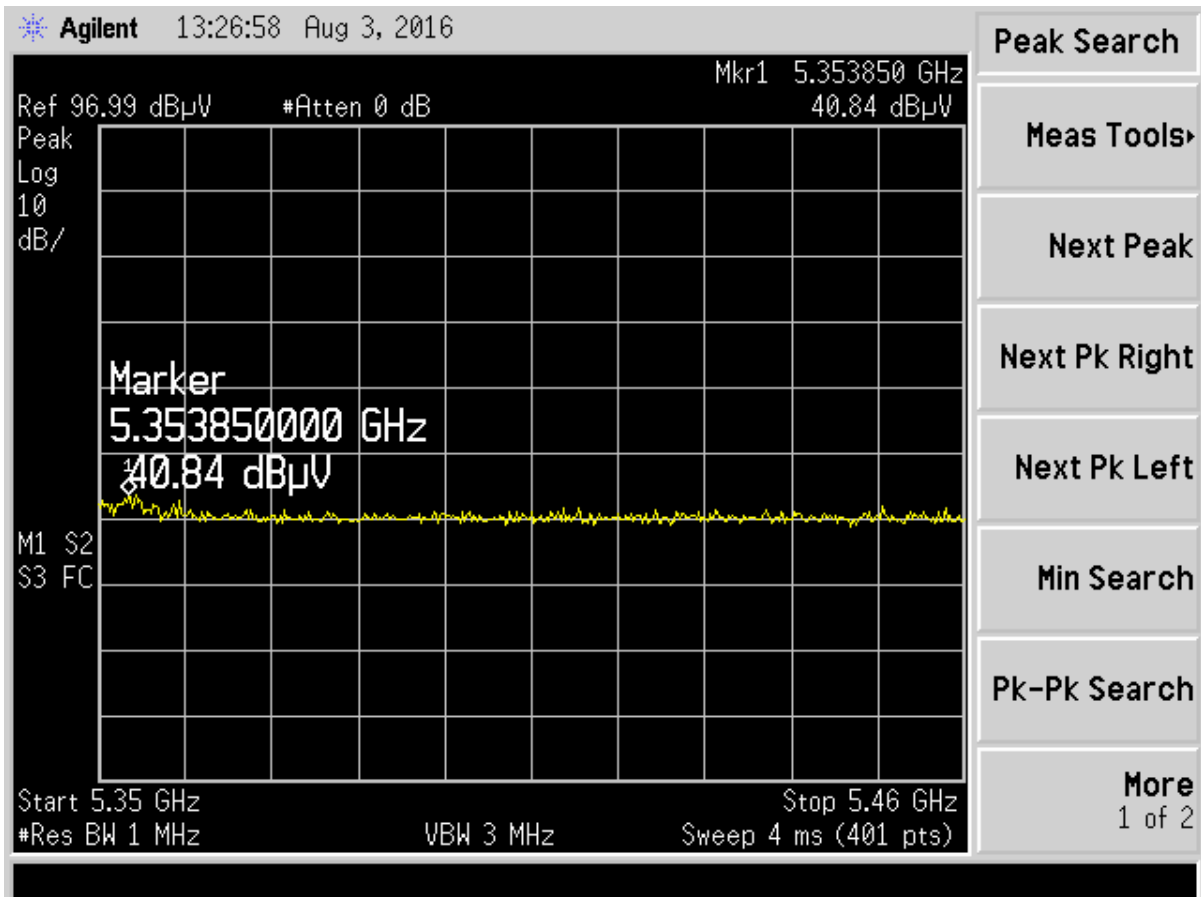


Figure 139. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11a – Peak

Table 39. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5353.85	40.84	29.45	70.29	74.0	1.0m./HORZ	3.7	PK

*DC= Distance Correction of -9.5

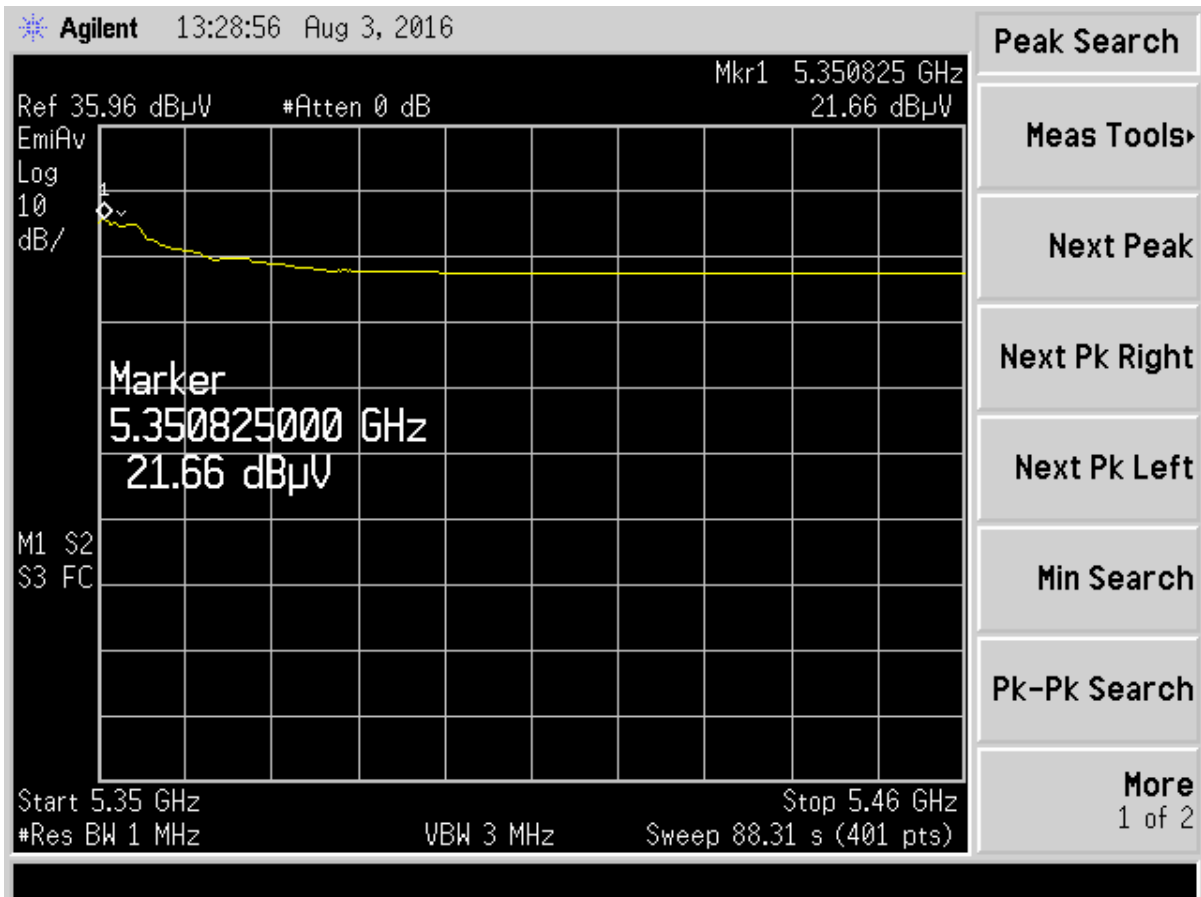


Figure 140. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11a - Average

Table 40. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.82	21.66	29.45	51.11	54.0	1.0m./HORZ	2.9	AVG

*DC= Distance Correction of -9.5

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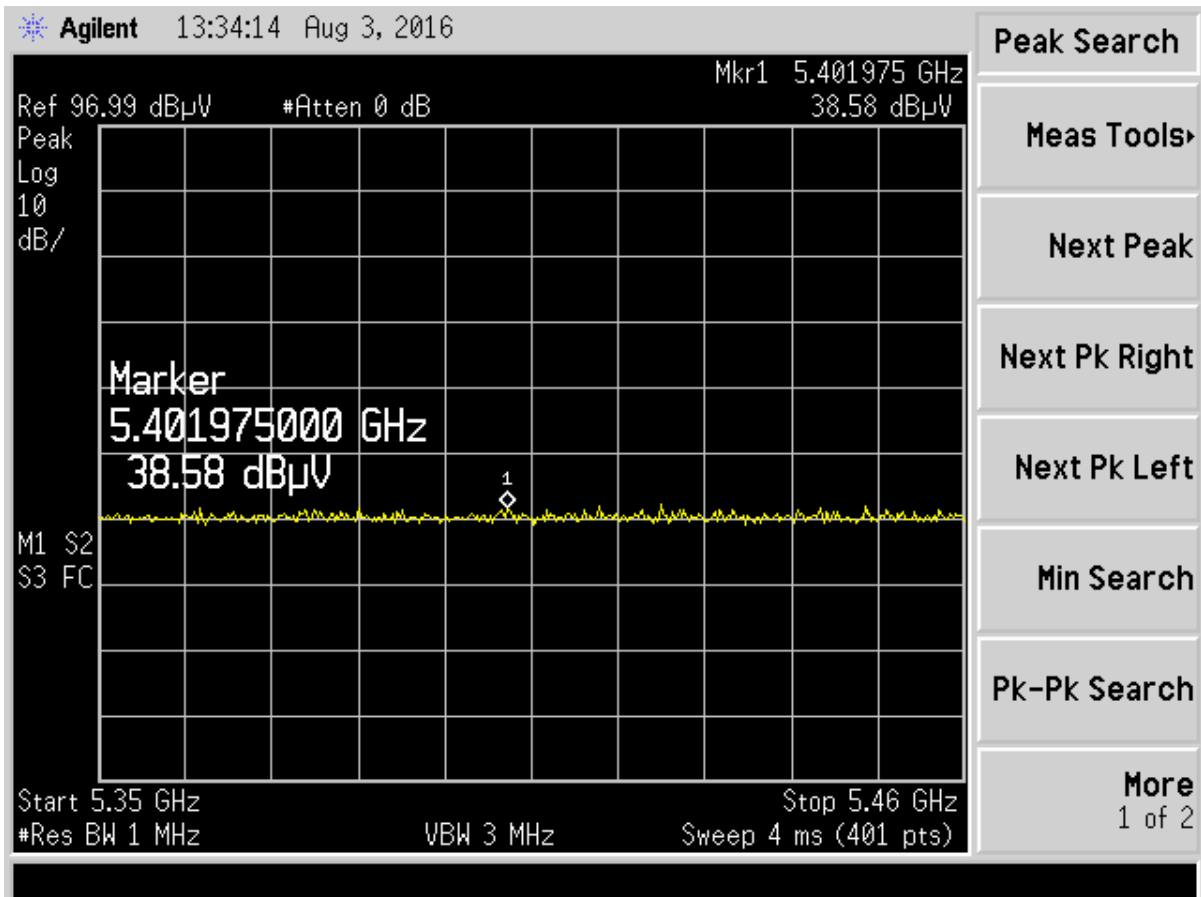


Figure 141. Restricted Band 5.35 – 5.46 GHz operating on Channel 100, 802.11a – Peak

Table 41. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5401.97	38.58	29.21	67.79	74.0	1.0m./HORZ	6.2	PK

*DC= Distance Correction of -9.5

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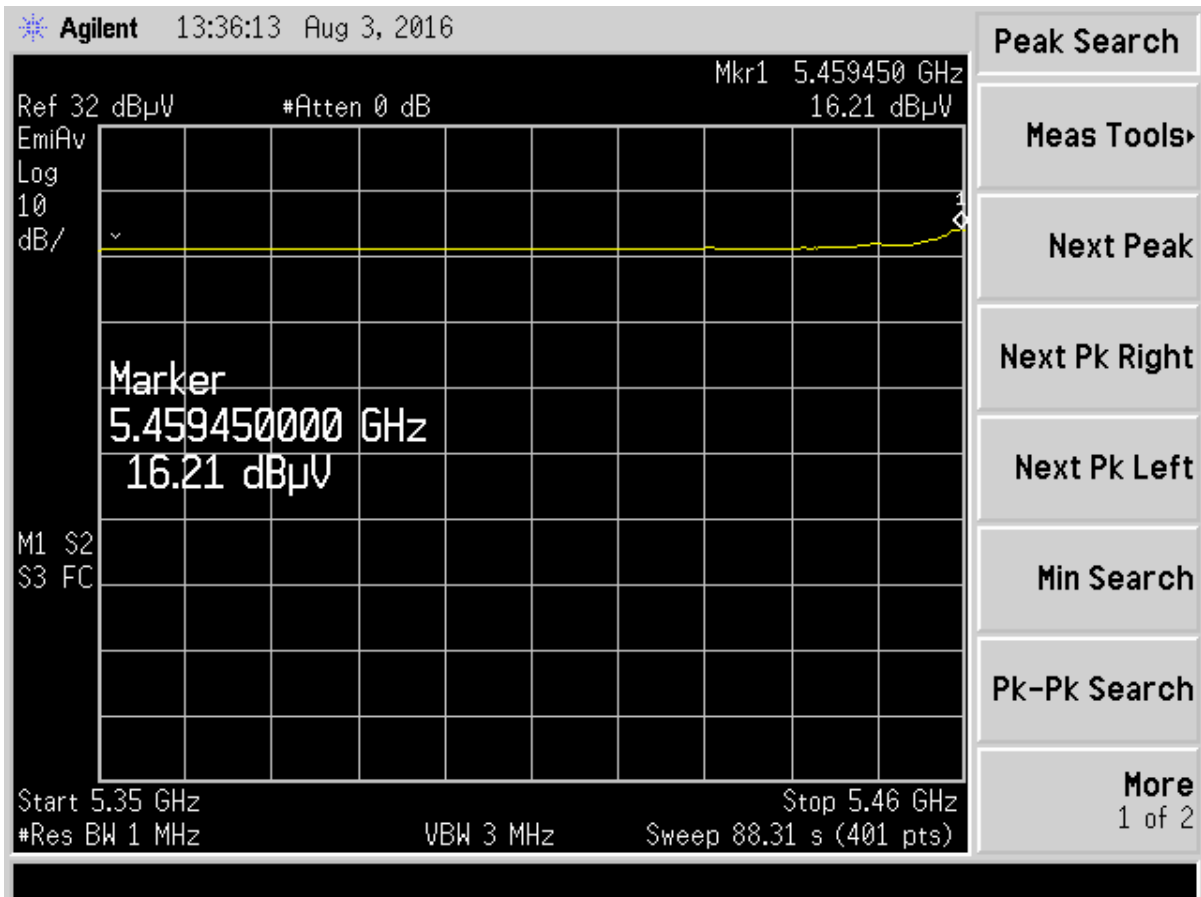


Figure 142. Restricted Band 5.35- 5.46 GHz operating on Channel 100, 802.11a - Average

Table 42. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001 SIP Application Module			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5459.45	16.21	29.21	45.42	54.0	1.0m./HORZ	8.6	AVG

*DC= Distance Correction of -9.5

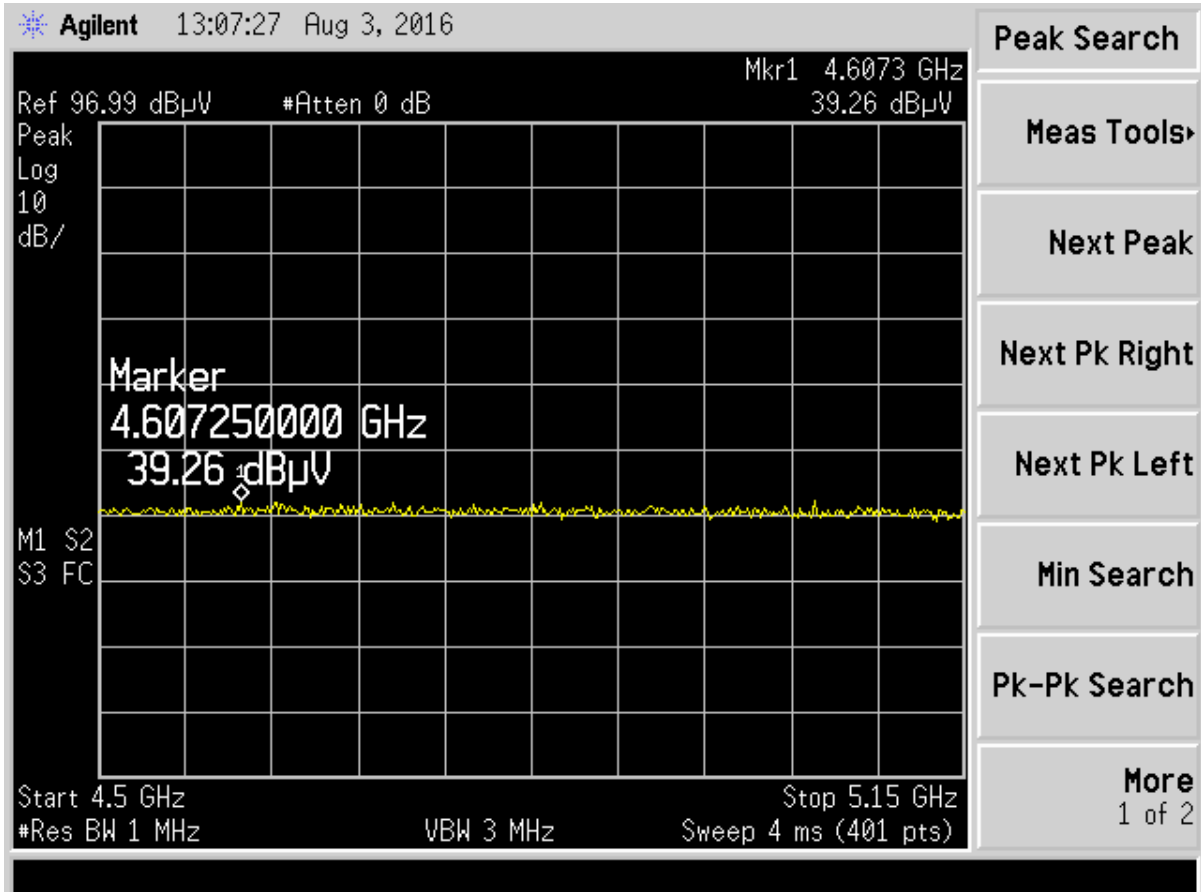


Figure 143. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11n - Peak

Table 43. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG

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4607.25	39.26	28.79	68.05	74.0	1.0m./HORZ	6.0	PK
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*DC= Distance Correction of -9.5

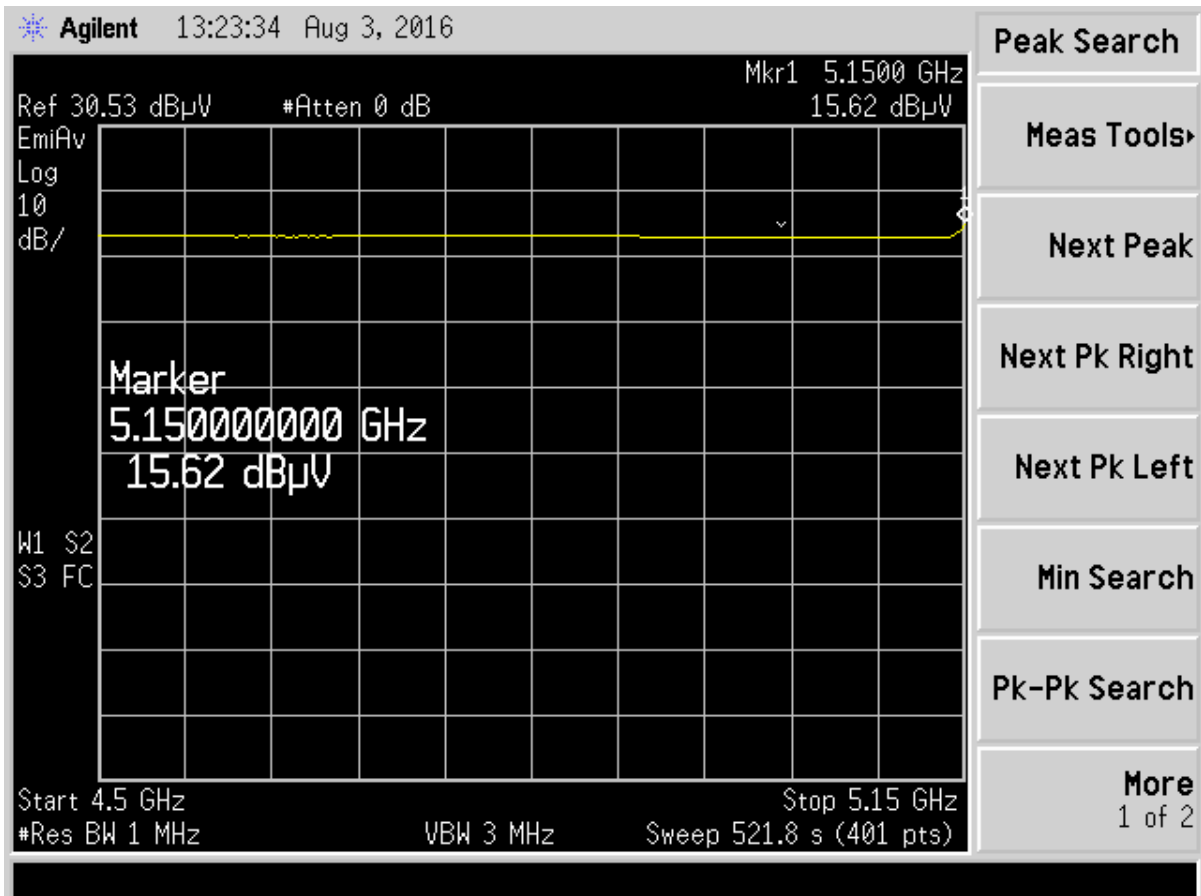


Figure 144. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11n – Average

Table 44. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n – Average

4.5 GHz to 5.15 GHz Restricted Band Average Measurements	
Test: Radiated Emissions	Client: Acuity Brands Technology Services, Inc
Project: 16-0141	Model: ACWIFI001 SIP

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Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	15.62	30.19	45.81	54.0	1.0m./HORZ	8.2	AVG

*DC= Distance Correction of -9.5

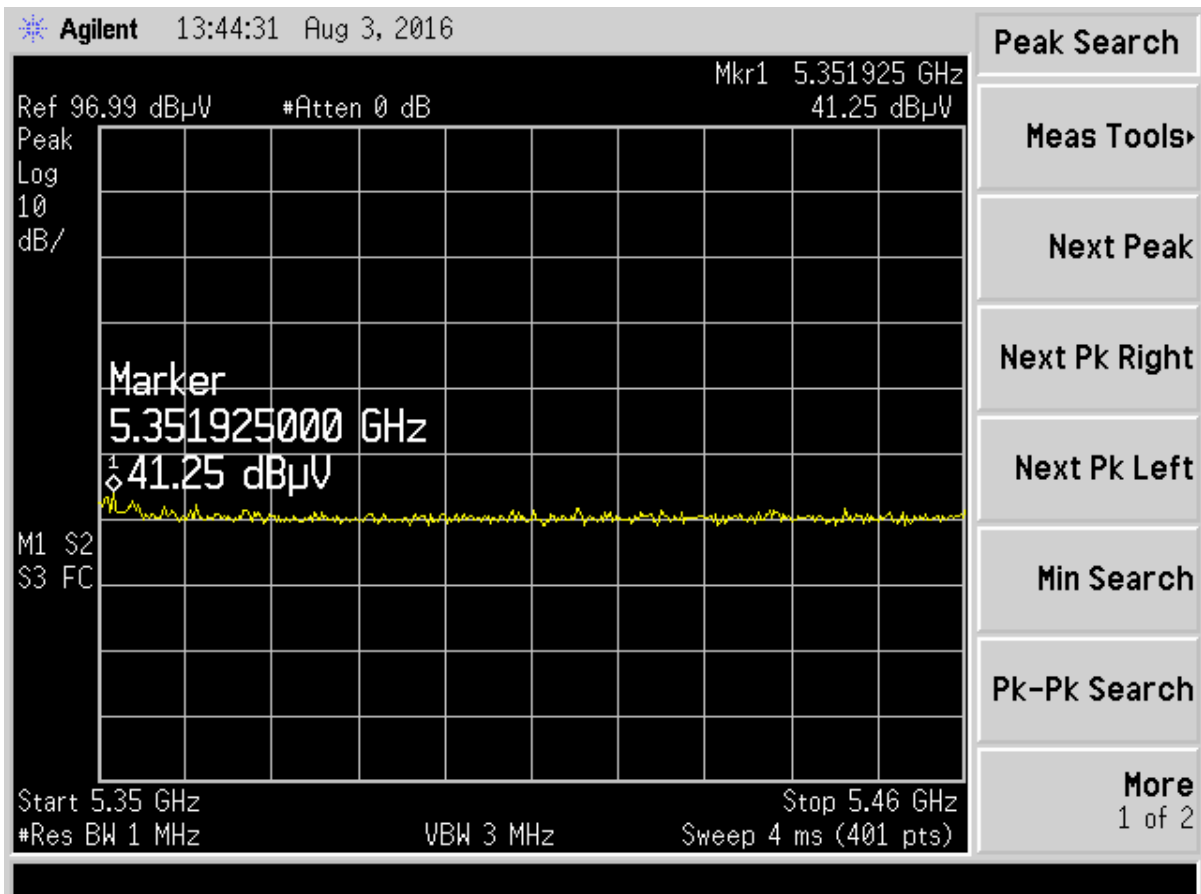


Figure 145. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11n - Peak

Table 45. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements	
Test: Radiated Emissions	Client: Acuity Brands Technology Services, Inc

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Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5351.92	41.25	29.45	70.70	74.0	1.0m./HORZ	3.3	PK

*DC= Distance Correction of -9.5

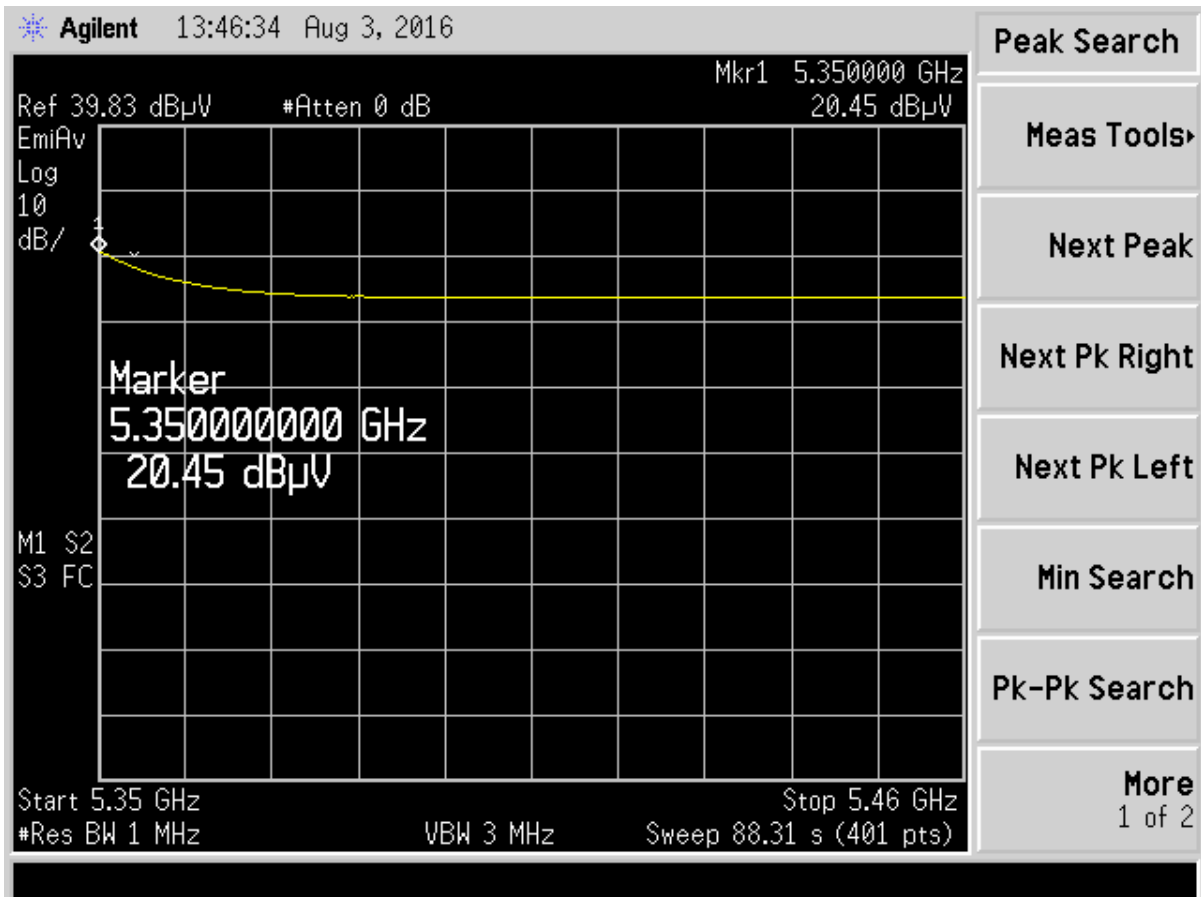


Figure 146. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11n – Average

Table 46. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements

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Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.00	20.45	29.45	49.90	54.0	1.0m./HORZ	4.1	AVG

*DC= Distance Correction of -9.5

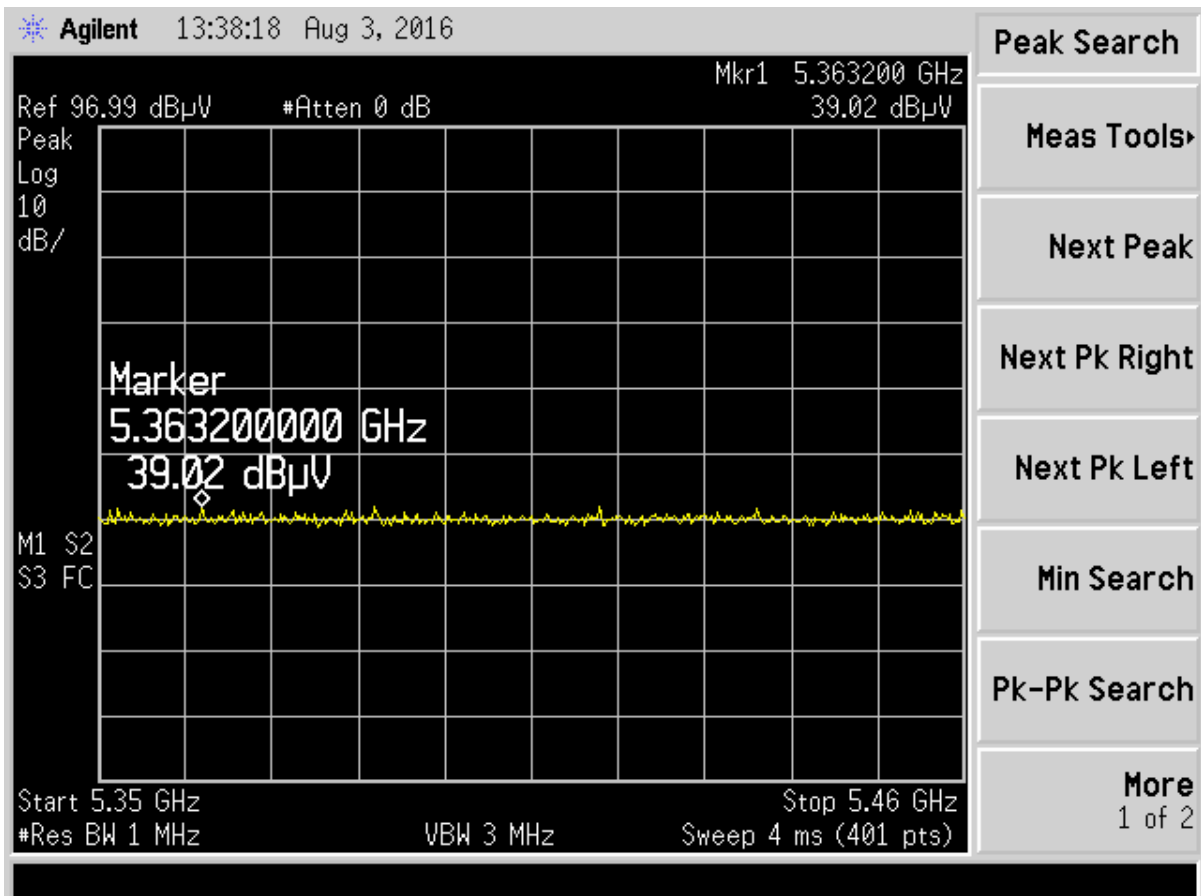


Figure 147. Restricted Band 5.35 - 5.46 GHz operating on Channel 100, 802.11n - Peak

Table 47. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Average

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4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5363.20	39.02	29.45	68.47	74.0	1.0m./HORZ	5.5	PK

*DC= Distance Correction of -9.5

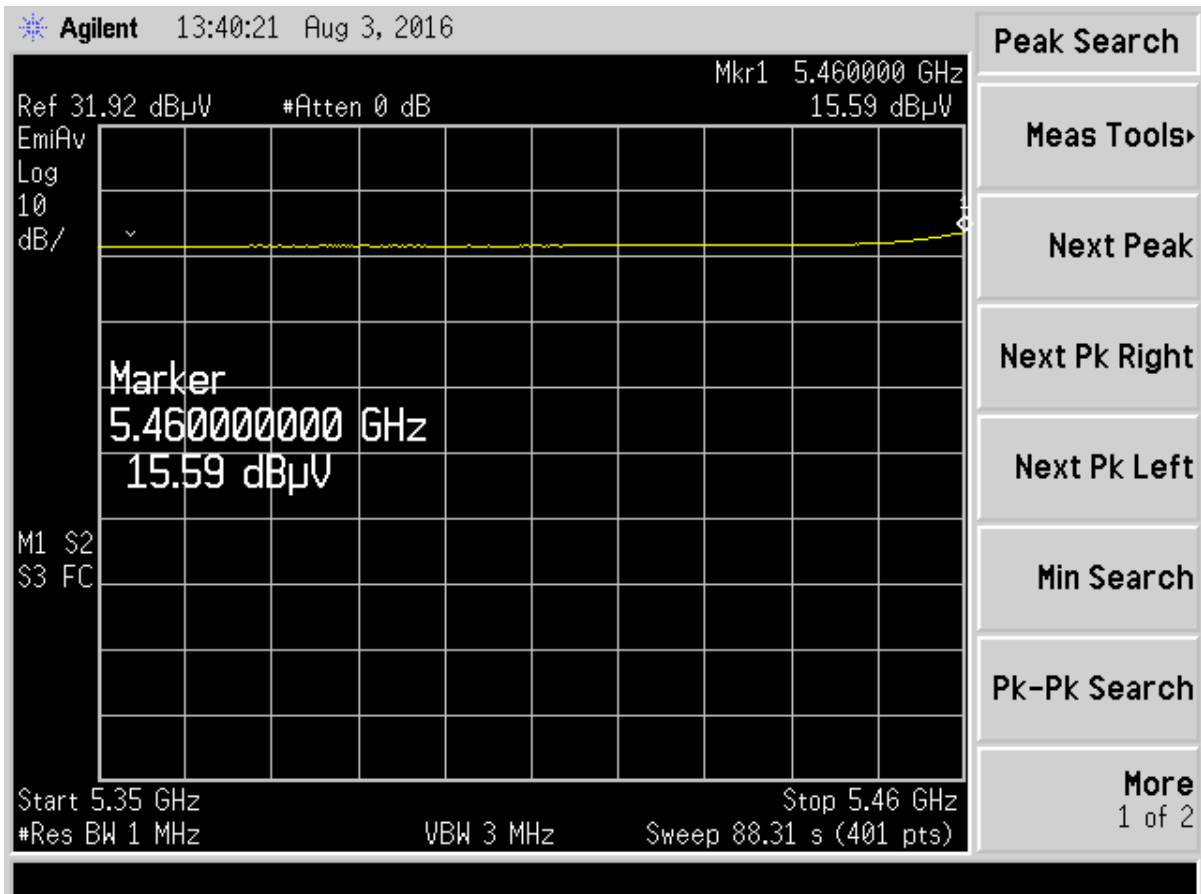


Figure 148. Restricted Band 5.35 - 5.46 GHz operating on Channel 100, 802.11n – Average

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Table 48. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	15.59	29.21	44.80	54.0	1.0m./HORZ	9.2	AVG

*DC= Distance Correction of -9.5

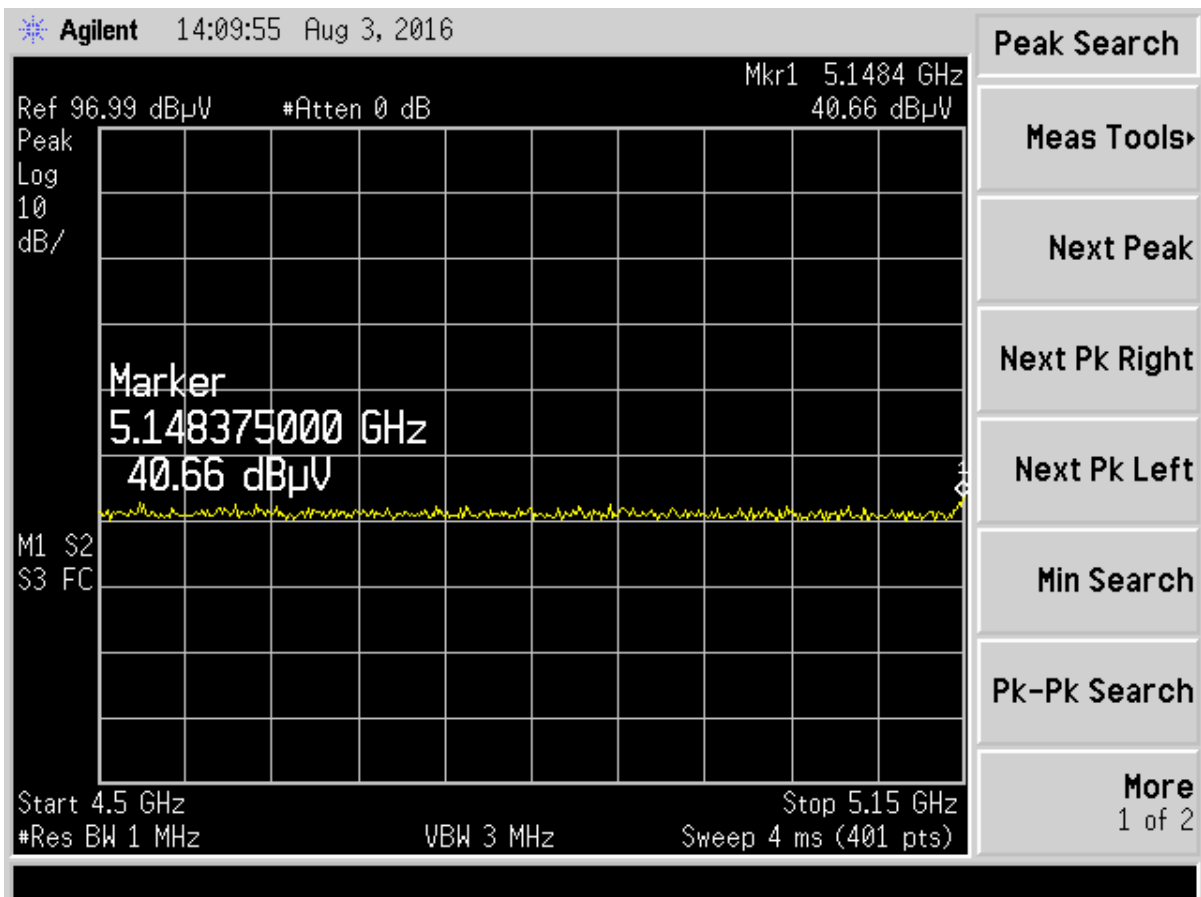


Figure 149. Restricted Band 4.5 - 5.15 GHz operating on Channel 38, 802.11n 40 MHz BW – Peak

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Table 49. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n 40 MHz BW – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5148.38	40.66	30.19	70.85	74.0	1.0m./HORZ	3.1	PK

*DC= Distance Correction of -9.5

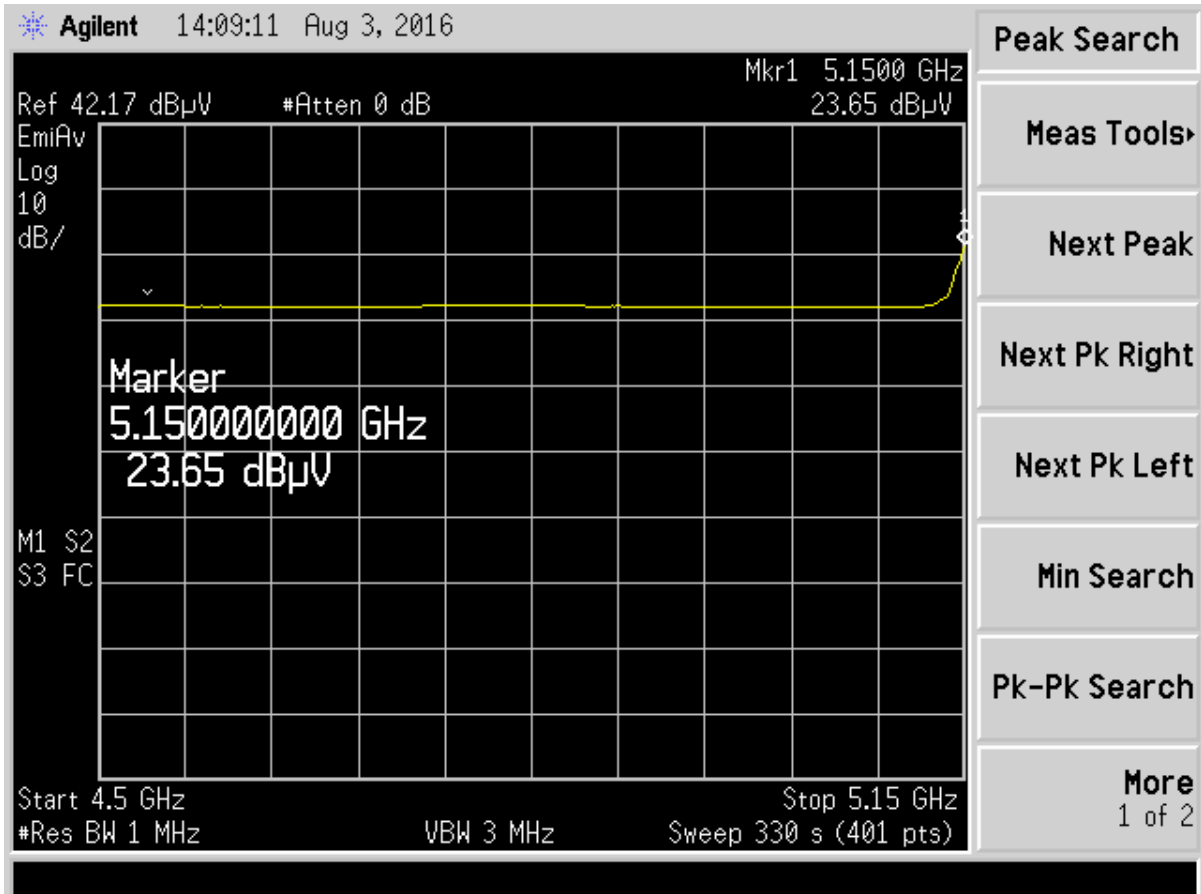


Figure 150. Restricted Band 4.5 - 5.15 GHz operating on Channel 38, 802.11n 40 MHz BW – Average

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Table 50. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n 40 MHz BW – Average

4.5 GHz to 5.15 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	23.65	30.19	53.84	54.0	1.0m./HORZ	0.2	AVG

*DC= Distance Correction of -9.5

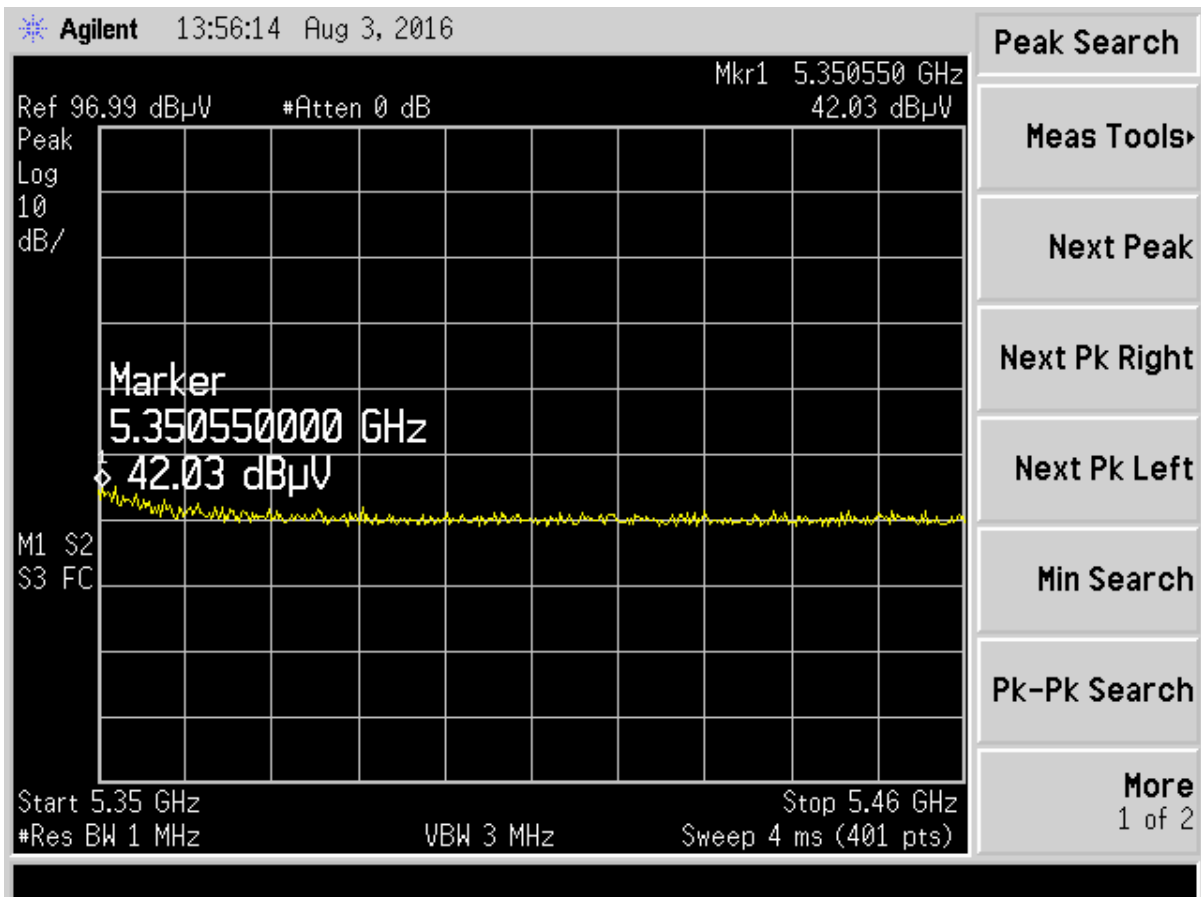


Figure 151. Restricted Band 5.35 - 5.46 GHz operating on Channel 62, 802.11n 40 MHz BW – Peak

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Table 51. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.55	42.03	29.45	71.48	74.0	1.0m./HORZ	2.5	PK

*DC= Distance Correction of -9.5

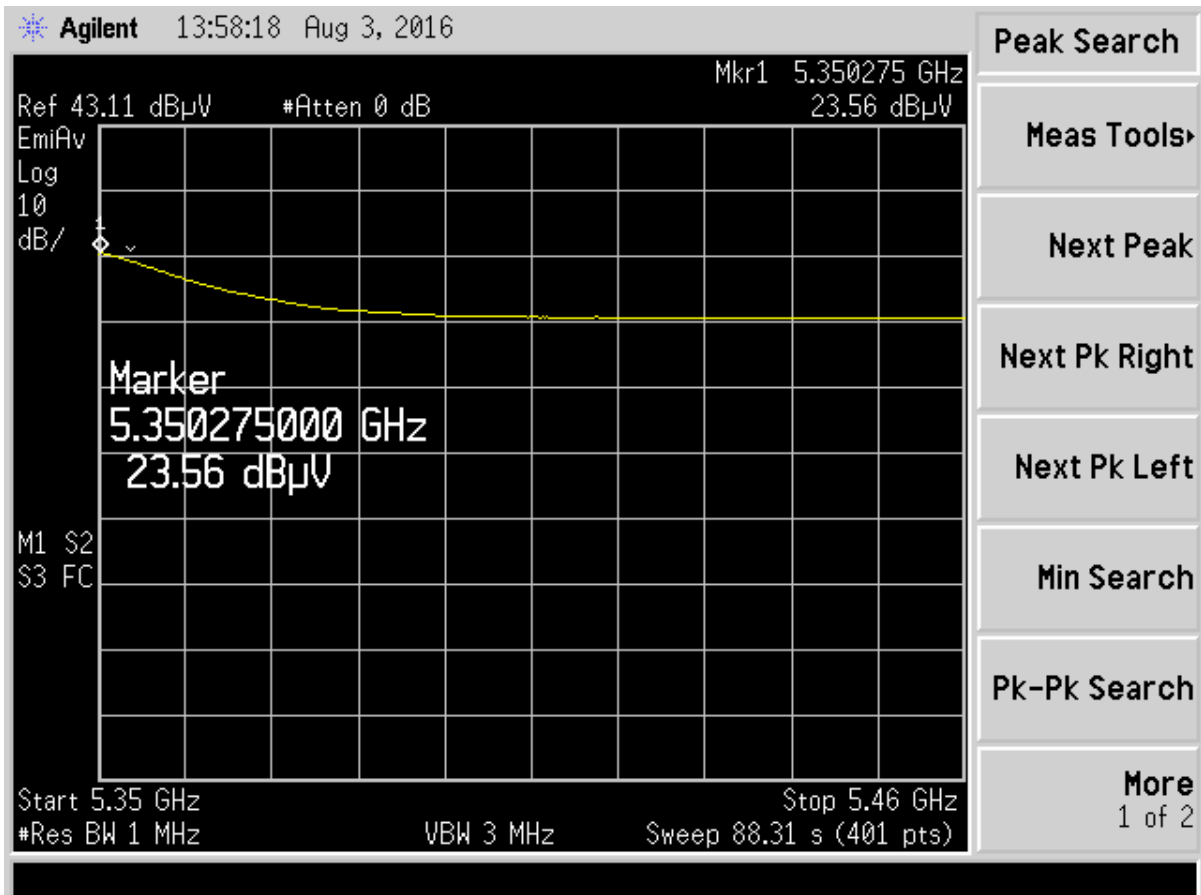


Figure 152. Restricted Band 5.35 - 5.46 GHz operating on Channel 62, 802.11n

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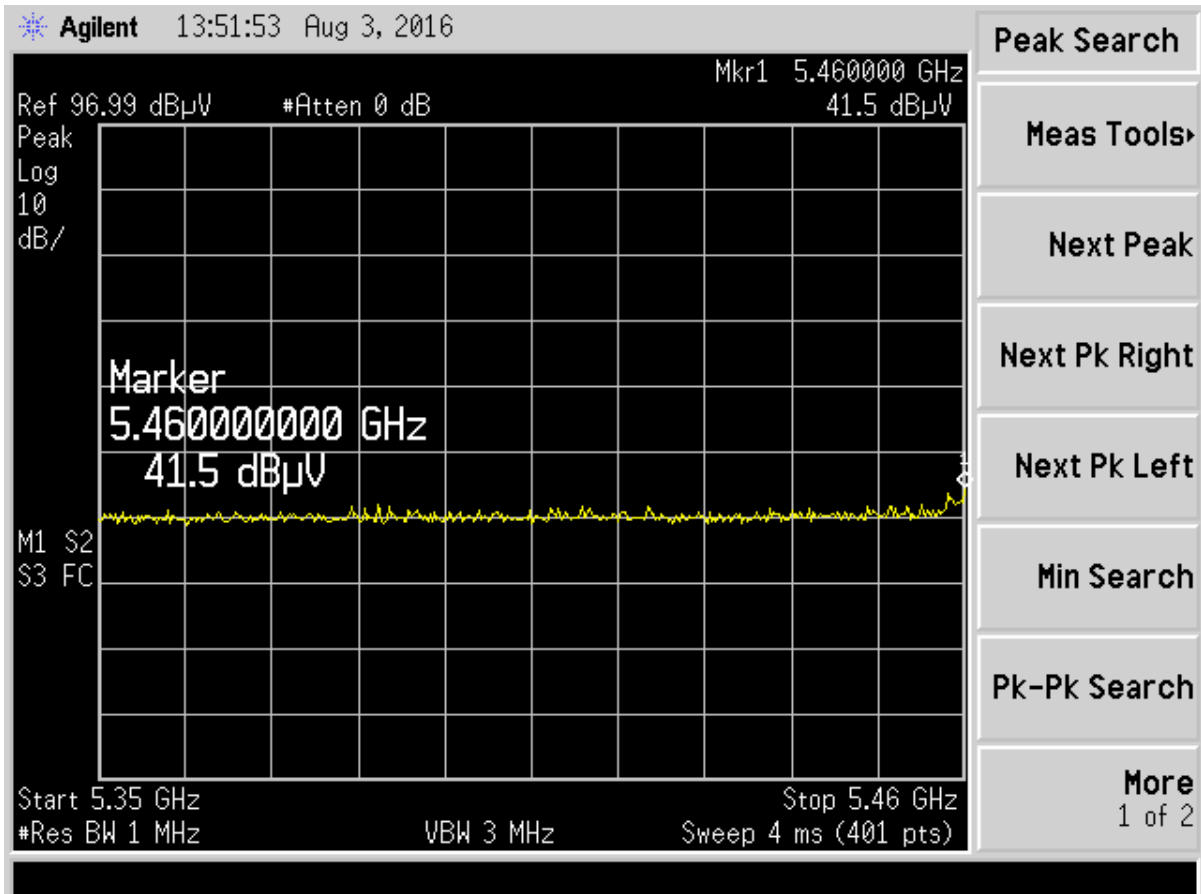
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40 MHz BW – Average

Table 52. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.27	23.56	29.45	53.01	54.0	1.0m./HORZ	1.0	AVG

*DC= Distance Correction of -9.5



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**Figure 153. Restricted Band 5.35 - 5.46 GHz operating on Channel 102, 802.11n
 40 MHz BW – Peak**

**Table 53. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW
 – Peak**

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	41.50	29.21	70.71	74.0	1.0m./HORZ	3.3	PK

*DC= Distance Correction of -9.5

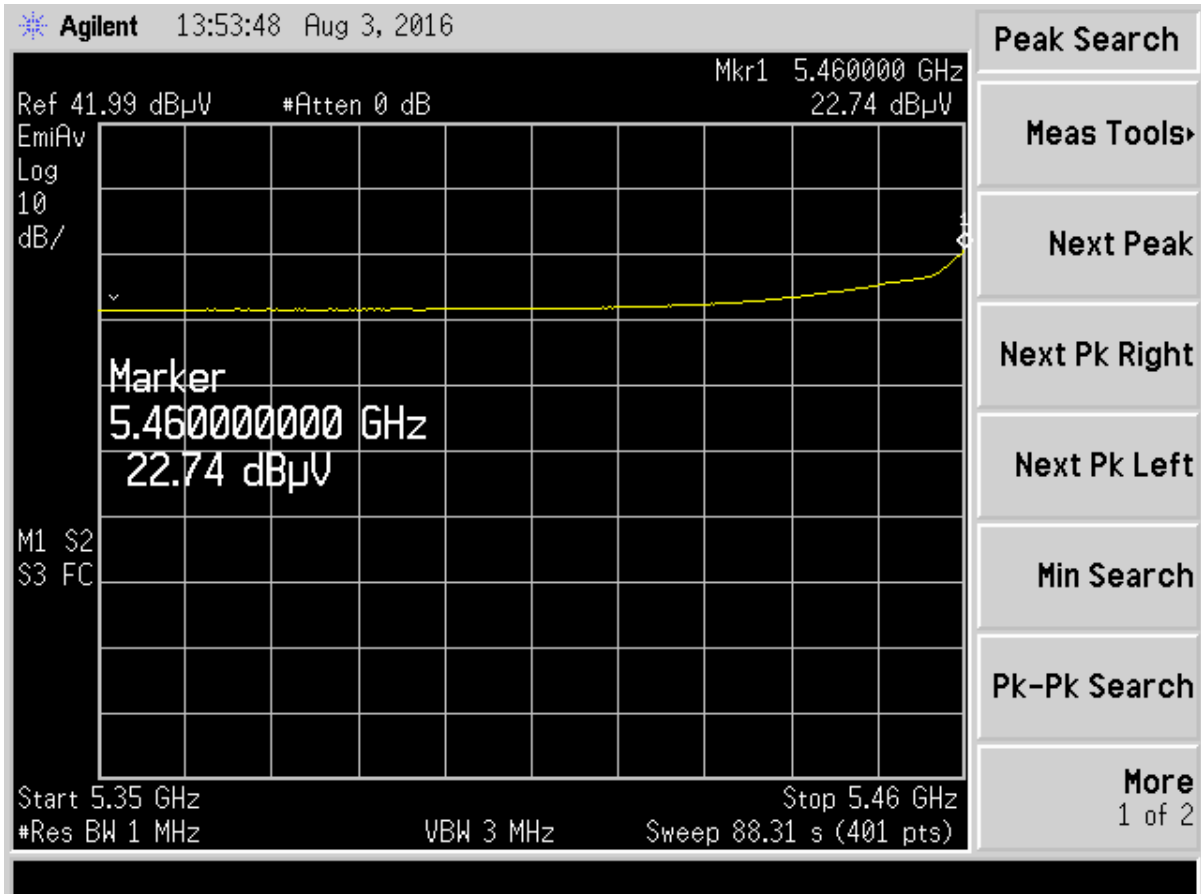


Figure 154. Restricted Band 5.35 - 5.46 GHz operating on Channel 102, 802.11n 40 MHz BW – Average

Table 54. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	22.74	29.21	51.95	54.0	1.0m./HORZ	2.0	AVG

*DC= Distance Correction of -9.5

2.14.2 Antenna 2 Measurements

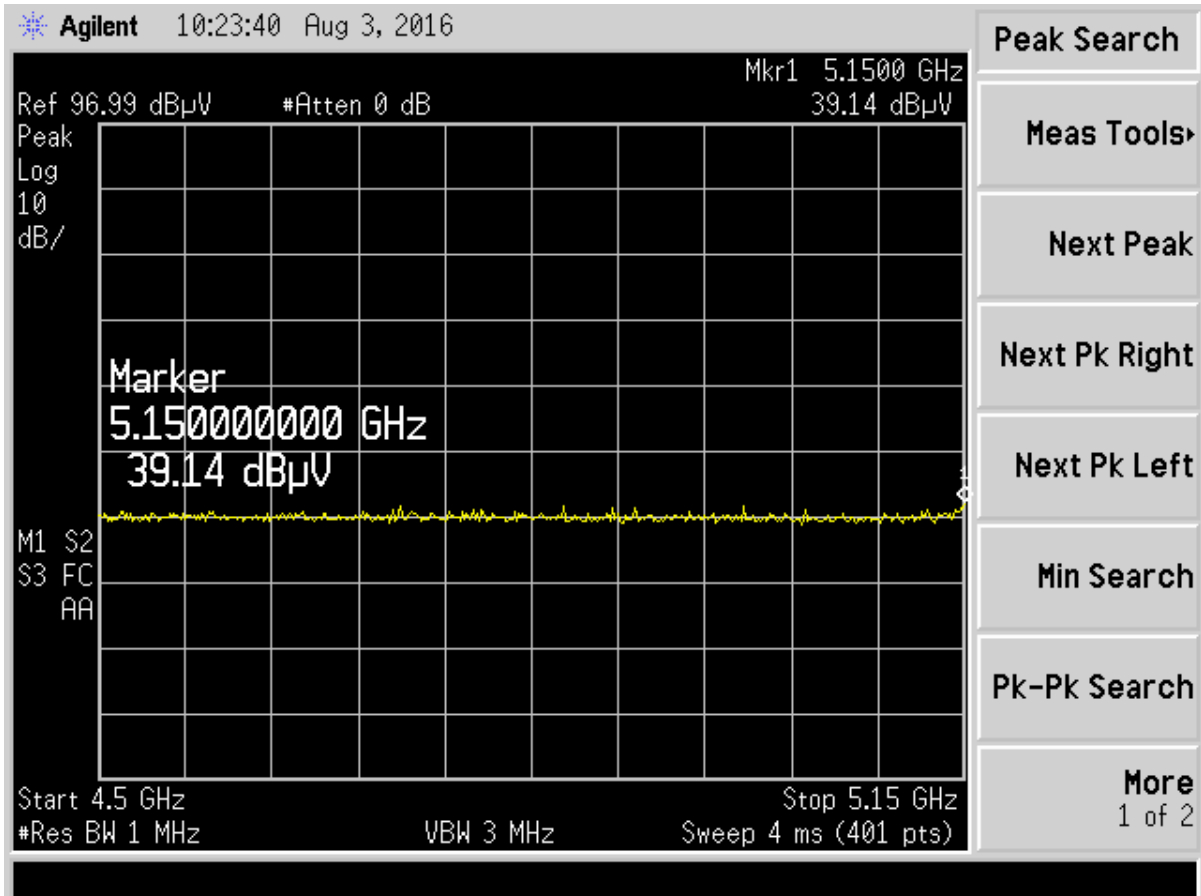


Figure 155. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11a – Peak

Table 55. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11a – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	39.14	30.19	69.33	74.0	1.0m./HORZ	4.7	PK

*DC= Distance Correction of -9.5

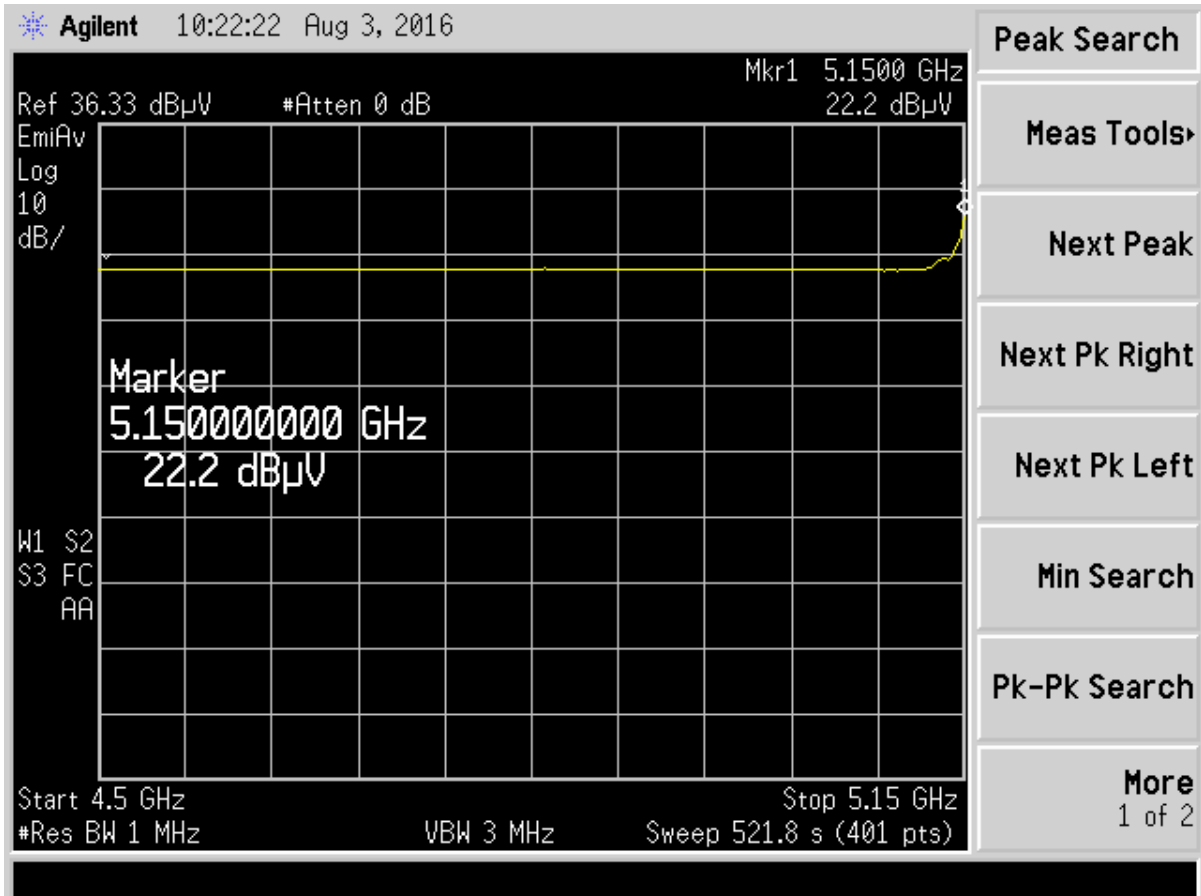


Figure 156. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11a - Average

Table 56. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11a – Average

4.5 GHz to 5.15 GHz Restricted Band AVG Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	22.20	30.19	52.39	54.0	1.0m./HORZ	1.6	AVG

*DC= Distance Correction of -9.5

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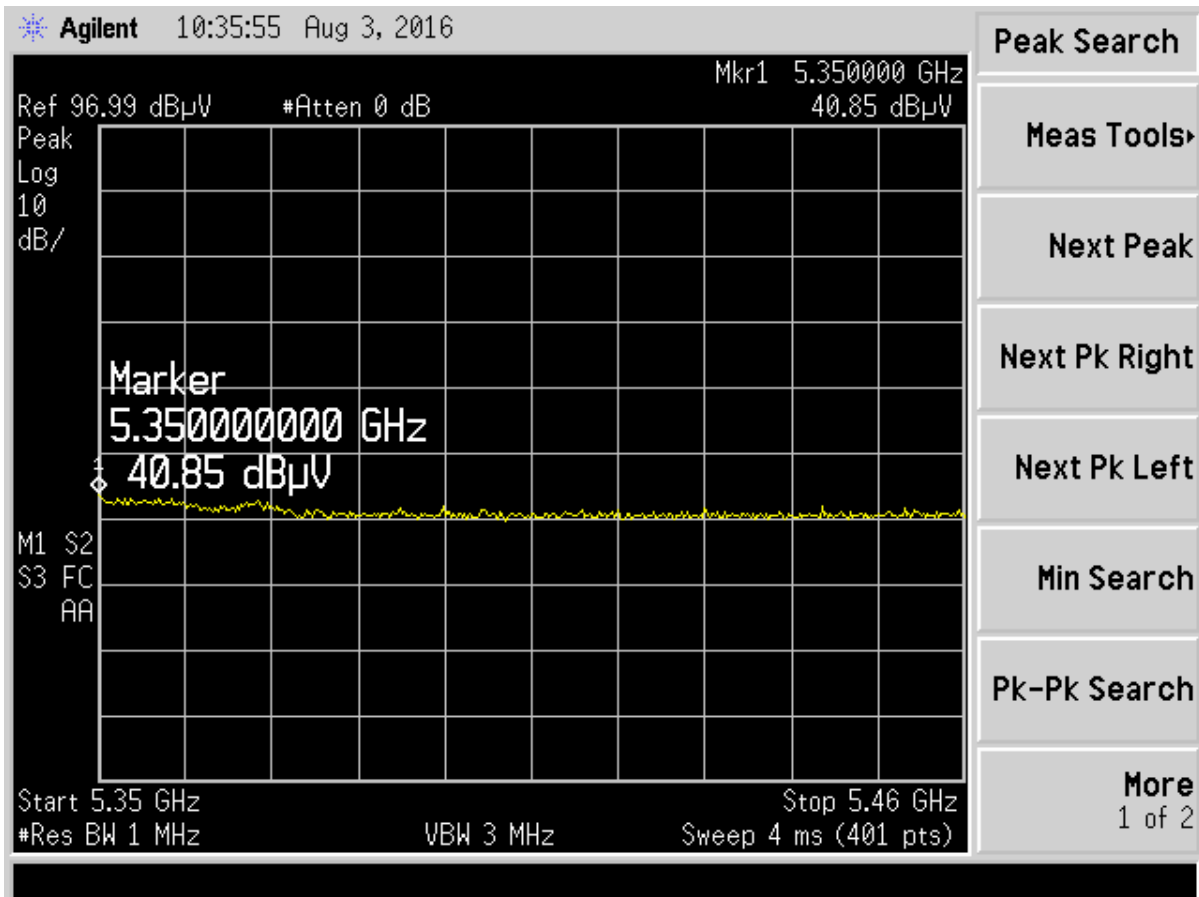


Figure 157. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11a – Peak

Table 57. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.00	40.85	29.45	70.30	74.0	1.0m./HORZ	3.7	PK

*DC= Distance Correction of -9.5

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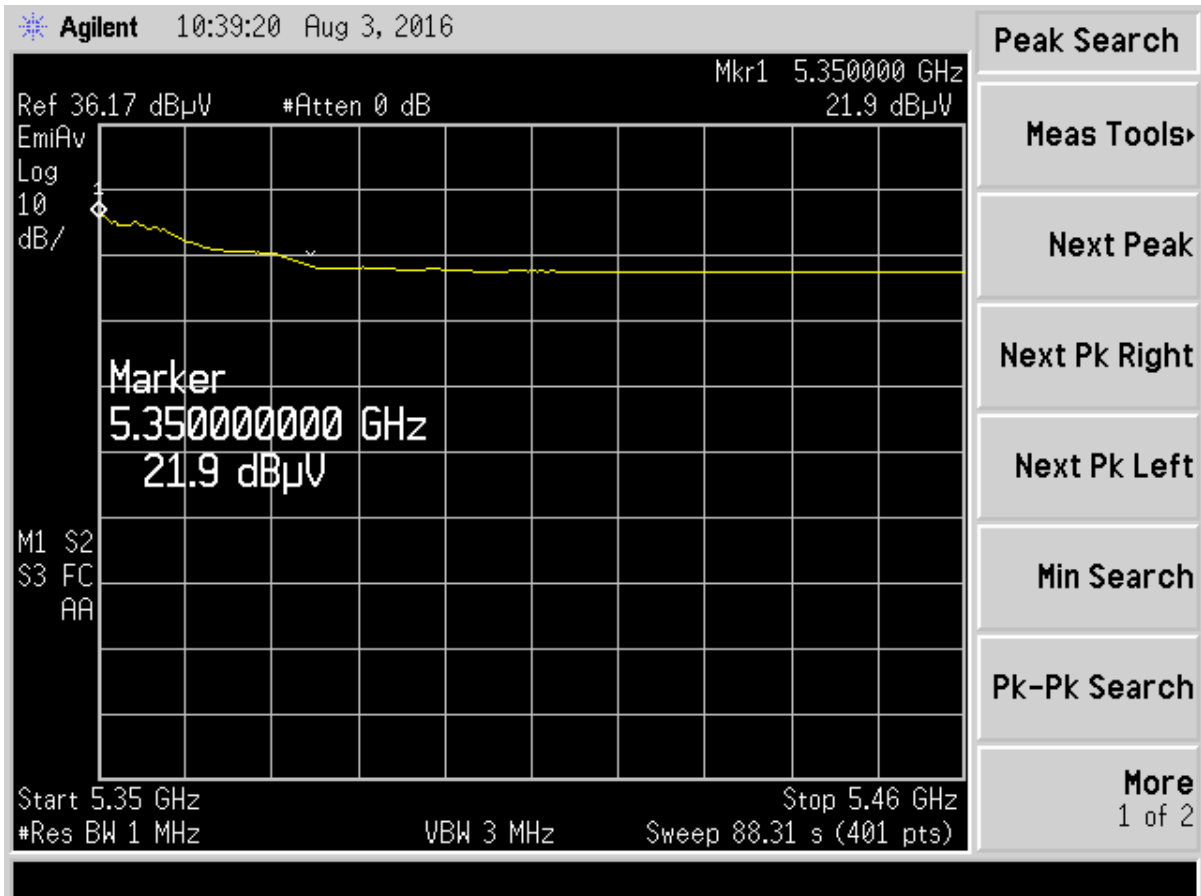


Figure 158. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11a - Average

Table 58. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.00	21.90	29.45	51.35	54.0	1.0m./HORZ	2.6	AVG

*DC= Distance Correction of -9.5

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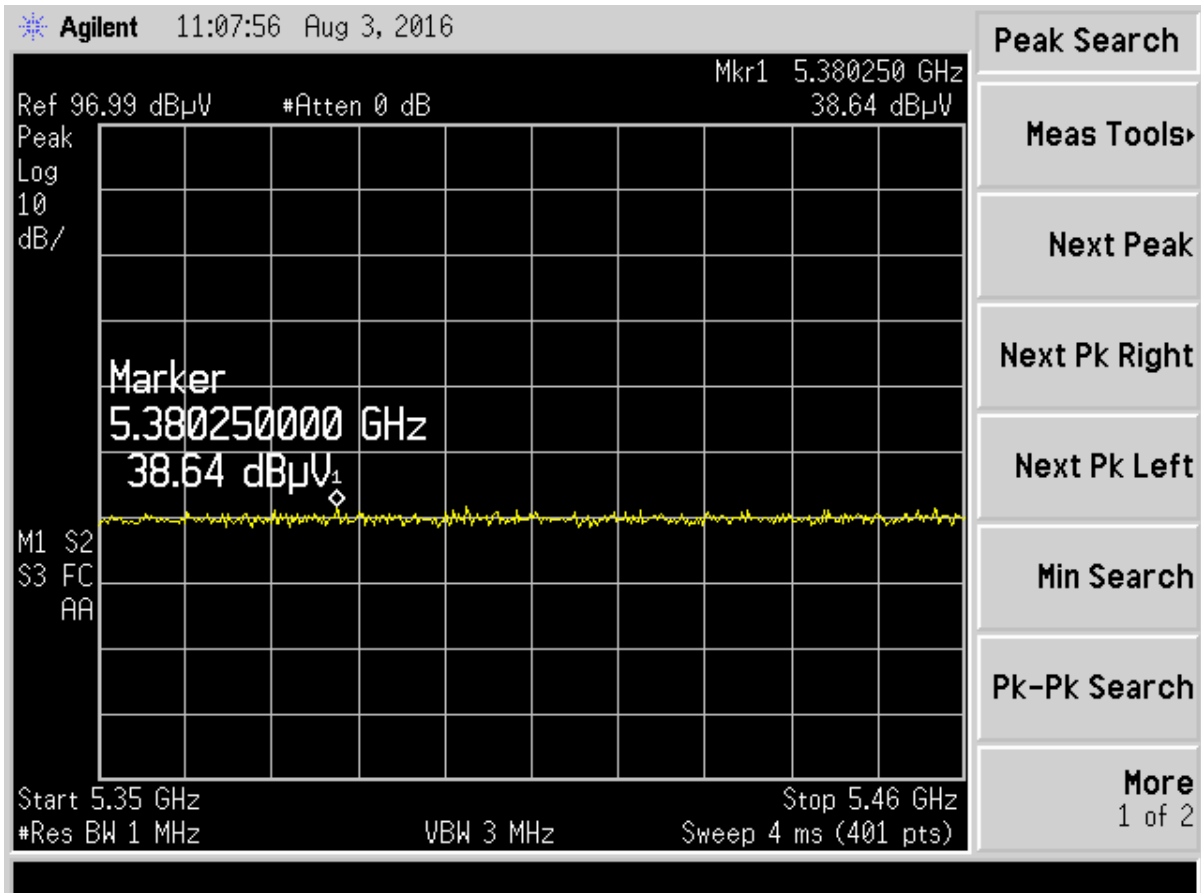


Figure 159. Restricted Band 5.35 – 5.46 GHz operating on Channel 100, 802.11a – Peak

Table 59. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5380.25	38.64	29.45	68.09	74.0	1.0m./HORZ	5.9	PK

*DC= Distance Correction of -9.5

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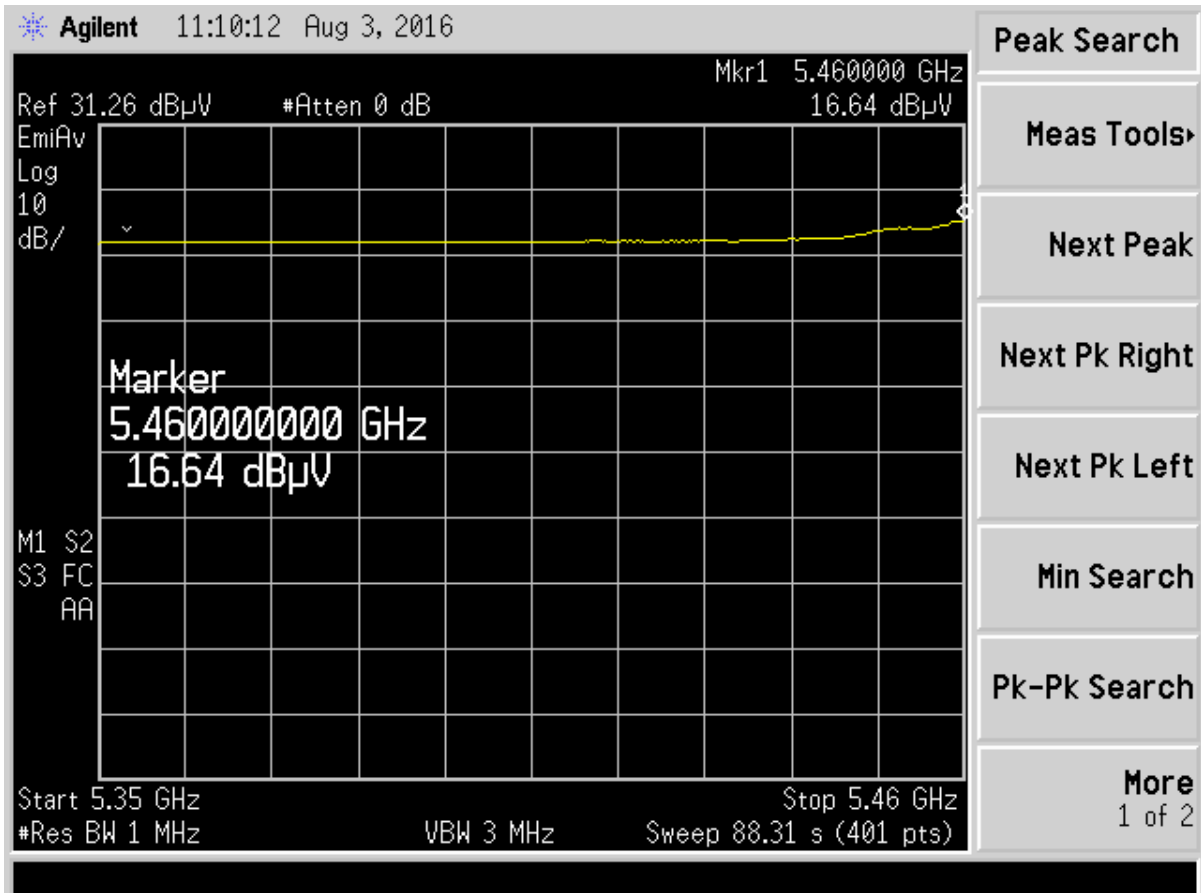


Figure 160. Restricted Band 5.35- 5.46 GHz operating on Channel 100, 802.11a - Average

Table 60. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	16.64	29.21	45.85	54.0	1.0m./HORZ	8.1	AVG

*DC= Distance Correction of -9.5

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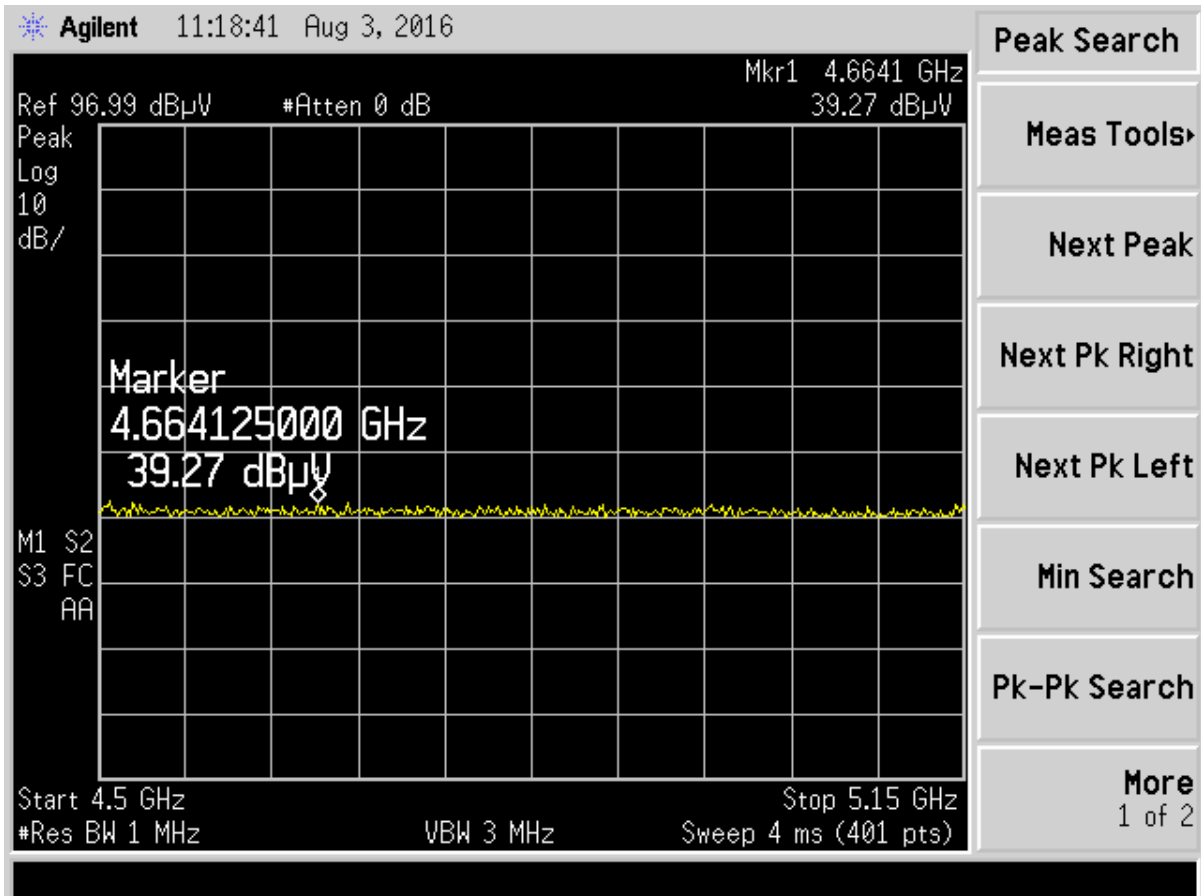


Figure 161. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11n - Peak

Table 61. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
4664.13	39.27	28.79	68.06	74.0	1.0m./HORZ	5.9	PK

*DC= Distance Correction of -9.5

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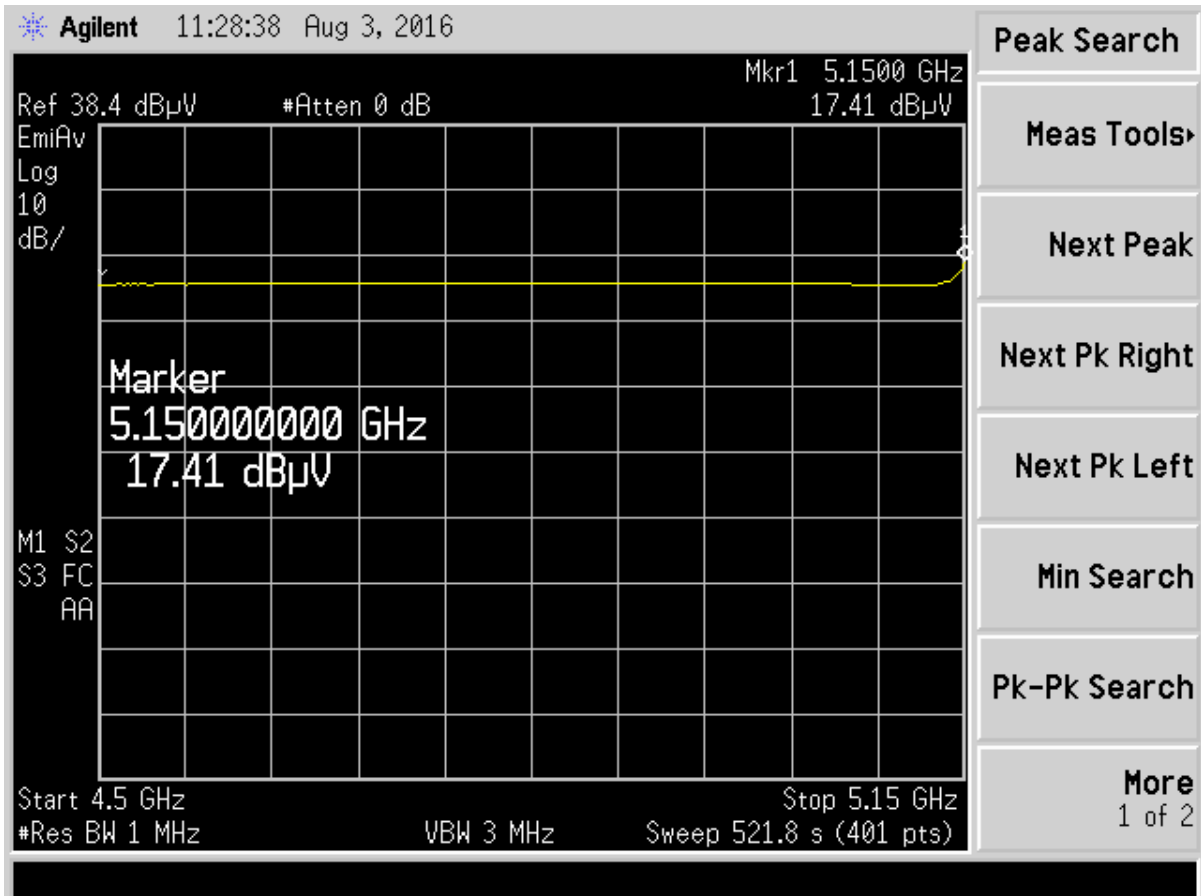


Figure 162. Restricted Band 4.5 - 5.15 GHz operating on Channel 36, 802.11n – Average

Table 62. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n – Average

4.5 GHz to 5.15 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5150.00	17.41	30.19	47.60	54.0	1.0m./HORZ	6.4	AVG

*DC= Distance Correction of -9.5

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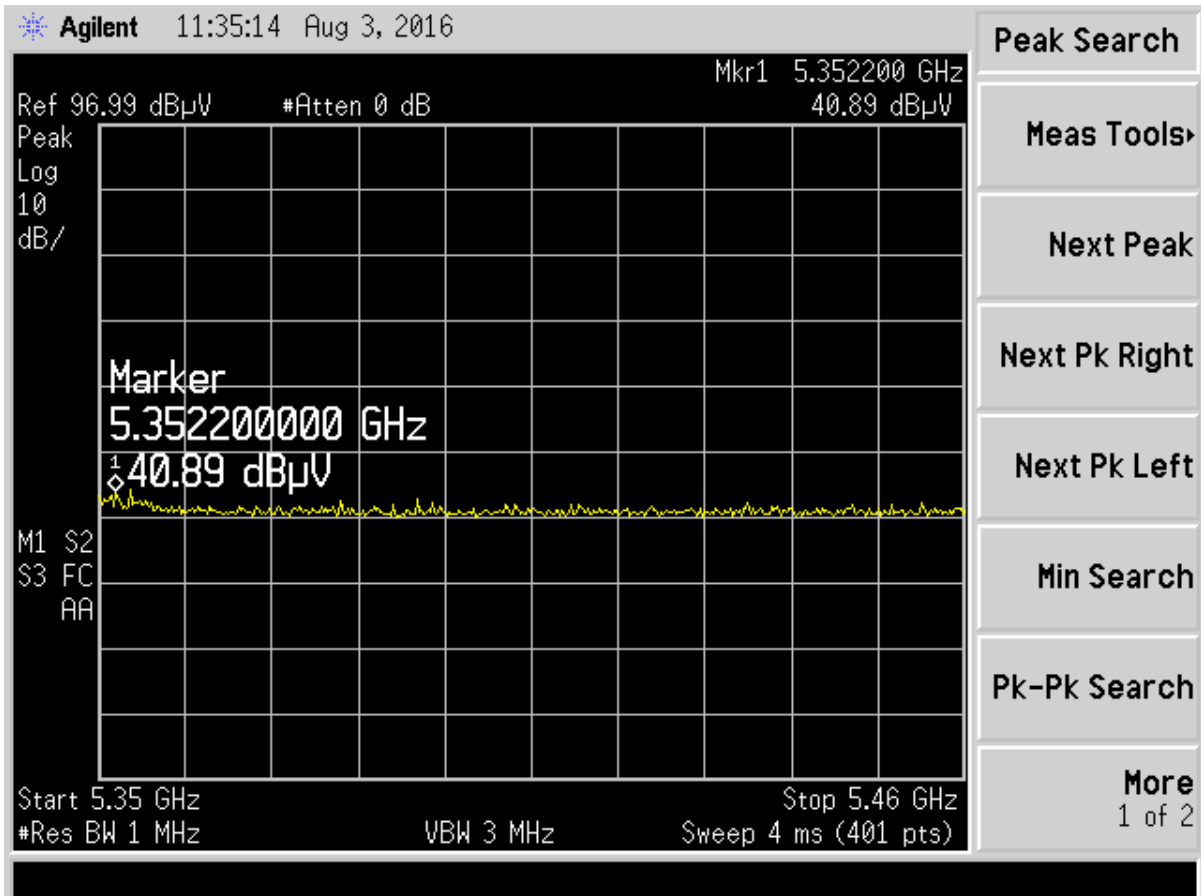


Figure 163. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11n - Peak

Table 63. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5352.20	40.89	29.45	70.34	74.0	1.0m./HORZ	3.7	PK

*DC= Distance Correction of -9.5

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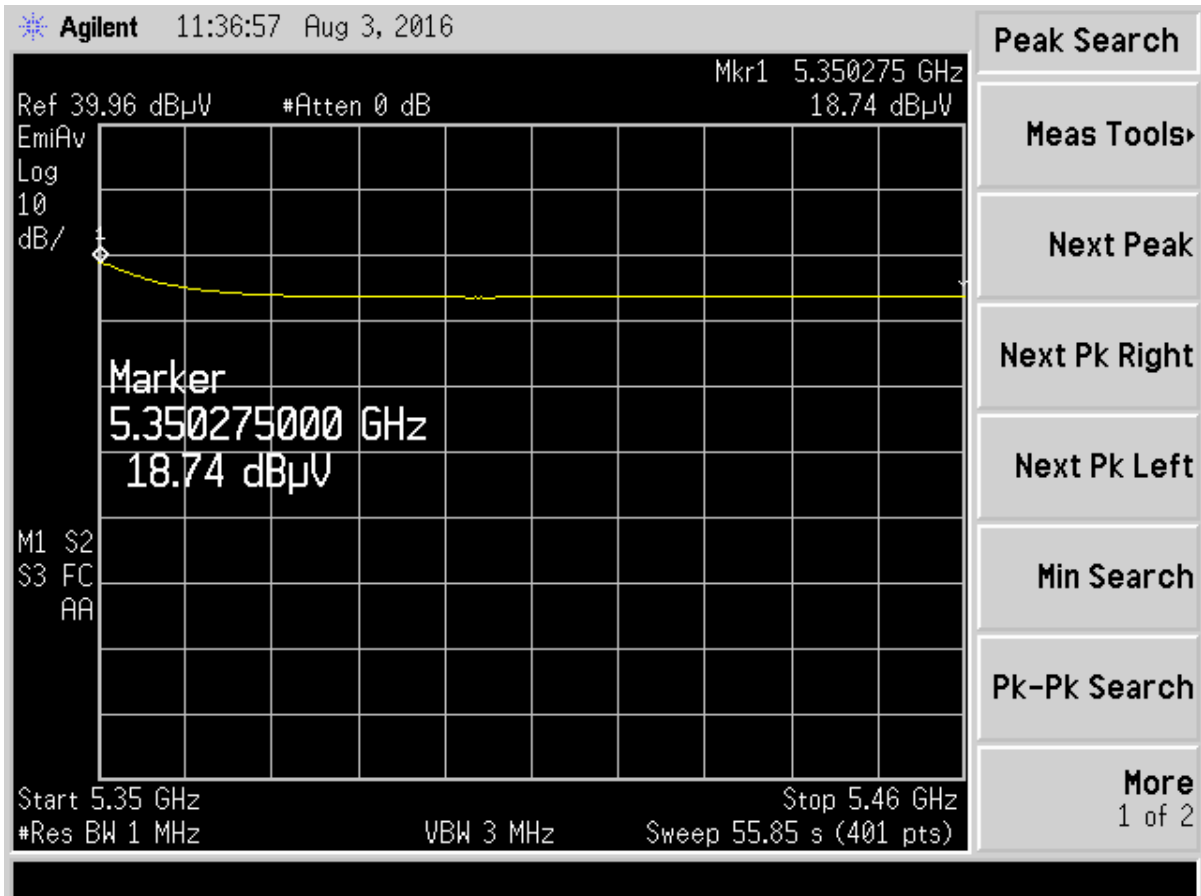


Figure 164. Restricted Band 5.35 - 5.46 GHz operating on Channel 64, 802.11n – Average

Table 64. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11a – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.27	18.74	29.45	48.19	54.0	1.0m./HORZ	5.8	AVG

*DC= Distance Correction of -9.5

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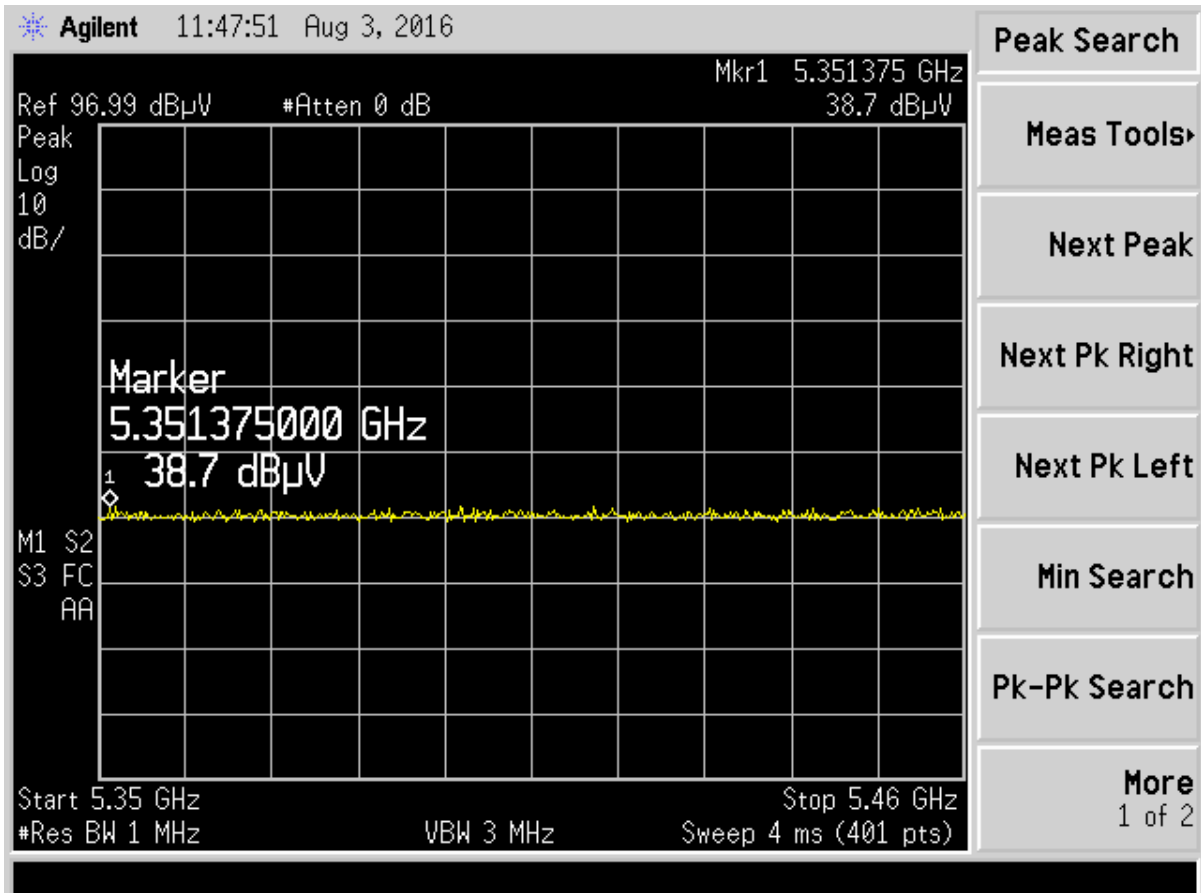


Figure 165. Restricted Band 5.35 - 5.46 GHz operating on Channel 100, 802.11n - Peak

Table 65. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Average

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5351.37	38.70	29.45	68.15	74.0	1.0m./HORZ	5.8	PK

*DC= Distance Correction of -9.5

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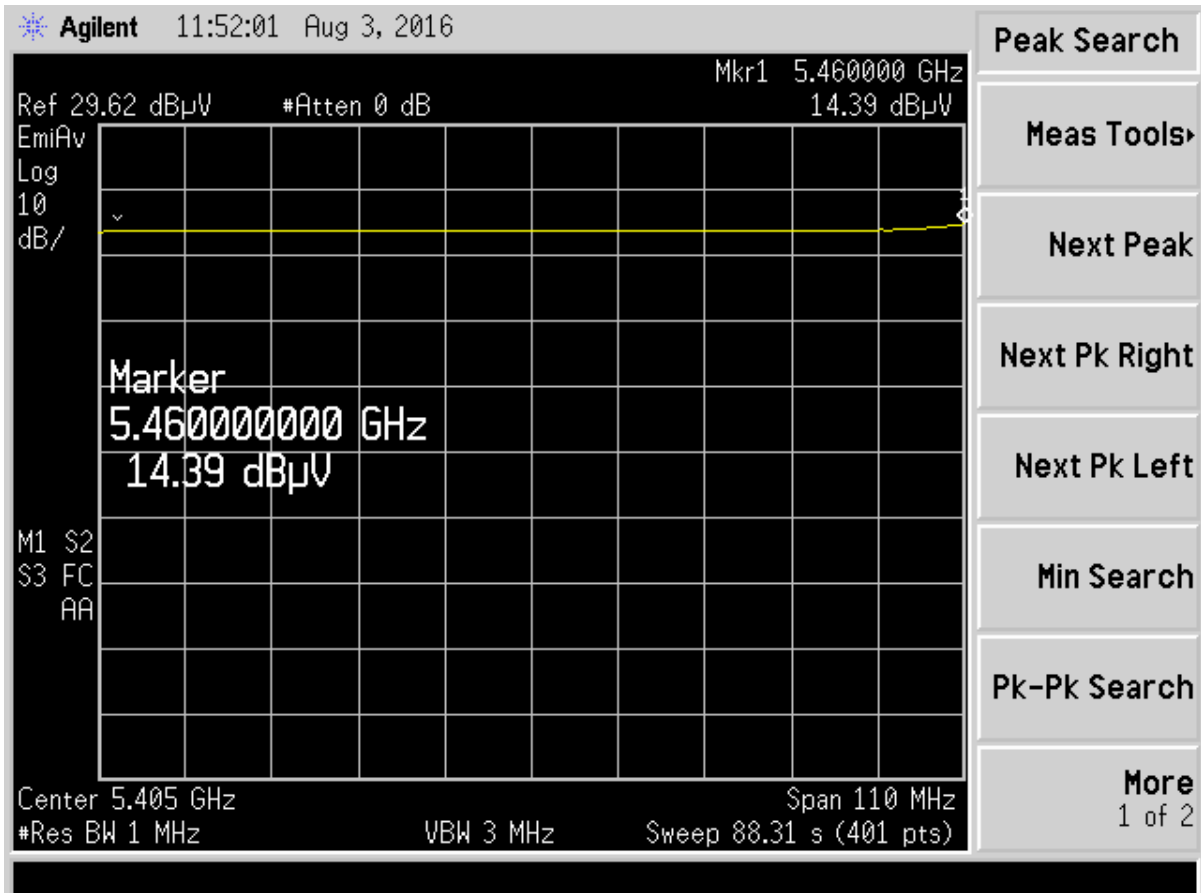


Figure 166. Restricted Band 5.35 - 5.46 GHz operating on Channel 100, 802.11n – Average

Table 66. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	14.39	29.21	43.60	54.0	1.0m./HORZ	10.4	AVG

*DC= Distance Correction of -9.5

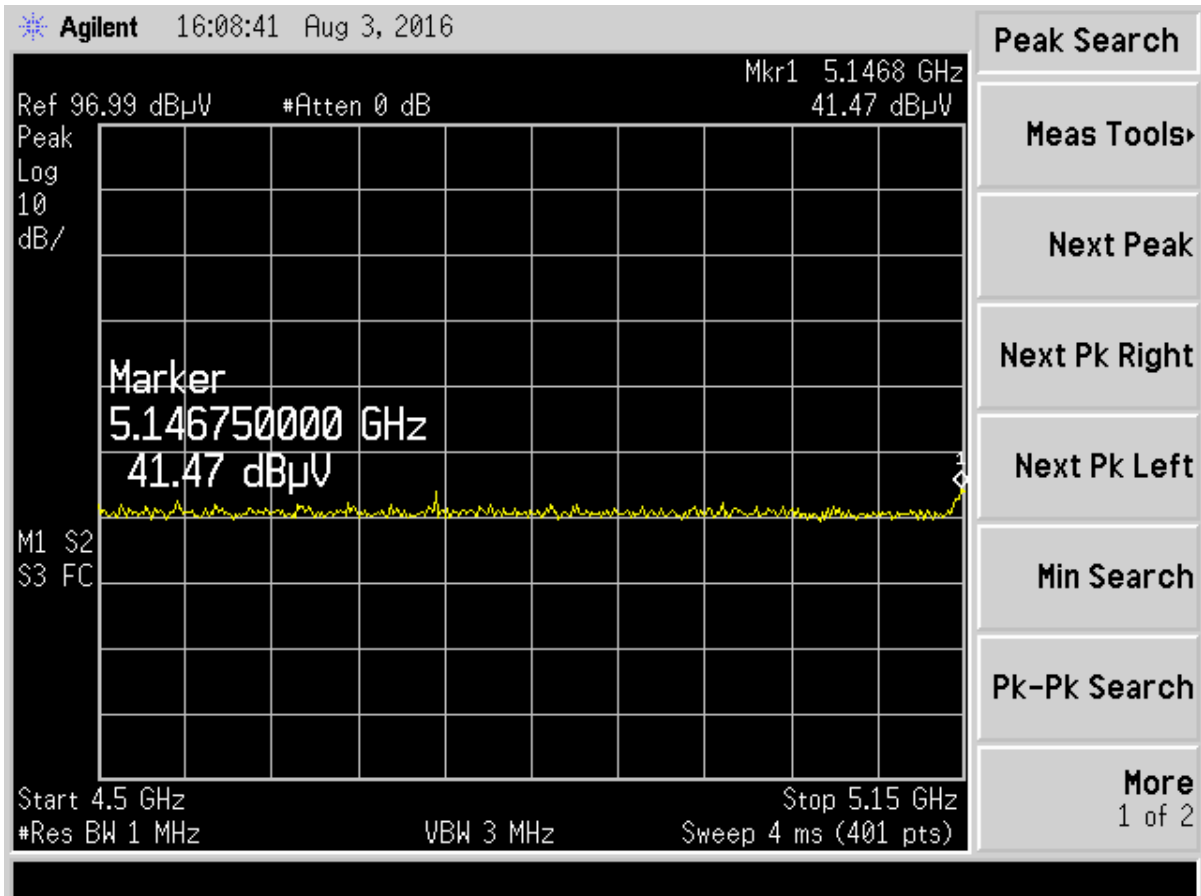


Figure 167. Restricted Band 4.5 - 5.15 GHz operating on Channel 38, 802.11n 40 MHz BW – Peak

Table 67. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n 40 MHz BW – Peak

4.5 GHz to 5.15 GHz Restricted Band Peak Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG

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5146.75	41.47	30.19	71.66	74.0	1.0m./HORZ	2.3	PK
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*DC= Distance Correction of -9.5

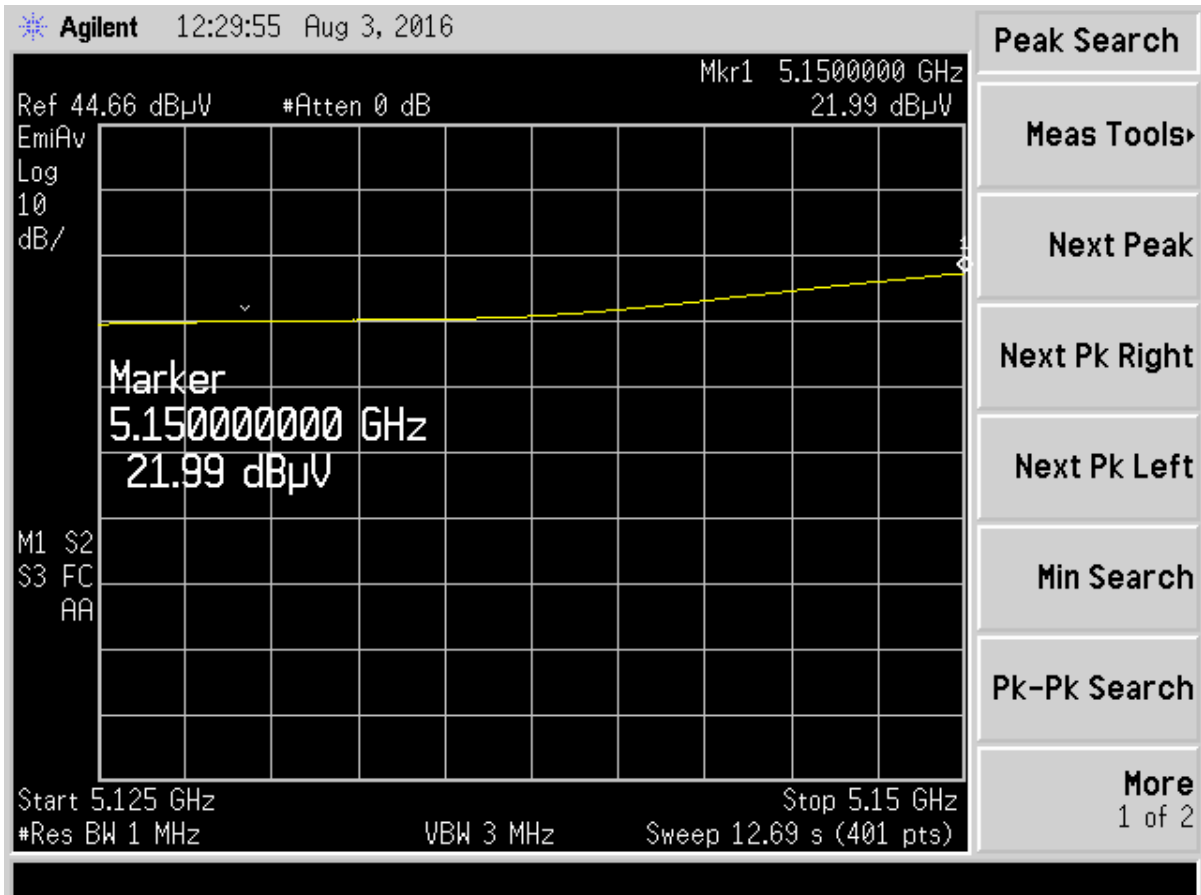


Figure 168. Restricted Band 4.5 - 5.15 GHz operating on Channel 38, 802.11n 40 MHz BW – Average

Table 68. Radiated Restricted Band 4.5 GHz to 5.15 GHz, 802.11n 40 MHz BW – Average

4.5 GHz to 5.15 GHz Restricted Band Average Measurements							
Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG

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5150.00	21.99	30.19	52.18	54.0	1.0m./HORZ	1.8	AVG
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*DC= Distance Correction of -9.5

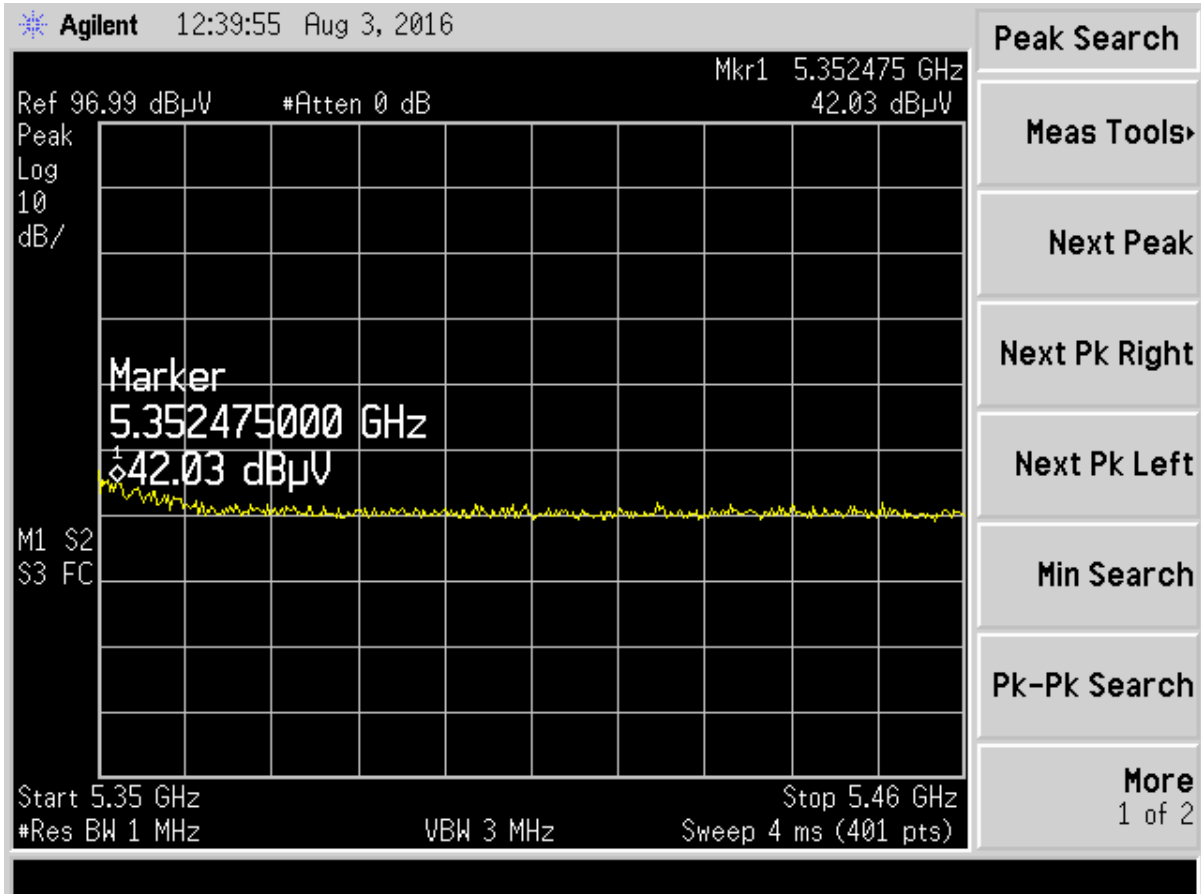


Figure 169. Restricted Band 5.35 - 5.46 GHz operating on Channel 62, 802.11n 40 MHz BW – Peak

Table 69. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements	
Test: Radiated Emissions	Client: Acuity Brands Technology Services, Inc
Project: 16-0141	Model: ACWIFI001

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Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5352.475	42.03	29.45	71.48	74.0	1.0m./HORZ	2.5	PK

*DC= Distance Correction of -9.5

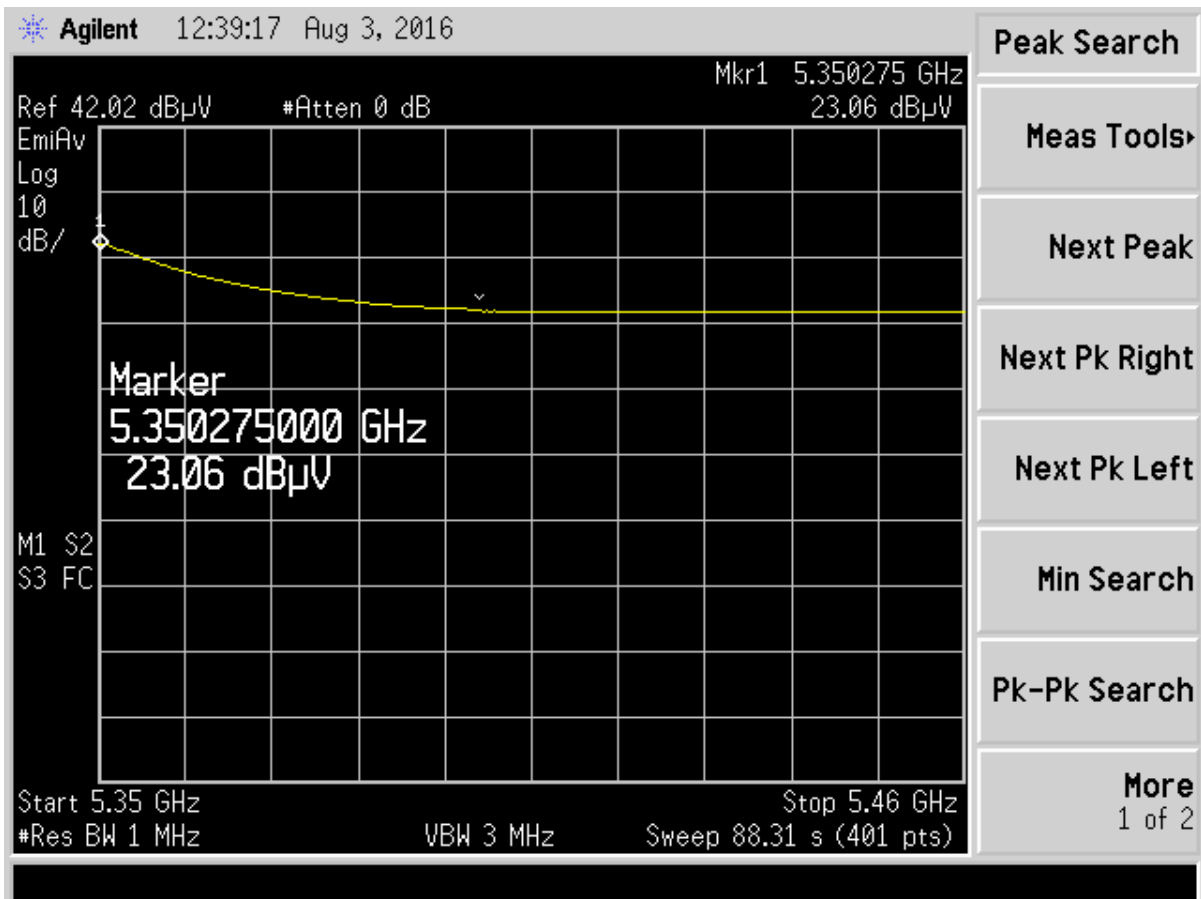


Figure 170. Restricted Band 5.35 - 5.46 GHz operating on Channel 62, 802.11n 40 MHz BW – Average

Table 70. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements	
Test: Radiated Emissions	Client: Acuity Brands Technology Services, Inc
Project: 16-0141	Model: ACWIFI001

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Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5350.27	23.06	29.45	52.51	54.0	1.0m./HORZ	1.5	AVG

*DC= Distance Correction of -9.5

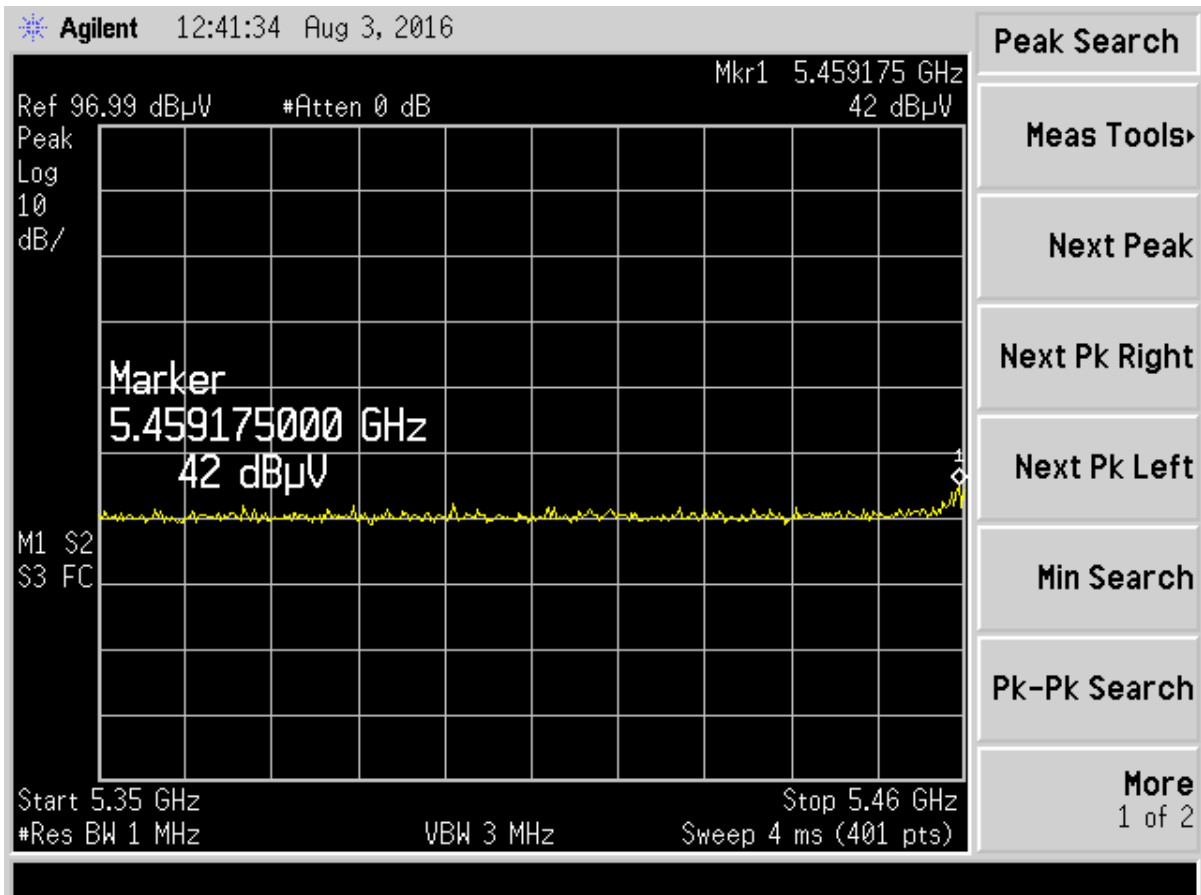


Figure 171. Restricted Band 5.35 - 5.46 GHz operating on Channel 102, 802.11n 40 MHz BW – Peak

Table 71. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Peak

5.35 GHz to 5.46 GHz Restricted Band Peak Measurements	
Test: Radiated Emissions	Client: Acuity Brands Technology Services, Inc

Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuV)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	PK Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5459.17	42.00	29.21	71.21	74.0	1.0m./HORZ	2.8	PK

*DC= Distance Correction of -9.5

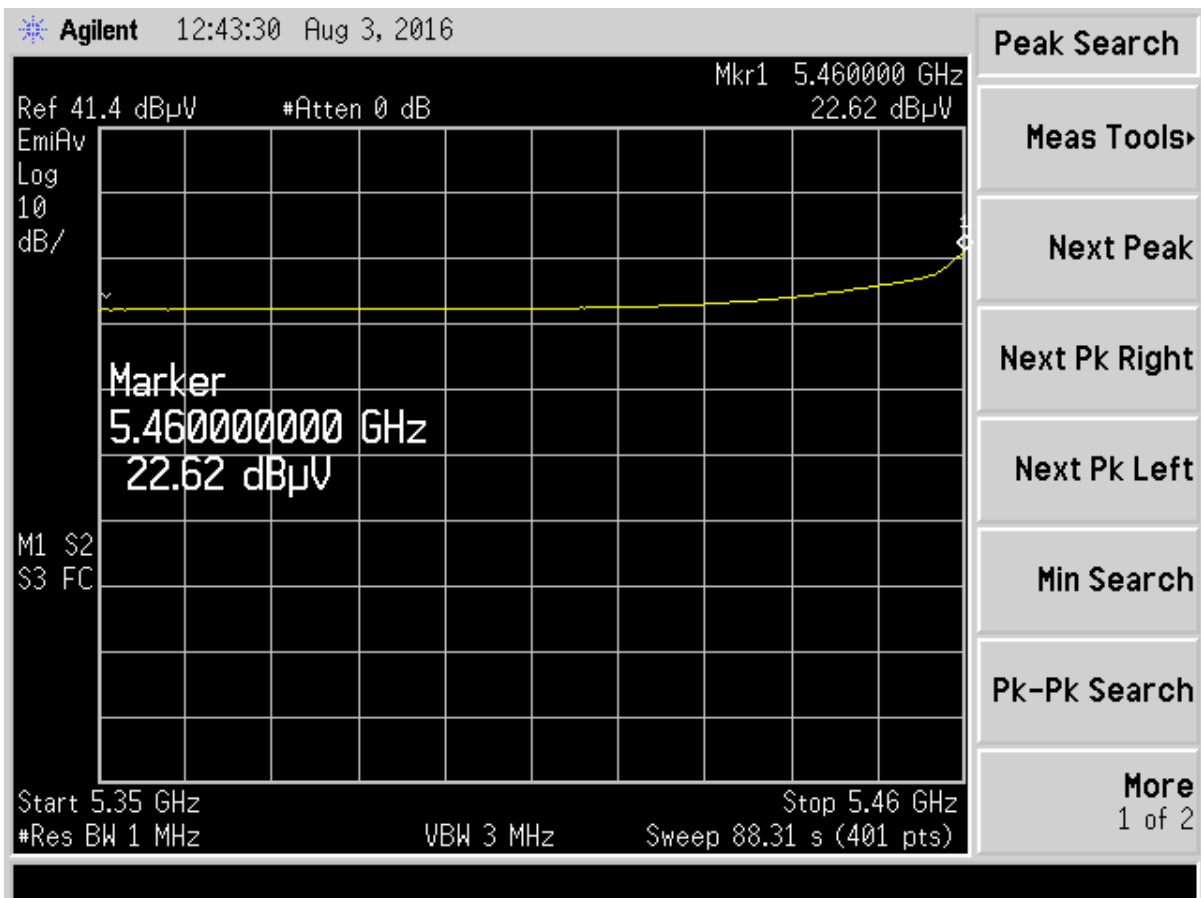


Figure 172. Restricted Band 5.35 - 5.46 GHz operating on Channel 102, 802.11n 40 MHz BW – Average

Table 72. Radiated Restricted Band 5.35 GHz to 5.46 GHz, 802.11n 40 MHz BW – Average

5.35 GHz to 5.46 GHz Restricted Band Average Measurements

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Test: Radiated Emissions				Client: Acuity Brands Technology Services, Inc			
Project: 16-0141				Model: ACWIFI001			
Frequency (MHz)	Test Data (dBuv)	AF+CA-AMP +DC* (dB/m)	Results (dBuV/m)	AVG Limits (dBuV/m)	Antenna Distance/ Polarization	Margin (dB)	Detector PK, or AVG
5460.00	22.62	29.21	51.83	54.0	1.0m./HORZ	2.2	AVG

*DC= Distance Correction of -9.5

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2.15 Six (6) dB Bandwidth per Part 15.407(e),

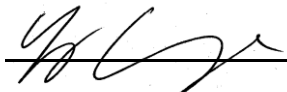
The EUT antenna port was connected to a spectrum analyzer having a 50 Ω input impedance. The RBW was set to 1 MHz and with the VBW ≥ RBW. The results of this test are given in the table below and Figures below. The Highest and Lowest Channel that the EUT can operate on in the 5.74525 to 5.85 GHz were measured to ensure that the 6 dB bandwidth is at least 500 kHz.

Table 73. Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum FCC Bandwidth (MHz)
802.11a		
5745	16.607	0.500
5825	16.657	0.500
802.11n		
5745	17.818	0.500
5825	17.840	0.500
802.11n (40 MHz)		
5795	36.765	0.500
802.11a (40 MHz)		
5795	36.412	0.500

Test Date: August 7, 2016

Tested By

Signature: 

Name: George Yang

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

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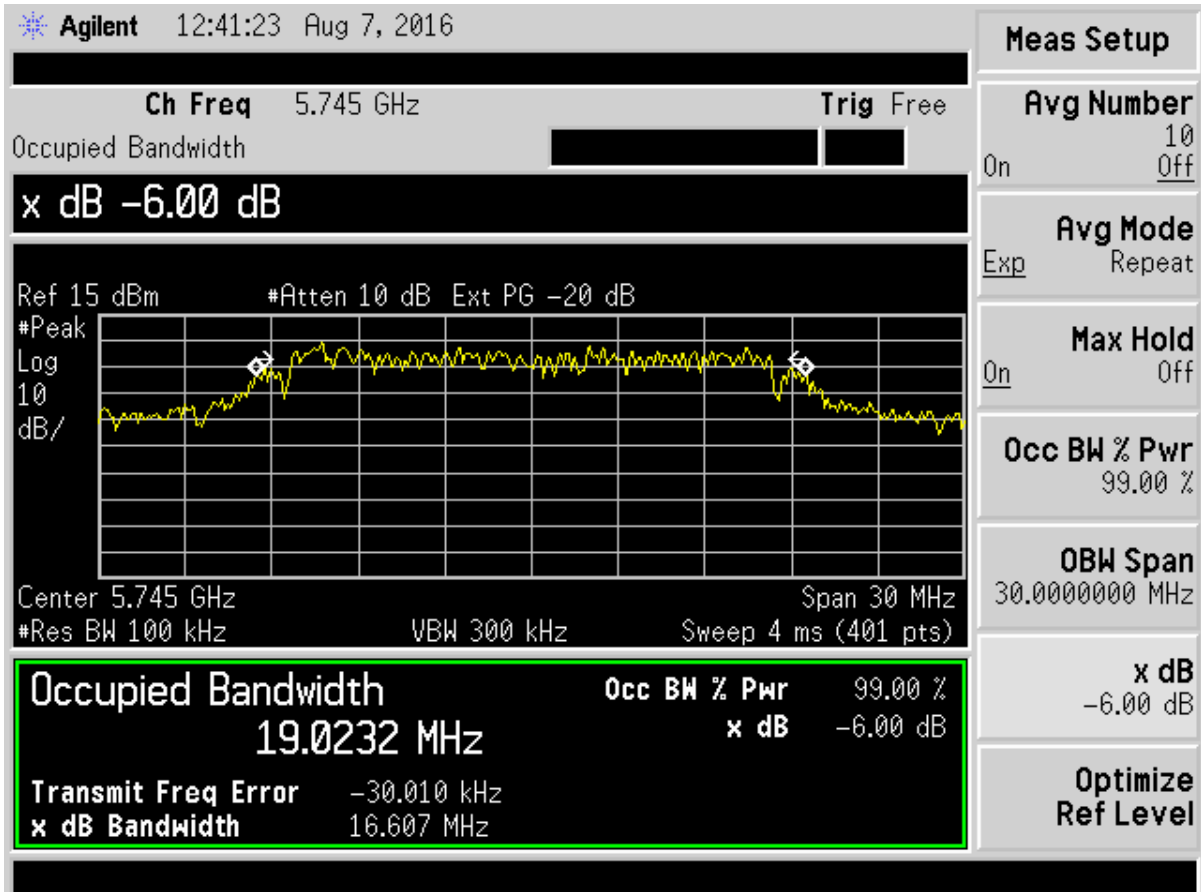


Figure 173. Six dB Bandwidth 802.11a - 15.407 - Low Channel

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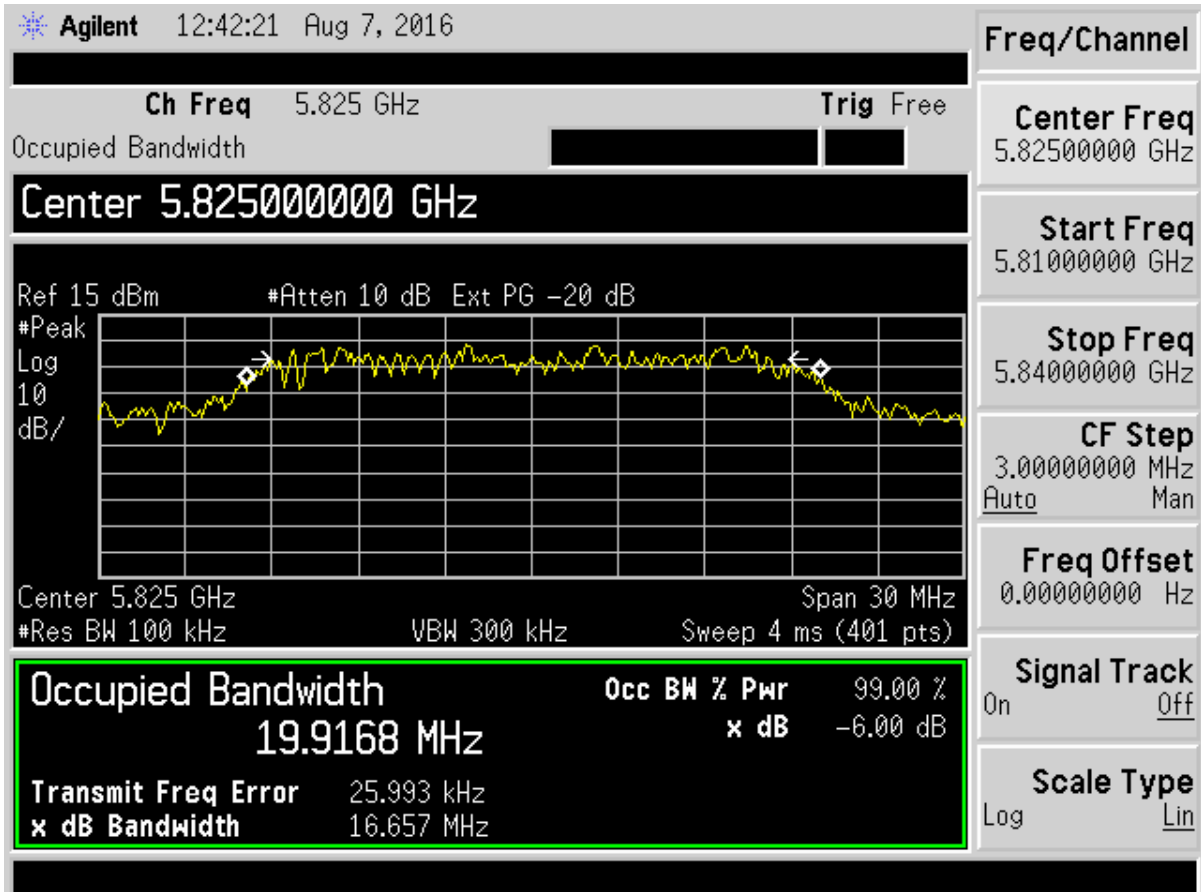


Figure 174. Six dB Bandwidth 802.11a - 15.407 - High Channel

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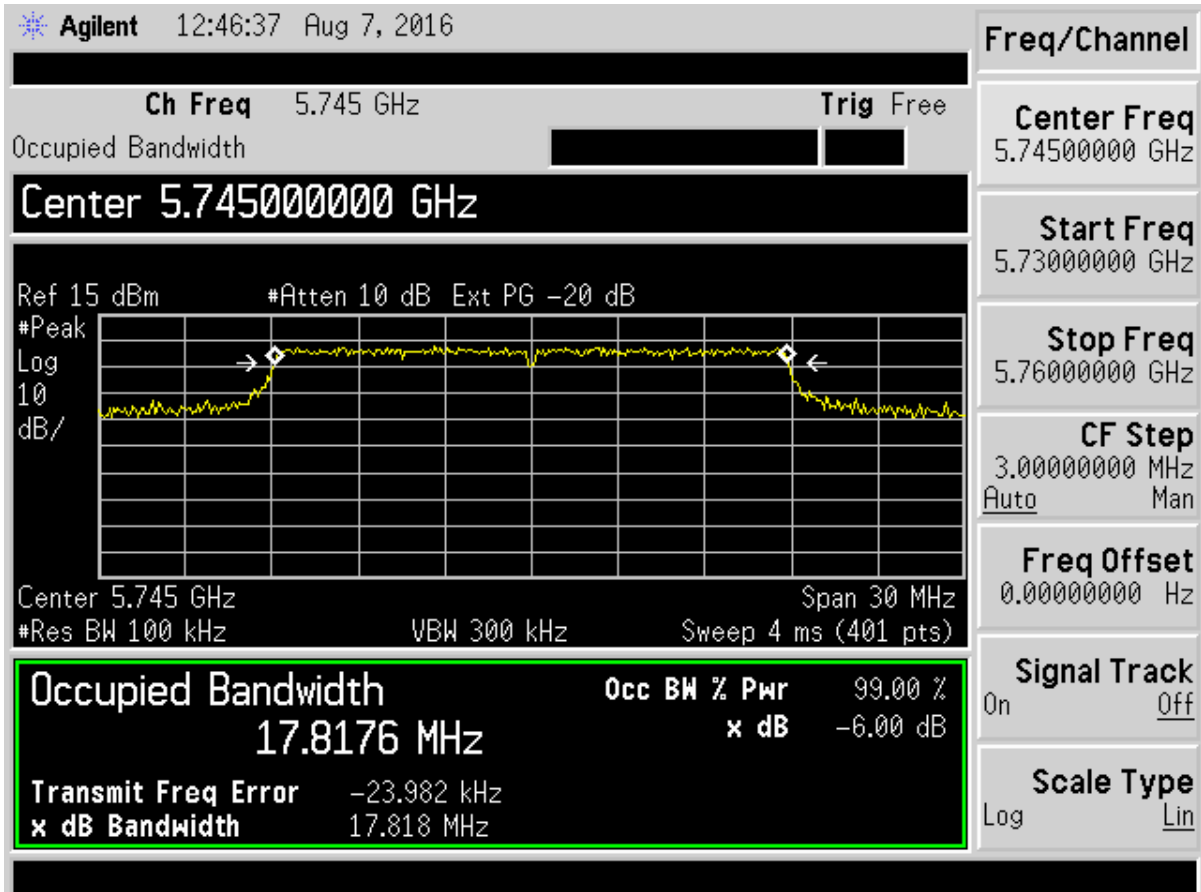


Figure 175. Six dB Bandwidth 802.11n - 15.407 - Low Channel

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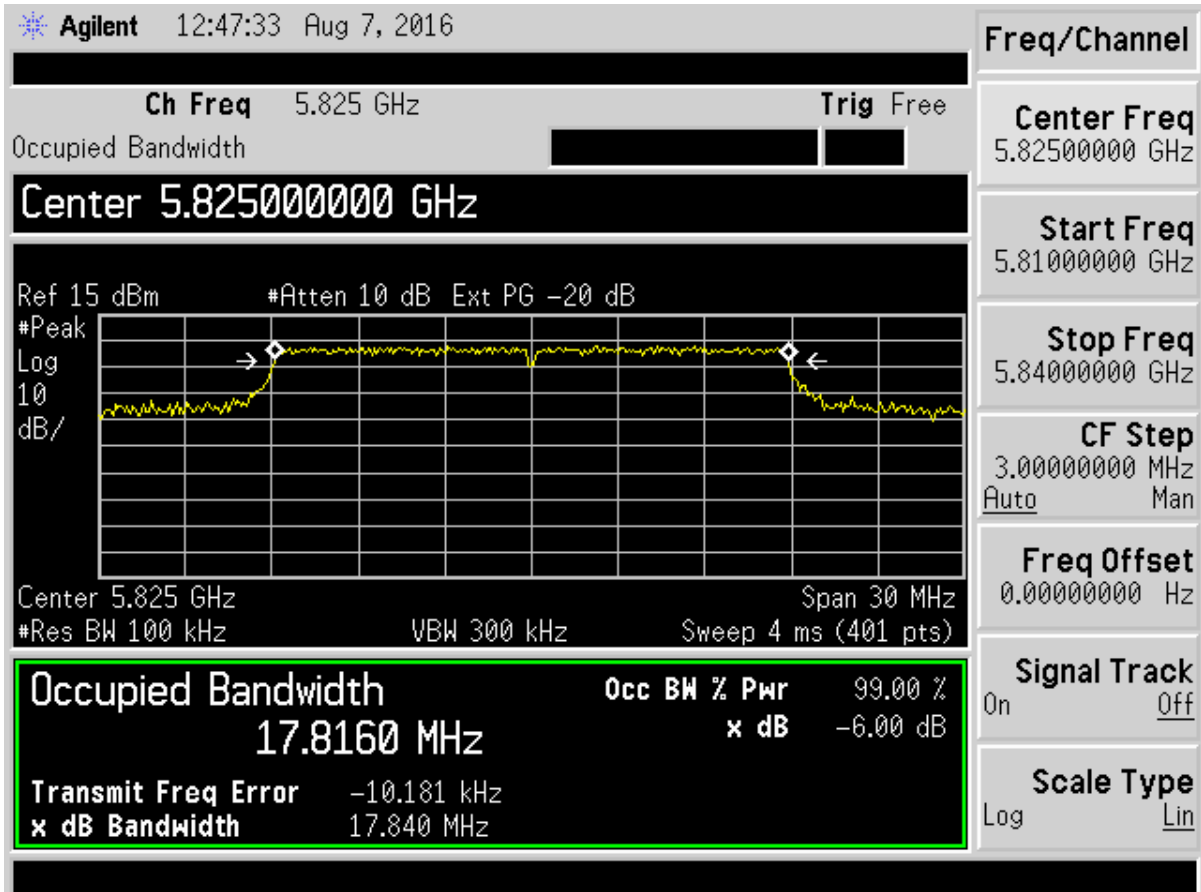


Figure 176. Six dB Bandwidth 802.11n - 15.407 - High Channel

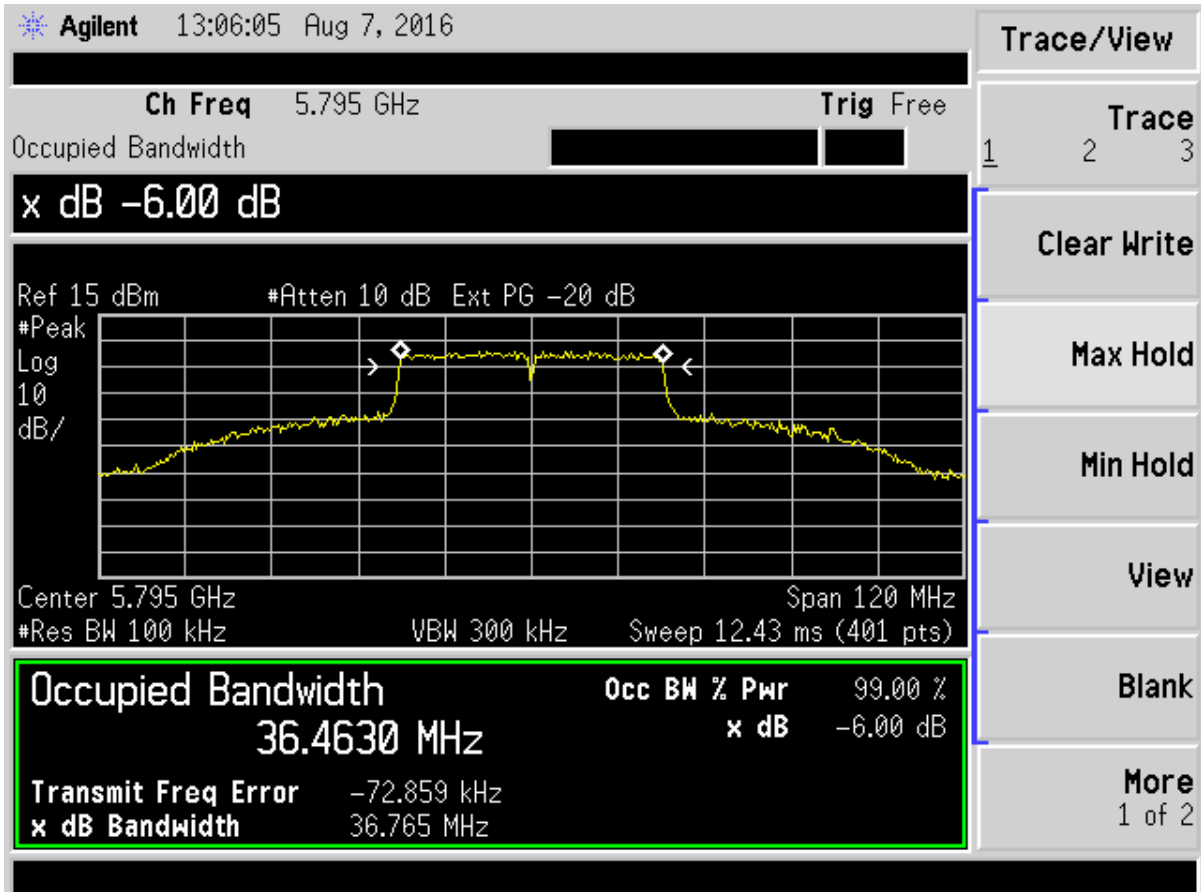


Figure 177. Six dB Bandwidth 802.11n - 15.407 - High Channel (40MHz)

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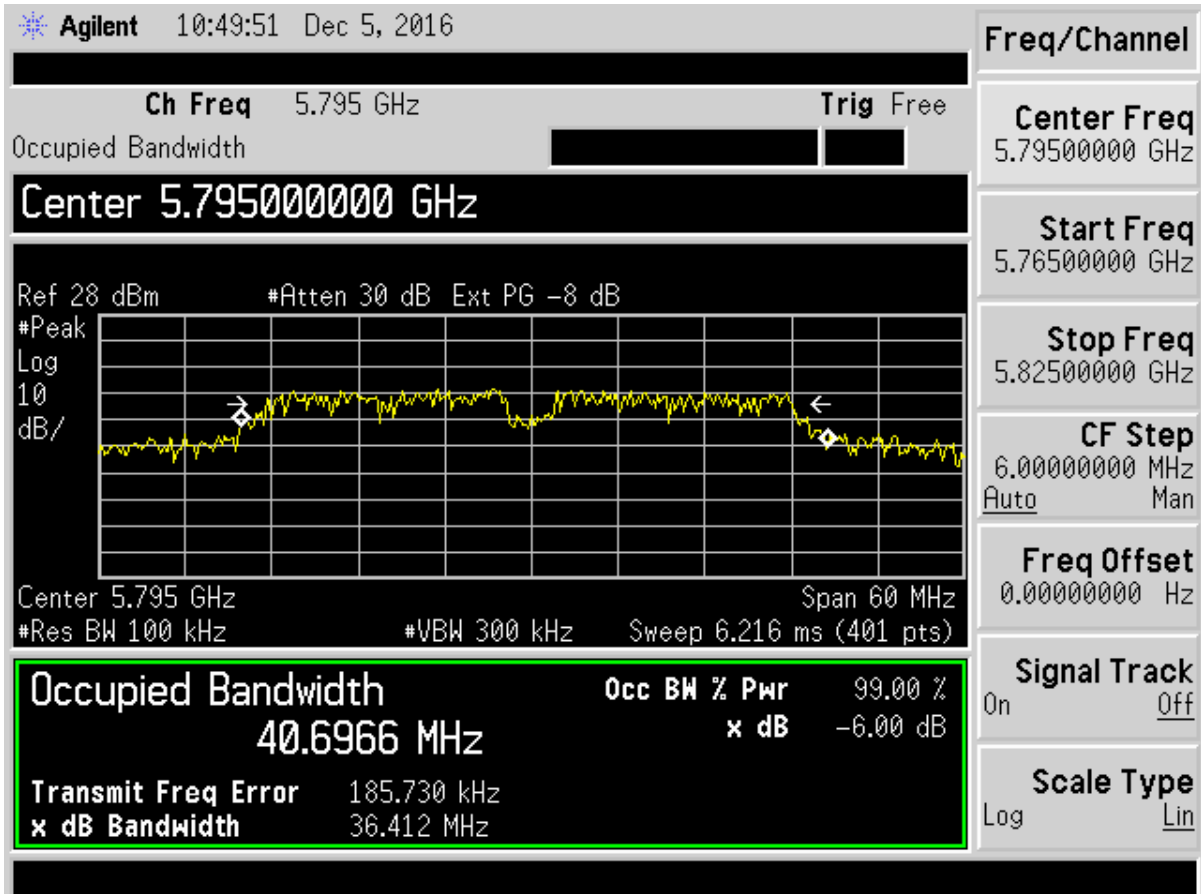


Figure 178. Six dB Bandwidth 802.11a - 15.407 - High Channel (40MHz)

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2.16 99% Occupied Bandwidth (15.407(a), IC RSS 247, 6.4)

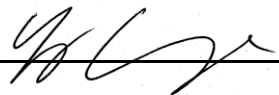
These measurements were performed while the EUT was in a constant transmit mode. The spectrum analyzers bandwidth measurement was used to determine the 26 dB bandwidth and the 99 % BW. The test procedures in the KDB document 789033 were followed. The RBW was set to approximately 1 % to 5 % times the OBW with the VBW \geq RBW and the span 1.5 to 5.0 times the OBW.. The results of this test are given in the tables and plots presented below.

Table 74. 26 dB Bandwidth and 99% Occupied Bandwidth for 802.11a

Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
5180	19.598	29.91
5240	20.111	30.00
5260	19.081	24.37
5320	19.871	30.00
5500	20.109	30.00
5560	19.960	30.00
5660	20.105	30.00
5700	20.303	30.00

Test Date: August 7, 2016 & December 2&8, 2016

Tested By

Signature: 

Name: George Yang

US Tech Test Report:
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Model:

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Table 75. 26 dB Bandwidth and 99% Occupied Bandwidth for 802.11n

Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
5180	17.977	25.04
5240	18.117	28.46
5260	17.957	20.49
5320	17.956	24.98
5500	18.247	30.00
5560	18.041	28.26
5660	20.105	30.00
5700	18.509	30.00

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Table 76. 26 dB Bandwidth and 99% Occupied Bandwidth for 802.11a 40 MHz BW

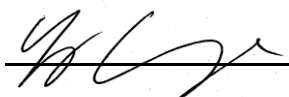
Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
5190	39.861	60.00
5310	40.295	60.00
5510	37.020	50.81
5550	40.713	59.99

Table 77. 26 dB Bandwidth and 99% Occupied Bandwidth for 802.11n 40 MHz BW

Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
5190	37.231	48.85
5310	36.955	43.33
5510	36.938	41.50
5550	37.659	78.96

Test Date: August 7, 2016 & December 2&8, 2016

Tested By

Signature: 

Name: George Yang

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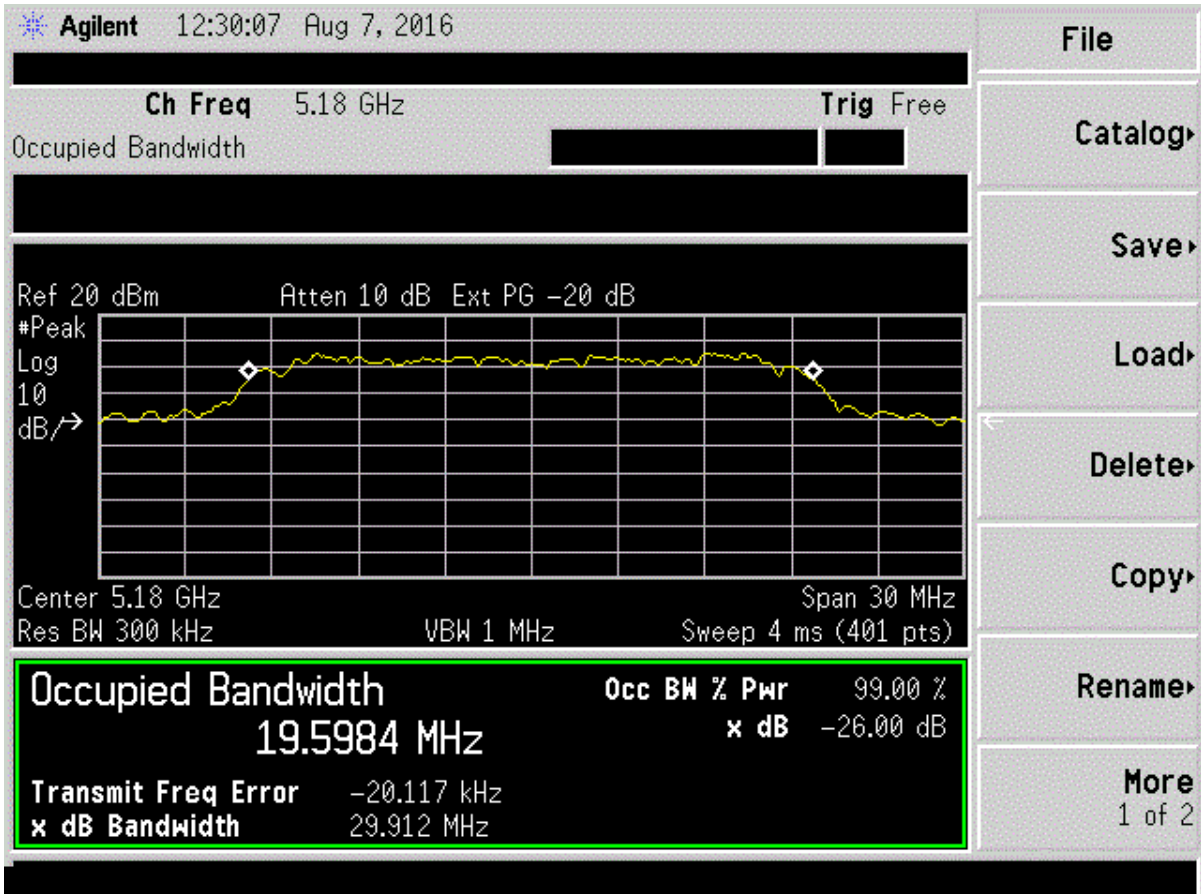


Figure 179. 26 dB BW and OBW -802.11a- Channel 36

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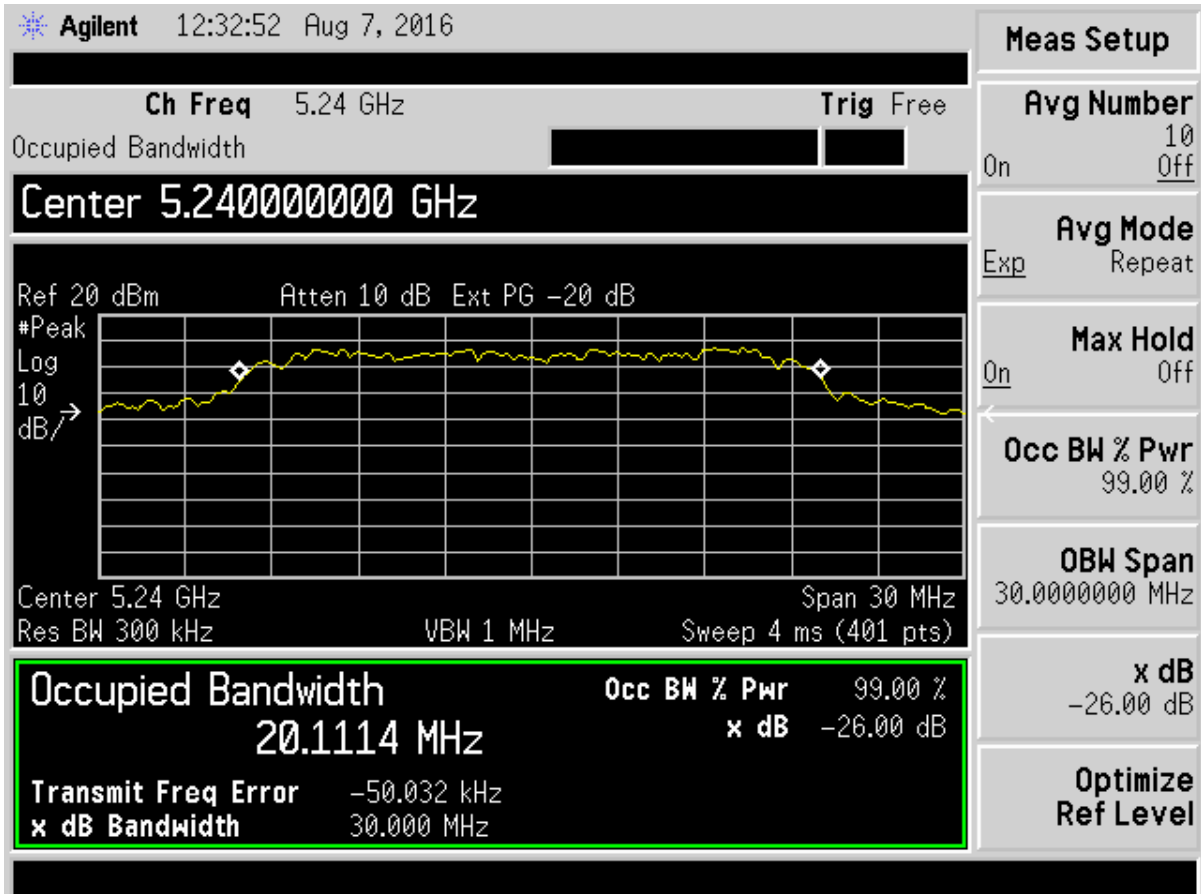


Figure 180. 26 dB BW and OBW -802.11a- Channel 48

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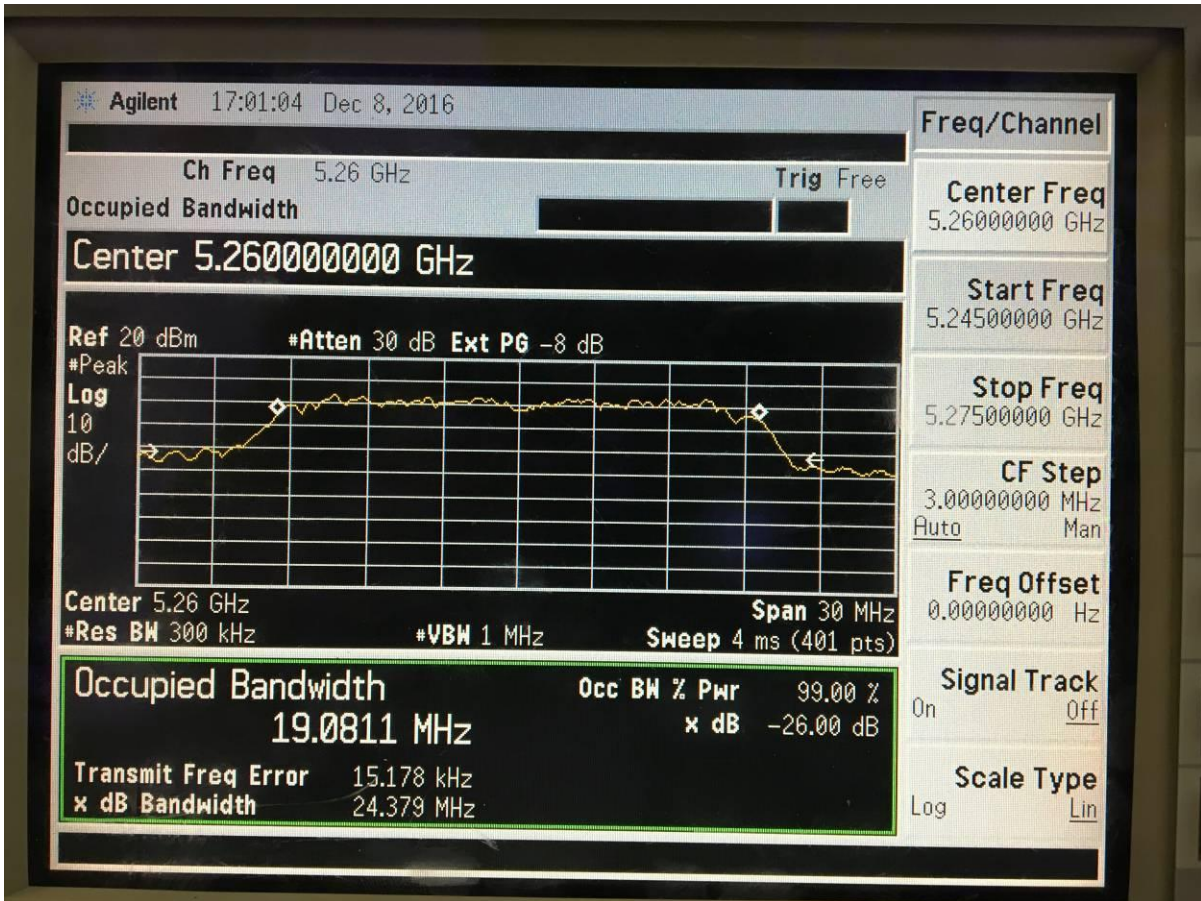


Figure 181. 26 dB BW and OBW -802.11a- Channel 52

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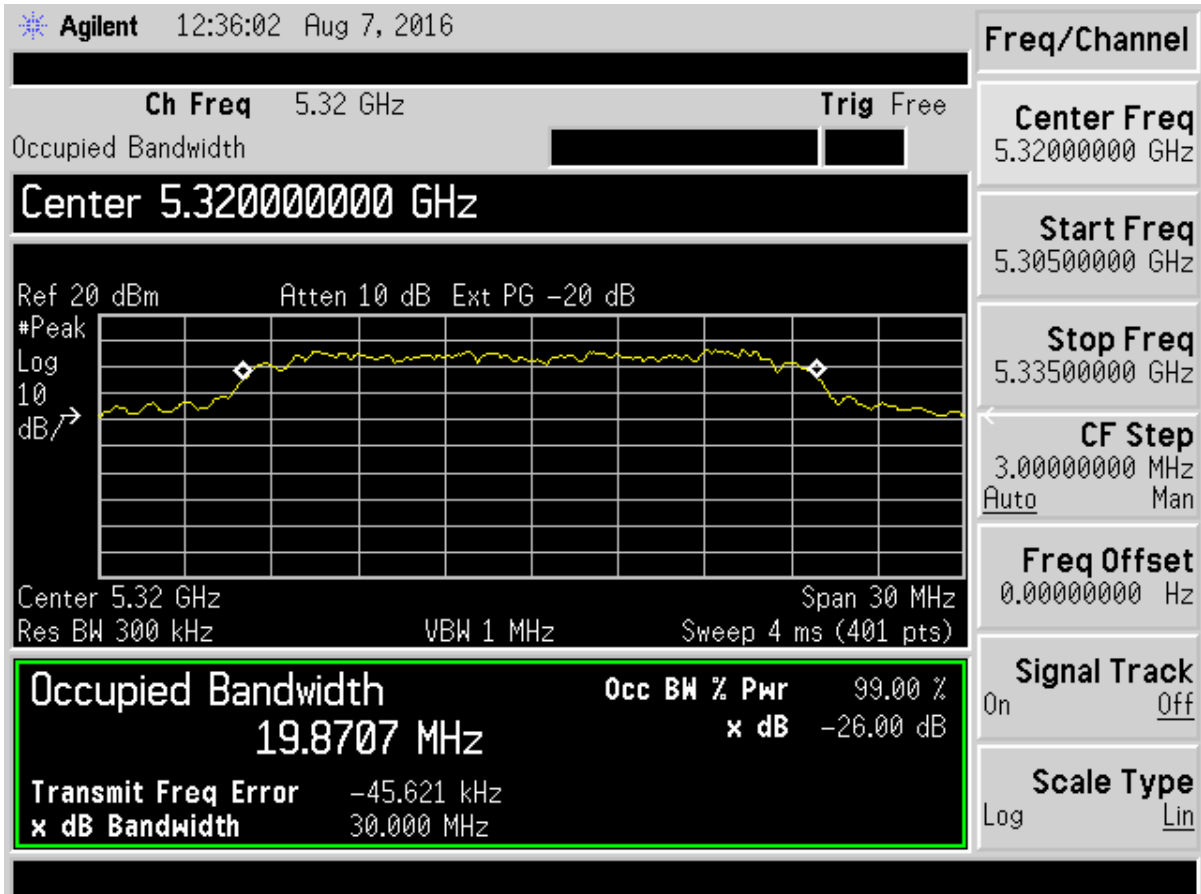


Figure 182. 26 dB BW and OBW -802.11a- Channel 64

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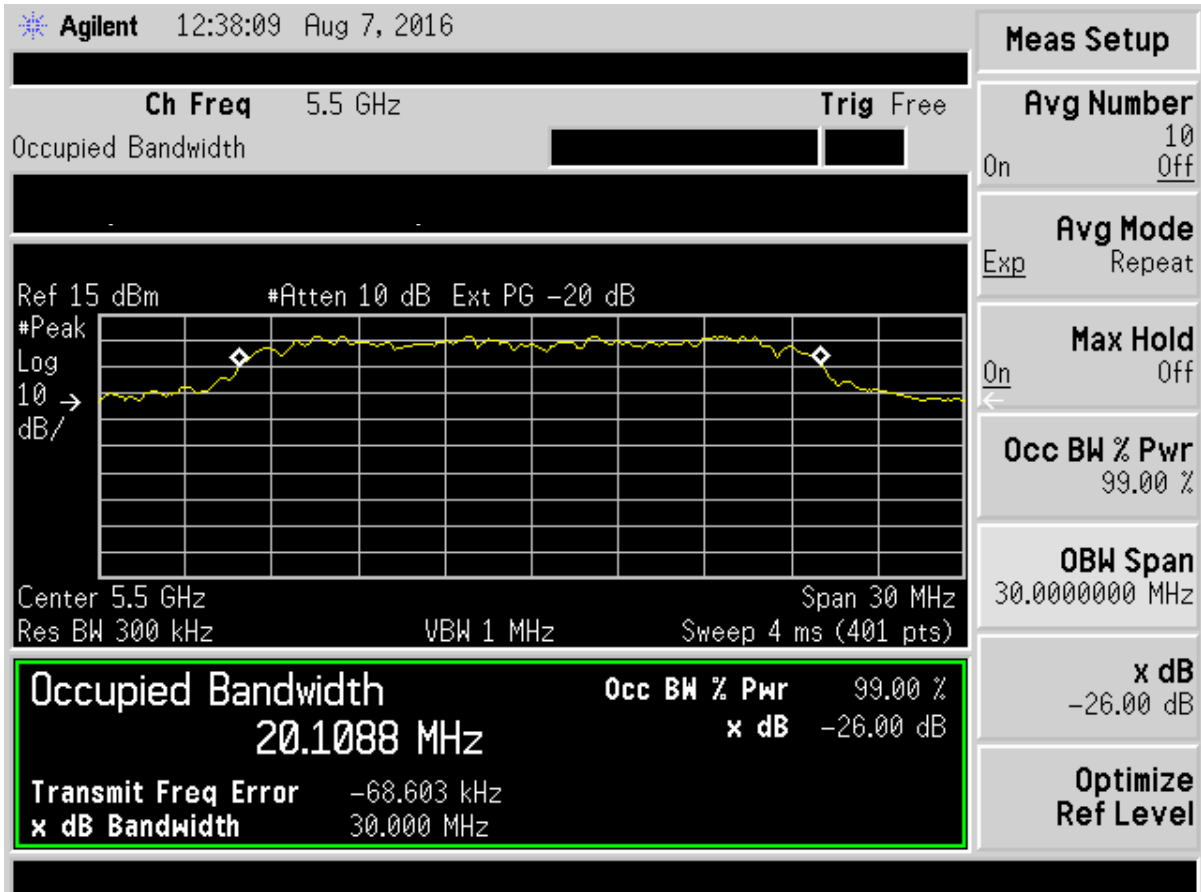


Figure 183. 26 dB BW and OBW -802.11a- Channel 100

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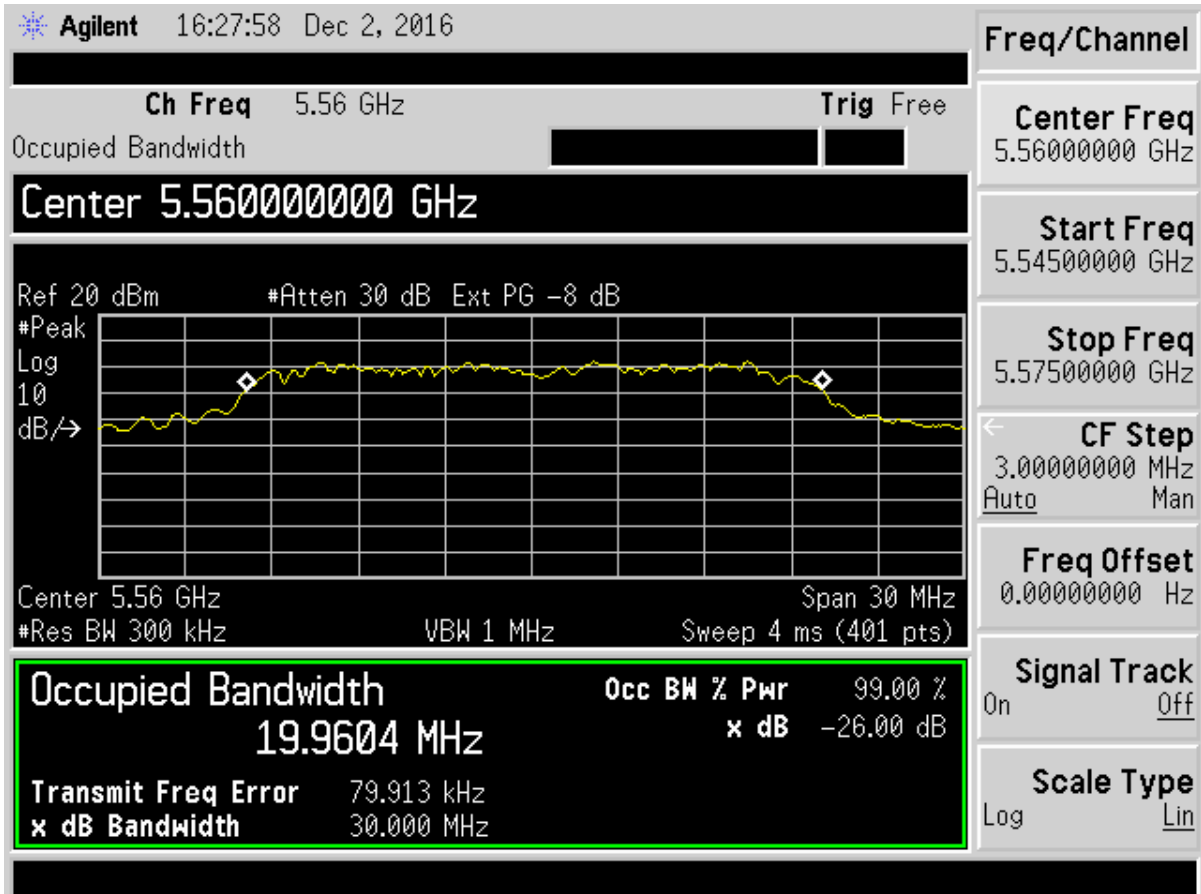


Figure 184. 26 dB BW and OBW -802.11a- Channel 112

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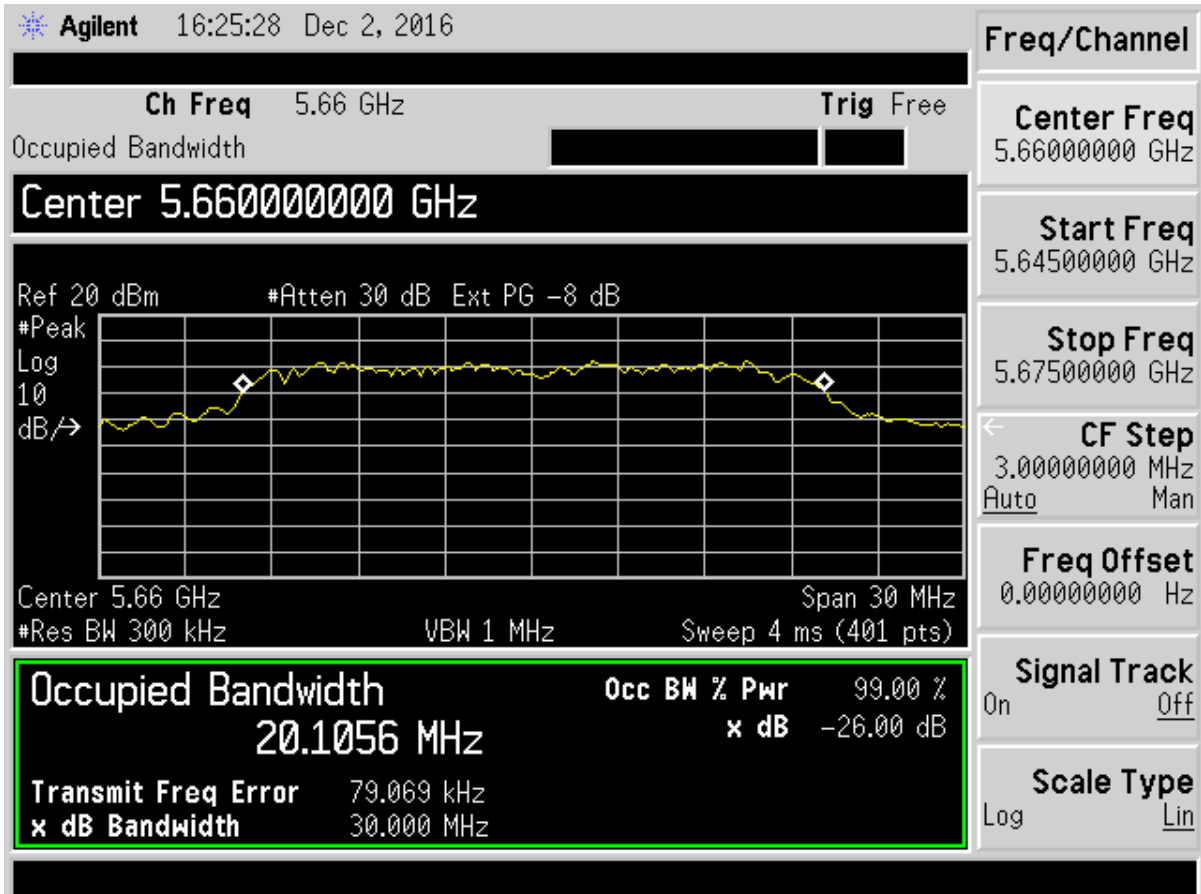


Figure 185. 26 dB BW and OBW -802.11a- Channel 132

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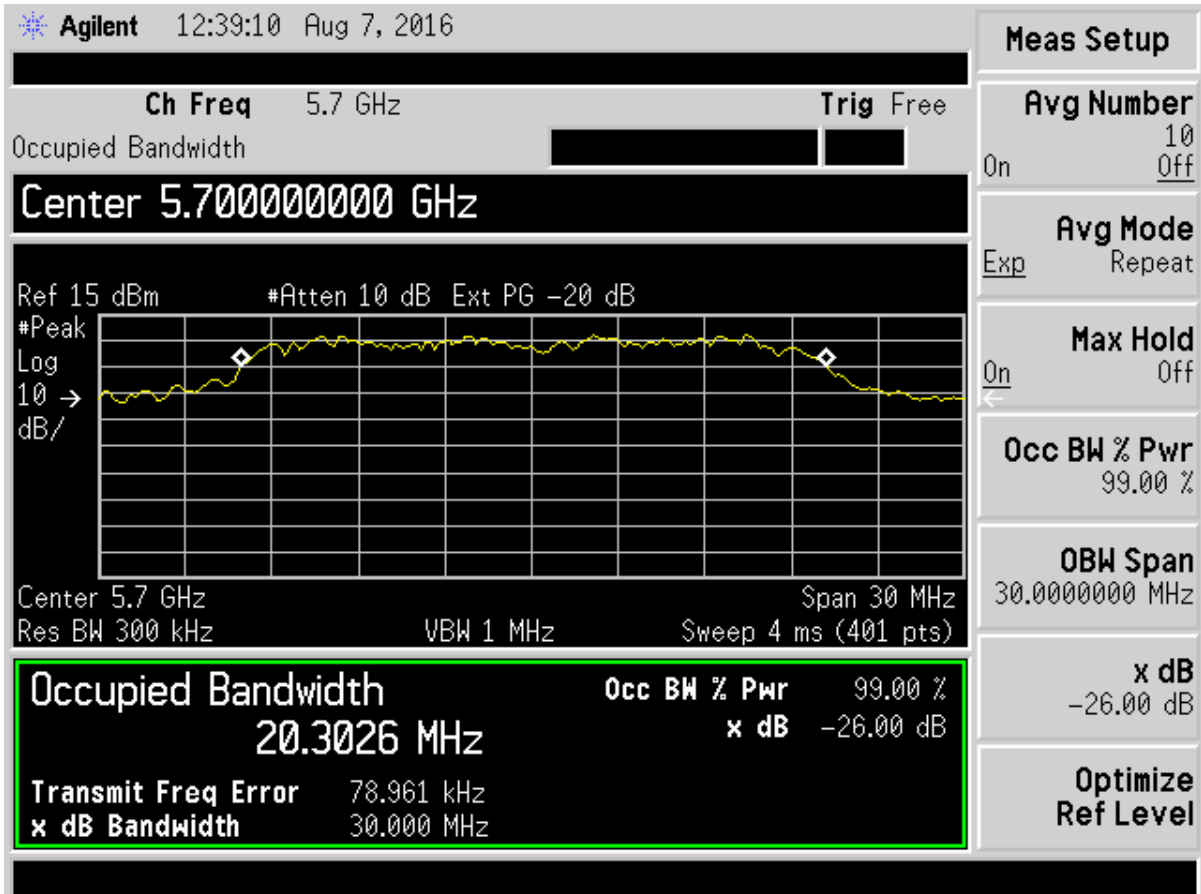


Figure 186. 26 dB BW and OBW -802.11a- Channel 140

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FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

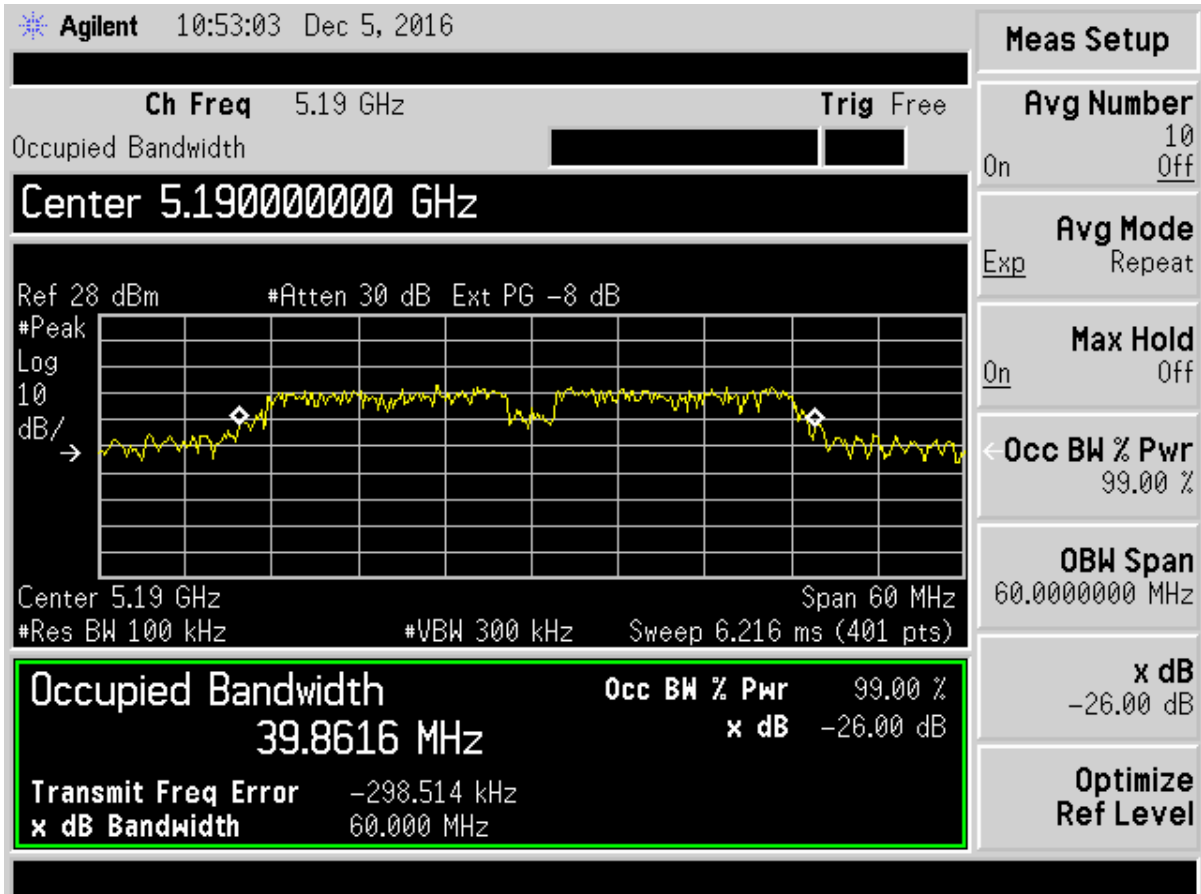


Figure 187. 26 dB BW and OBW -802.11a (40 MHz) Channel 38

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

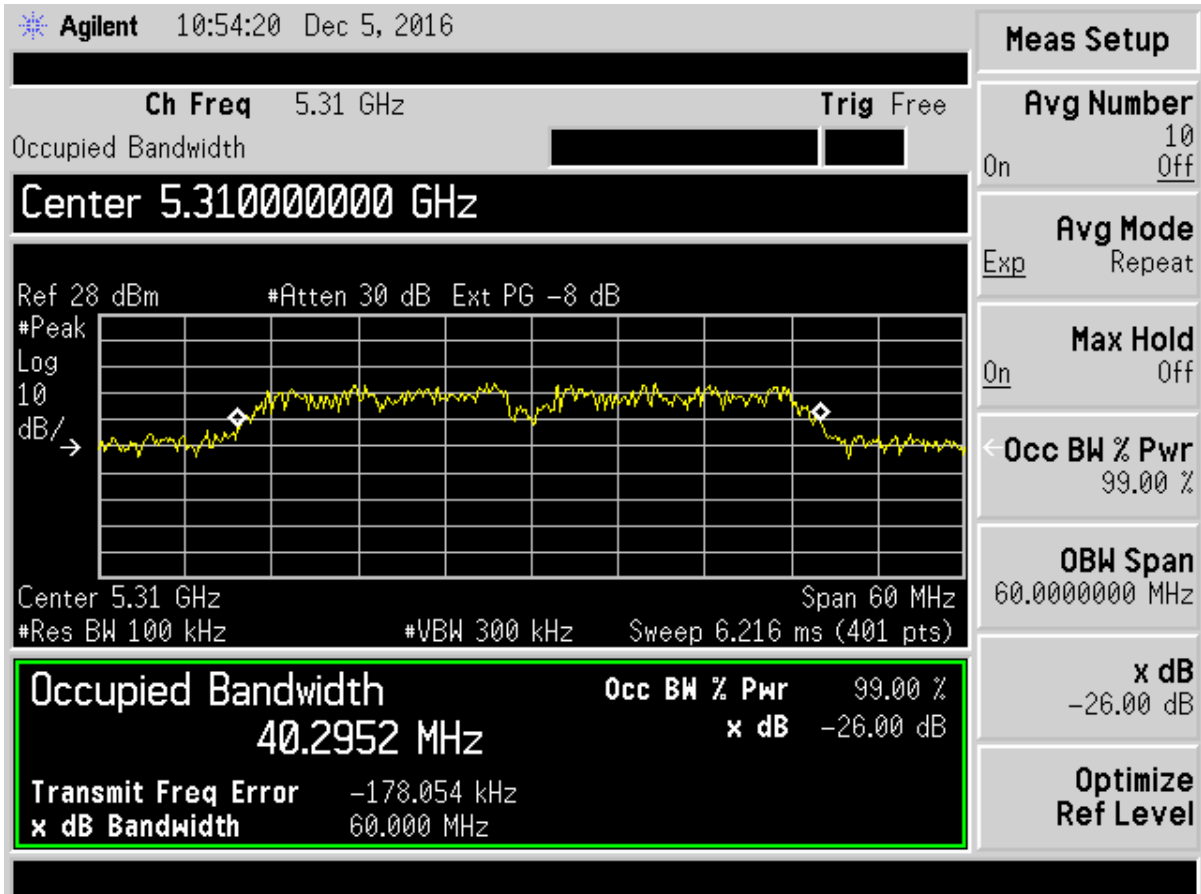


Figure 188. 26 dB BW and OBW -802.11a (40 MHz) Channel 62

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

FCC Part 15 Certification/ RSS 247
2ADCB-ACWIFI001
6715A-ACWIFI001
16-0141
September 23, 2016
Acuity Brands
ACWIFI001

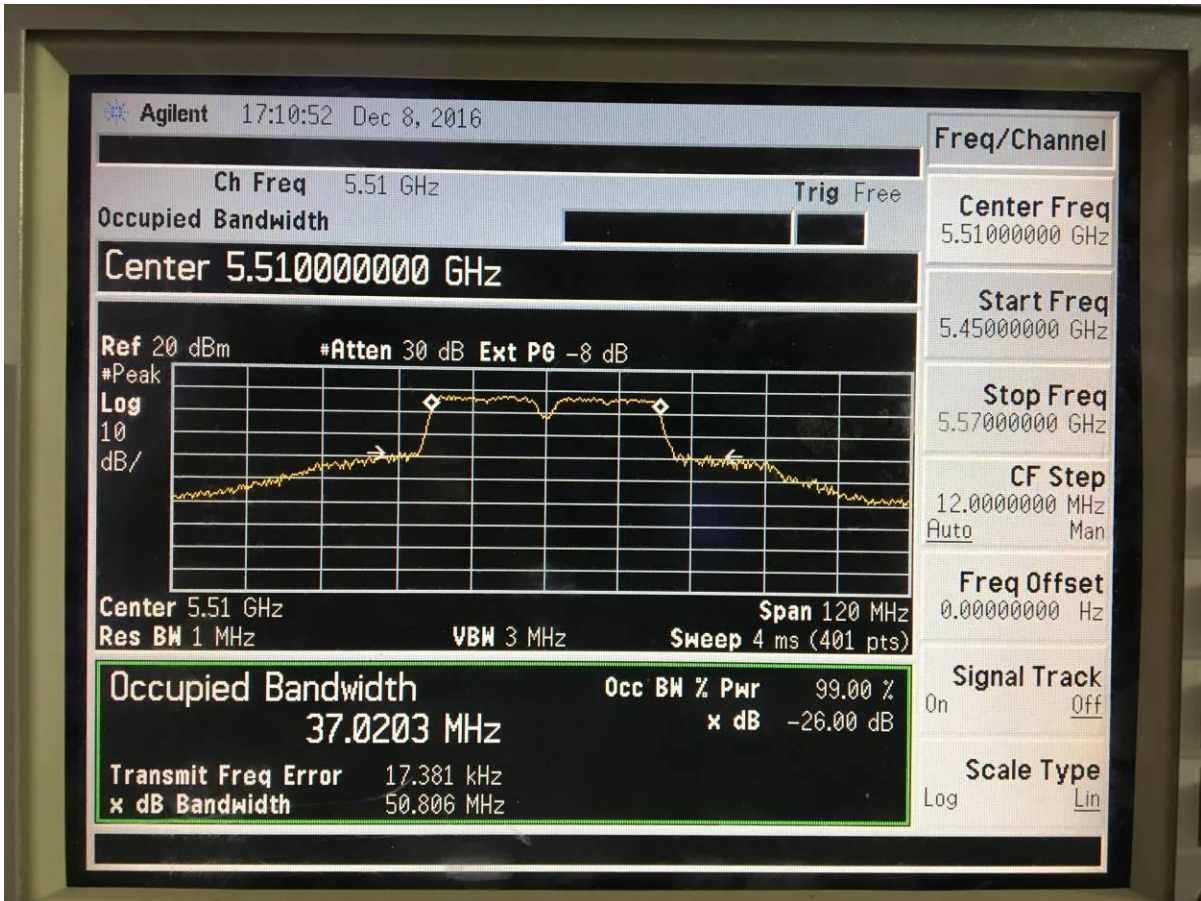


Figure 189. 26 dB BW and OBW -802.11a (40MHz) Channel 102

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

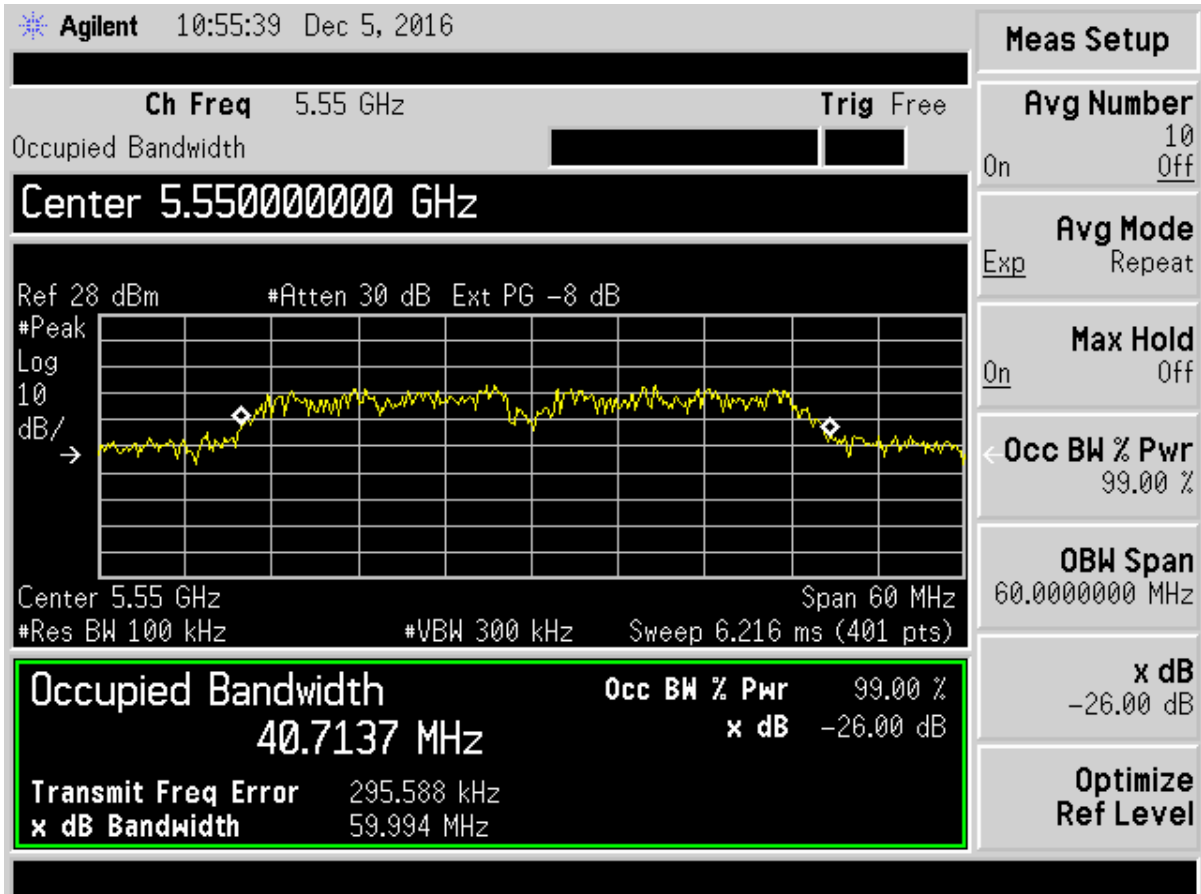


Figure 190. 26 dB BW and OBW -802.11a (40 MHz) Channel 110

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

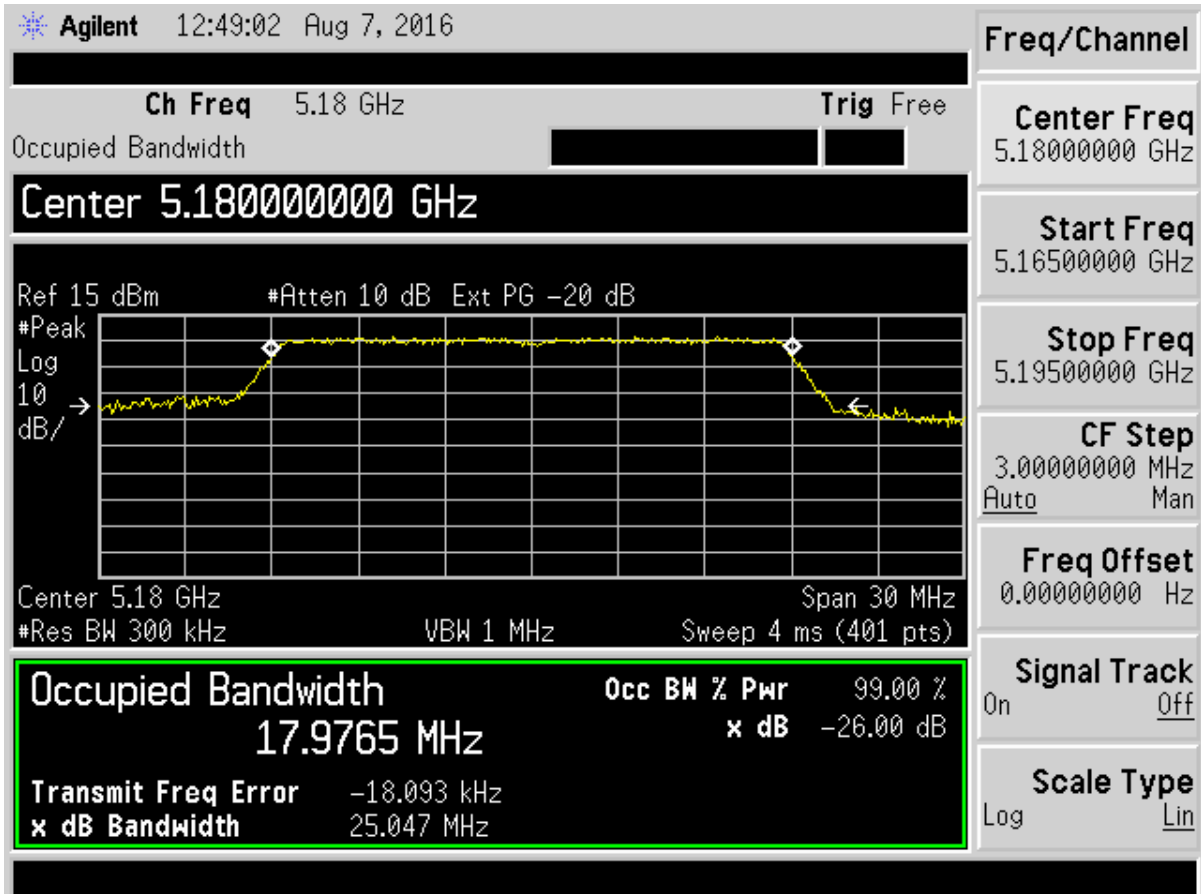


Figure 191. 26 dB BW and OBW -802.11n- Channel 36

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

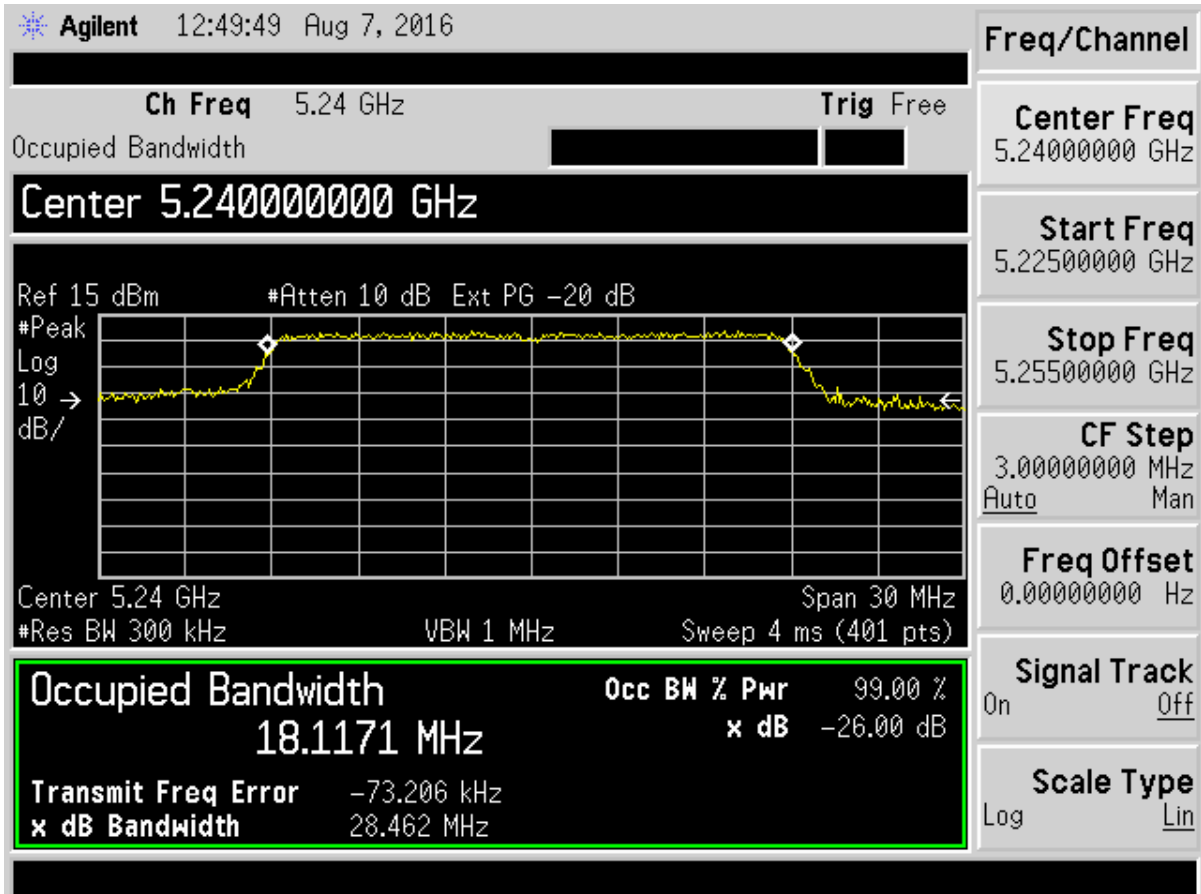


Figure 192. 26 dB BW and OBW -802.11n- Channel 48

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

FCC Part 15 Certification/ RSS 247
2ADCB-ACWIFI001
6715A-ACWIFI001
16-0141
September 23, 2016
Acuity Brands
ACWIFI001

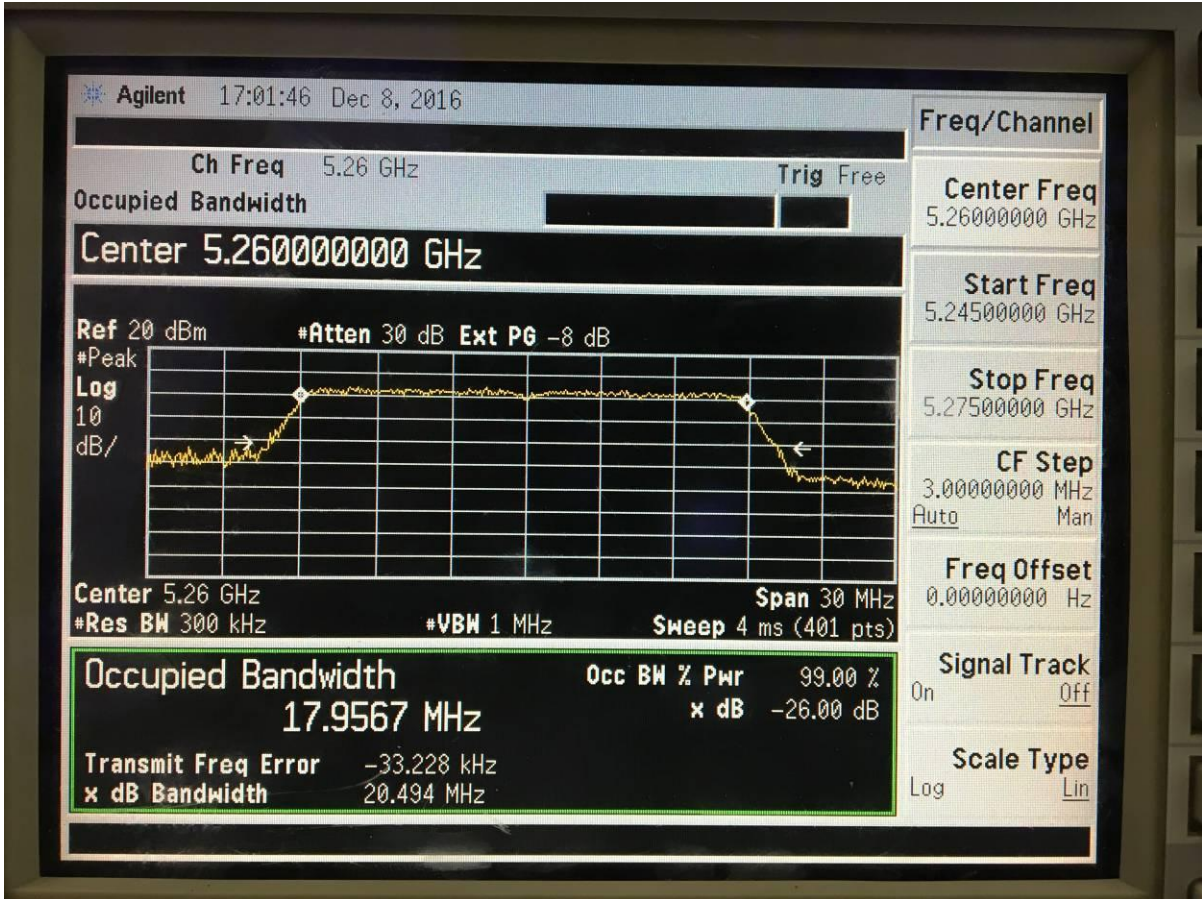


Figure 193. 26 dB BW and OBW -802.11n- Channel 52

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

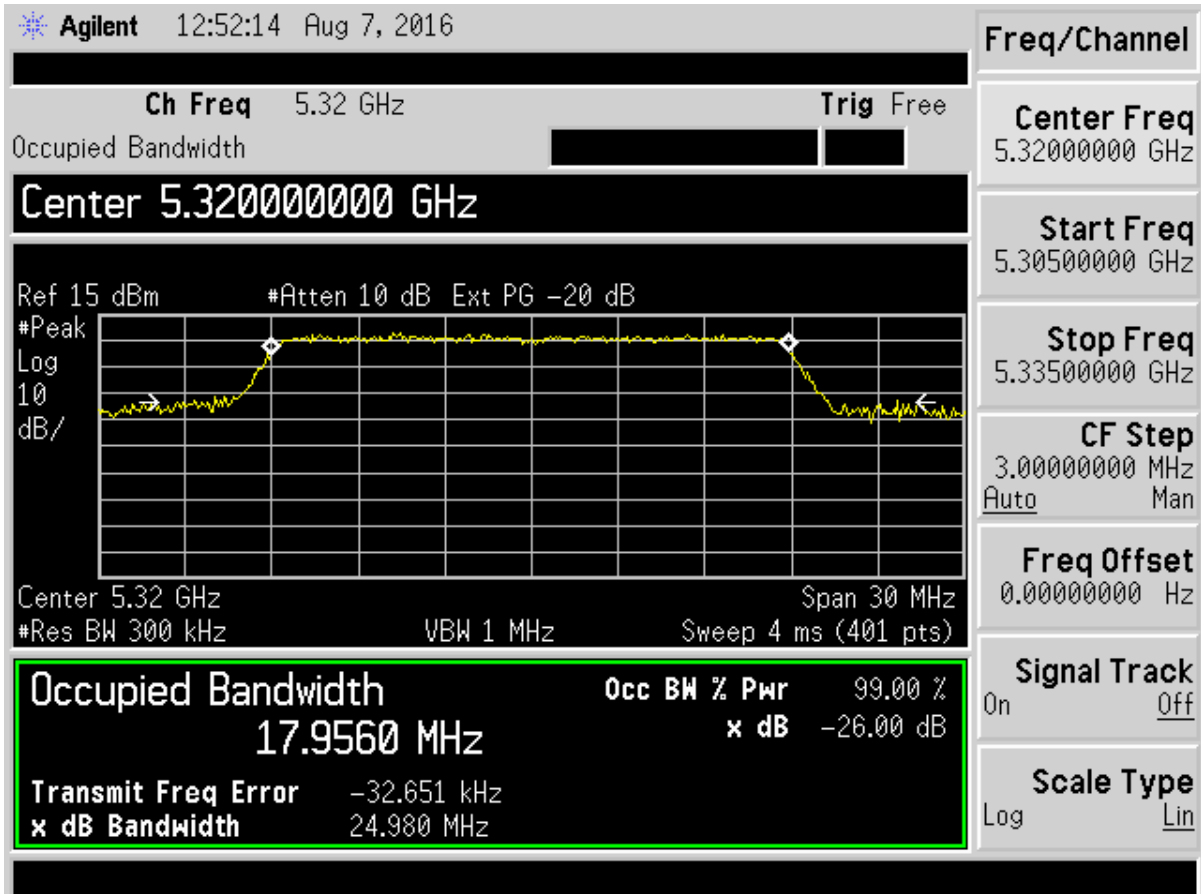


Figure 194. 26 dB BW and OBW -802.11n- Channel 64

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

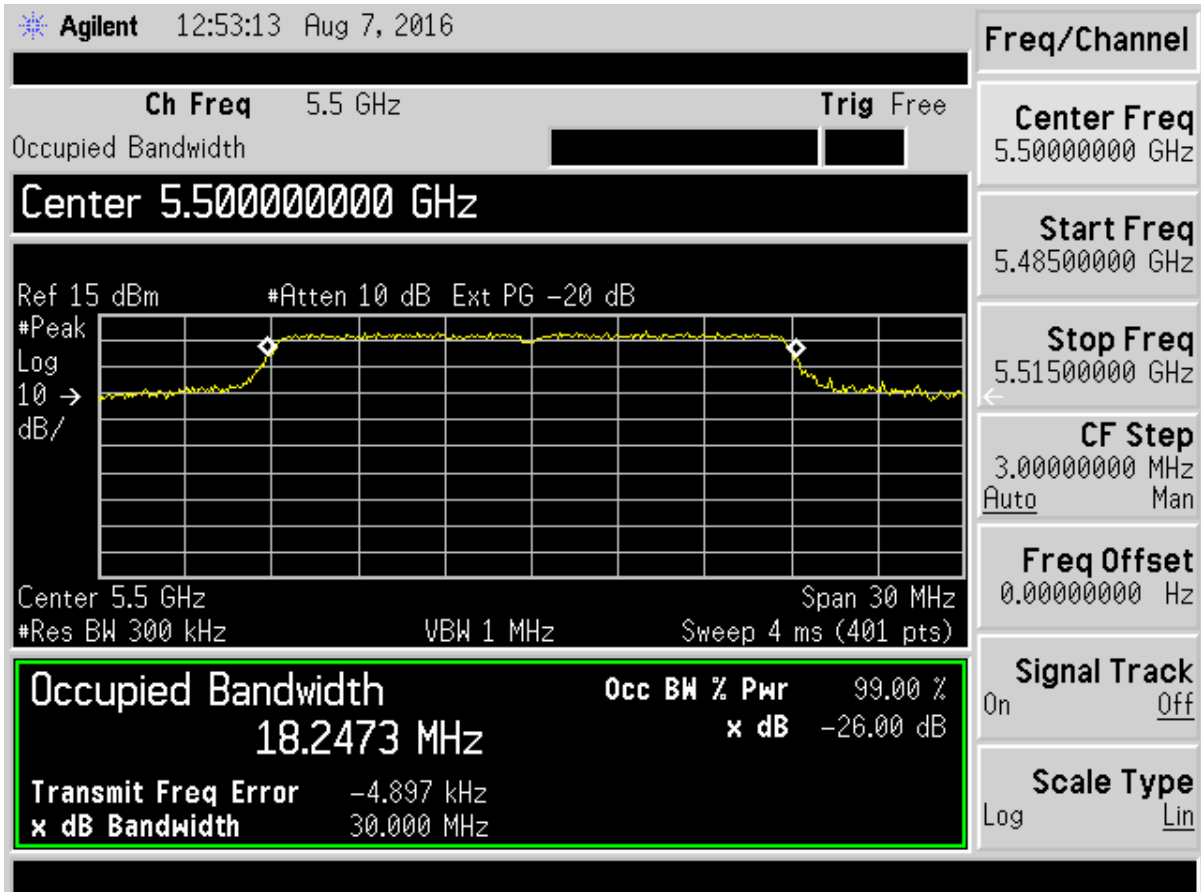


Figure 195. 26 dB BW and OBW -802.11n- Channel 100

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

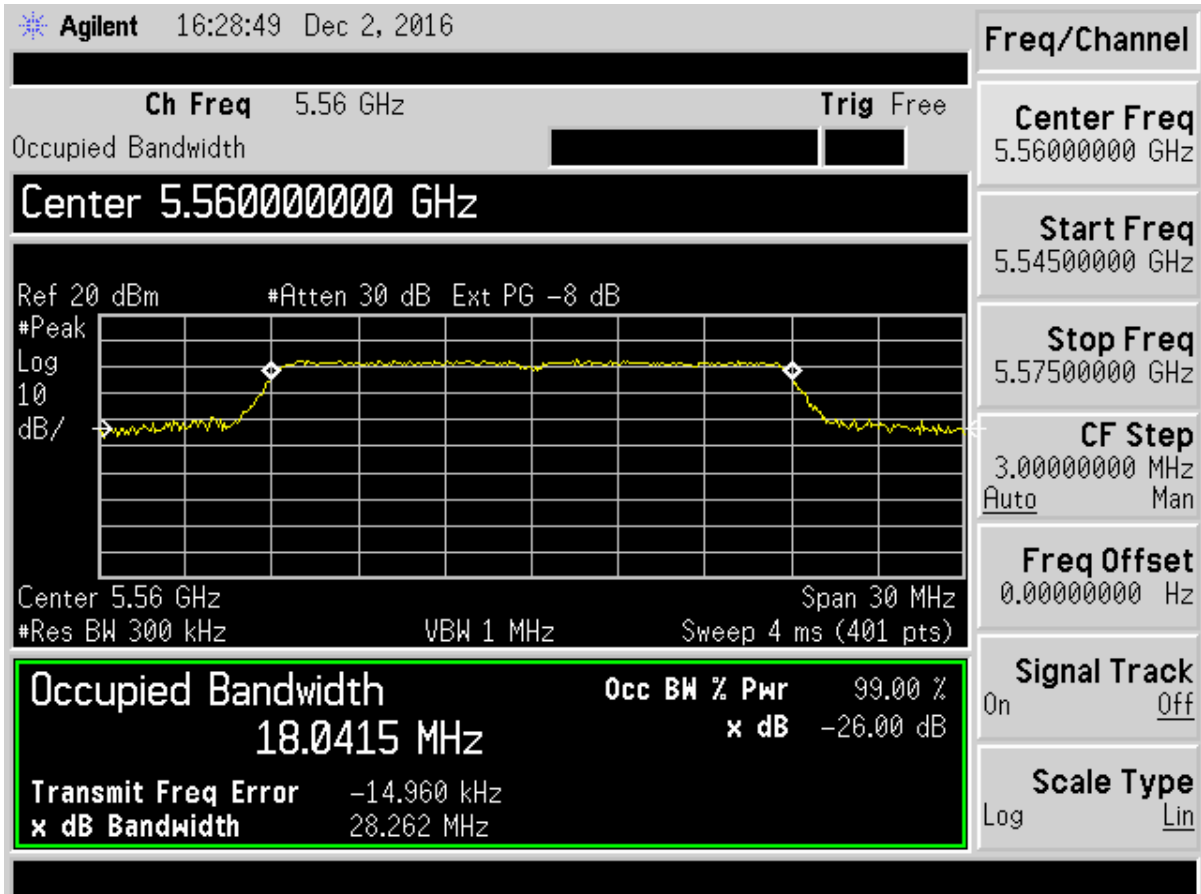


Figure 196. 26 dB BW and OBW -802.11n- Channel 112

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

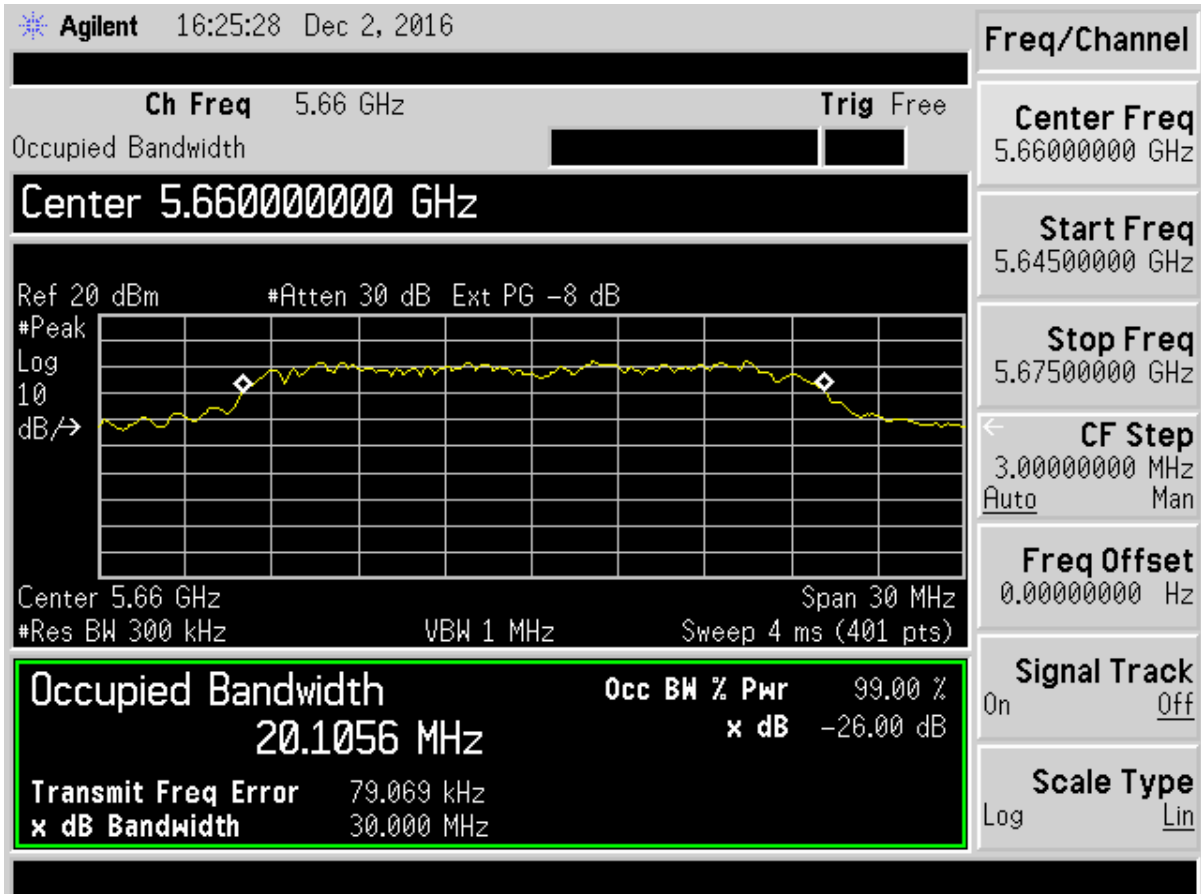


Figure 197. 26 dB BW and OBW -802.11n- Channel 132

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

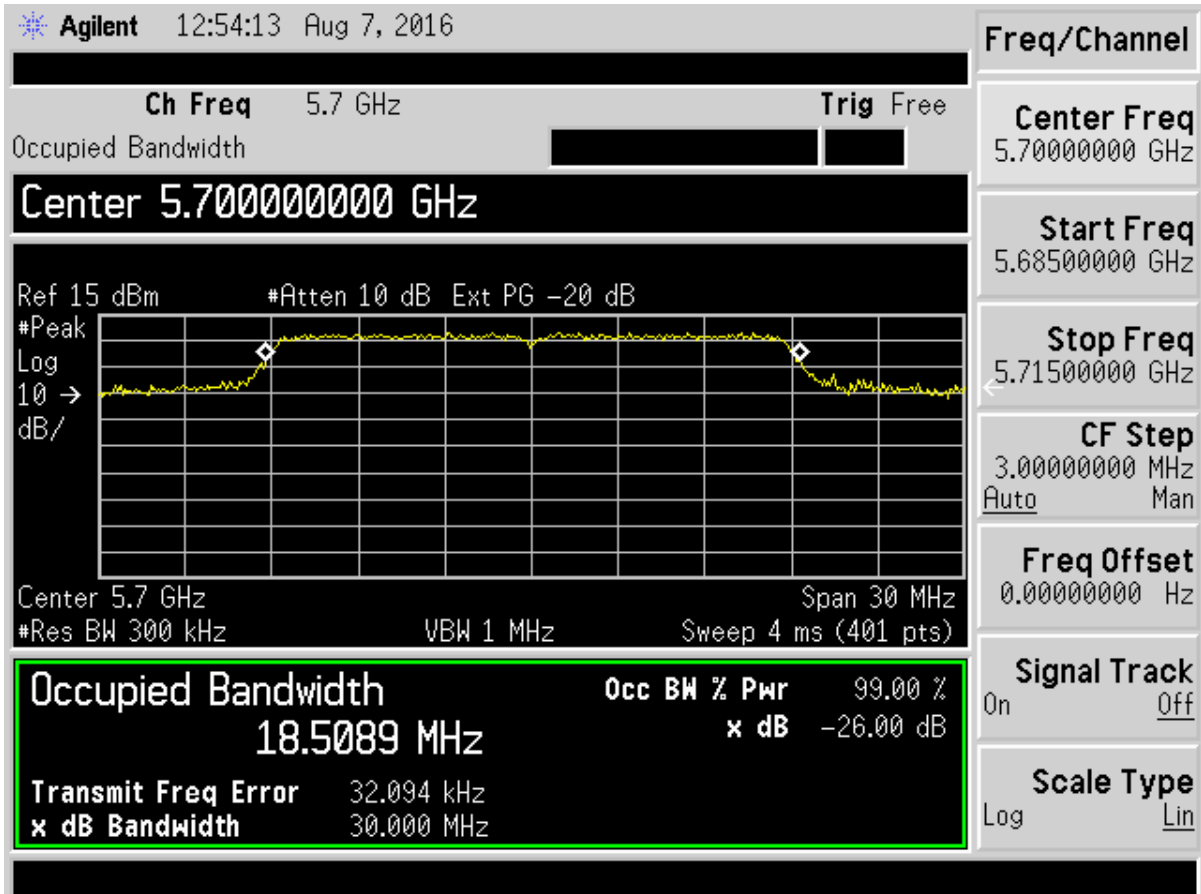


Figure 198. 26 dB BW and OBW -802.11n- Channel 140

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

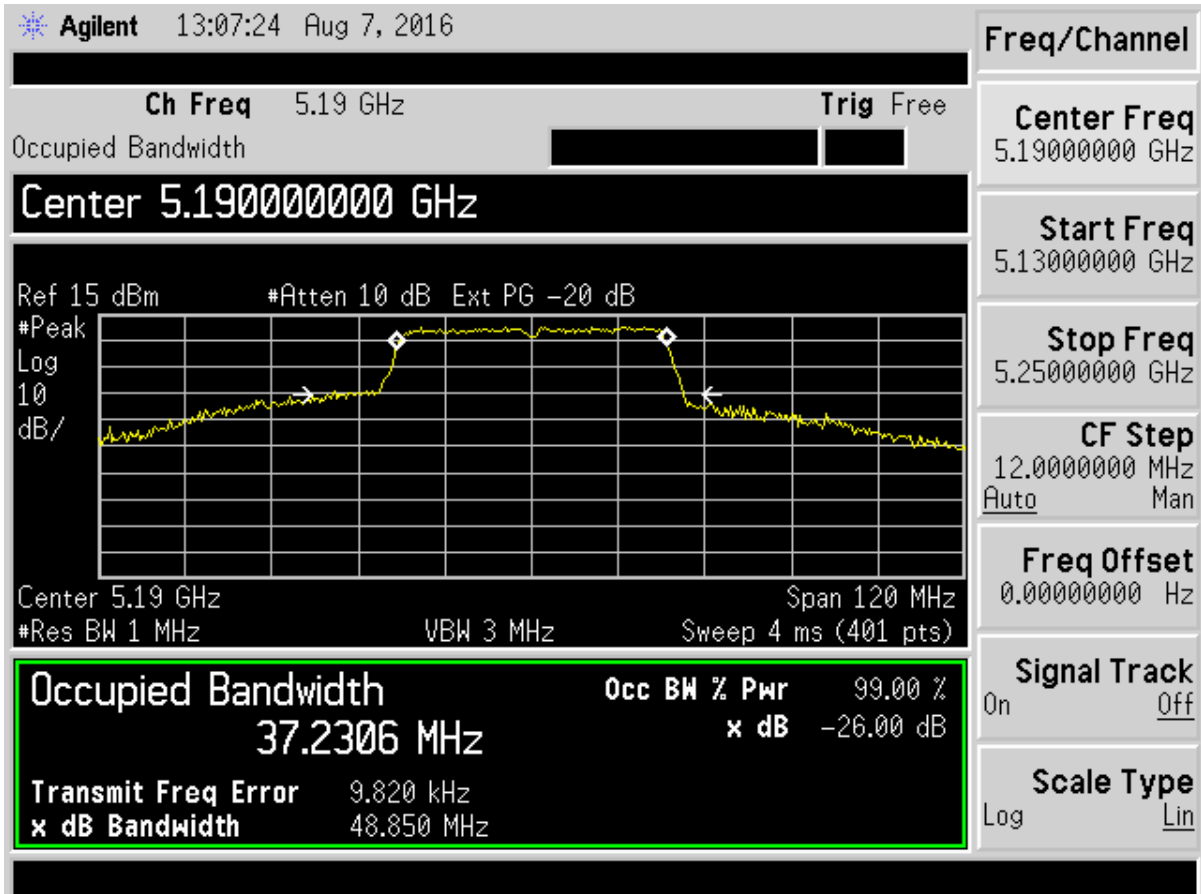


Figure 199. 26 dB BW and OBW -802.11n 40 MHz BW- Channel 38

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

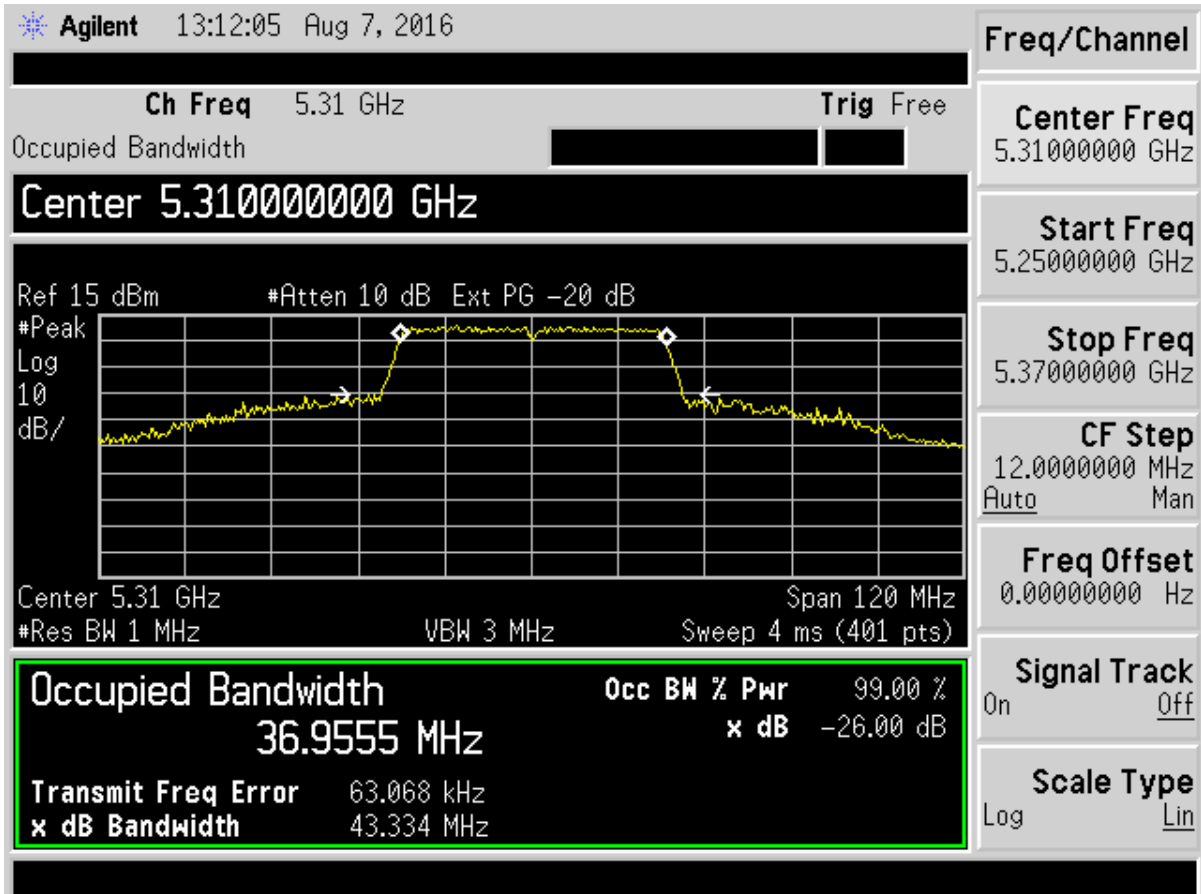


Figure 200. 26 dB BW and OBW -802.11n 40 MHz BW - Channel 62

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

FCC Part 15 Certification/ RSS 247
2ADCB-ACWIFI001
6715A-ACWIFI001
16-0141
September 23, 2016
Acuity Brands
ACWIFI001

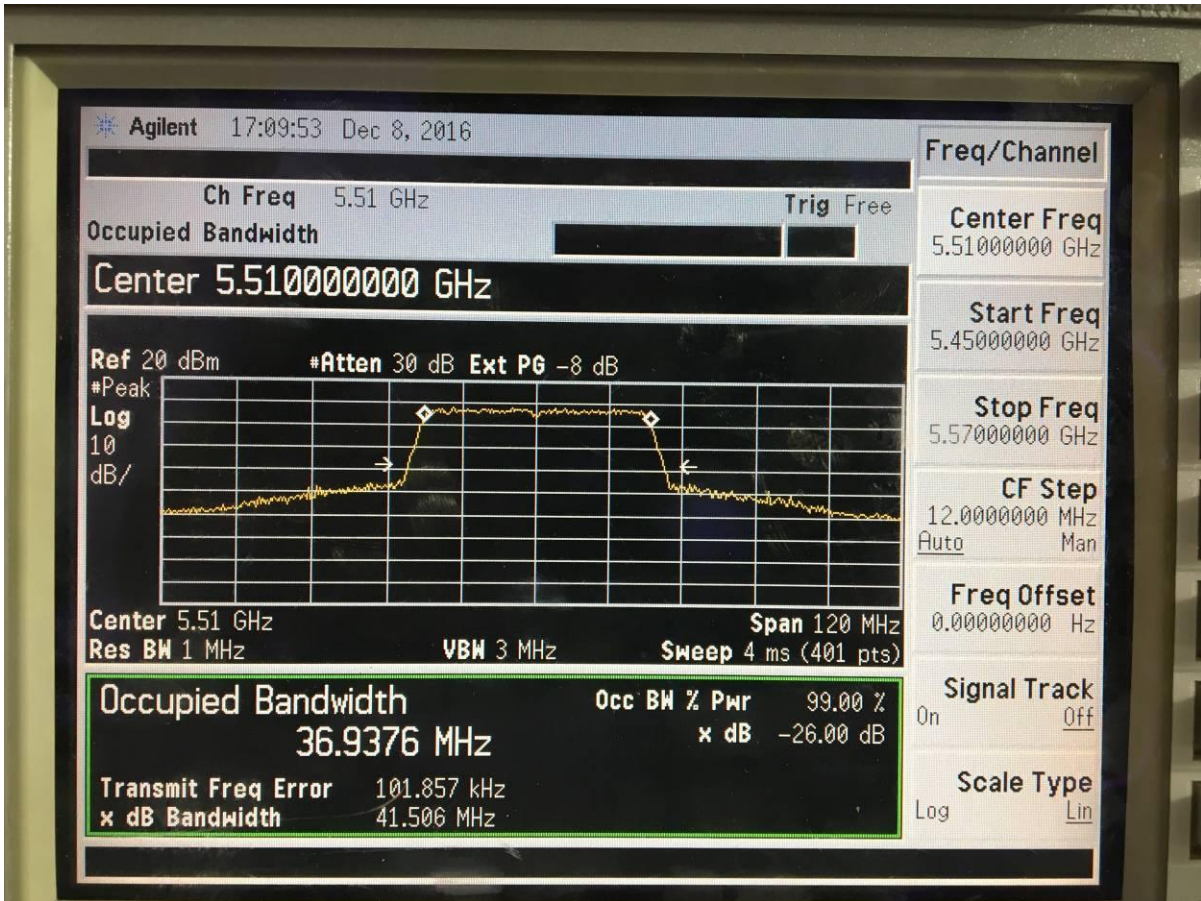


Figure 201. 26 dB BW and OBW -802.11n 40 MHz BW - Channel 102

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

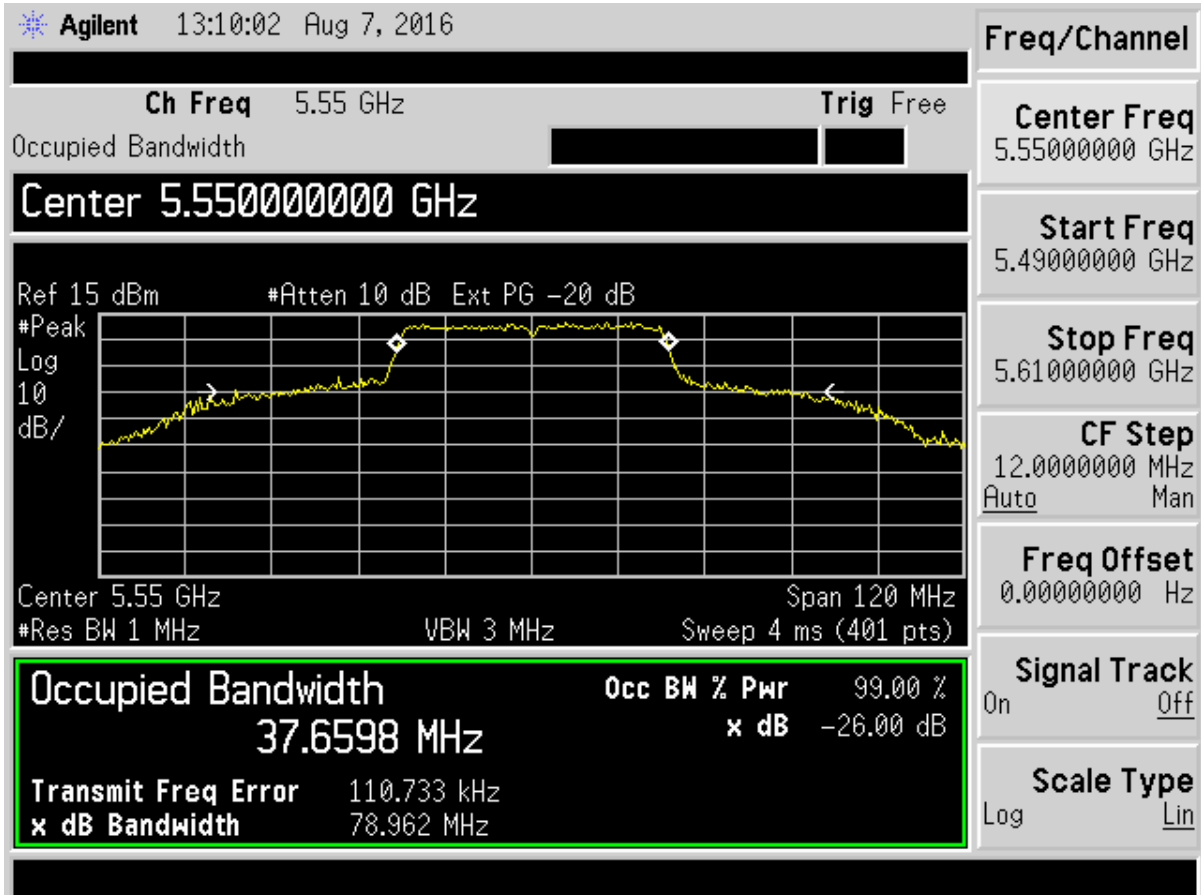


Figure 202. 26 dB BW and OBW -802.11n 40 MHz BW - Channel 110

US Tech Test Report:
 FCC ID:
 IC:
 Test Report Number:
 Issue Date:
 Customer:
 Model:

FCC Part 15 Certification/ RSS 247
 2ADCB-ACWIFI001
 6715A-ACWIFI001
 16-0141
 September 23, 2016
 Acuity Brands
 ACWIFI001

2.17 Frequency Stability

Table 78. Frequency Deviation/Stability @ 802.11a Mode, Channel 36

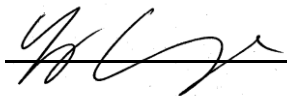
Temperature (C)	Measured Frequency (Mhz)	Deviation (ppm)
-30	5179.9885	-2.2
-20	5179.9996	-0.1
-10	5180.0071	1.4
0	5180.0515	9.9
10	5180.0029	0.6
20	5179.9950	-1.0
30	5179.9794	-4.0
40	5179.9709	-5.6
50	5179.9650	-6.8

Voltage (% or Nom)	Measured Frequency (Mhz)	Deviation (ppm)
85%	5179.9150	-16.4
100%	5180.0000	0.0
115%	5179.9150	-16.4

Note: voltage varied at the input AC supply line.

Test Date: August 7, 2016

Tested By

Signature: 

Name: George Yang

US Tech Test Report:
FCC ID:
IC:
Test Report Number:
Issue Date:
Customer:
Model:

FCC Part 15 Certification/ RSS 247
2ADCB-ACWIFI001
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16-0141
September 23, 2016
Acuity Brands
ACWIFI001

2.18 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4. A coverage factor of $k=2$ was used to give a level of confidence of approximately 95%.

2.18.1 Conducted Emissions Measurement Uncertainty

Measurement Uncertainty (within a 95% confidence level) for this test is ± 2.78 dB.

2.18.2 Radiated Emissions Measurement Uncertainty

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ± 5.18 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is ± 5.21 dB.