

Figure 87. 512 MHz @ 6.25 kHz +3 dB, Mask E

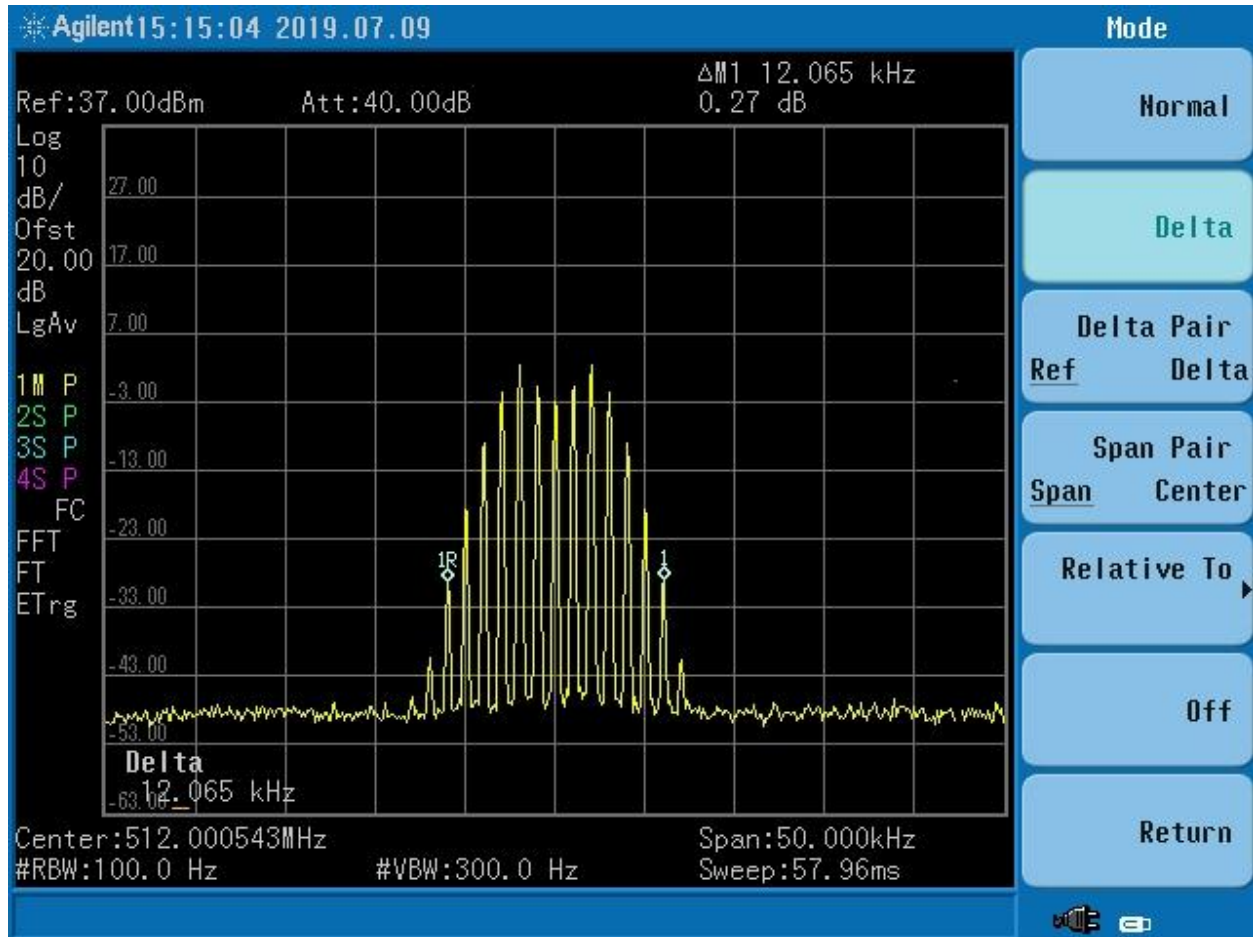


Figure 88. Input 512 MHz @ 12.5 kHz

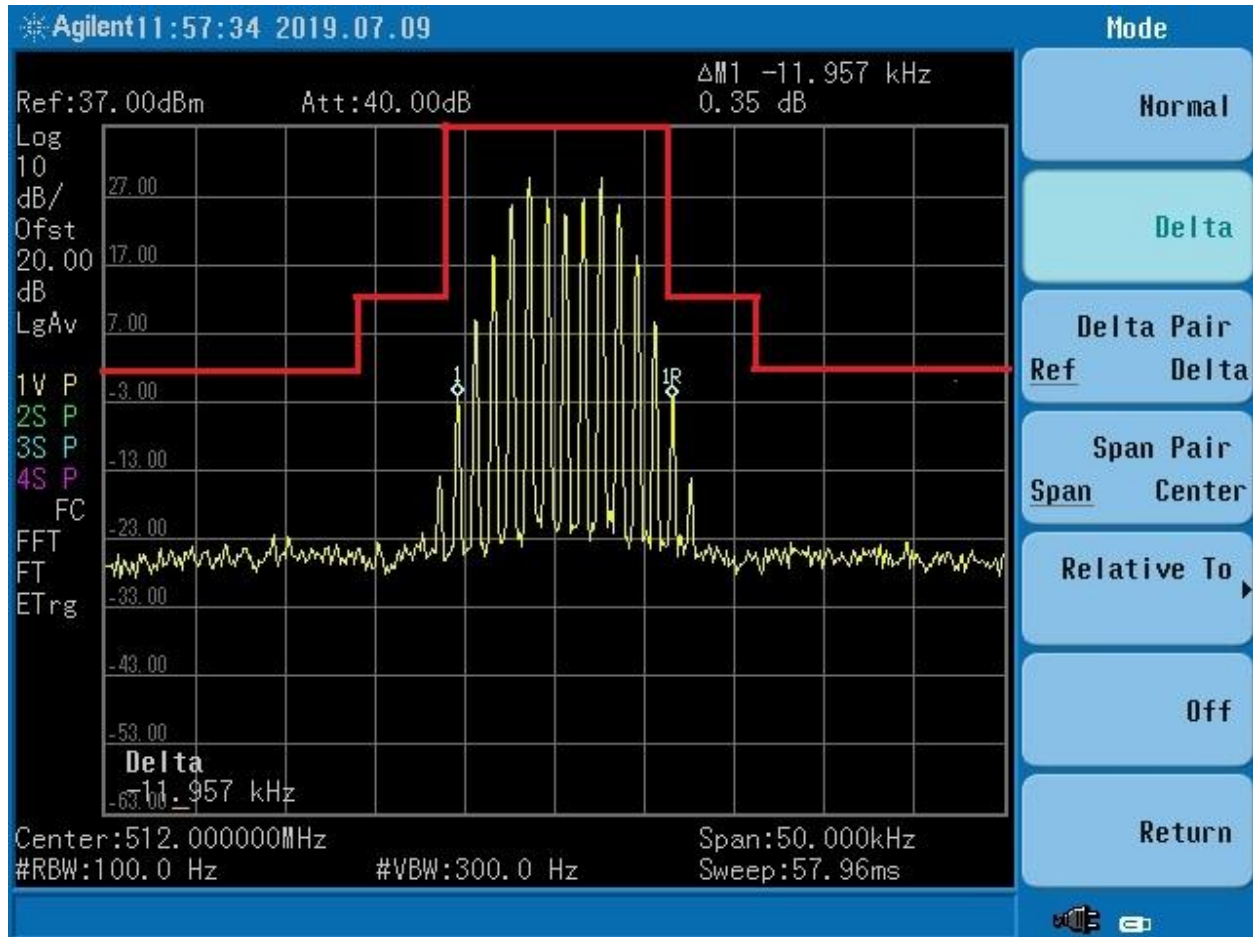


Figure 89. 512 MHz @ 12.5 kHz, Mask B

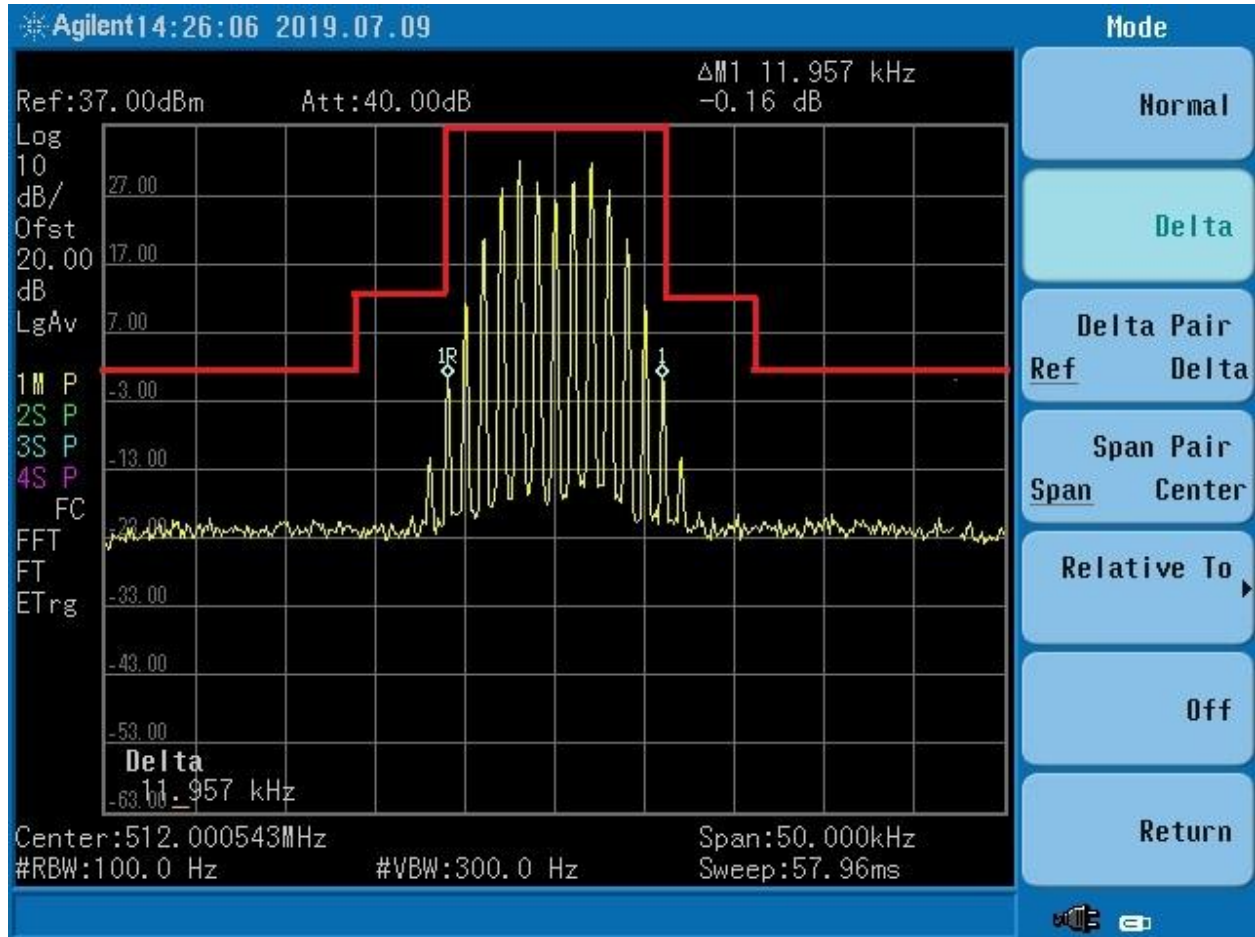


Figure 90. 512 MHz @ 12.5 kHz +3 dB, Mask B

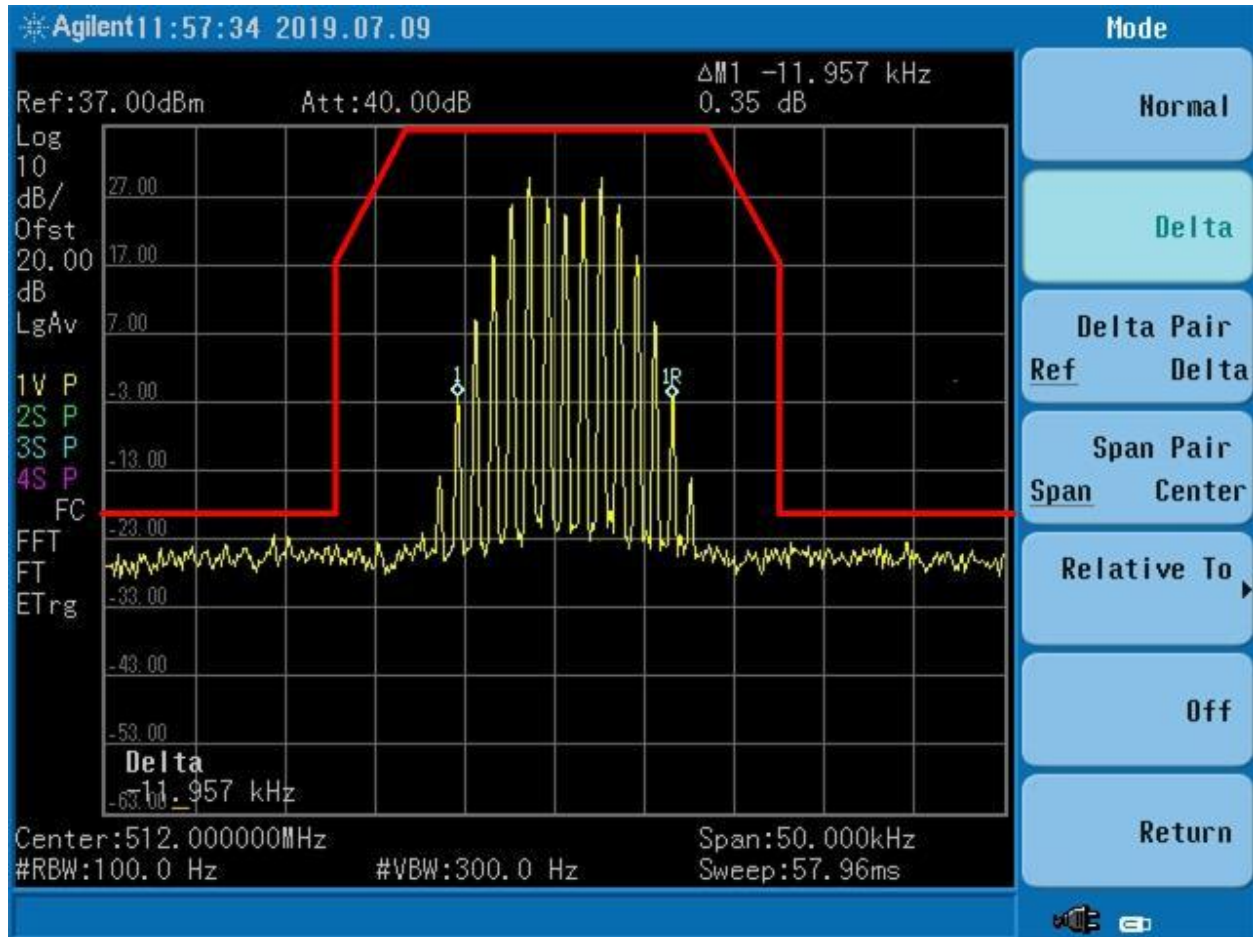


Figure 91. 512 MHz @ 12.5 kHz, Mask D

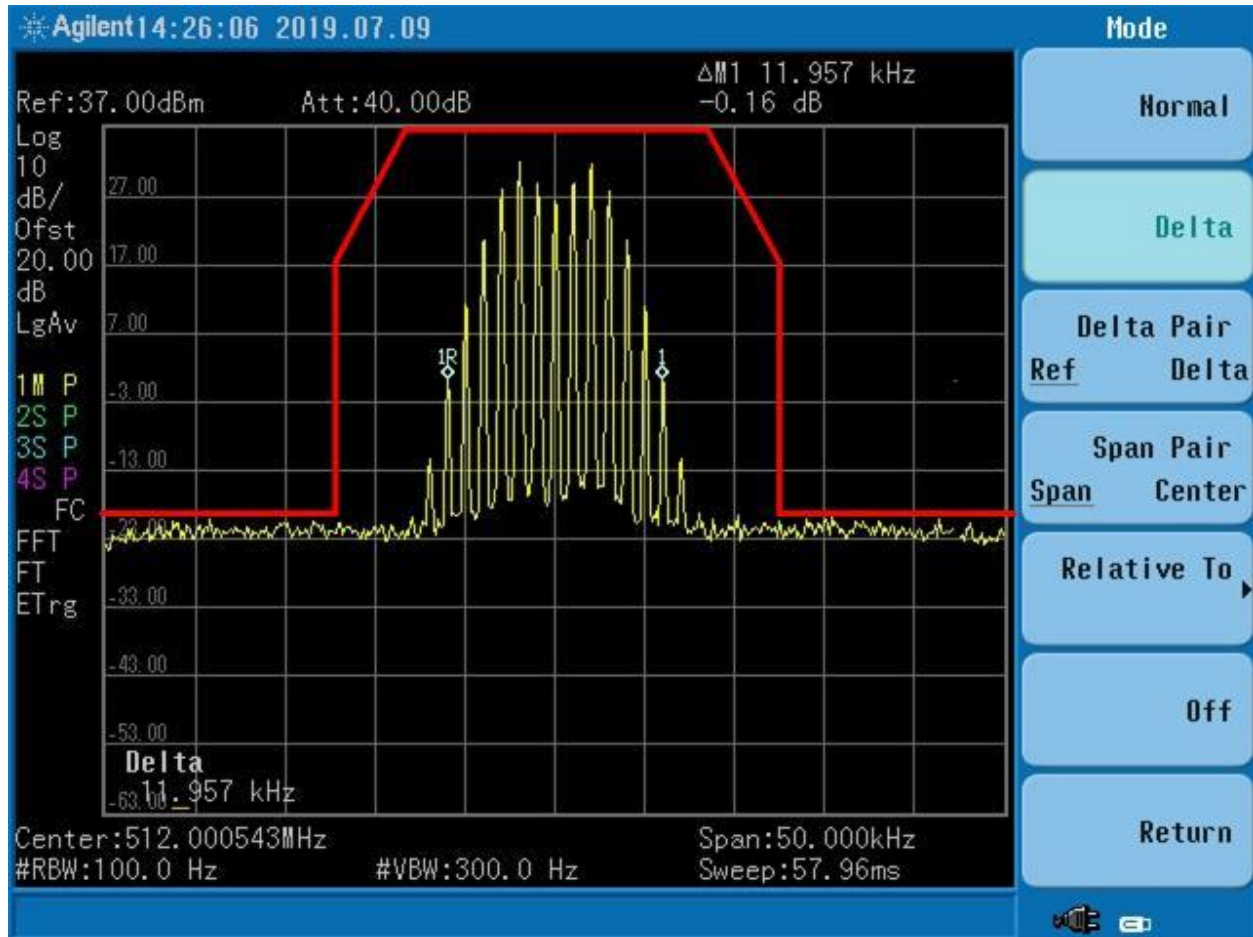


Figure 92. 512 MHz @ 12.5 kHz + 3.0 dB, Mask D

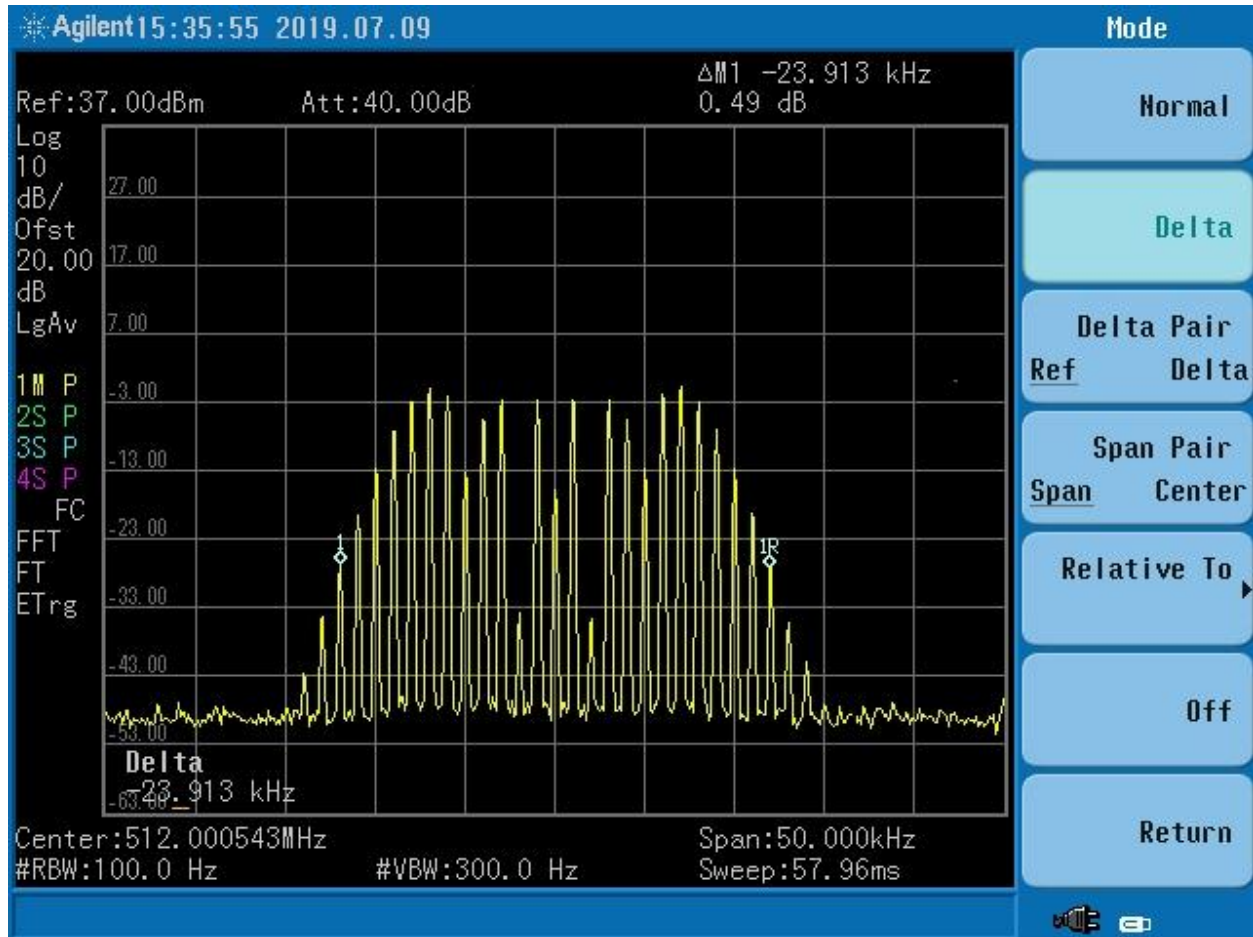


Figure 93. Input 512 MHz @ 25 kHz

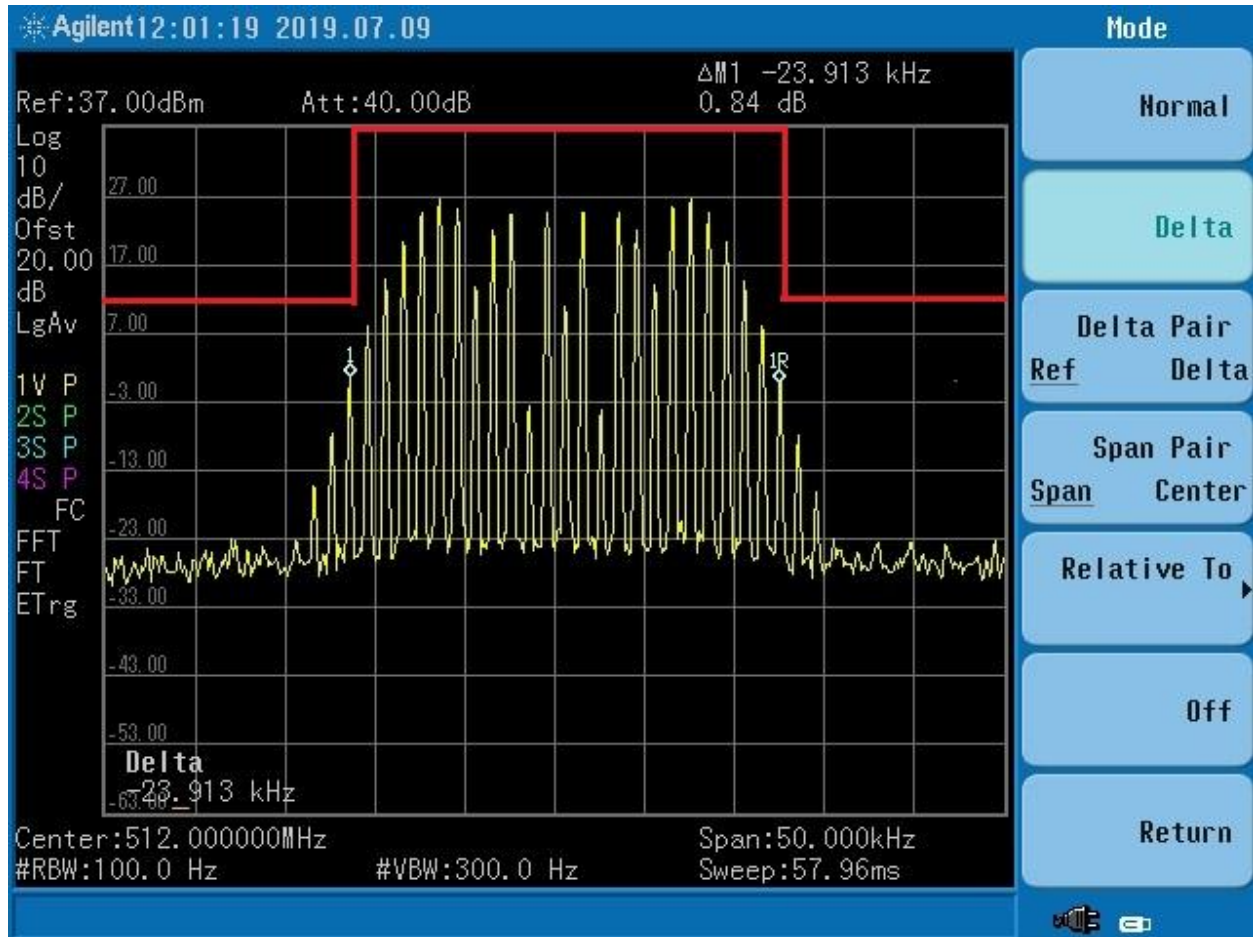


Figure 94. 512 MHz @ 25 kHz, Mask B

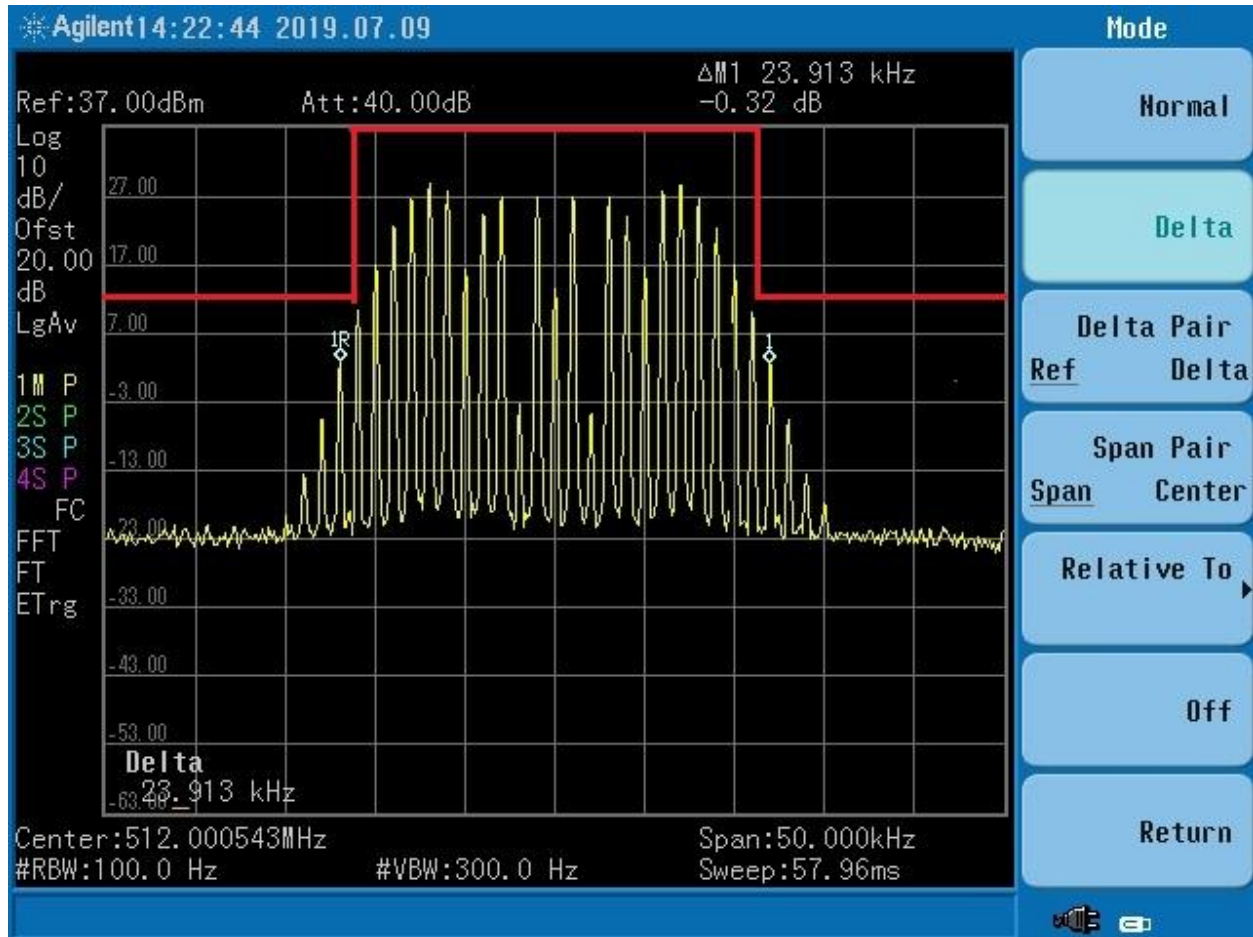


Figure 95. 512 MHz @ 25 kHz + 3.0, Mask B

2.11.3 700 MHz Channels

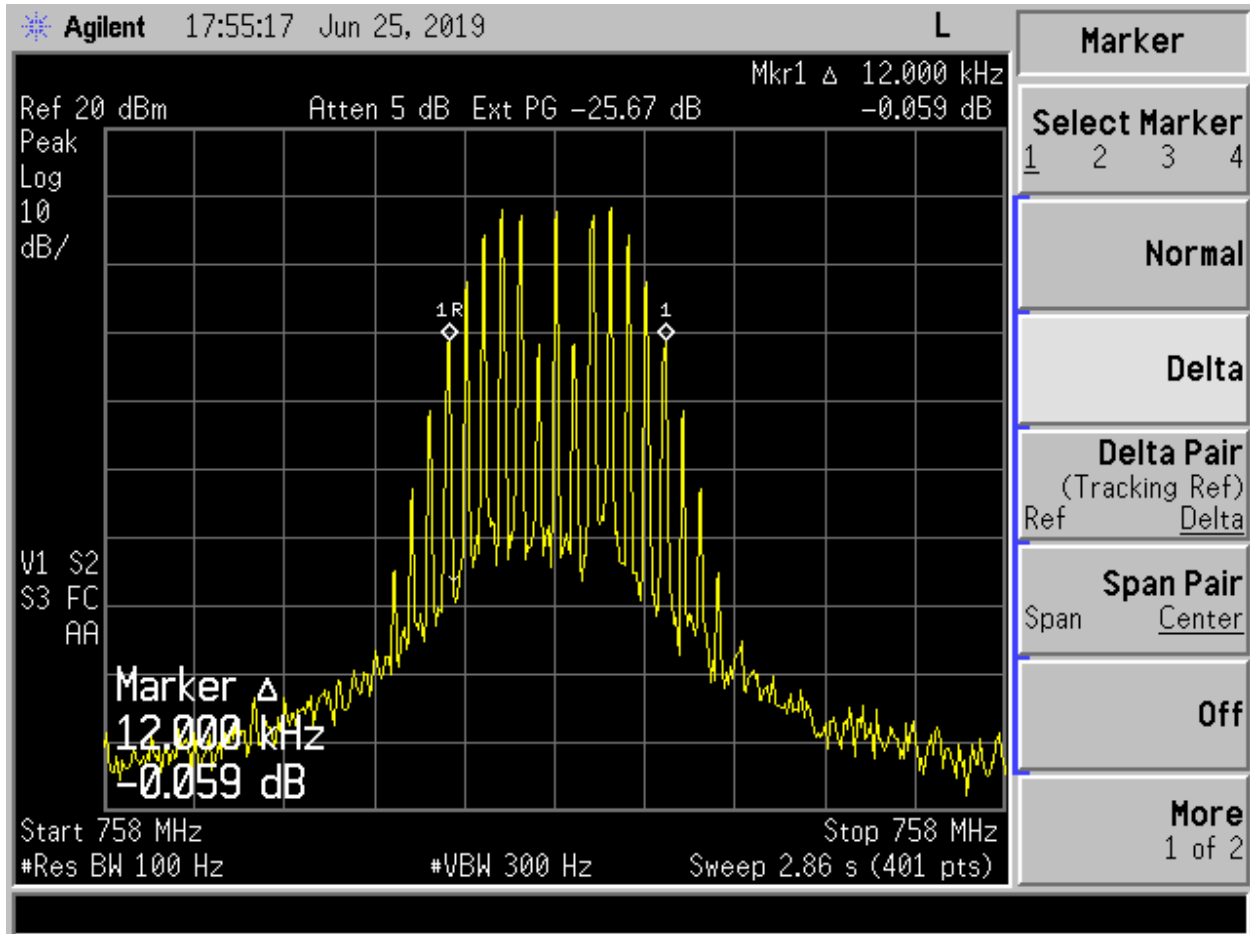


Figure 96. Input 758 MHz @ 12.5 kHz

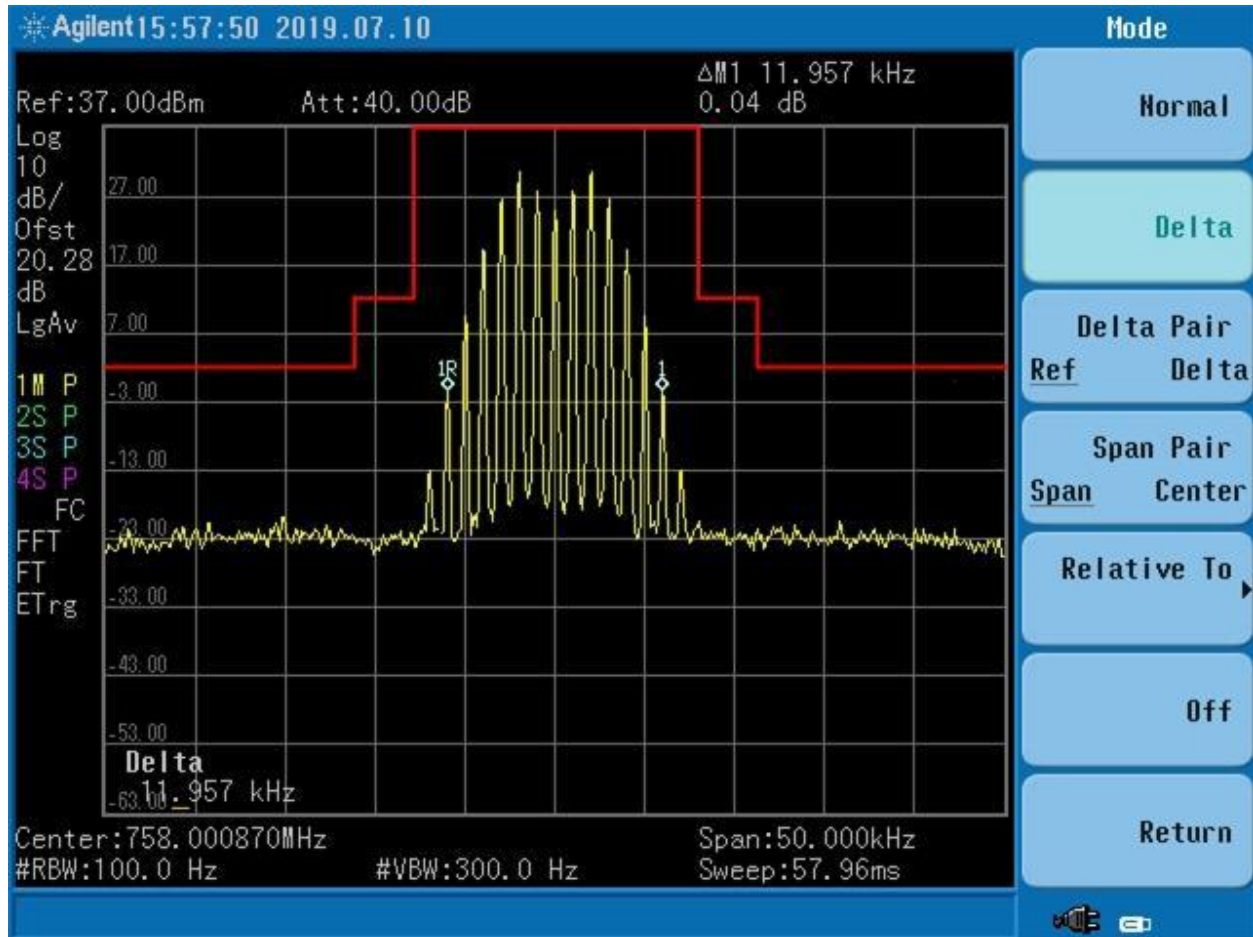


Figure 97. 758 MHz @ 12.5 kHz, Mask B

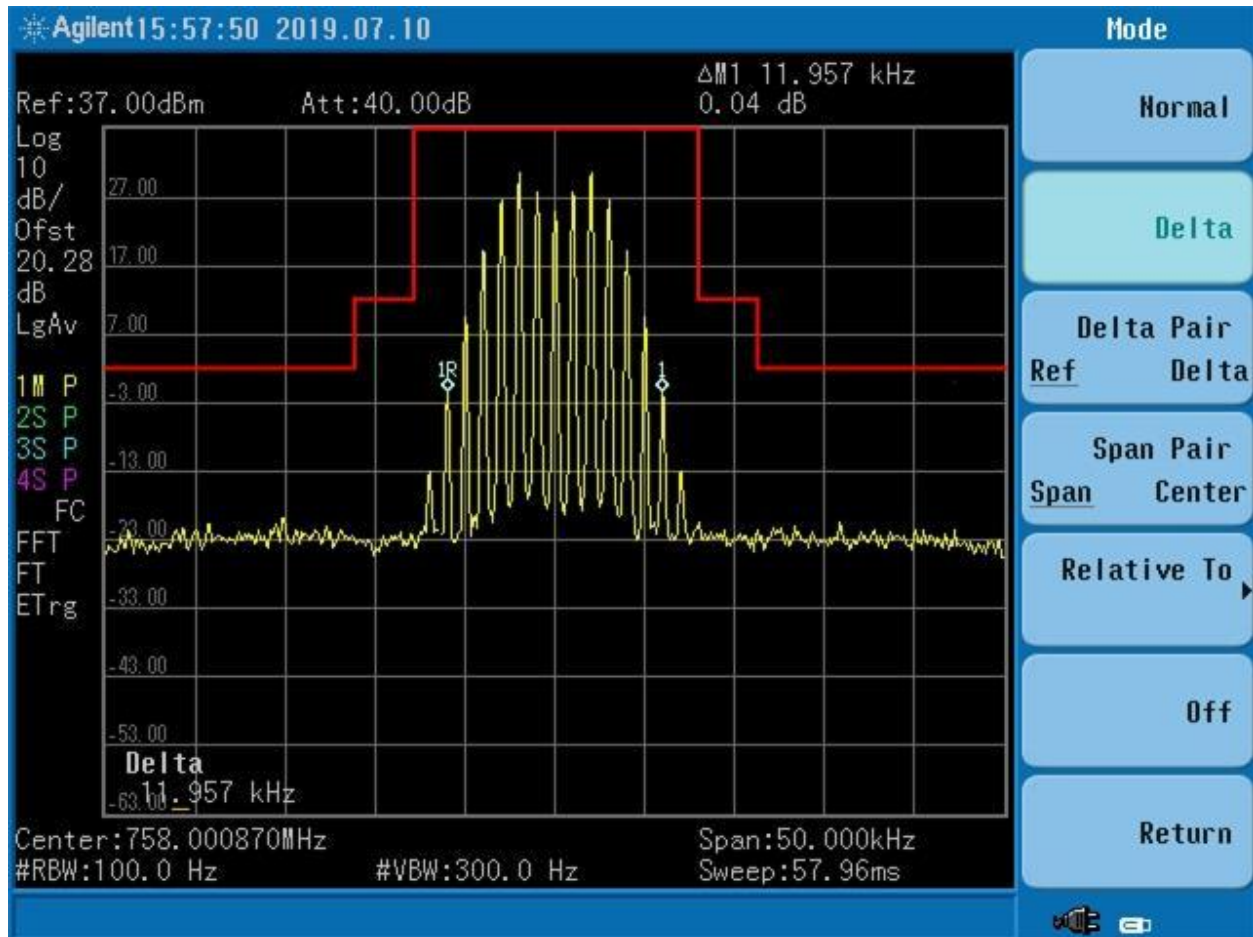


Figure 98. 758 MHz @ 12.5 kHz +3 dB, Mask B

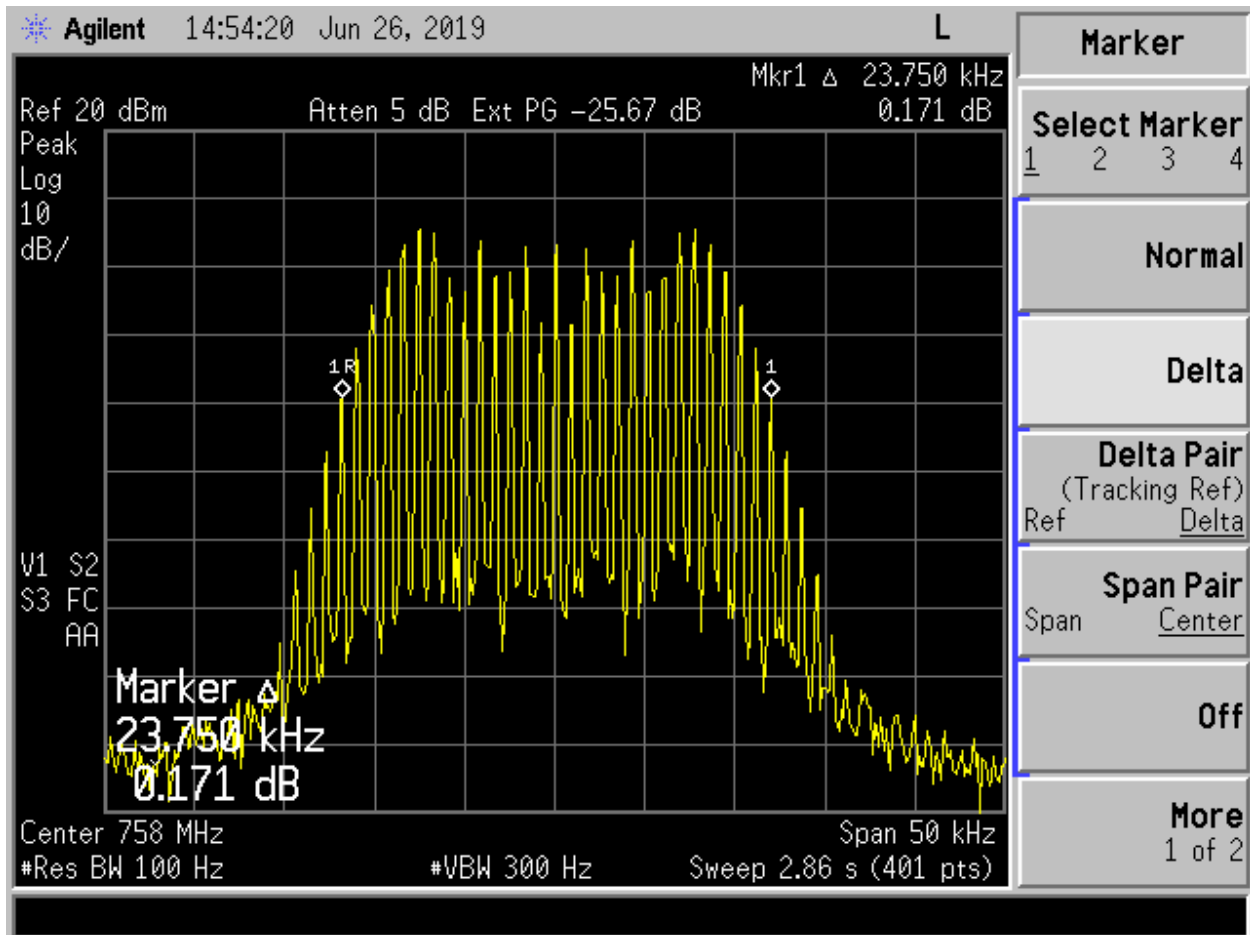


Figure 99. Input 758 MHz @ 25 kHz

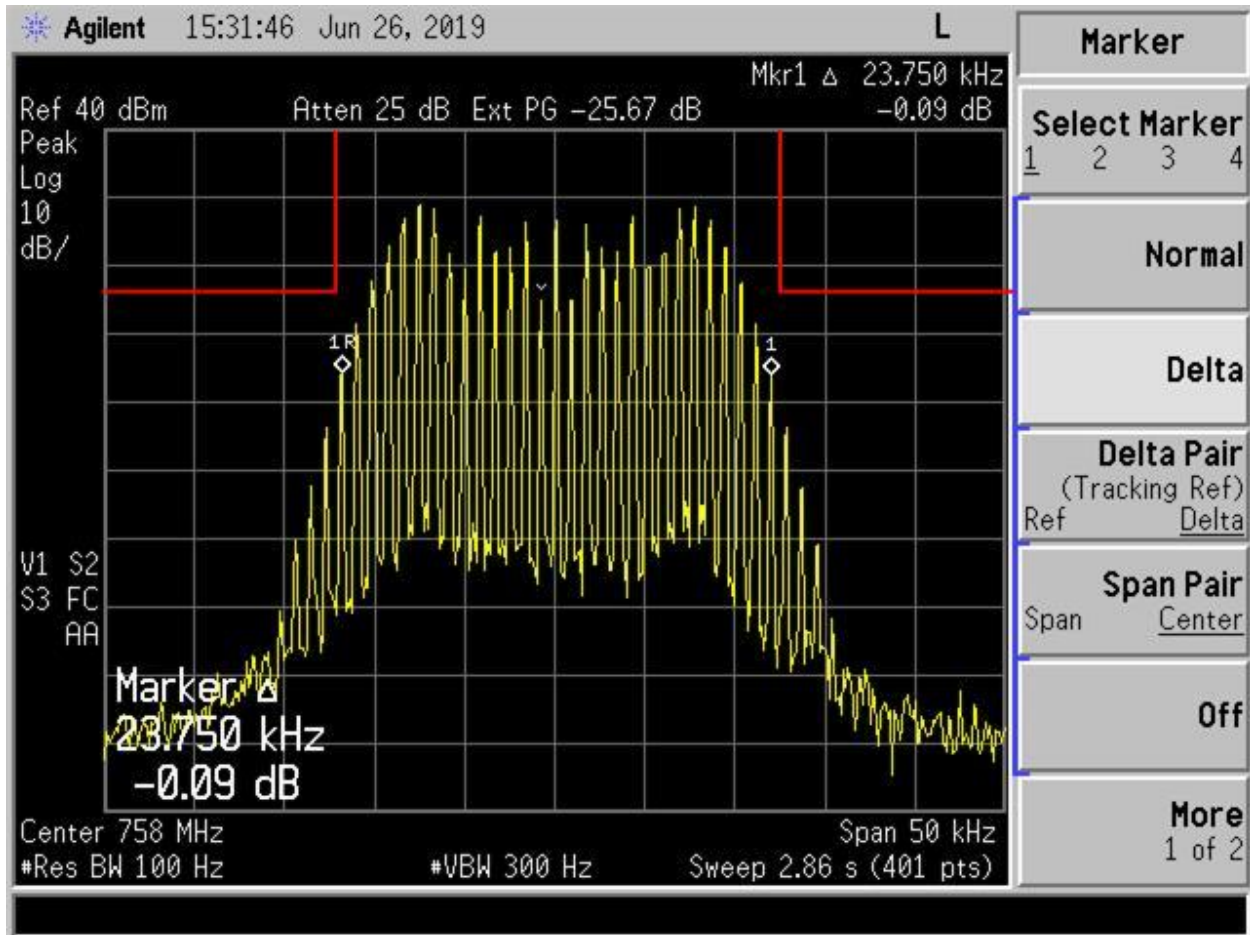


Figure 100. 758 MHz @ 25 kHz, Mask B

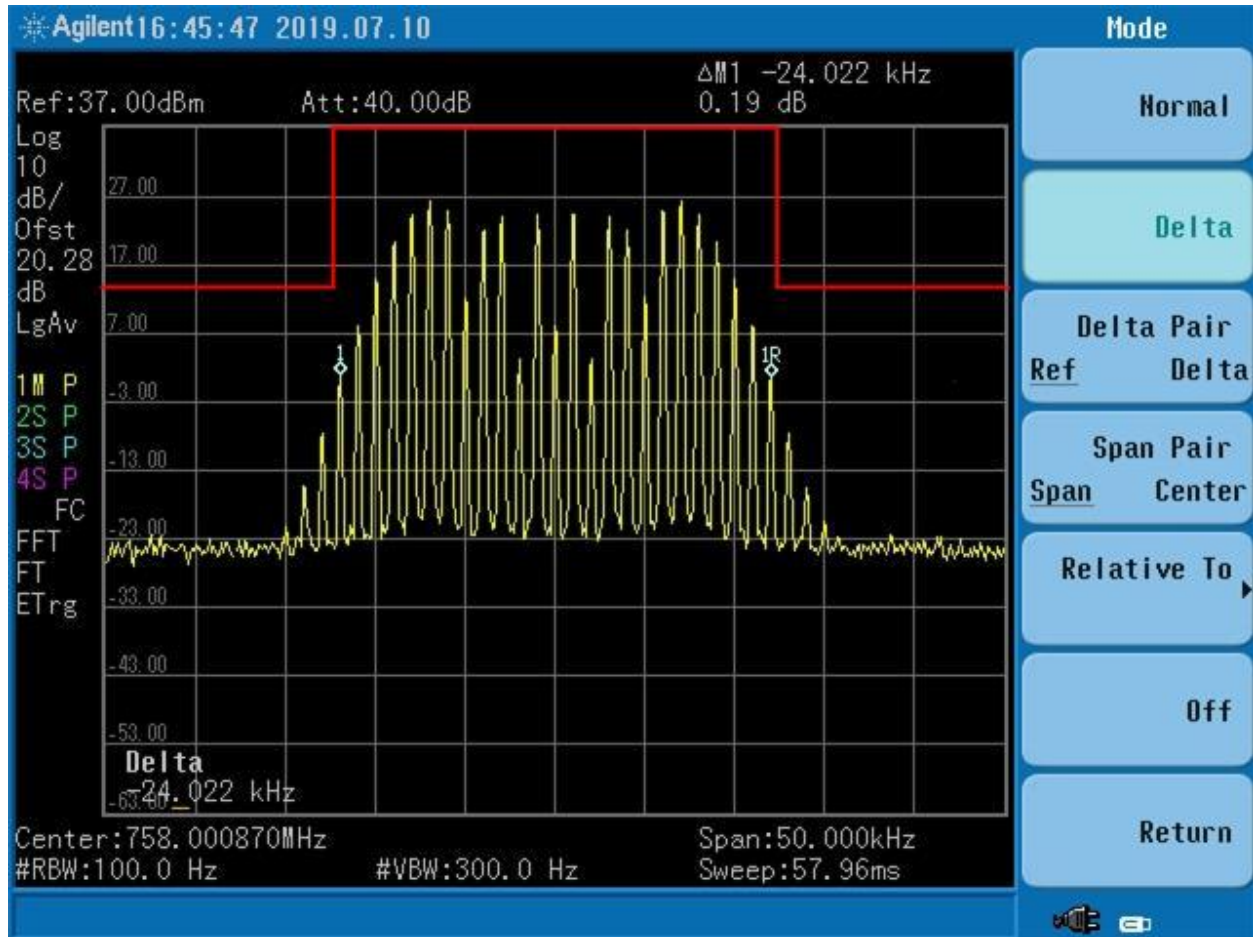


Figure 101. 758 MHz @ 25 kHz + 3 dB, Mask B

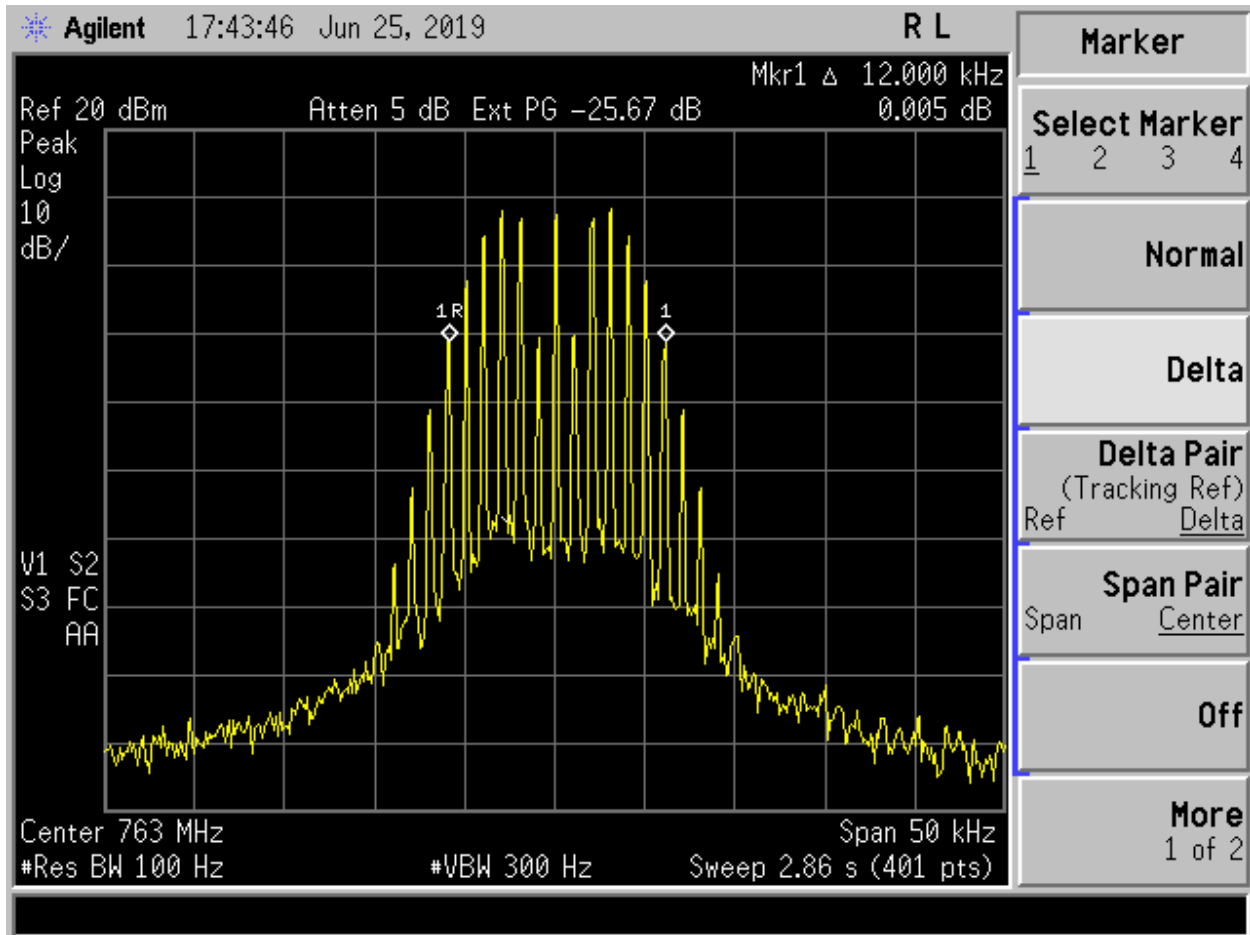


Figure 102. Input 763 MHz @ 12.5 kHz

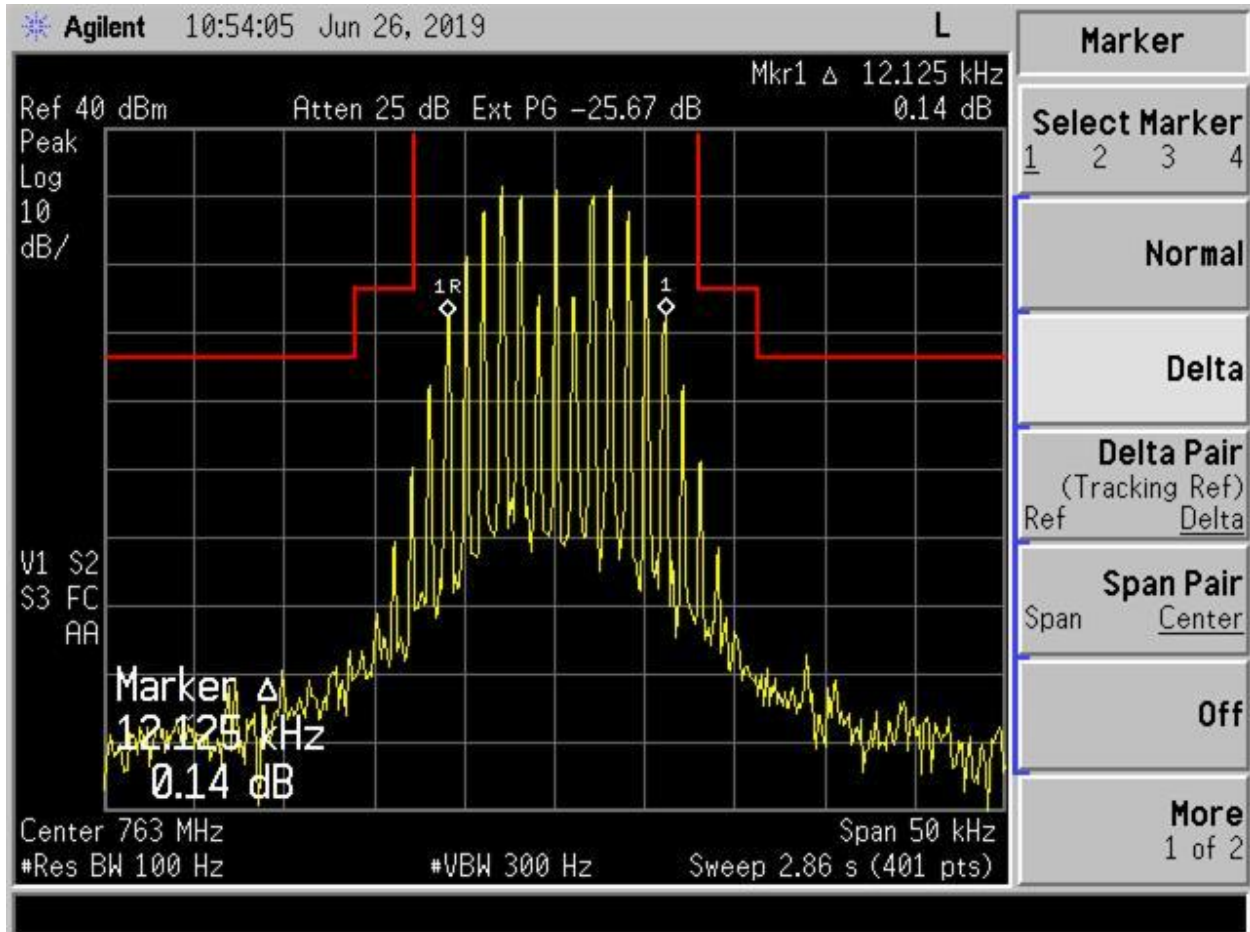


Figure 103. 763 MHz @ 12.5 kHz, Mask B

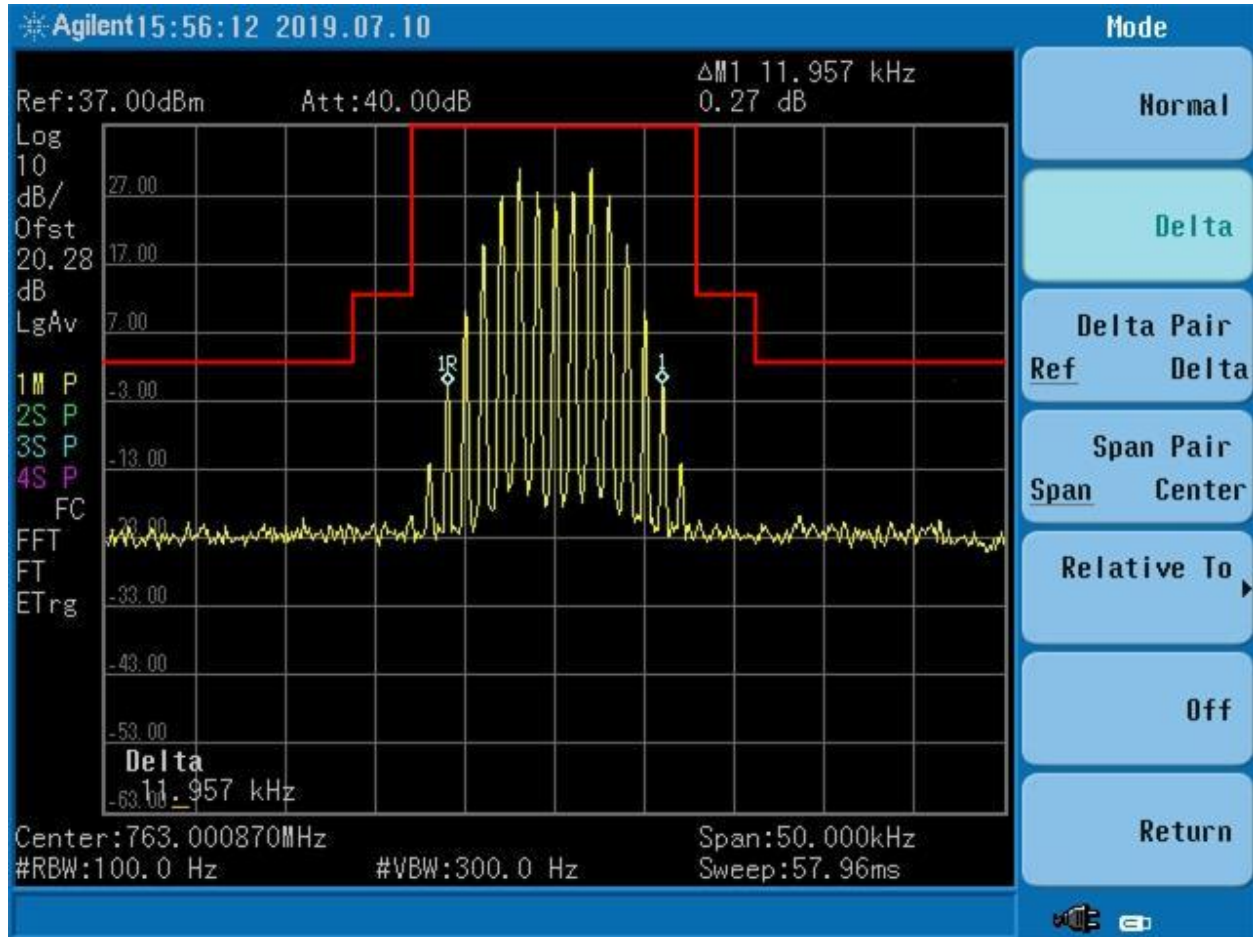


Figure 104. 763 MHz @ 12.5 kHz +3.0 dB, Mask B

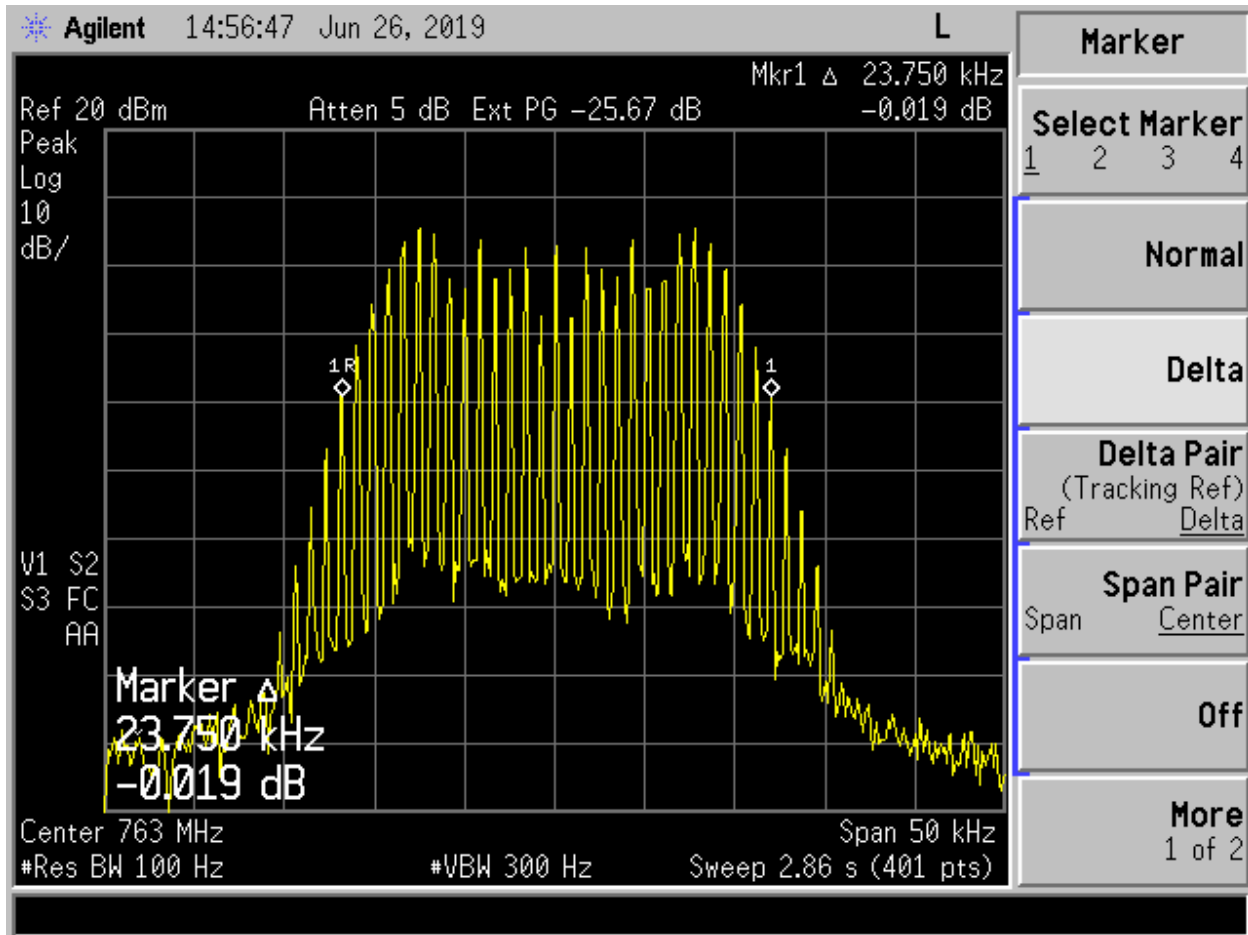


Figure 105. Input 763 MHz @ 25 kHz

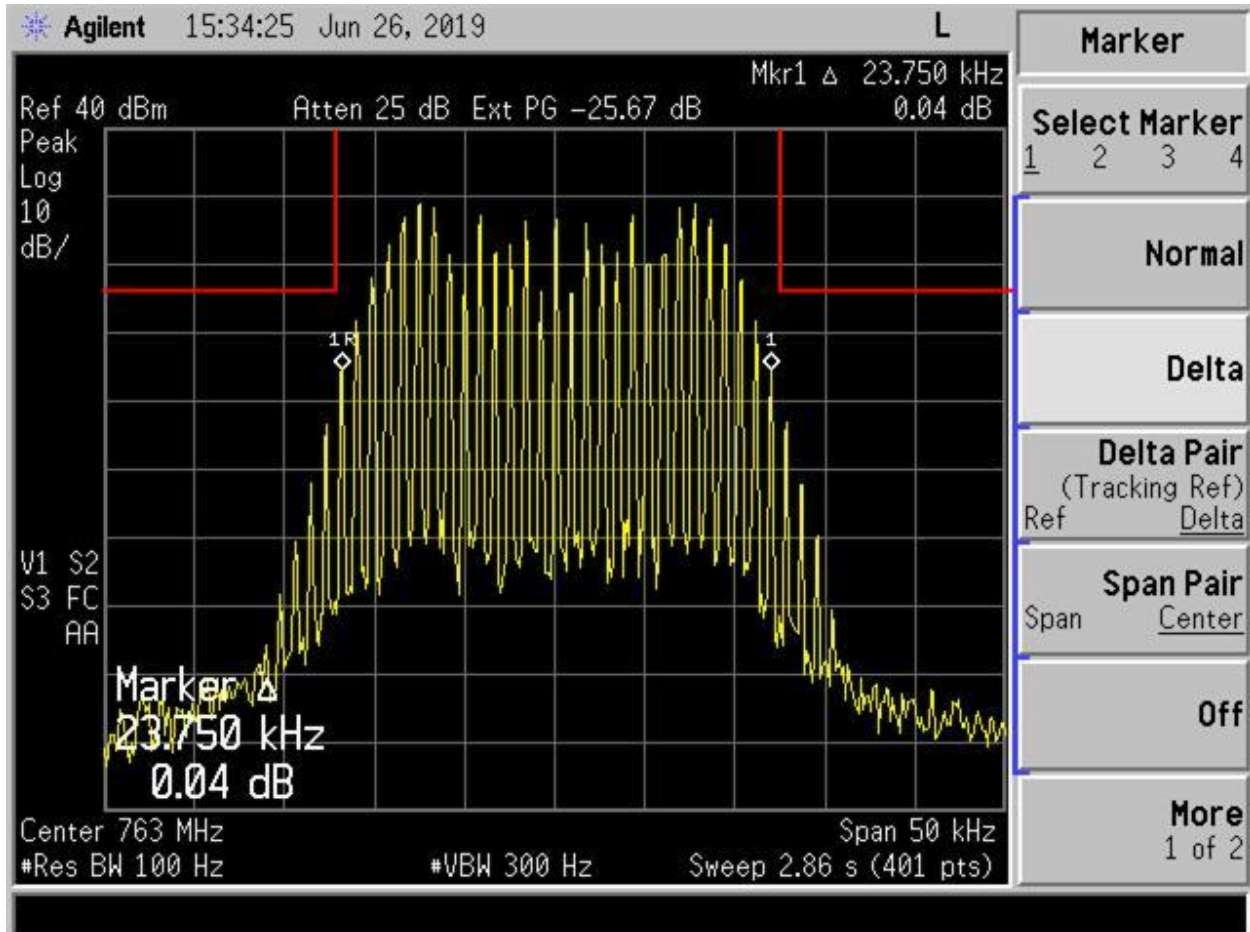


Figure 106. 763 MHz @ 25 kHz, Mask B

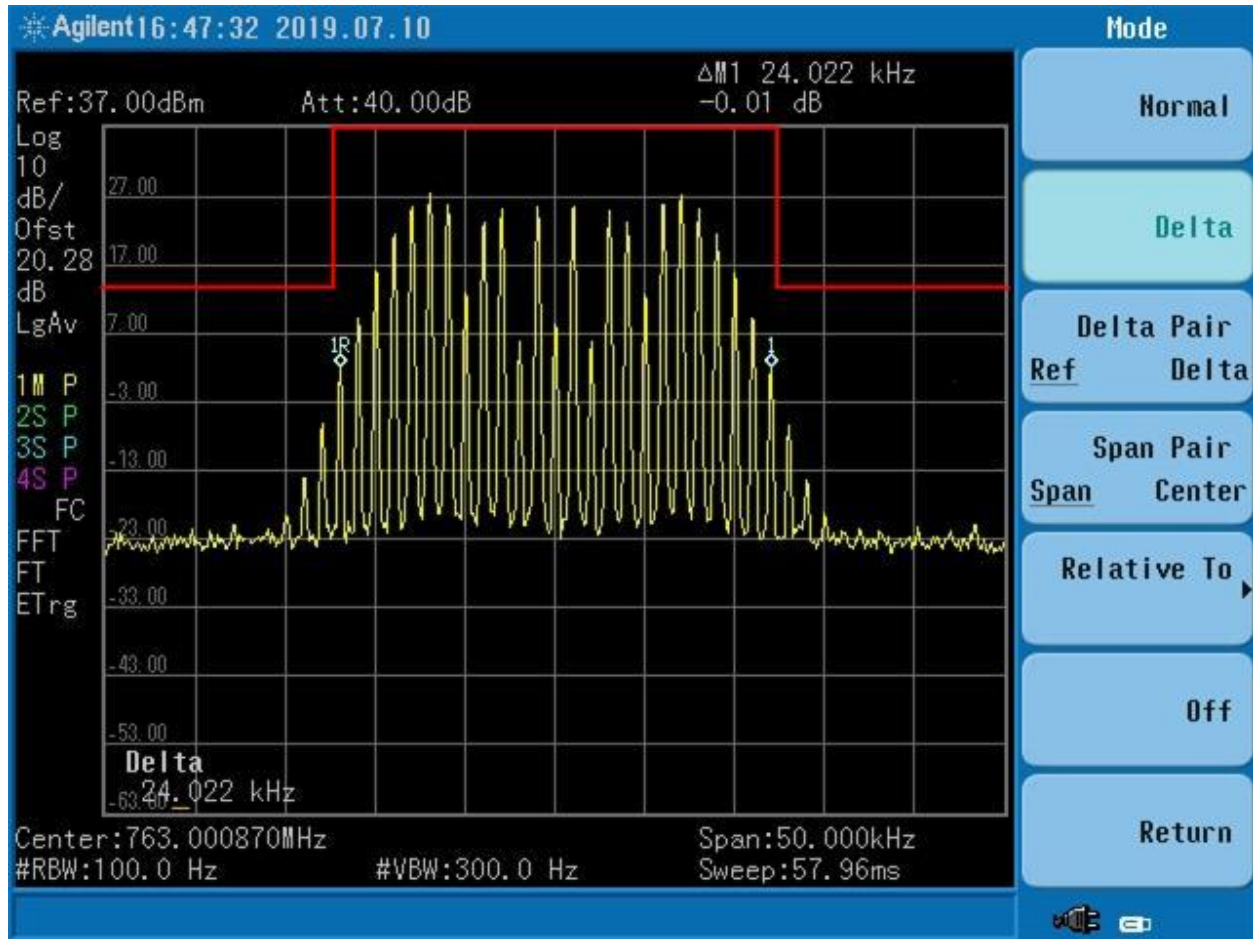


Figure 107. 763 MHz @ 25 kHz +3.0 dB, Mask B

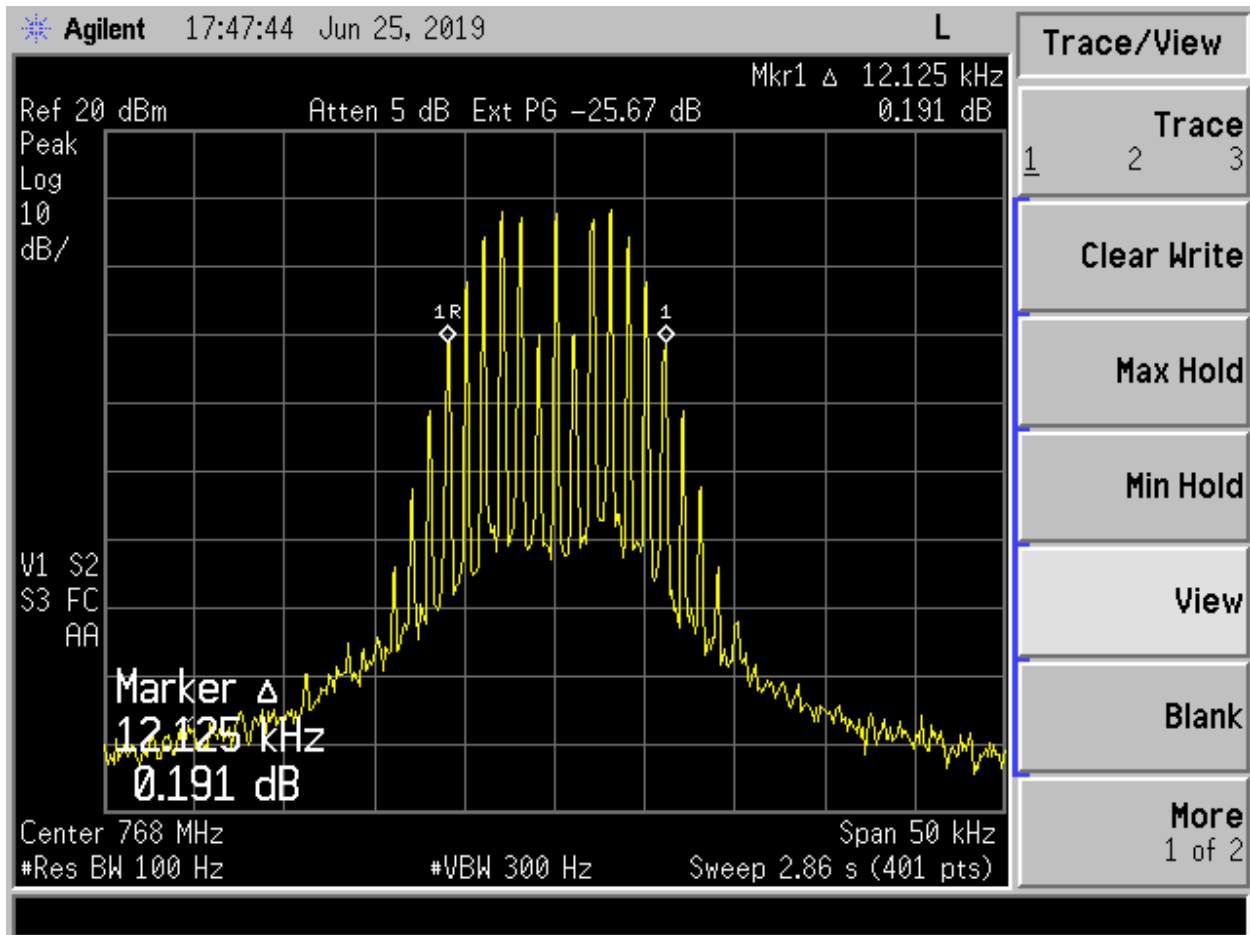


Figure 108. Input 768 MHz @ 12.5 kHz

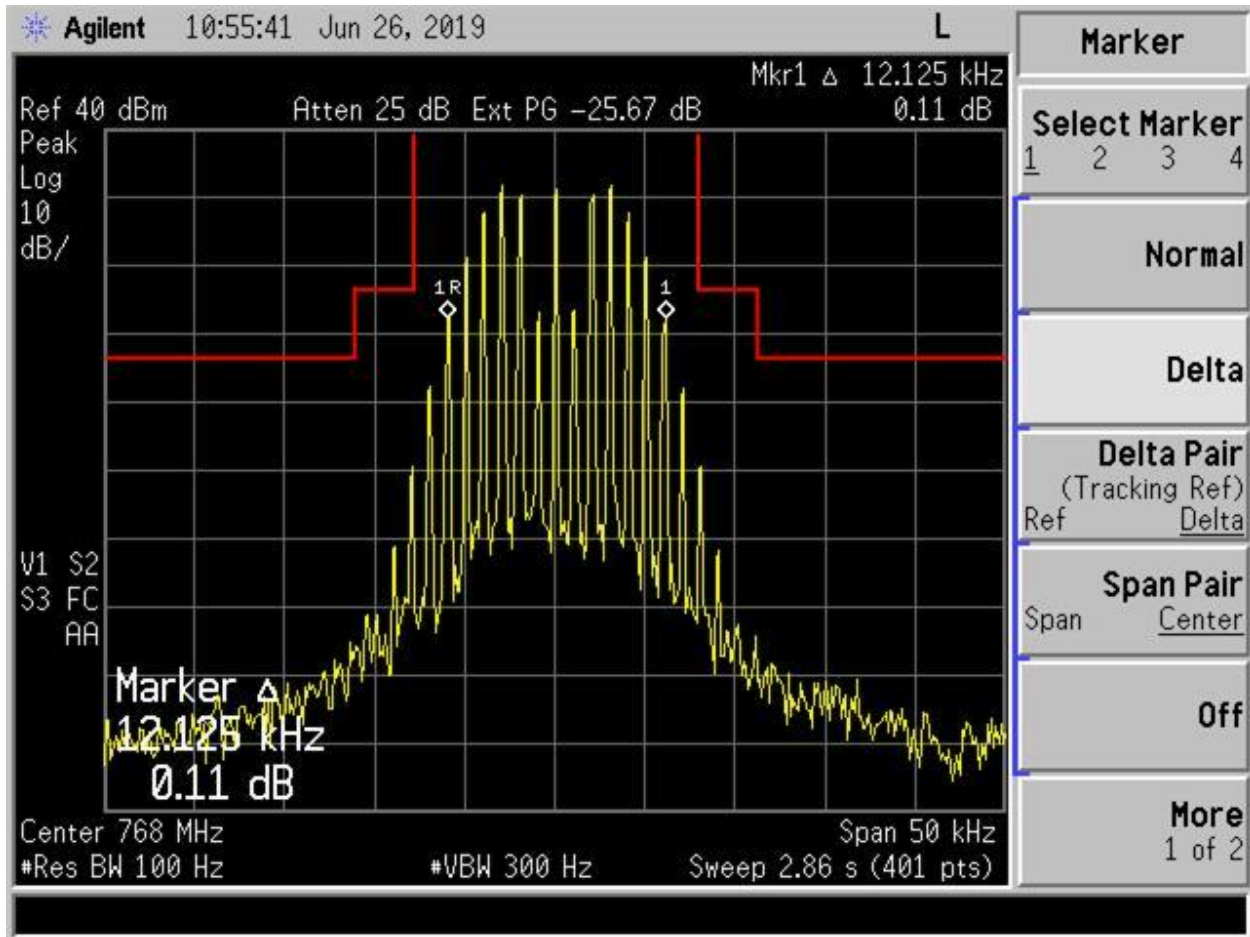


Figure 109. 768 MHz @ 12.5 kHz, Mask B

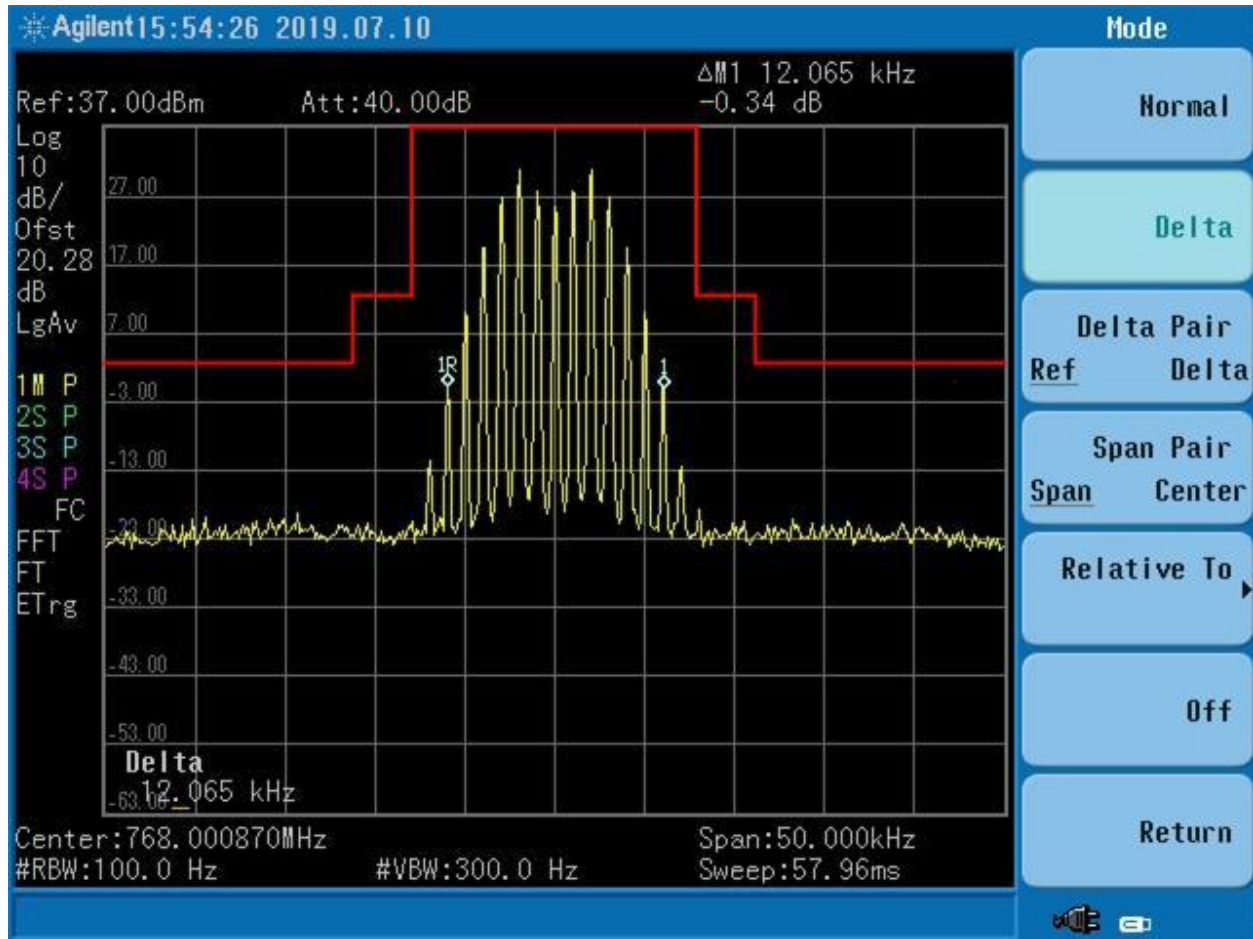


Figure 110. 768 MHz @ 12.5 kHz +3.0 dB, Mask B

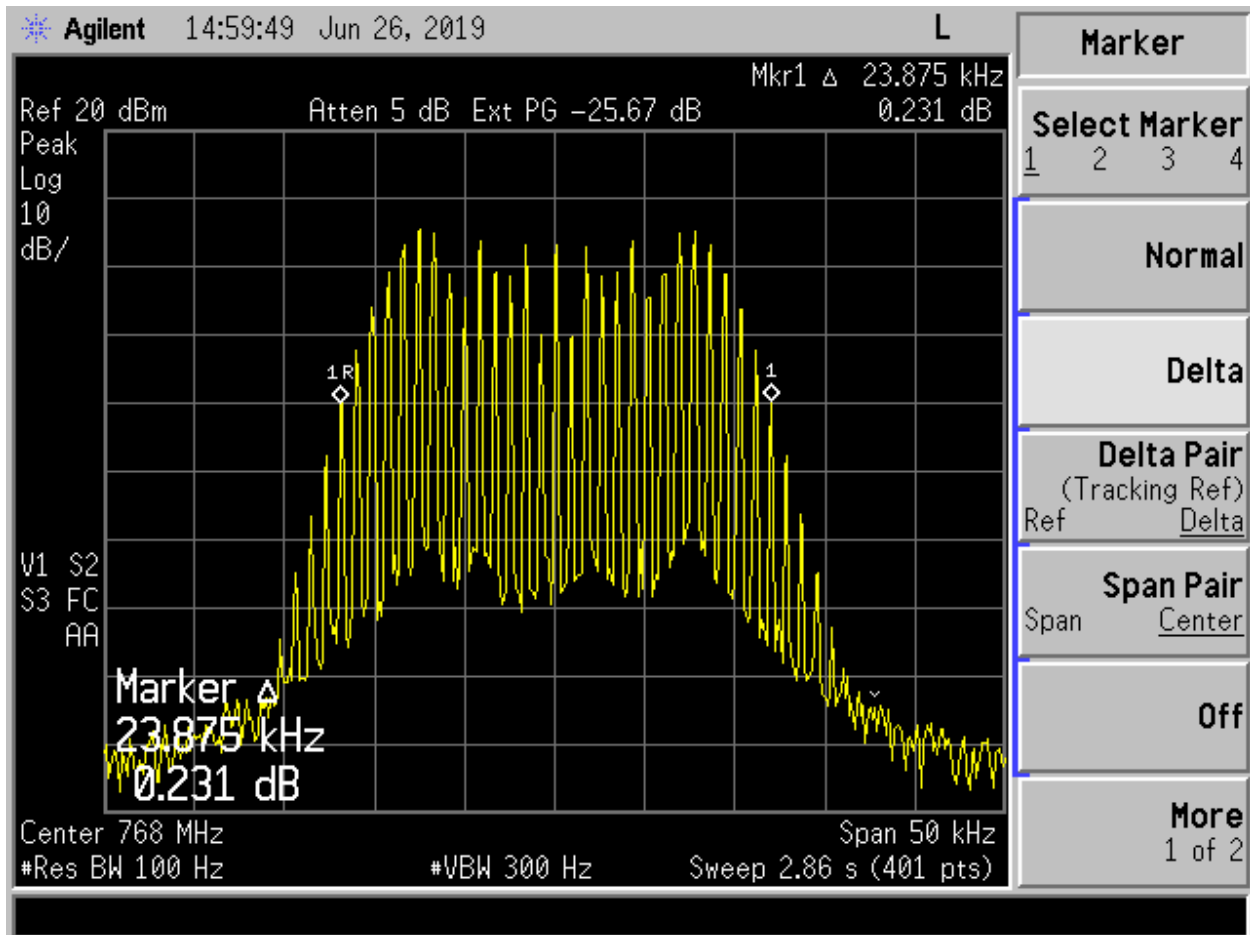


Figure 111. Input 768 MHz @ 25 kHz

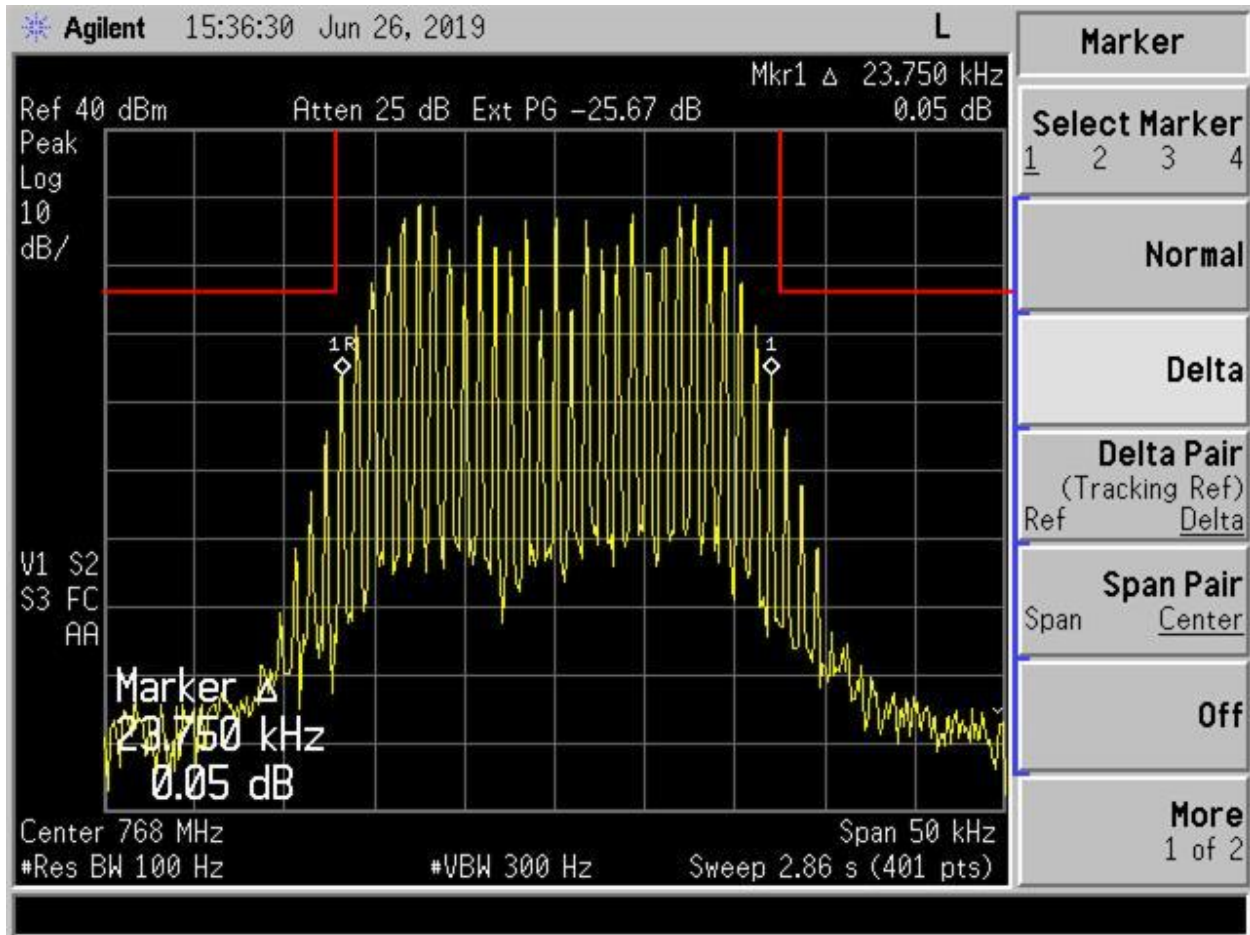


Figure 112. 768 MHz @ 25 kHz, Mask B

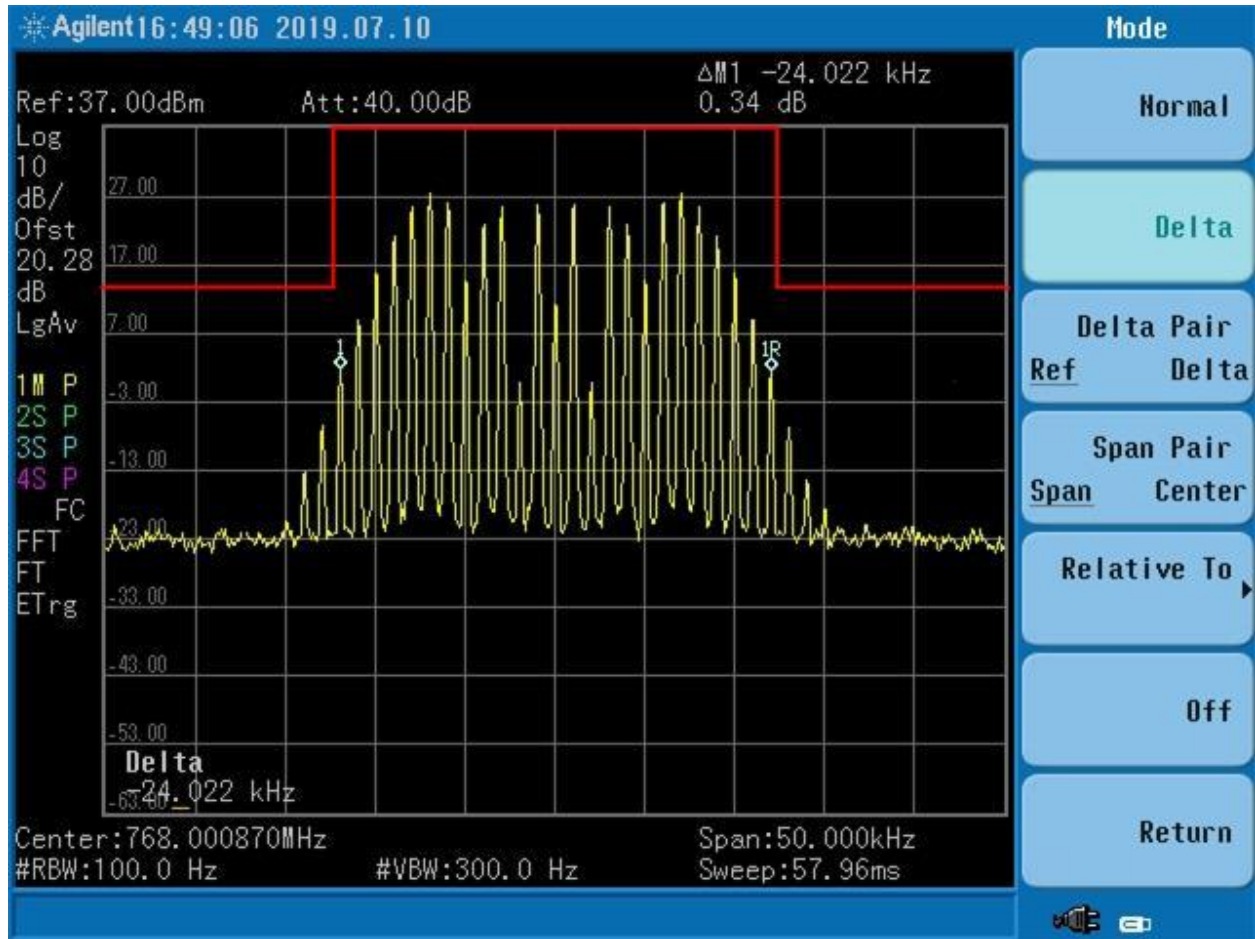


Figure 113. 768 MHz @ 25 kHz +3.0 dB, Mask B

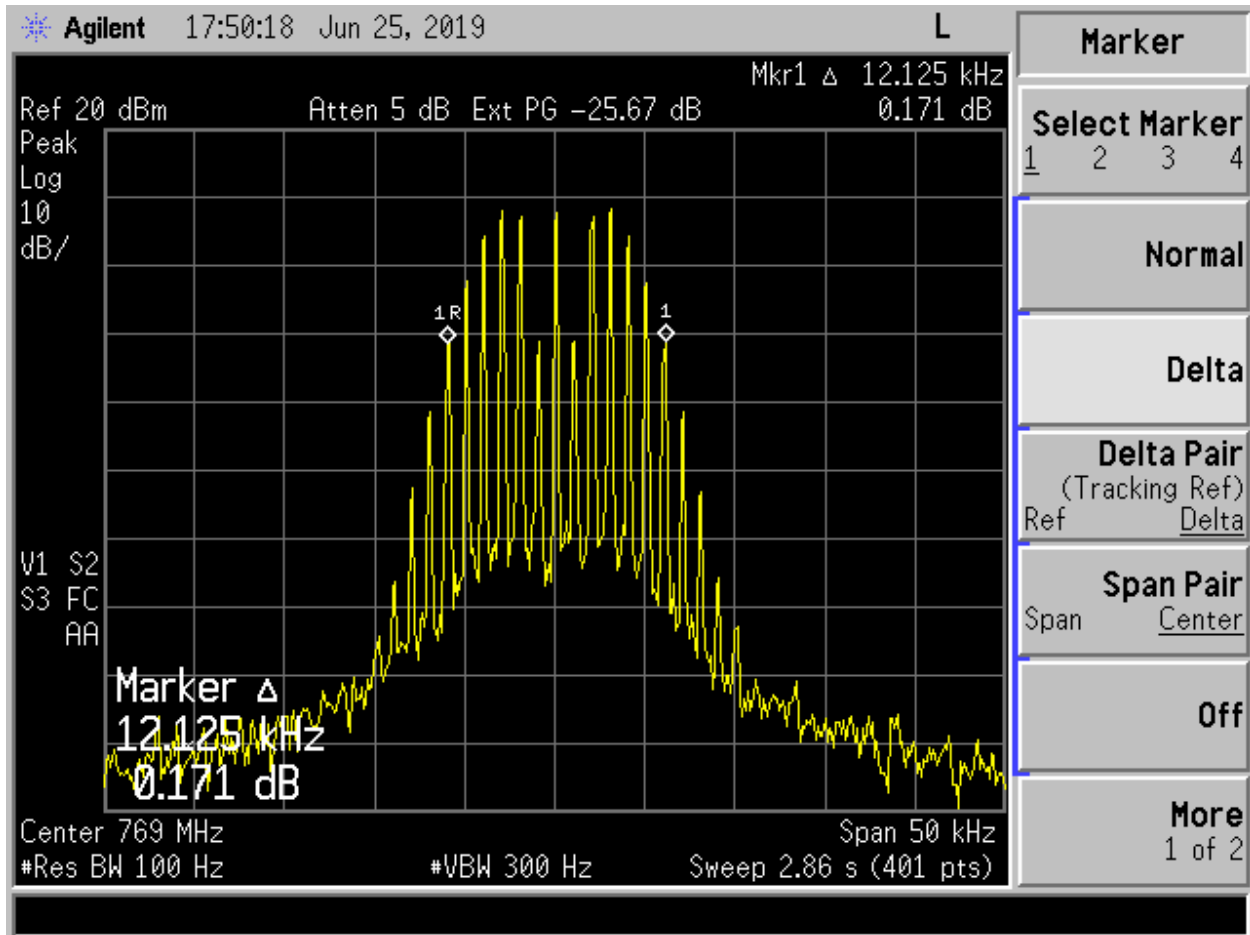


Figure 114. Input 769 MHz @ 12.5 kHz

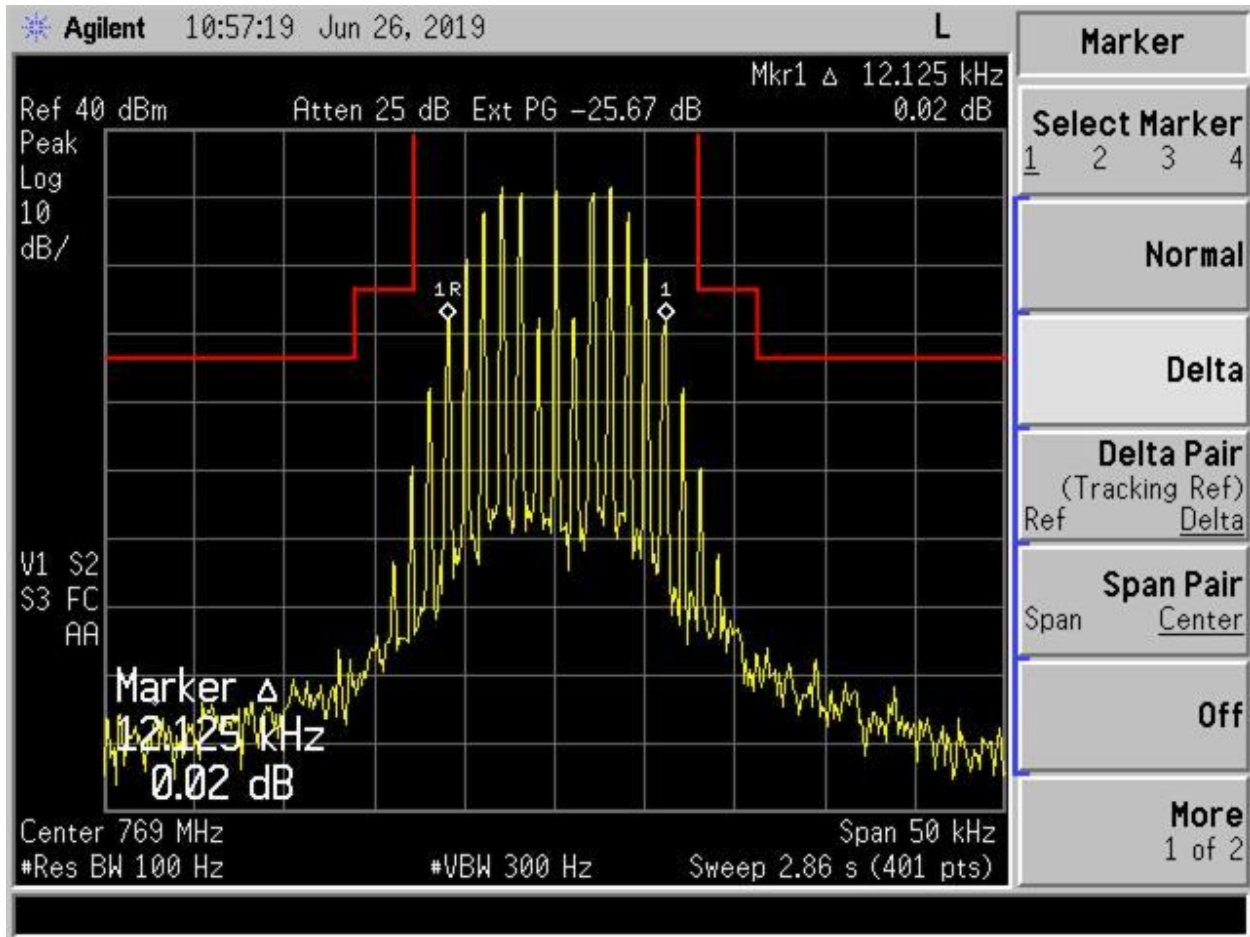


Figure 115. 769 MHz @ 12.5 kHz, Mask B

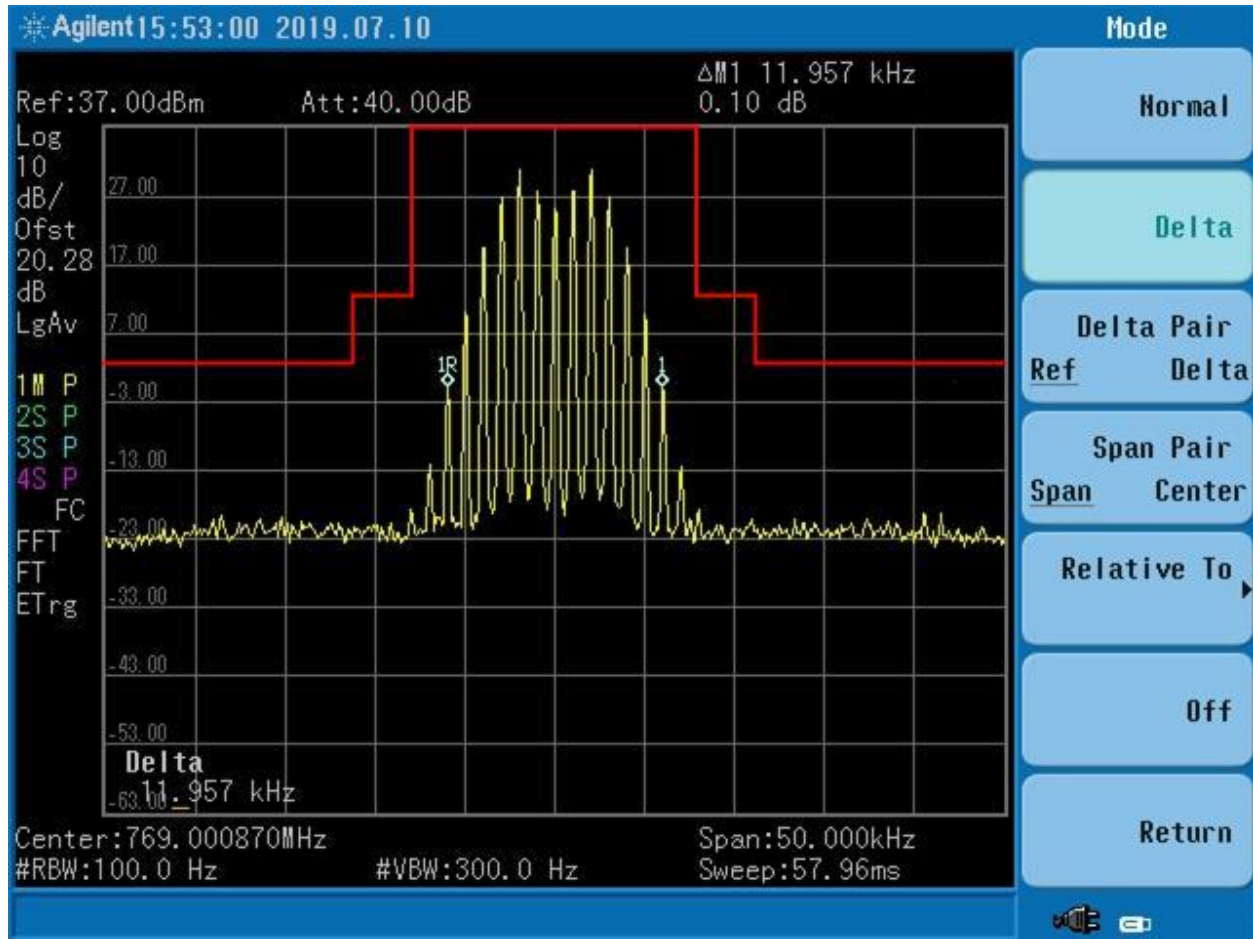


Figure 116. 769 MHz @ 12.5 kHz +3.0 dB, Mask B

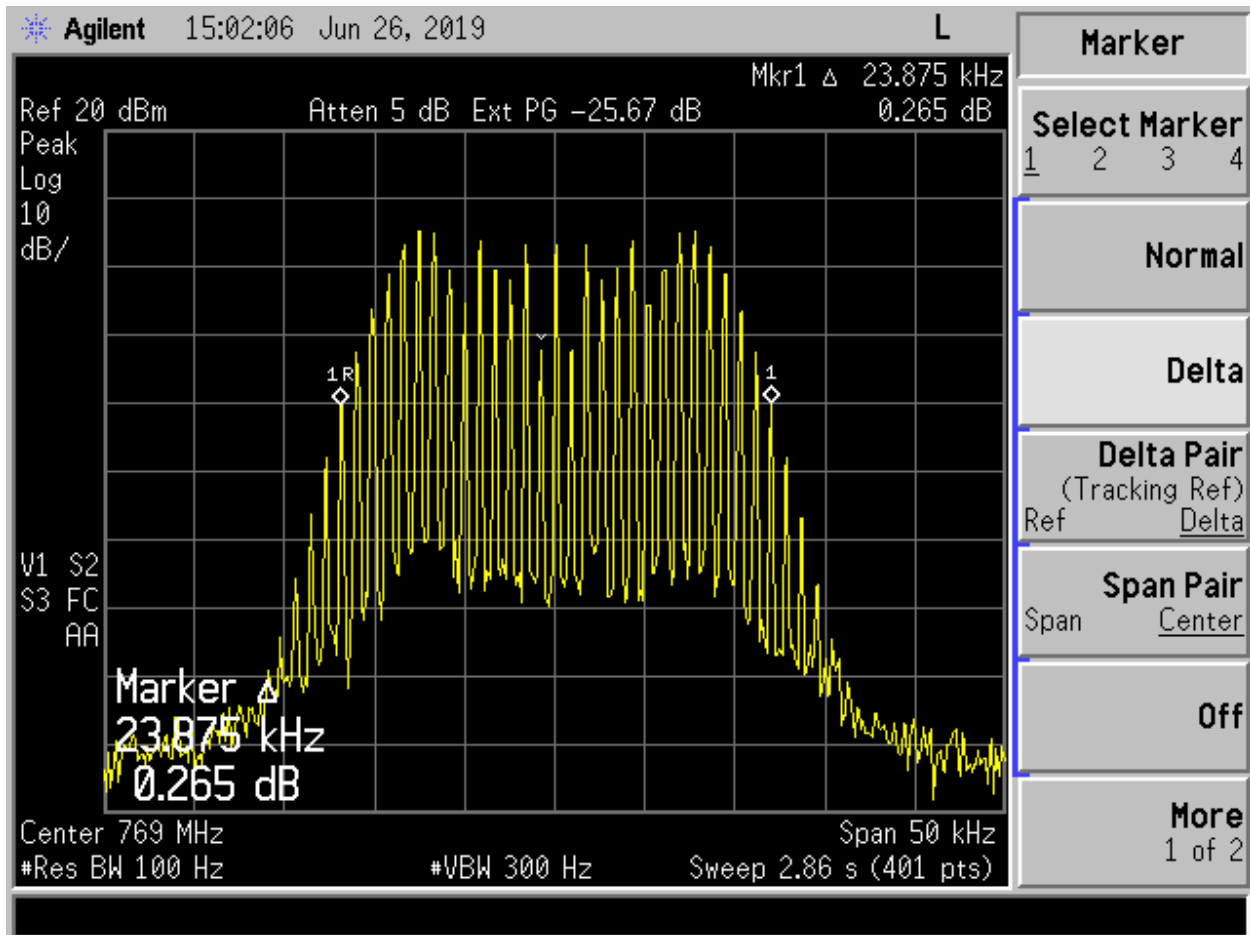


Figure 117. Input 769 MHz @ 25 kHz

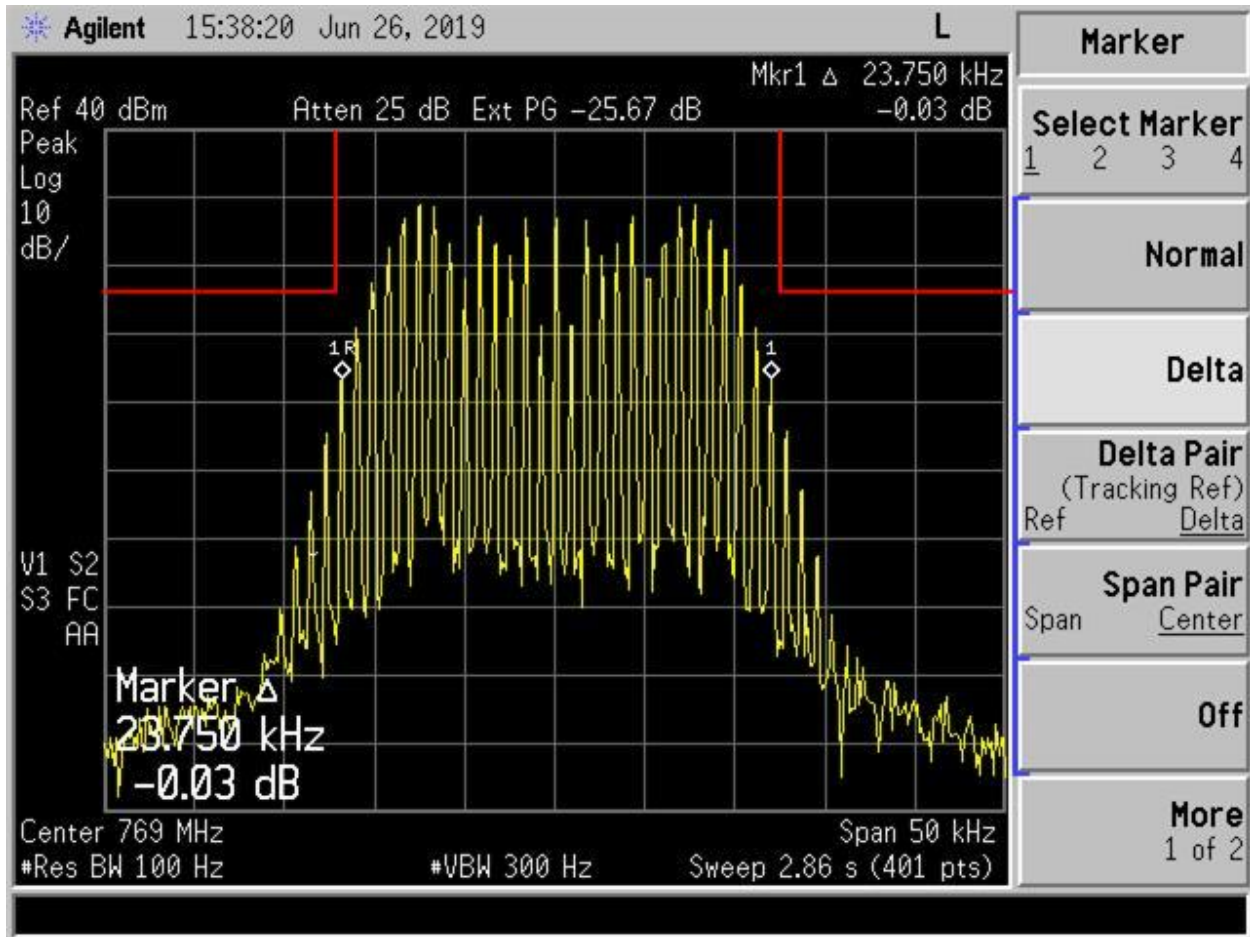


Figure 118. 769 MHz @ 25 kHz, Mask B

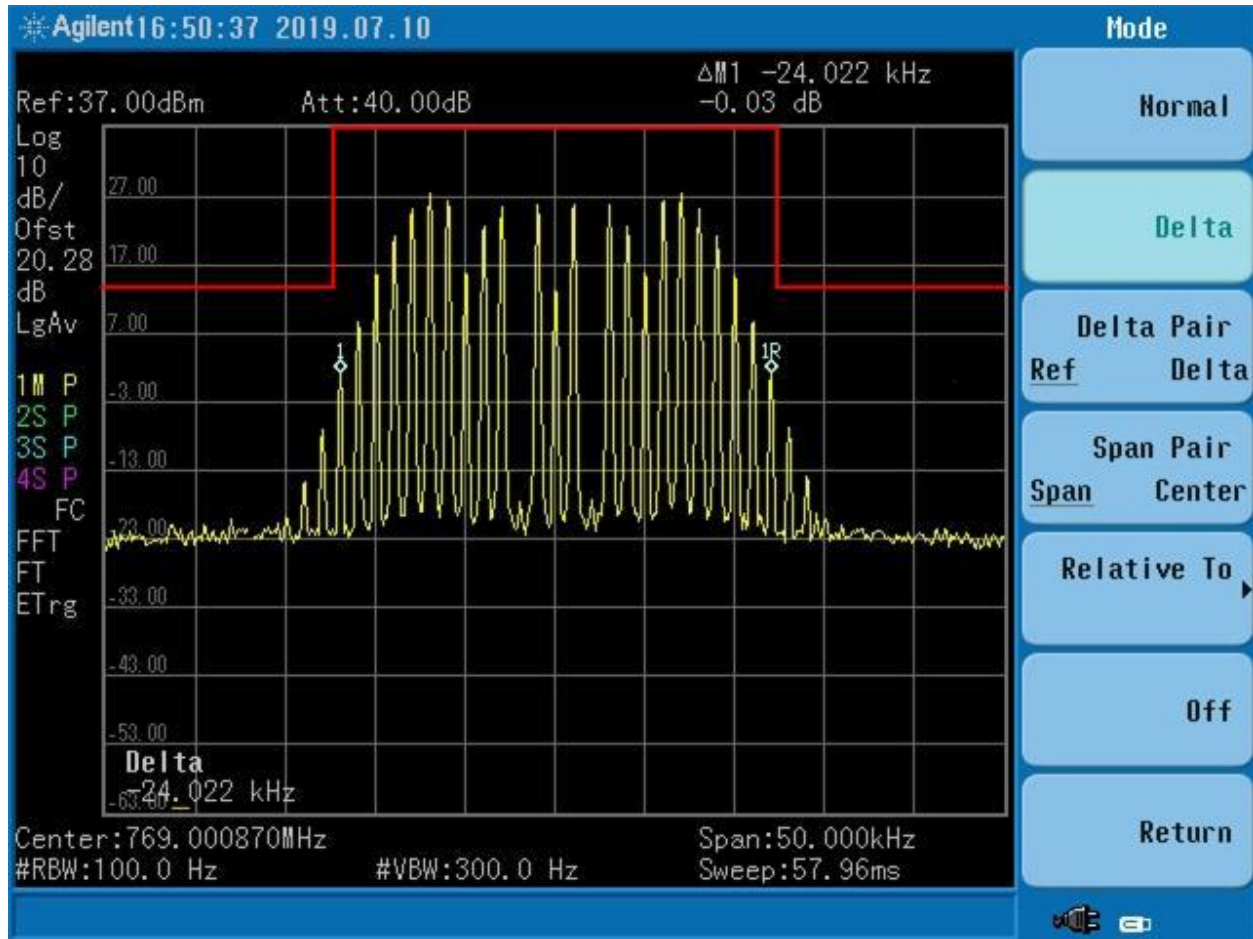


Figure 119. 769 MHz @ 25 kHz +3.0 dB, Mask B

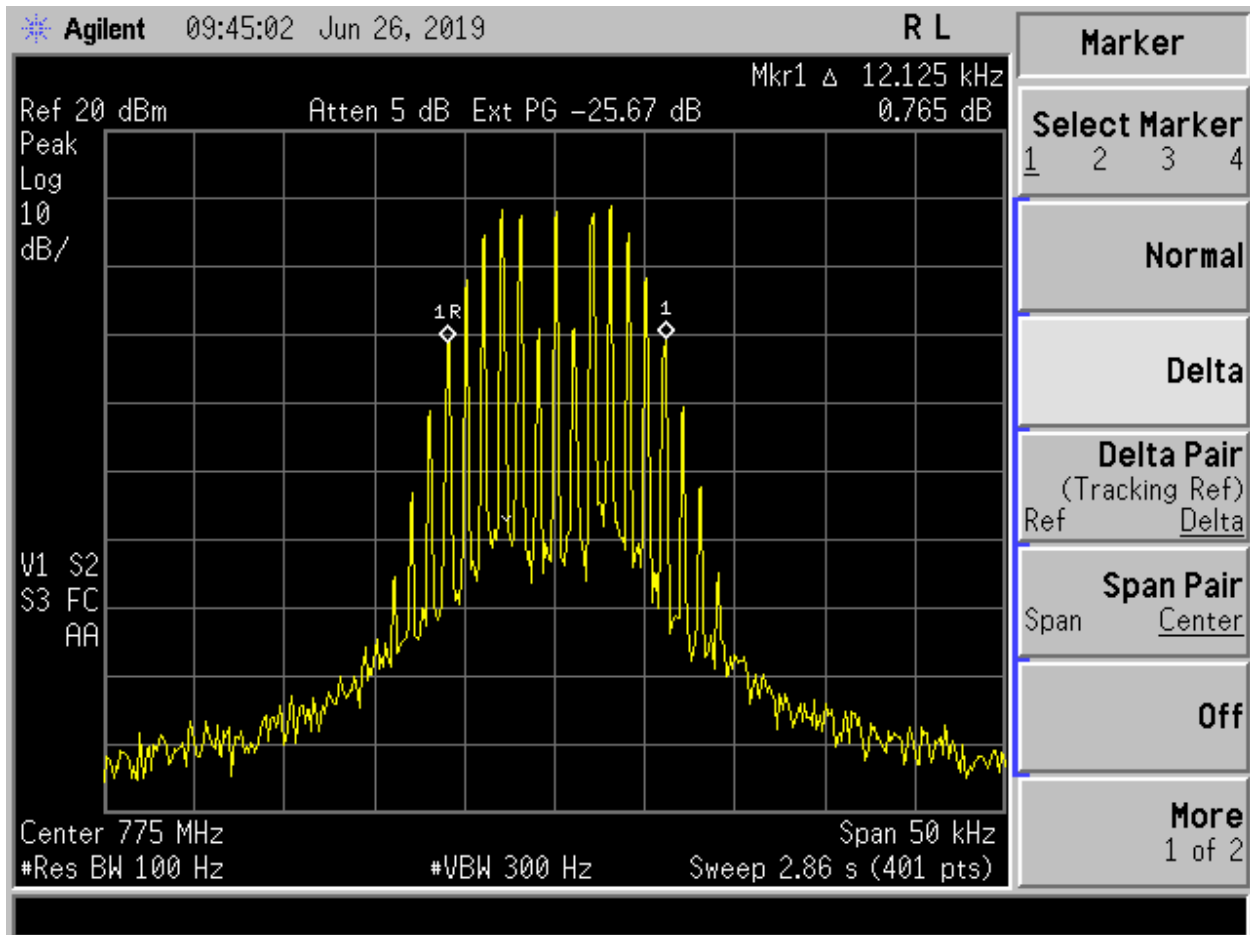


Figure 120. Input 775 MHz @ 12.5 kHz

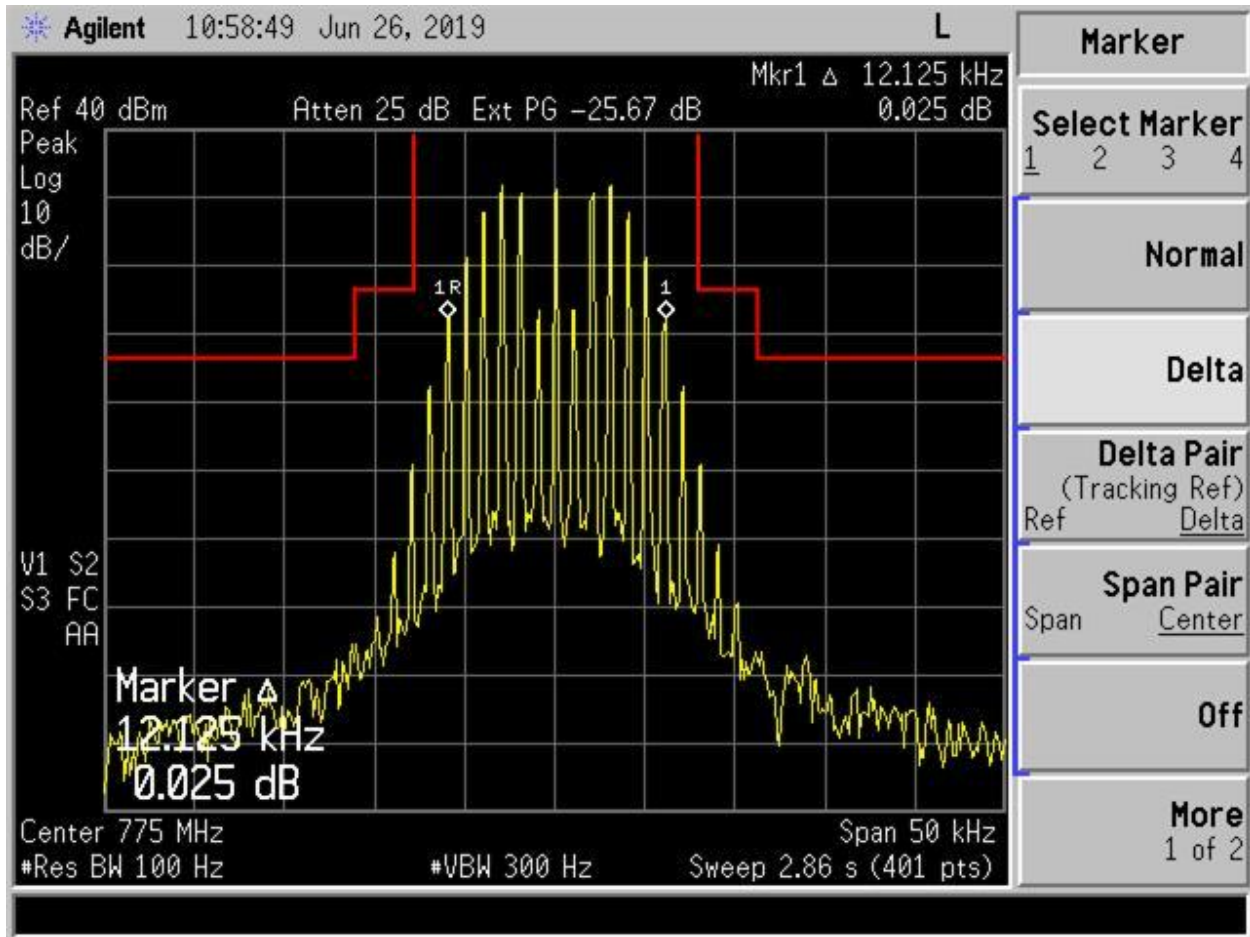


Figure 121. 775 MHz @ 12.5 MHz, Mask B

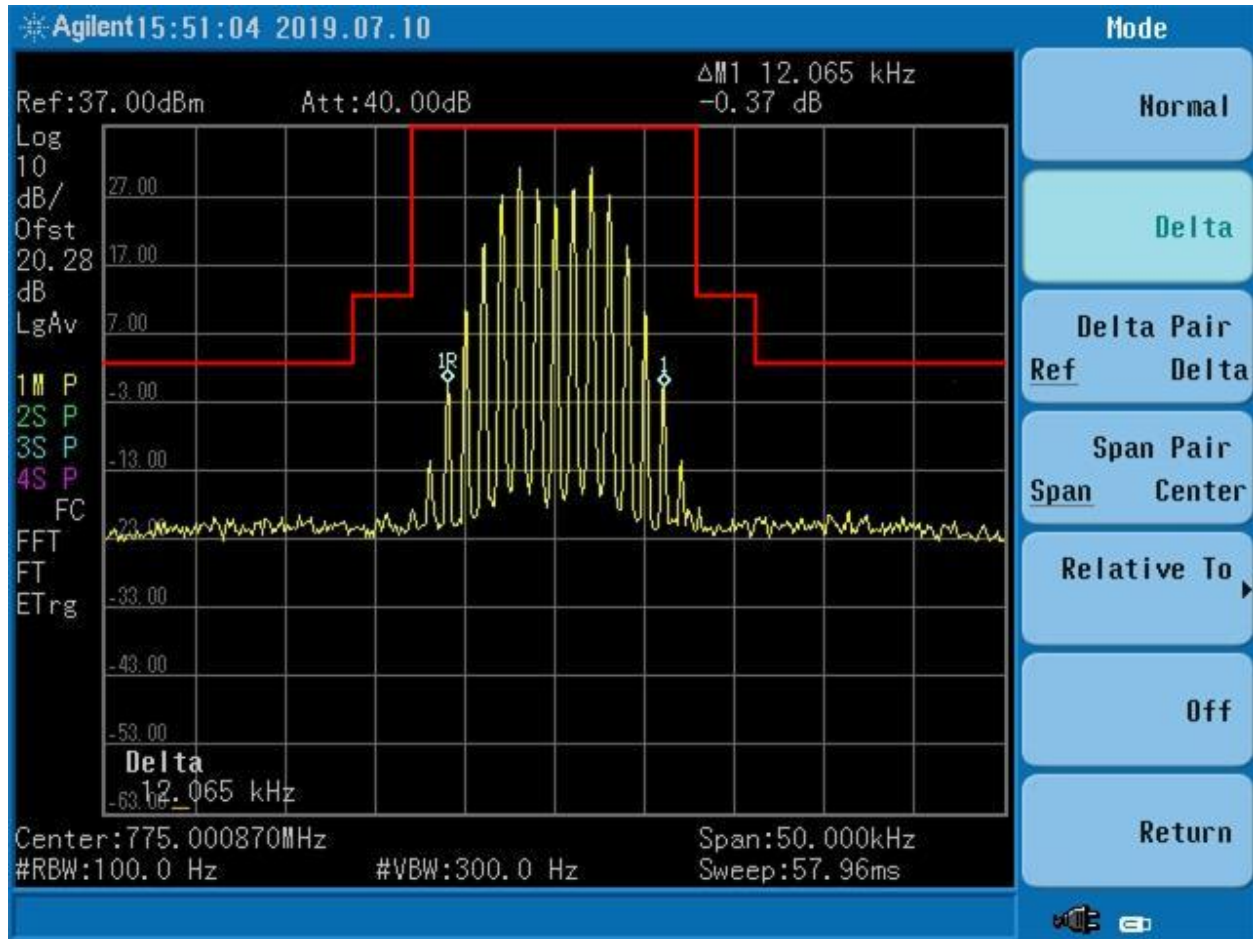


Figure 122. 775 MHz @ 12.5 kHz +3.0 dB, Mask B

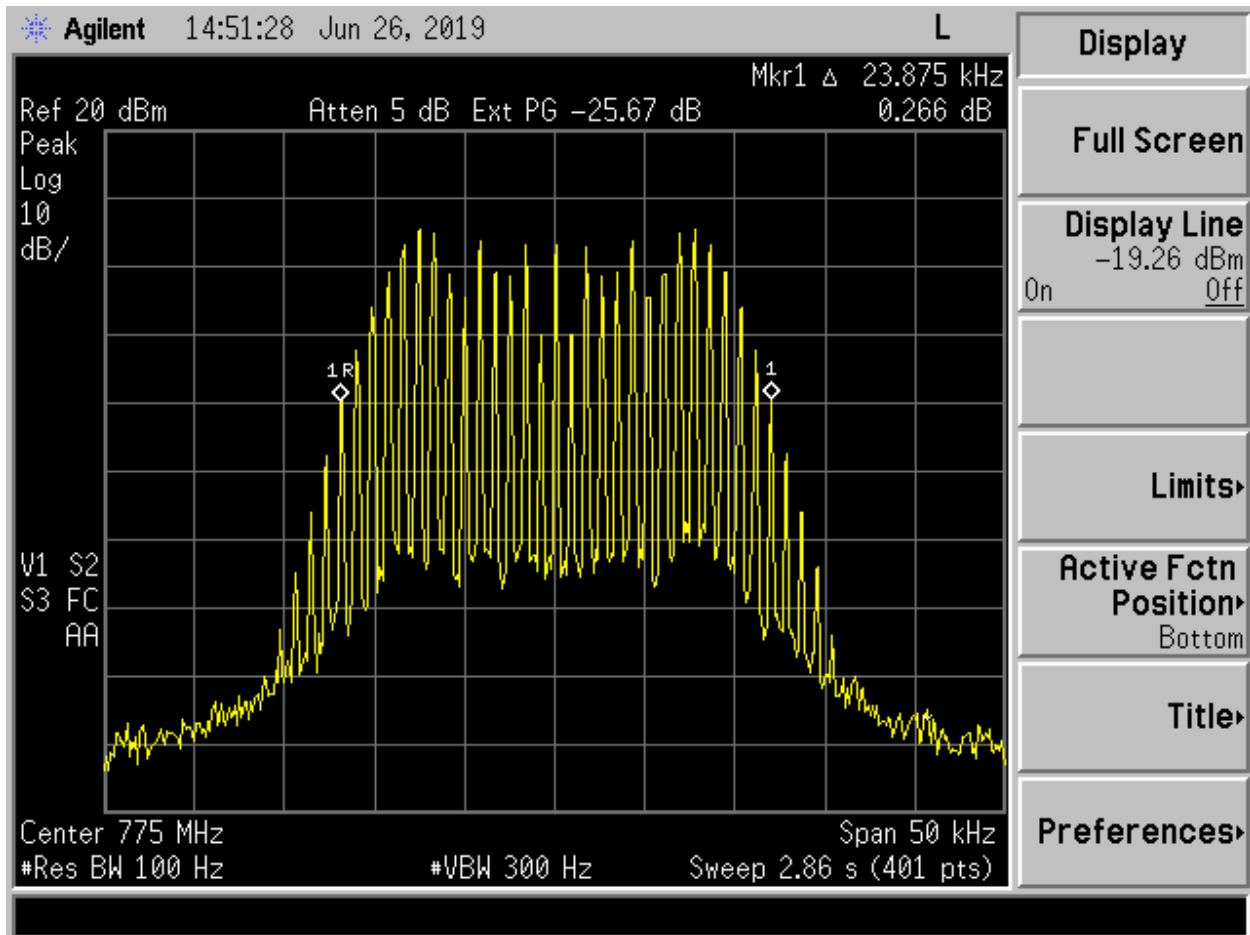


Figure 123. Input 775 MHz @ 25 kHz

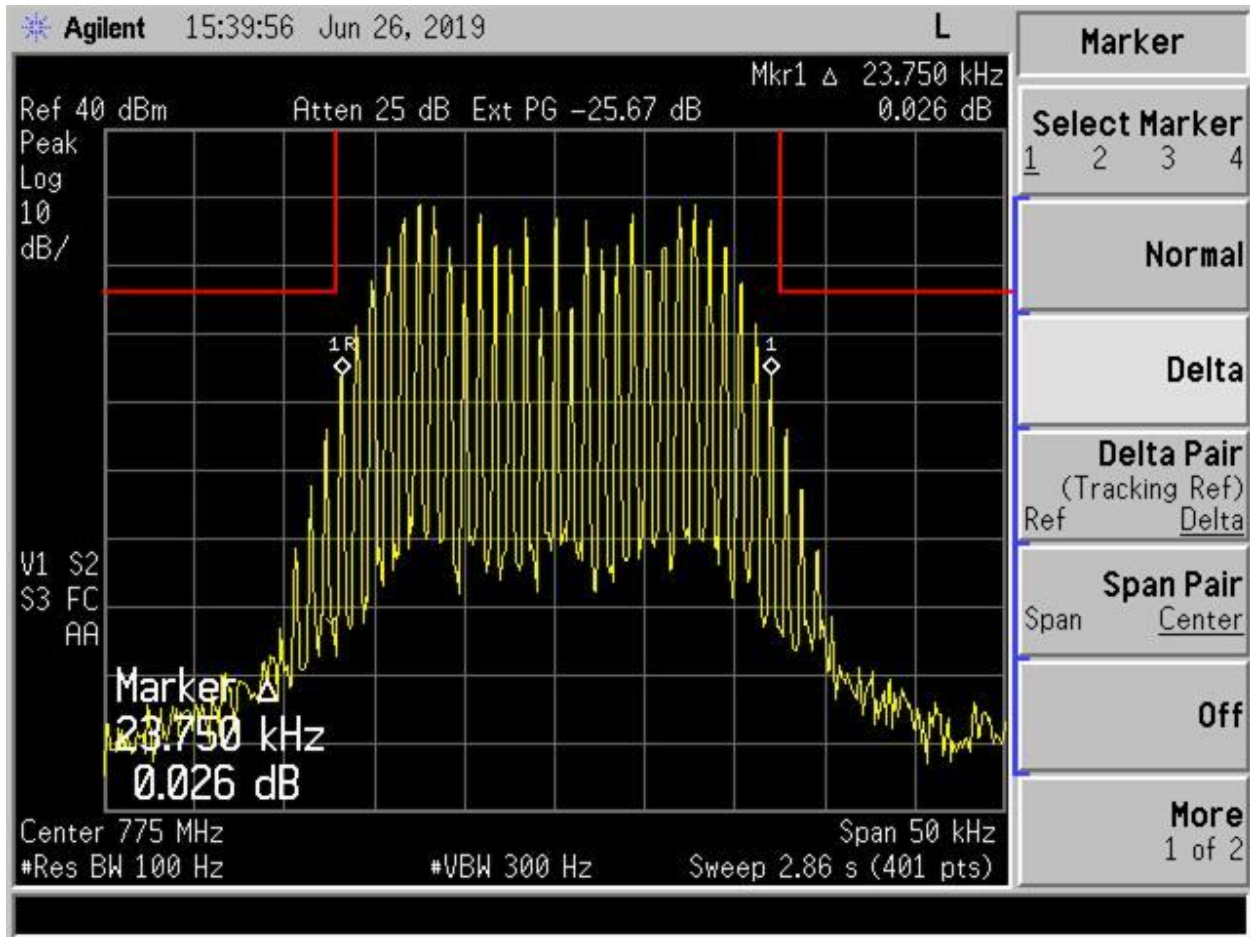


Figure 124. 775 MHz @ 25 kHz, Mask B

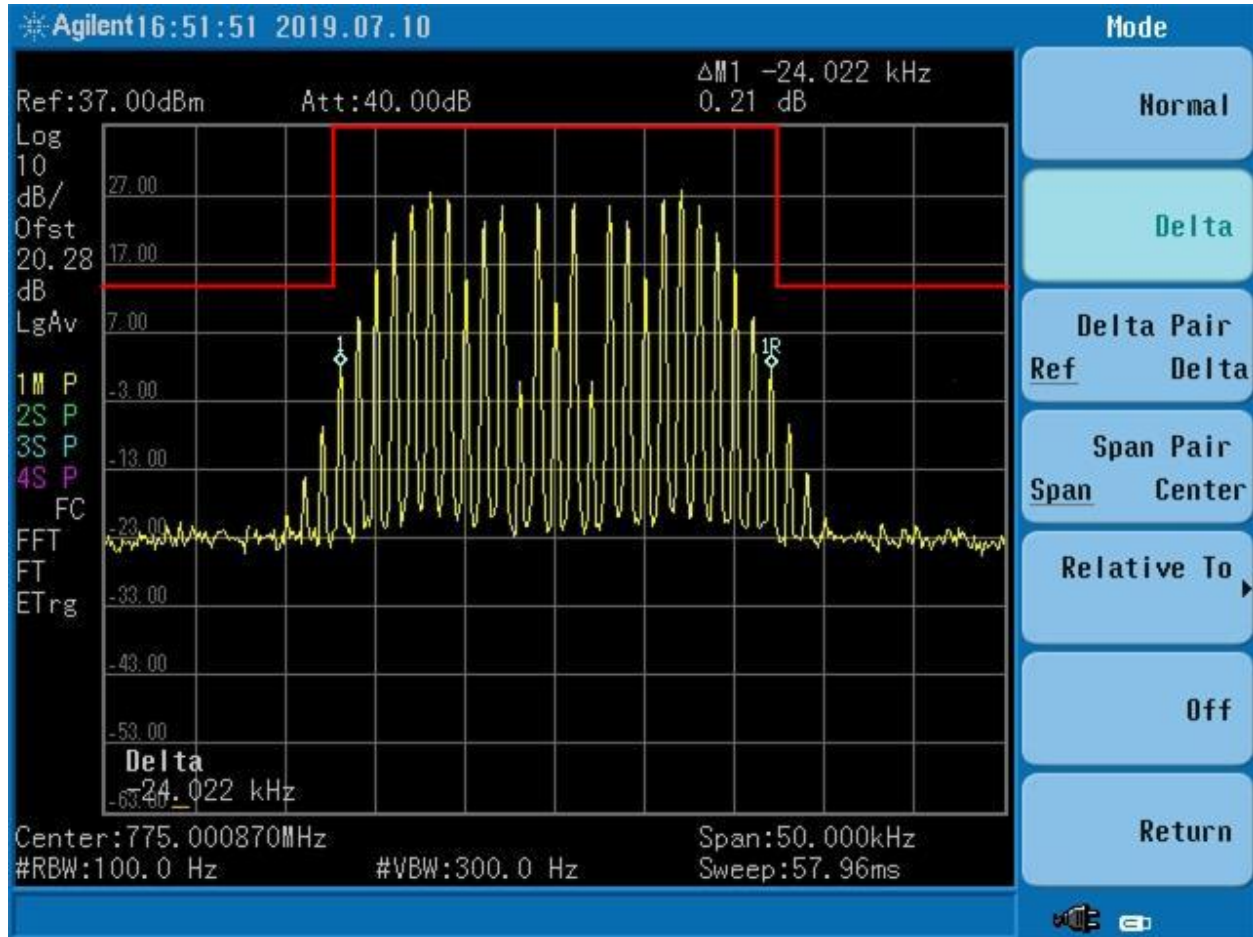


Figure 125. 775 MHz @ 25 kHz +3.0 dB, Mask B

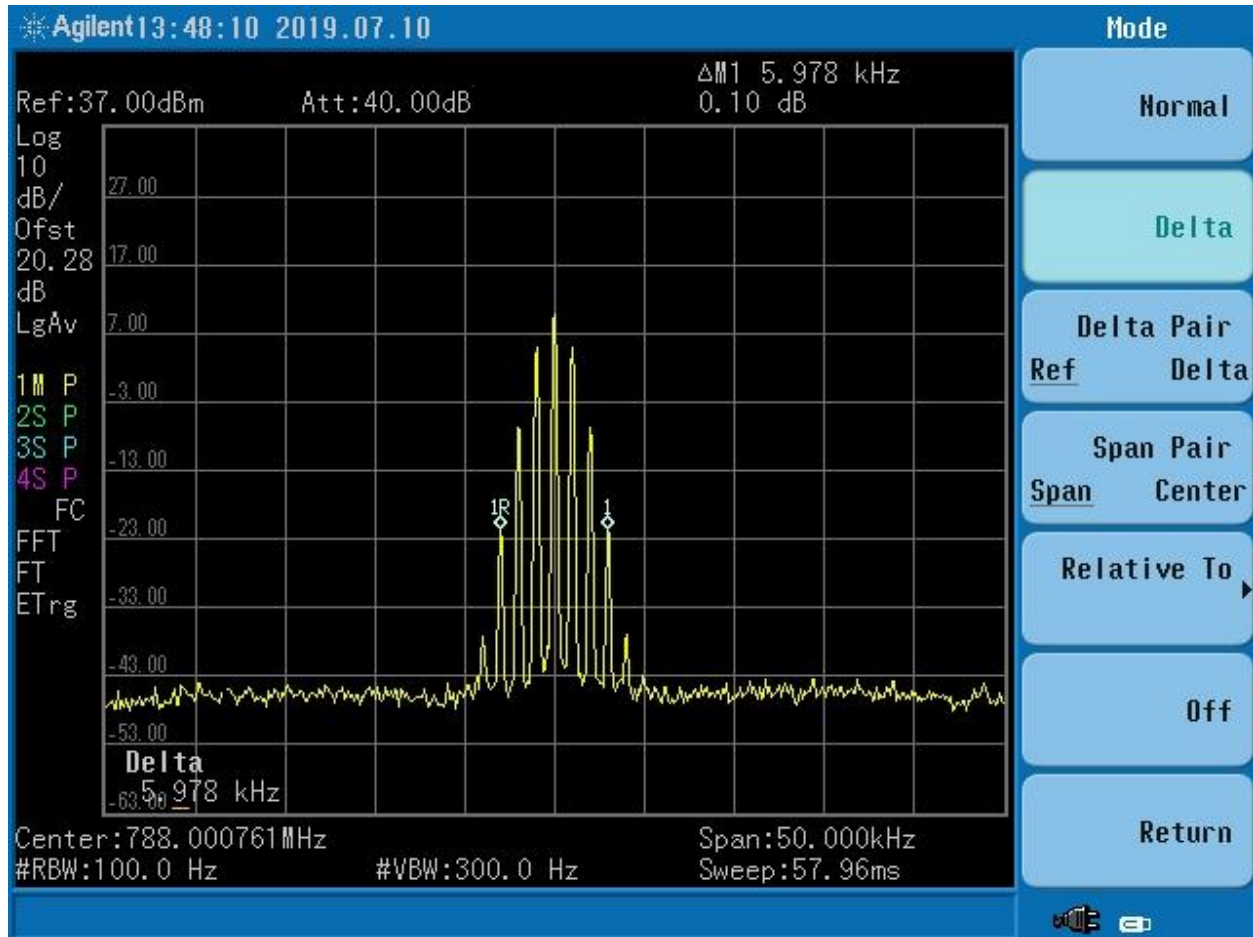


Figure 126. Input 788 MHz @ 6.25 kHz

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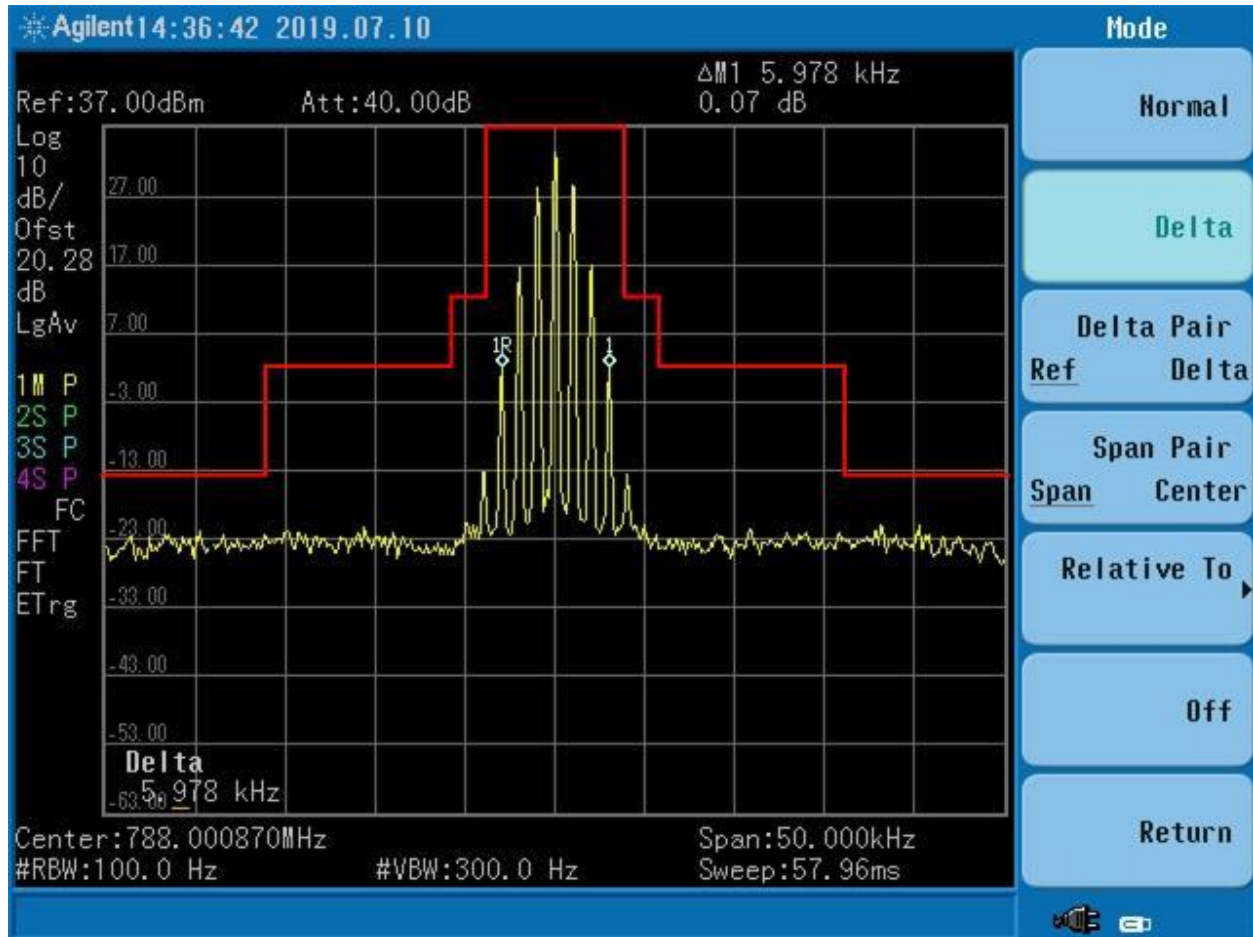


Figure 127. 788 MHz @ 6.25 kHz, Mask B

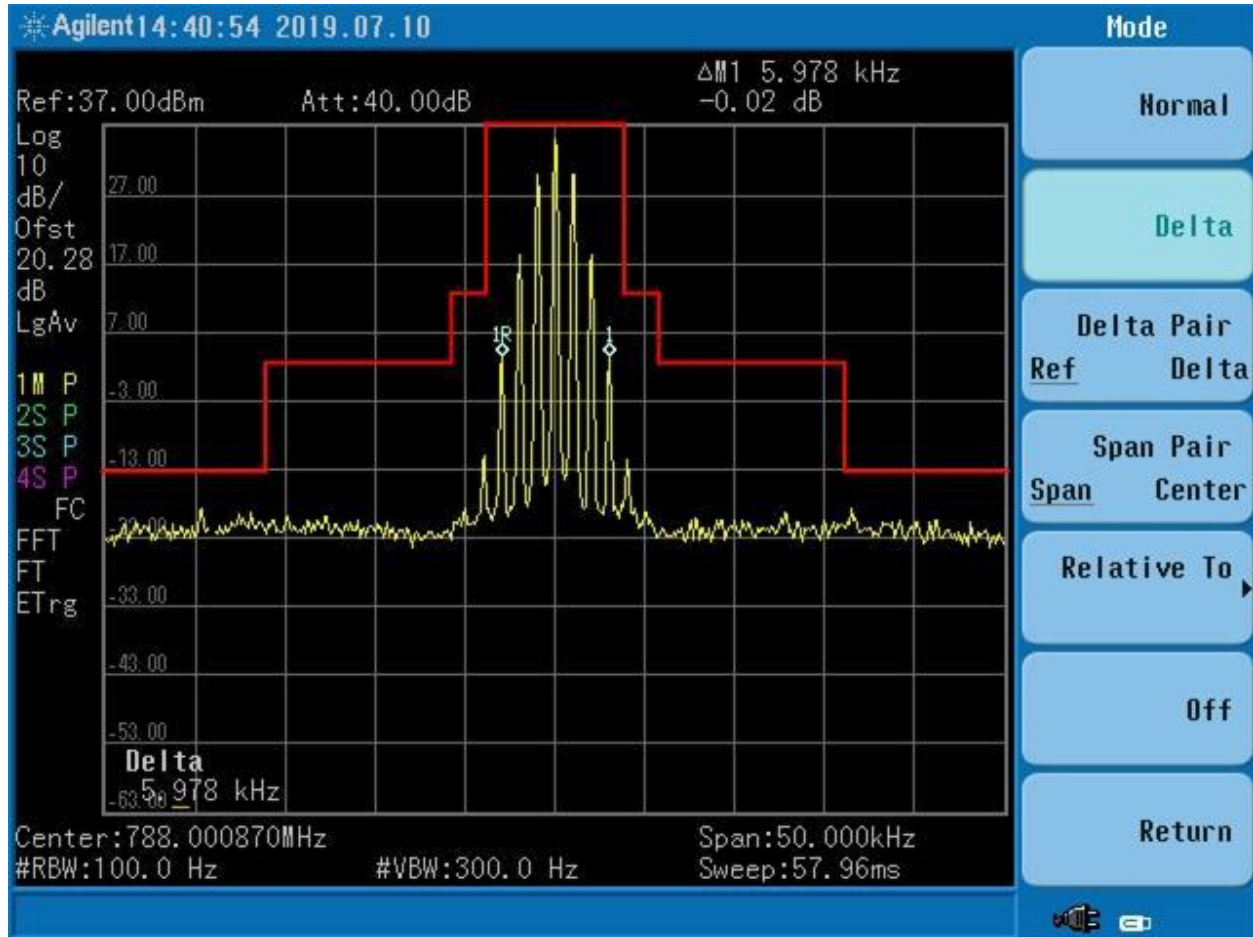


Figure 128. 788 MHz @ 6.25 kHz +3 dB, Mask B

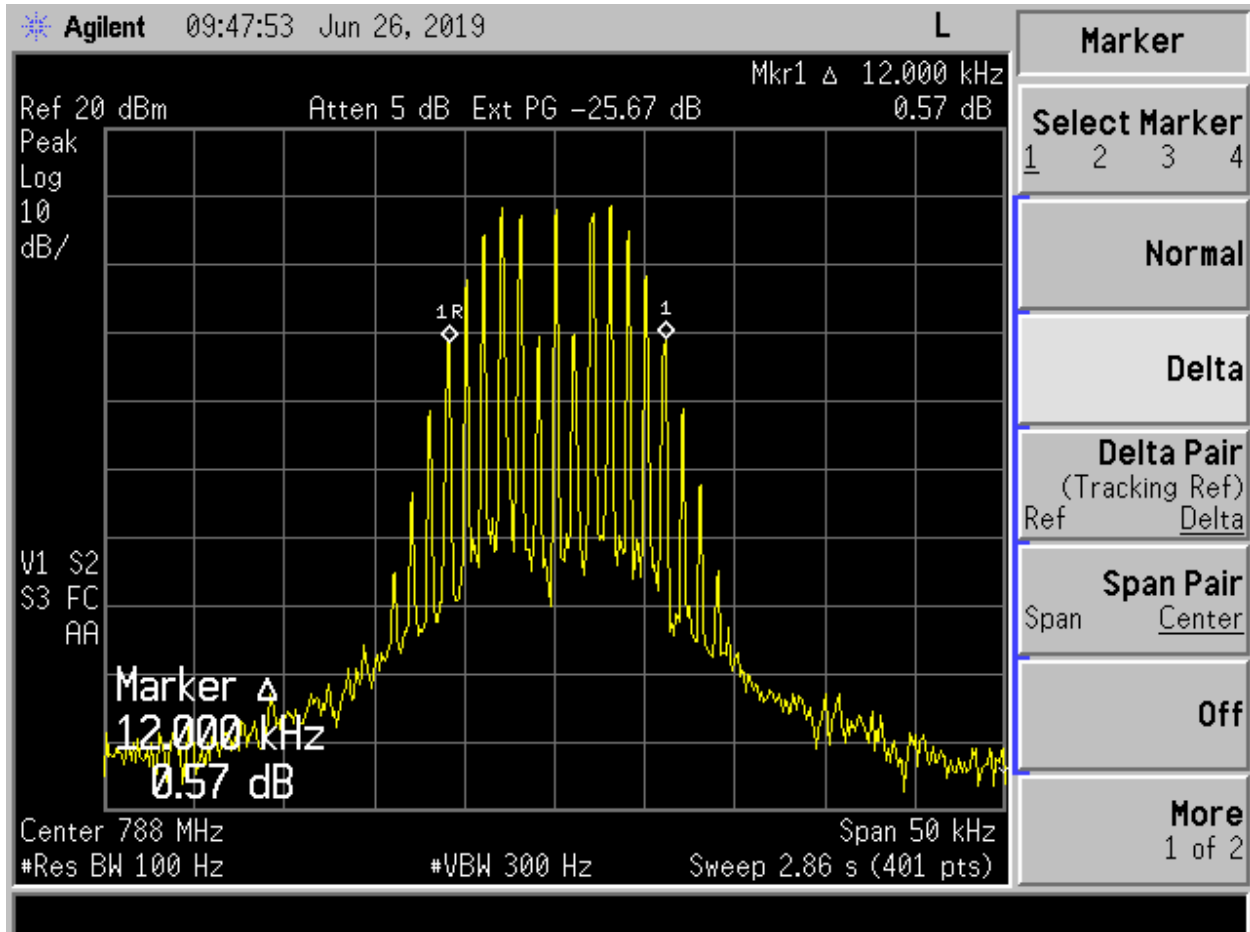


Figure 129. Input 788 MHz @ 12.5 kHz

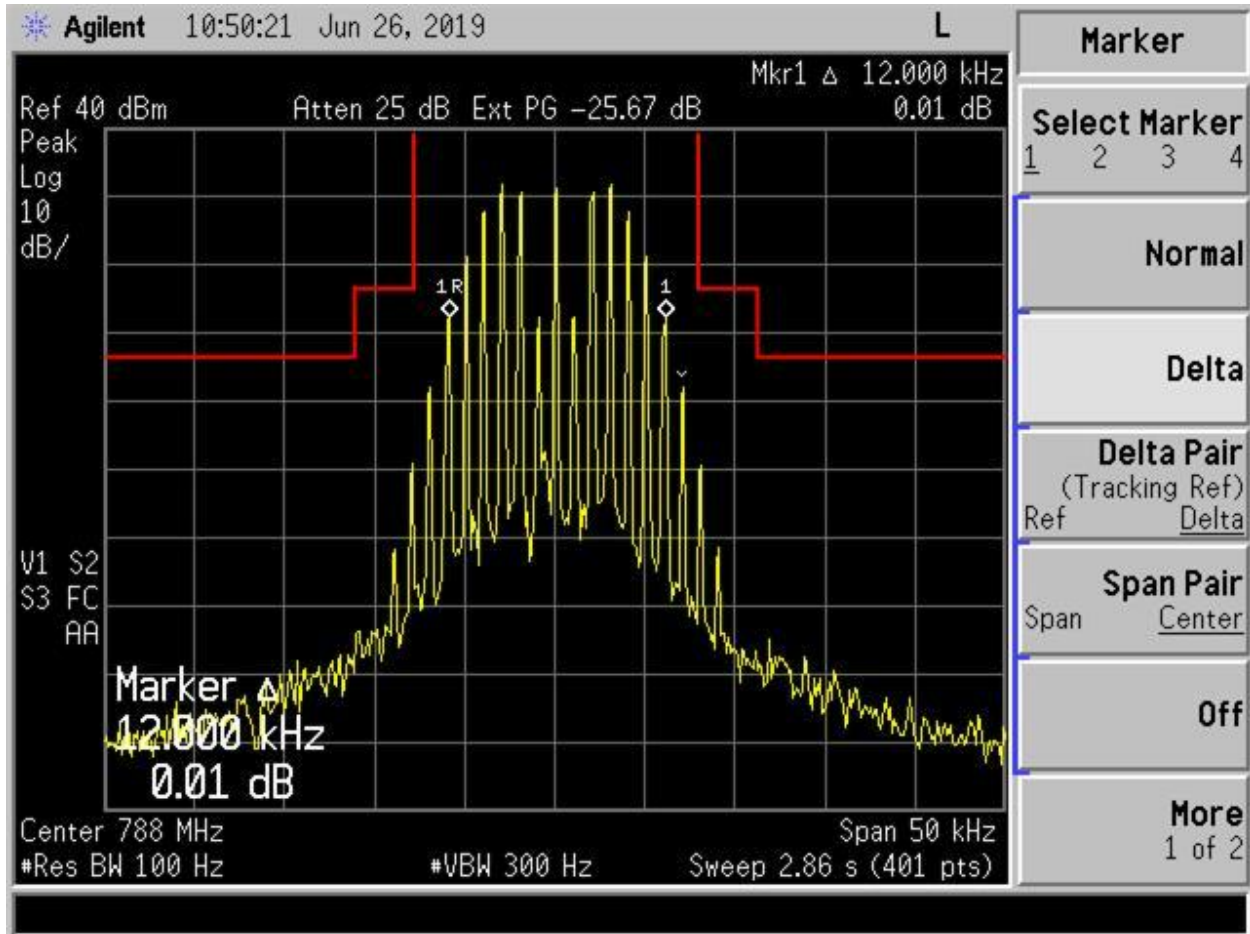


Figure 130. 788 MHz @ 12.5 kHz, Mask B

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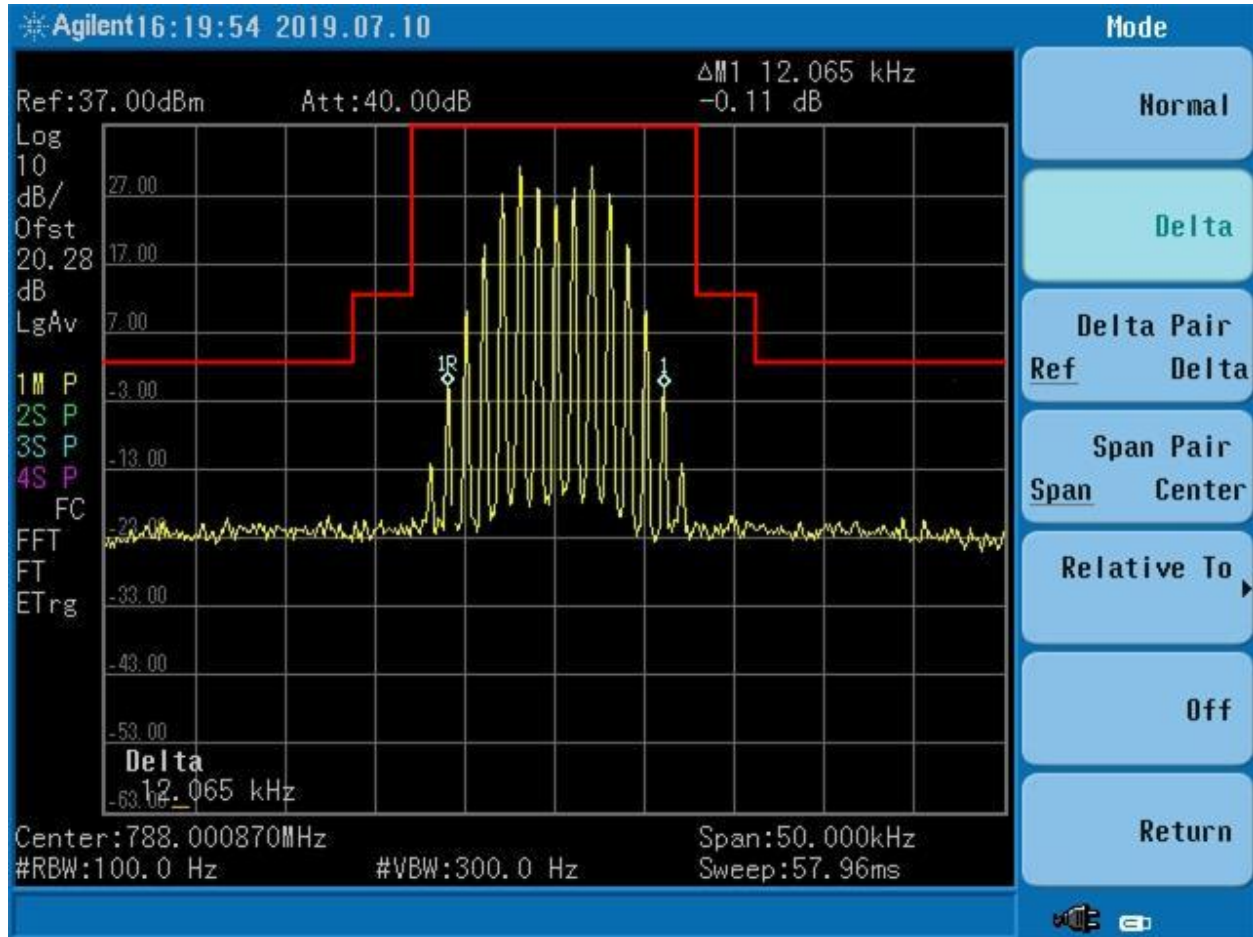


Figure 131. 788 MHz @ 12.5 kHz + 3.0 dB, Mask B

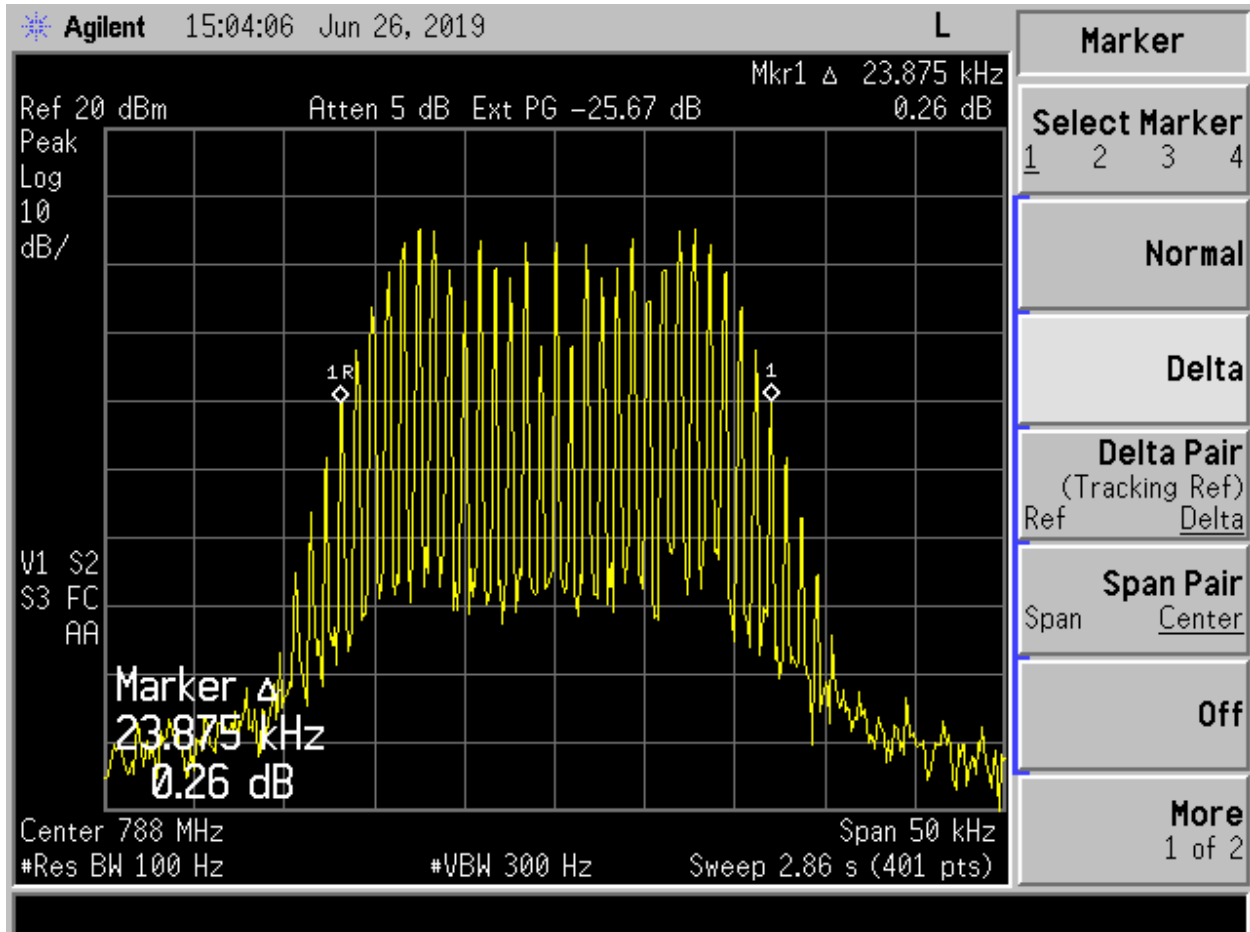


Figure 132. Input 788 MHz @ 25 kHz

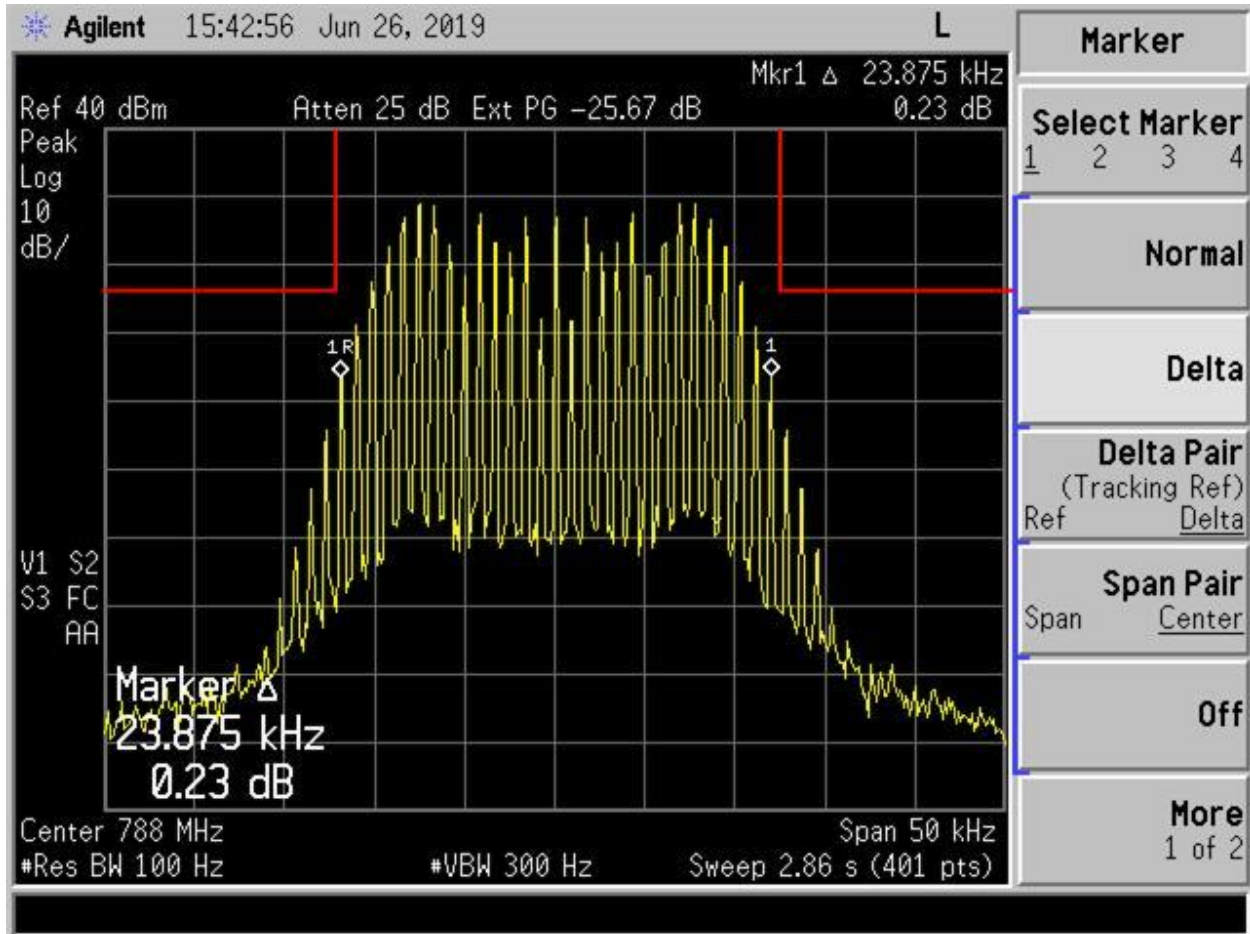


Figure 133. 788 MHz @ 25 kHz, Mask B

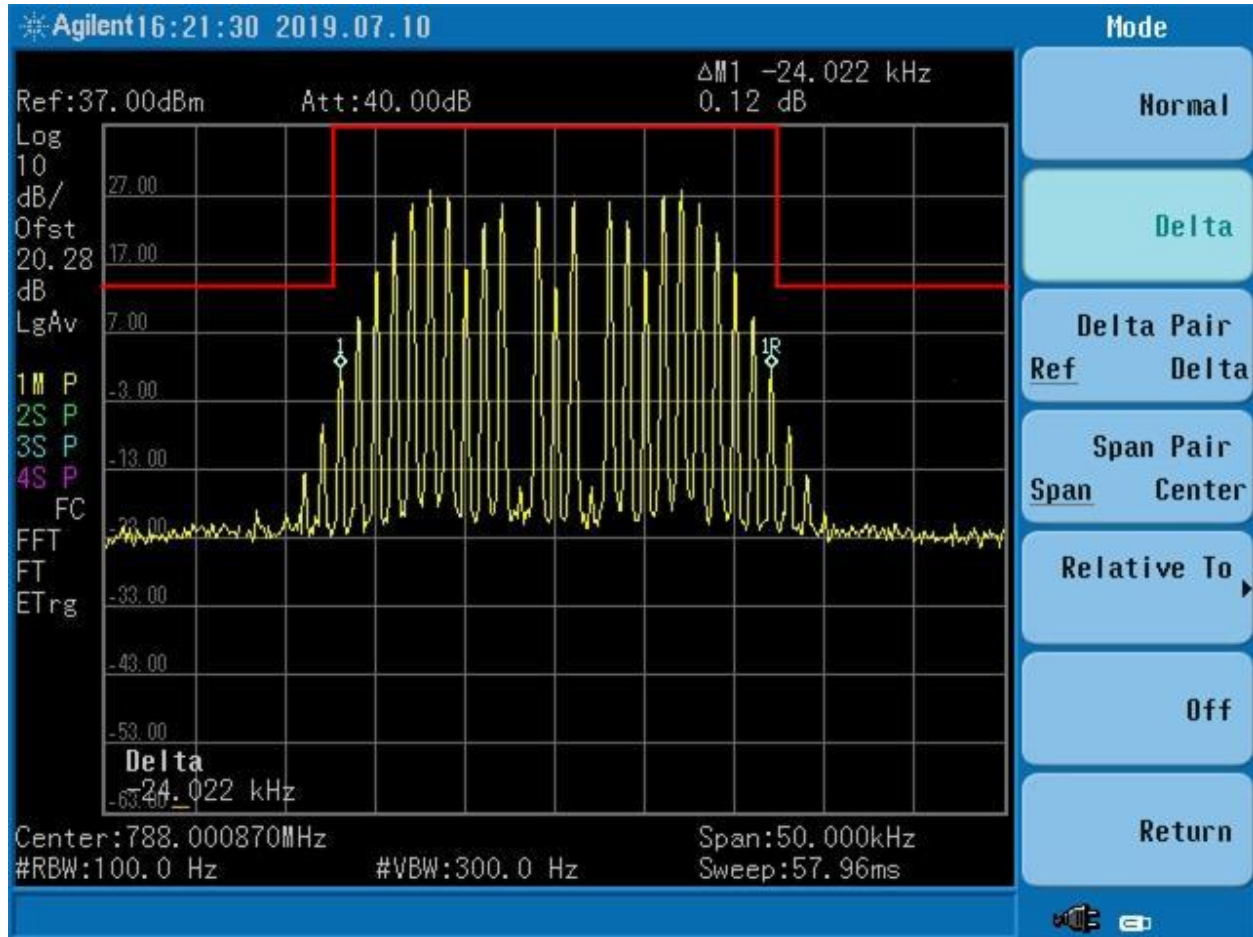


Figure 134. 788 MHz @ 25 kHz + 3.0 dB, Mask B

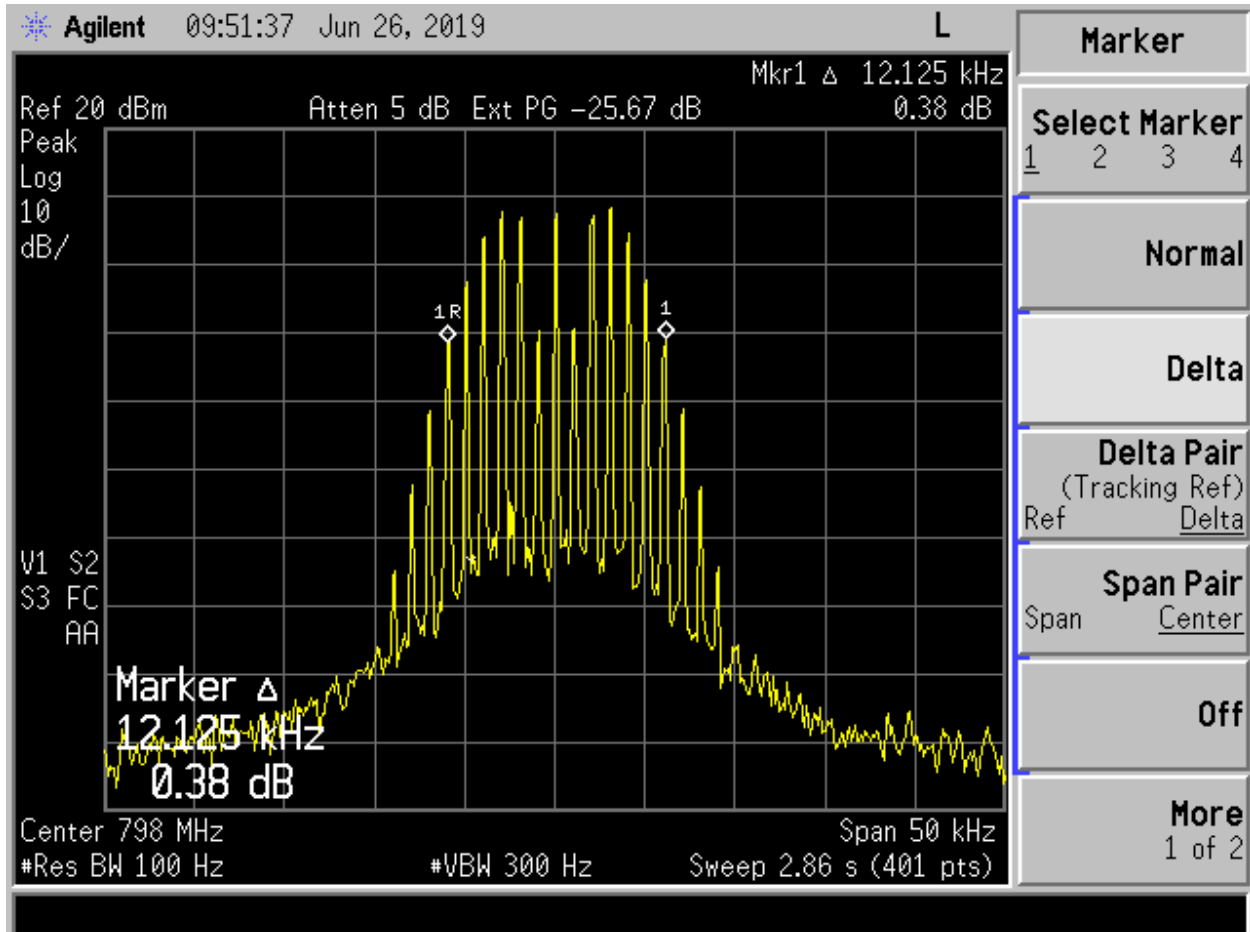


Figure 135. Input 798 MHz @ 12.5 kHz

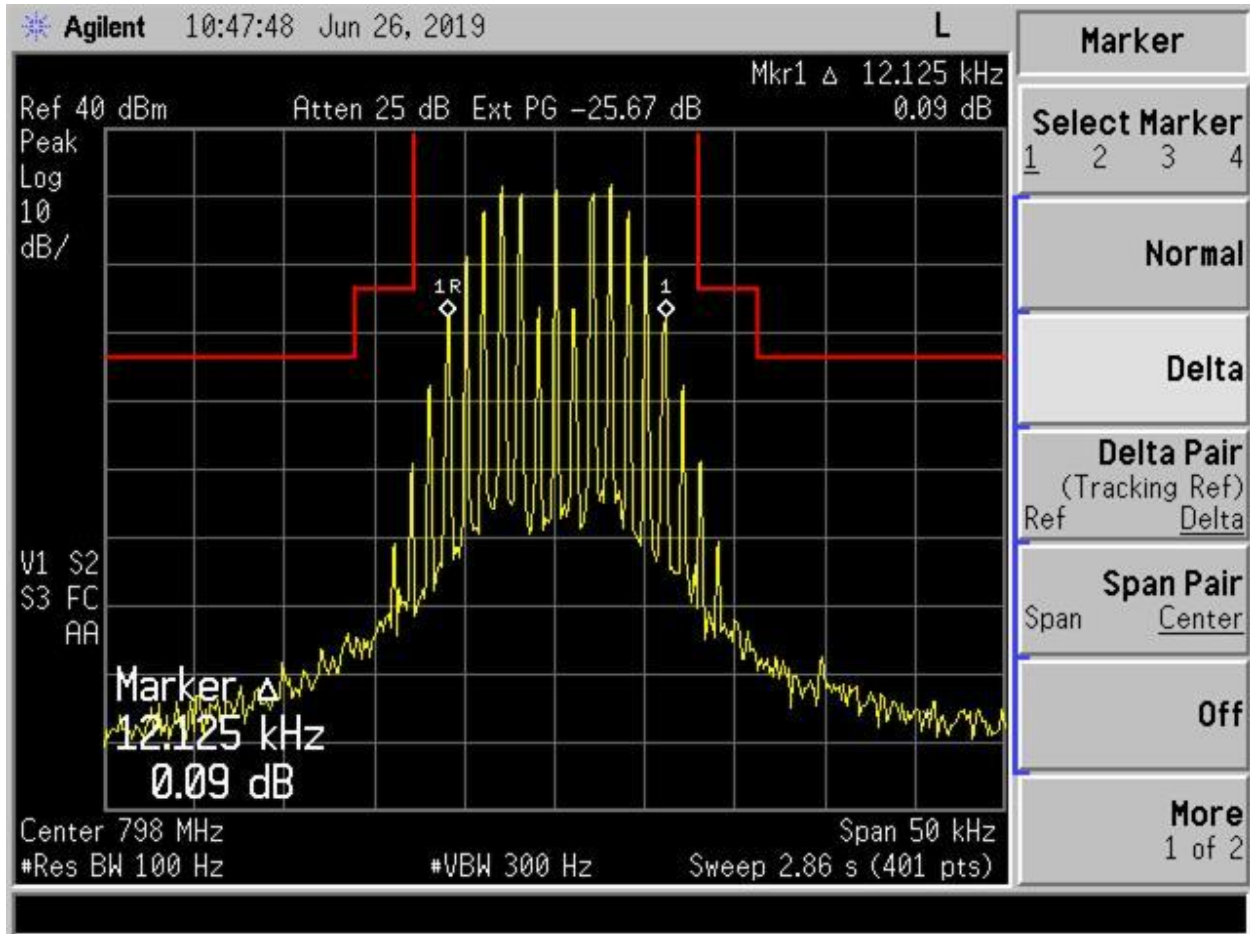


Figure 136. 798 MHz @ 12.5 kHz, Mask B

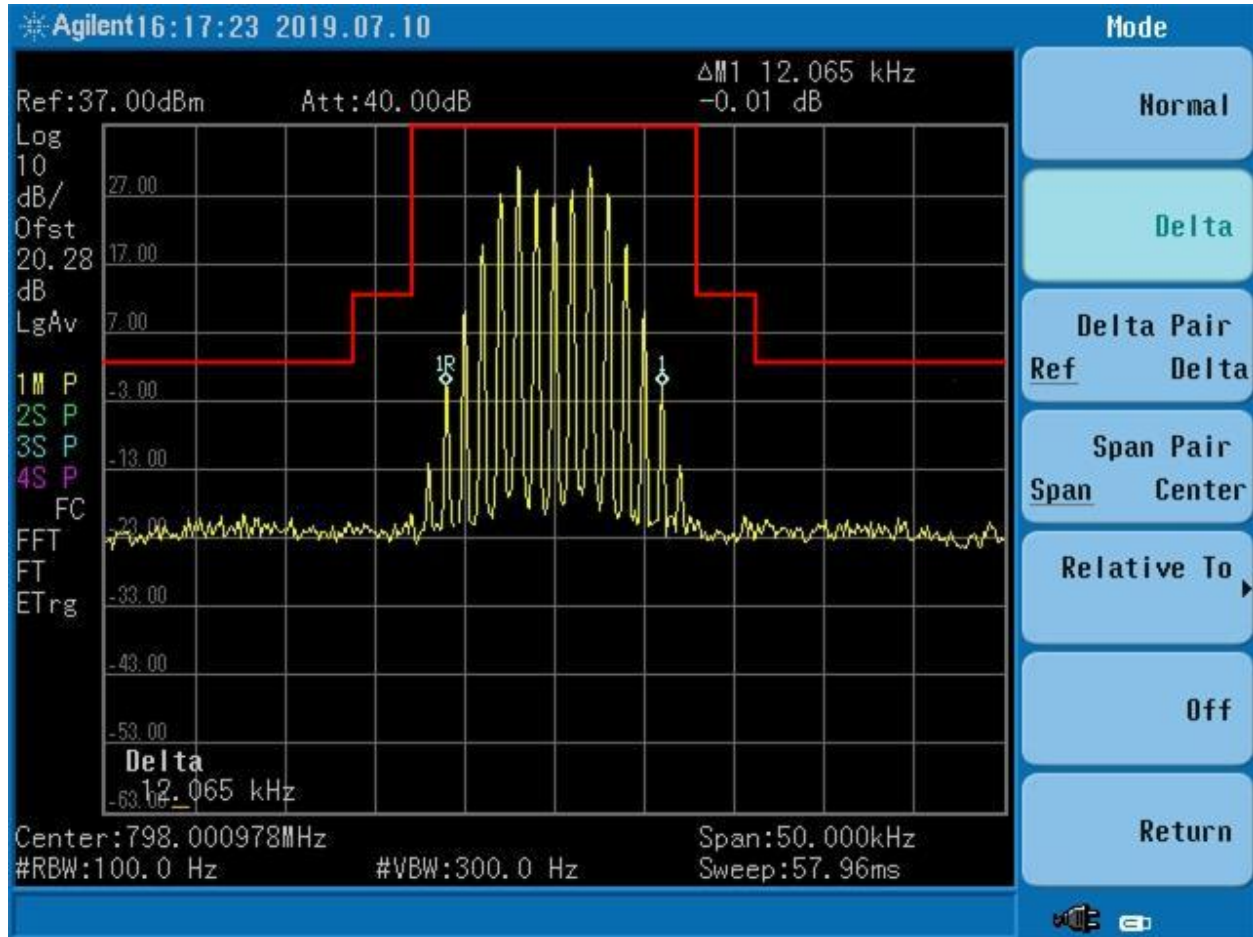


Figure 137. 798 MHz @ 12.5 kHz + 3.0 dB, Mask B

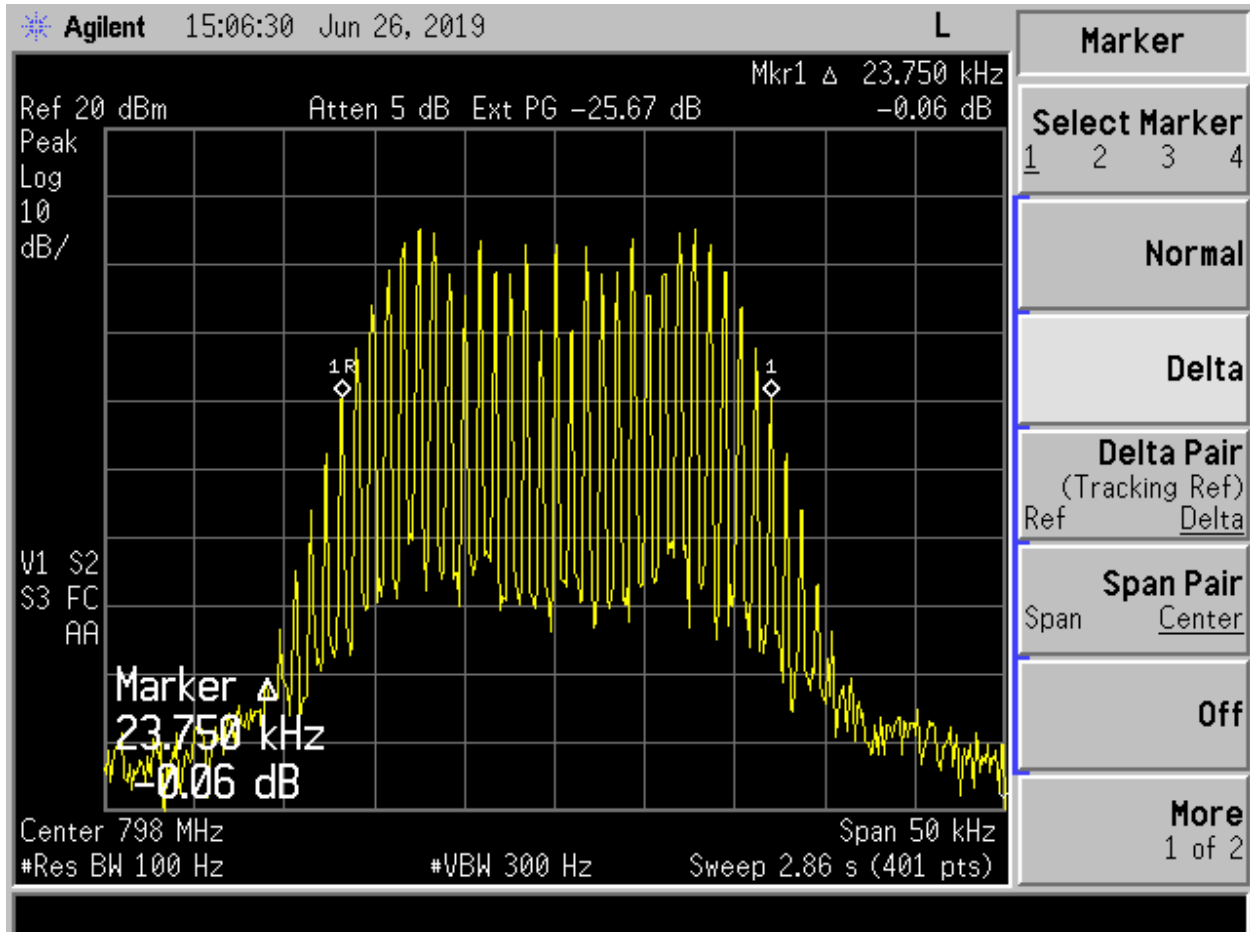


Figure 138. Input 798 MHz @ 25 kHz

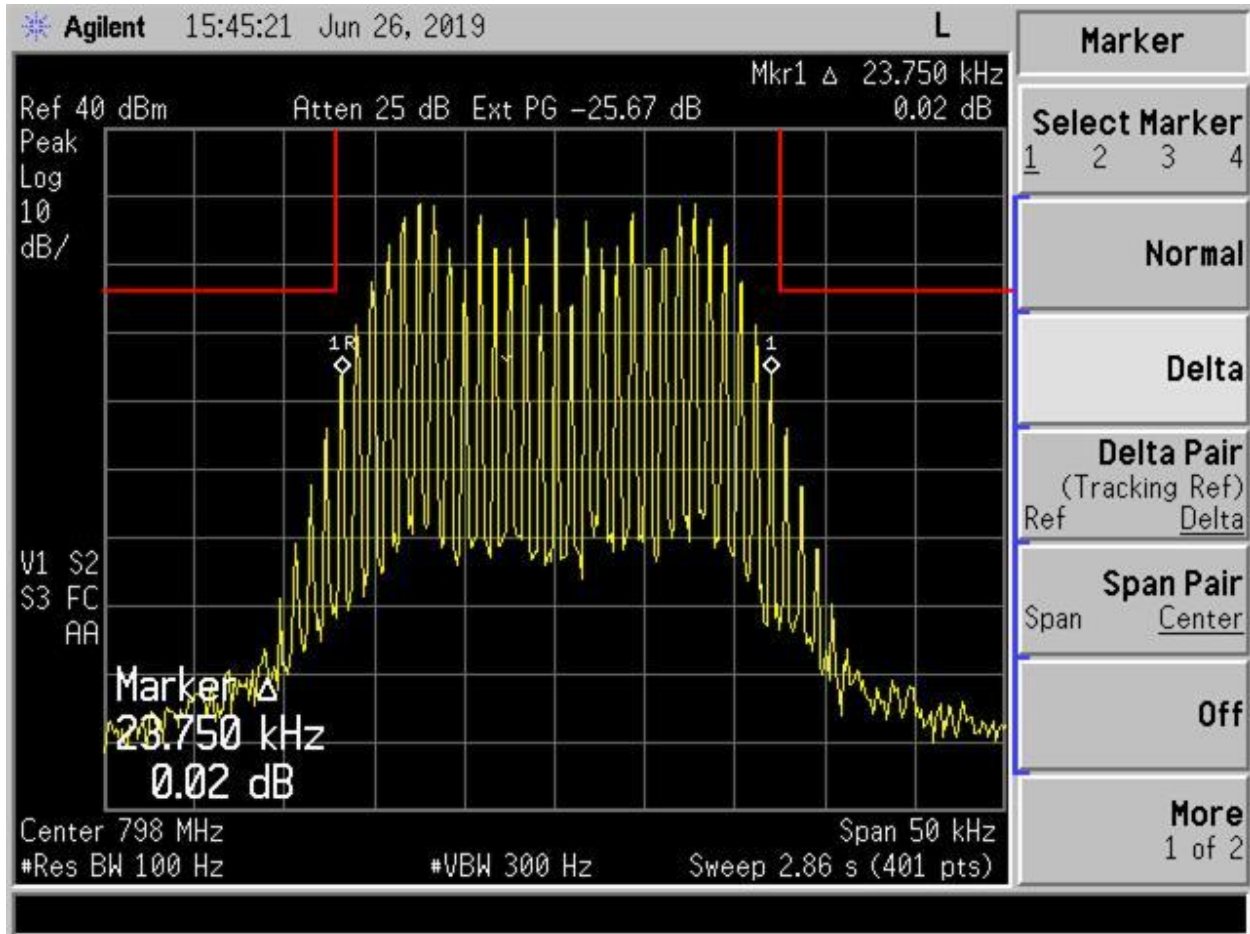


Figure 139. 798 MHz @ 25 kHz, Mask B

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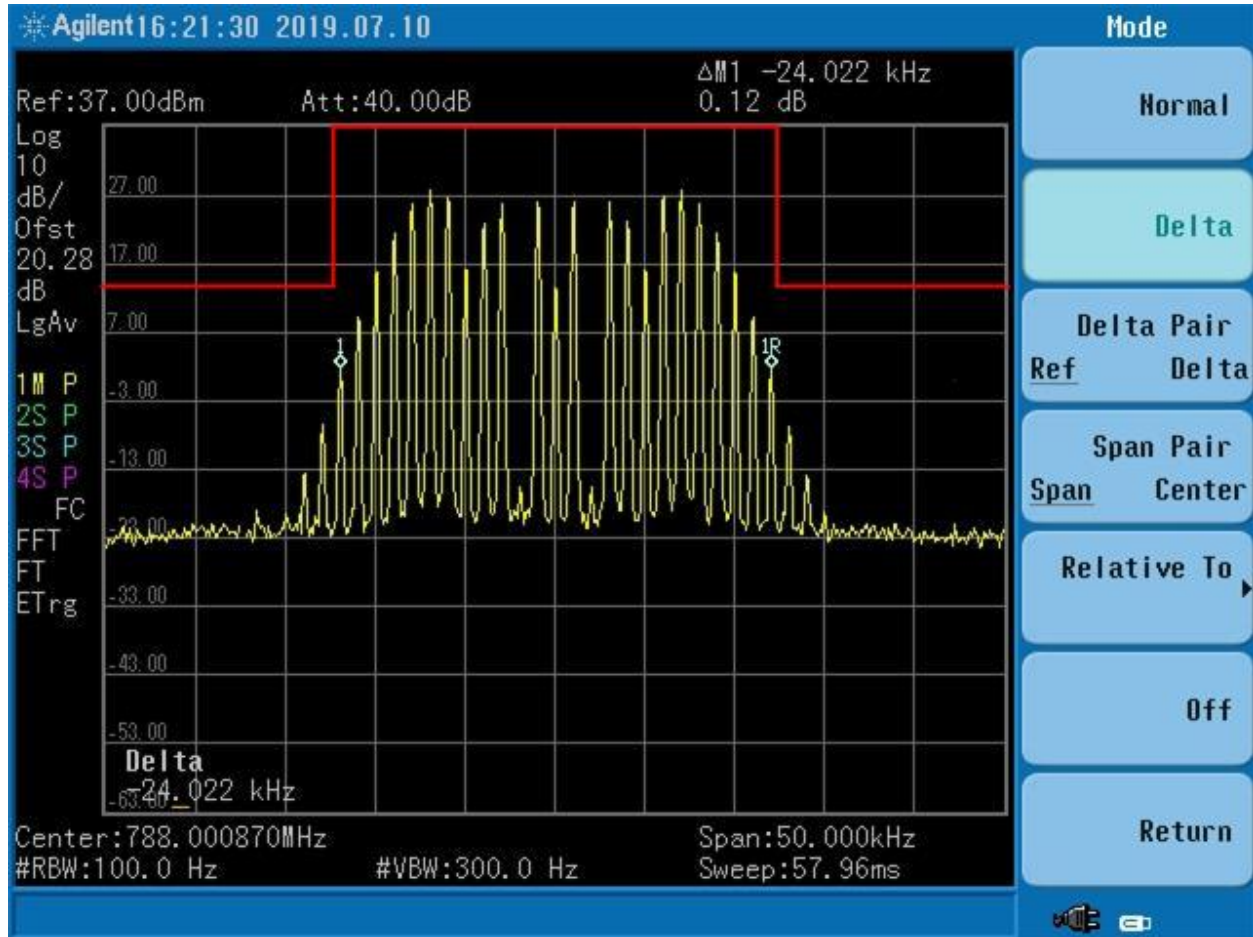


Figure 140. 798 MHz @ 25 kHz + 3.0 dB, Mask B

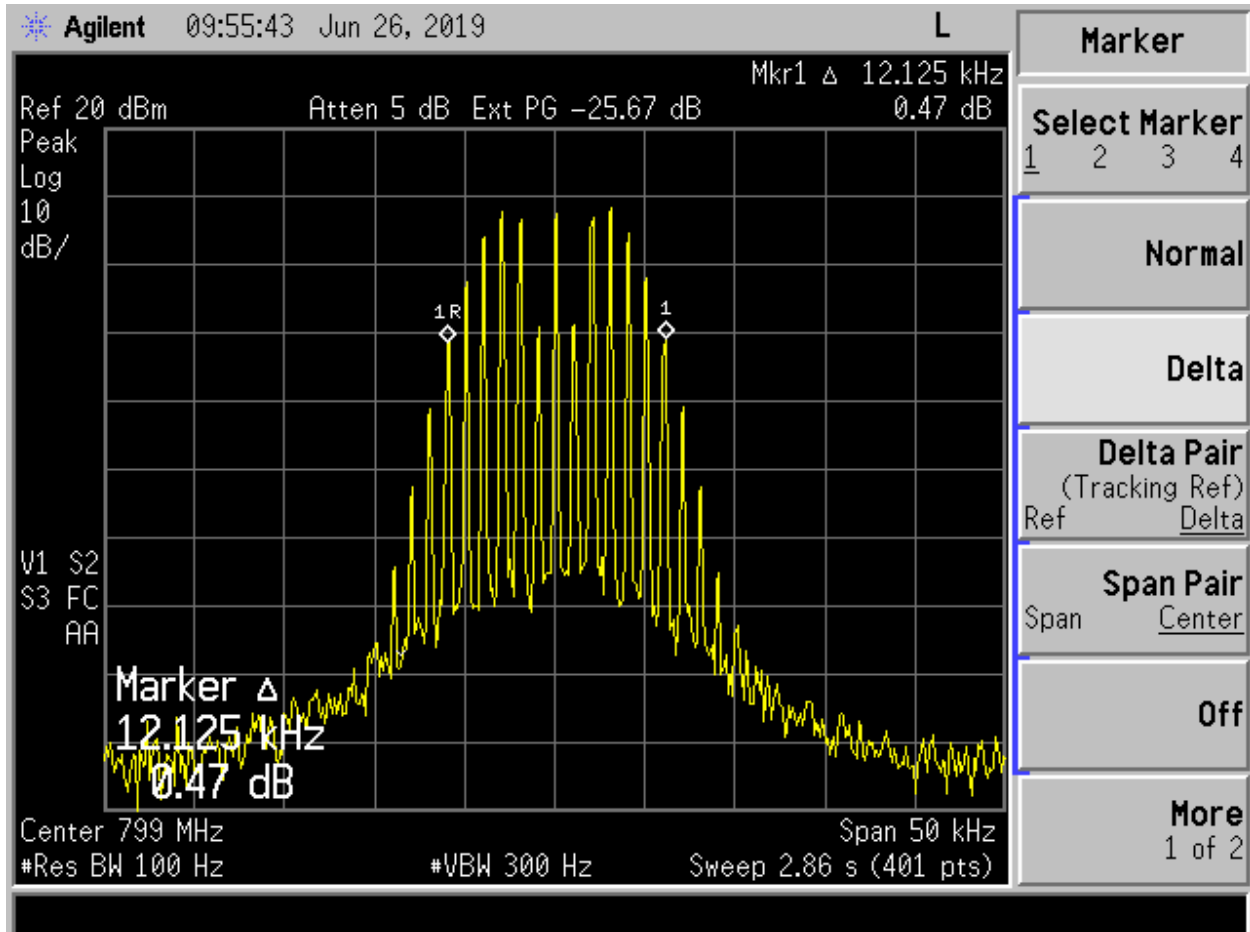


Figure 141. Input 799 MHz @ 12.5 kHz

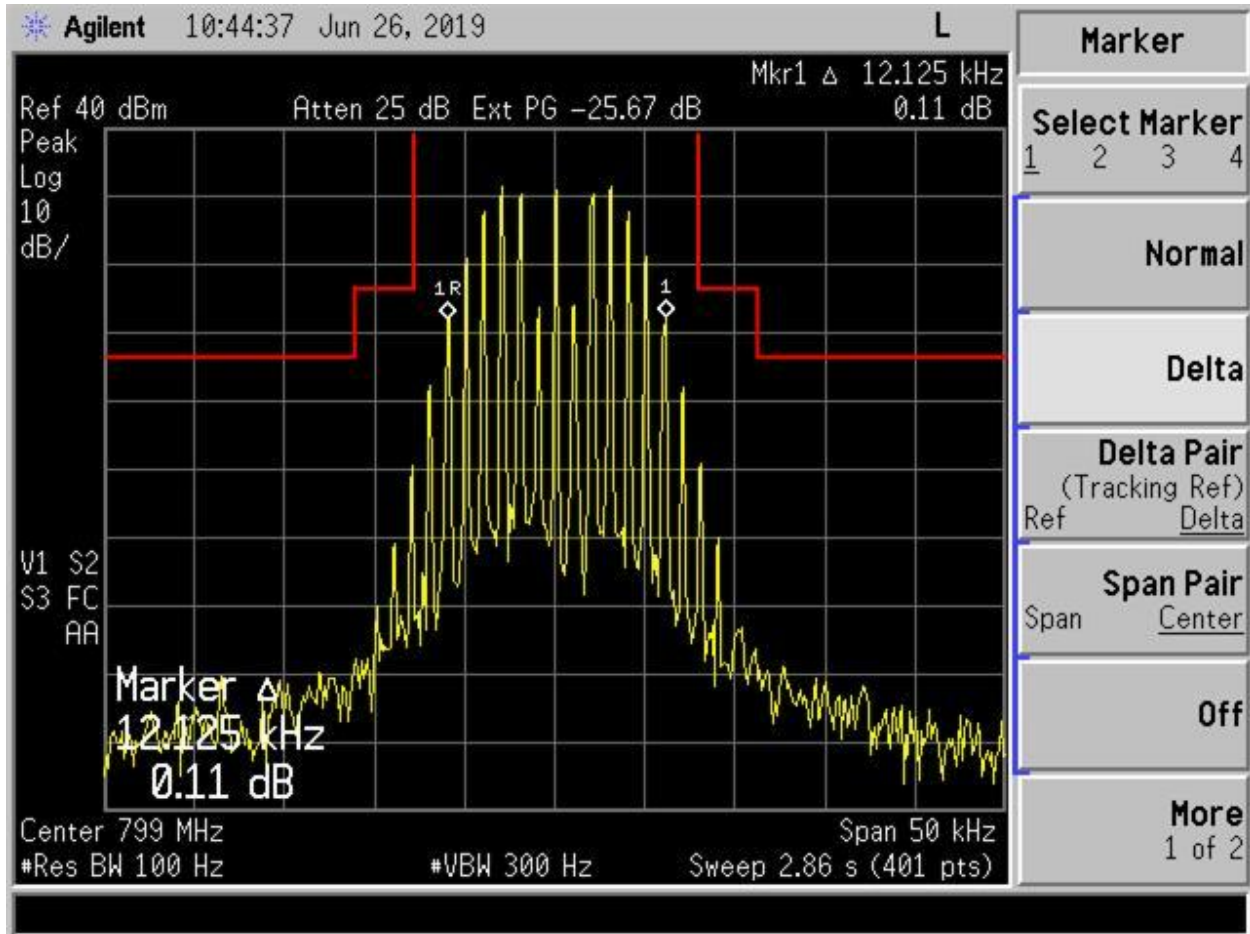


Figure 142. 799 MHz @ 12.5 MHz, Mask B

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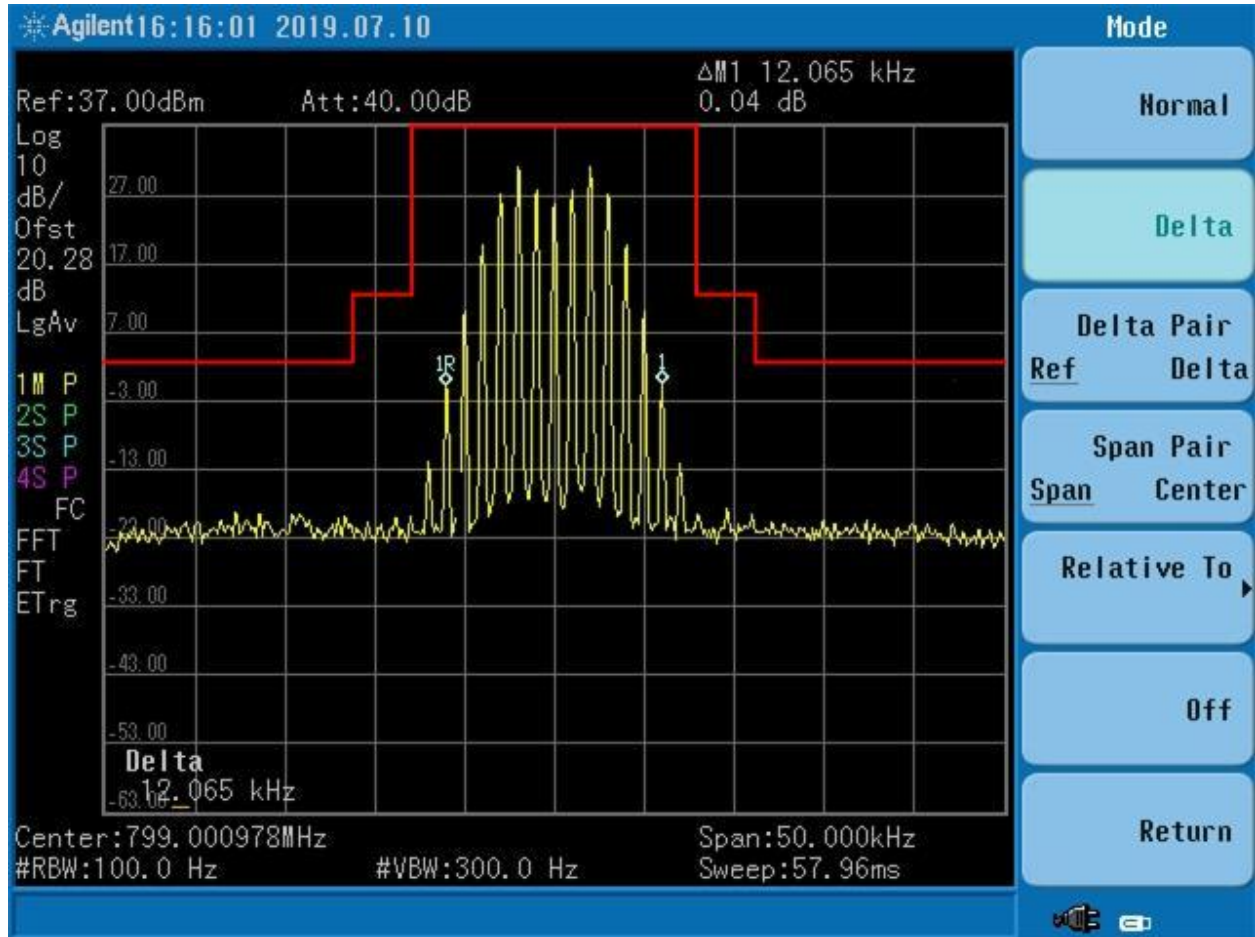


Figure 143. 799 MHz @ 12.5 kHz + 3.0 dB, Mask B

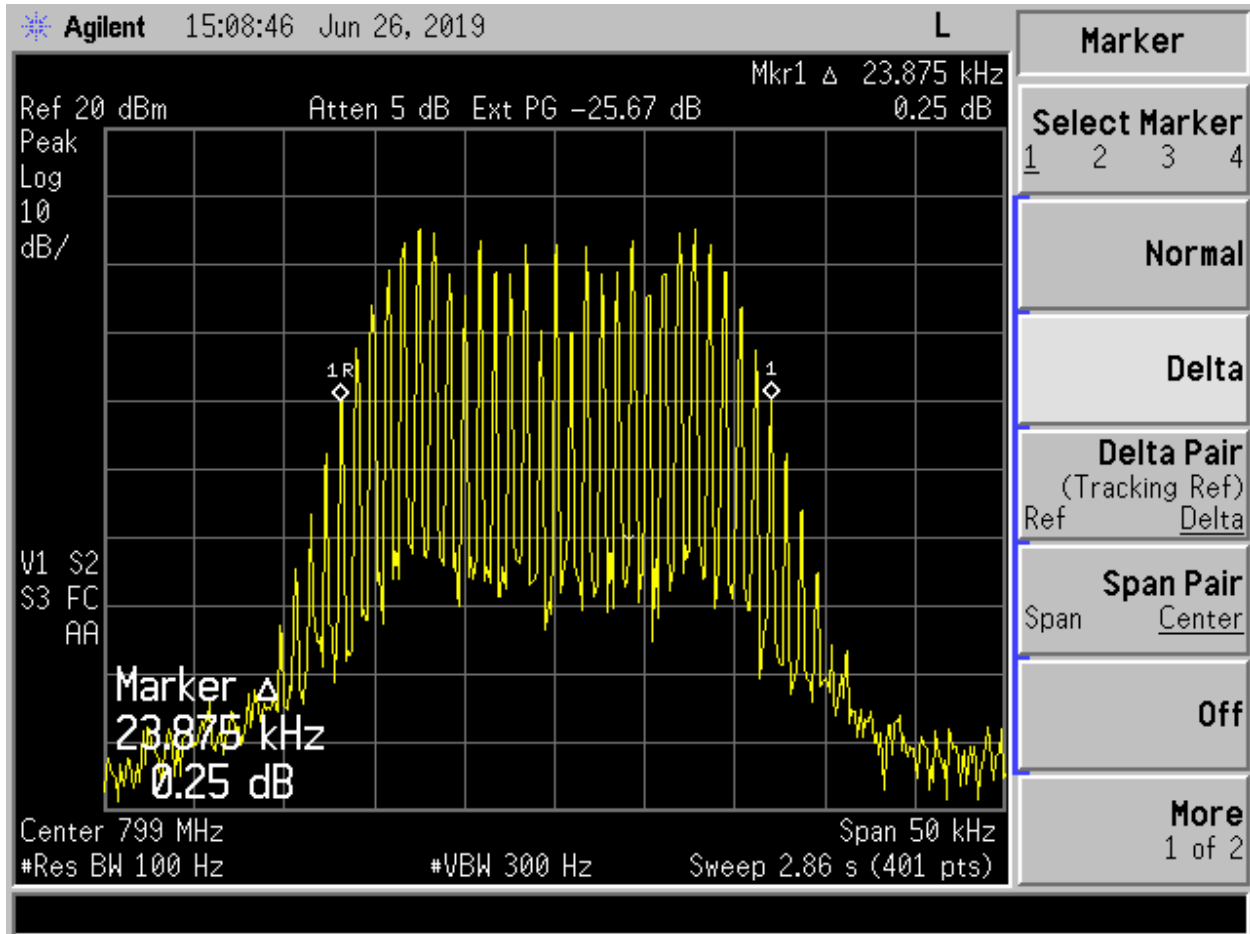


Figure 144. Input 799 MHz @ 25 kHz

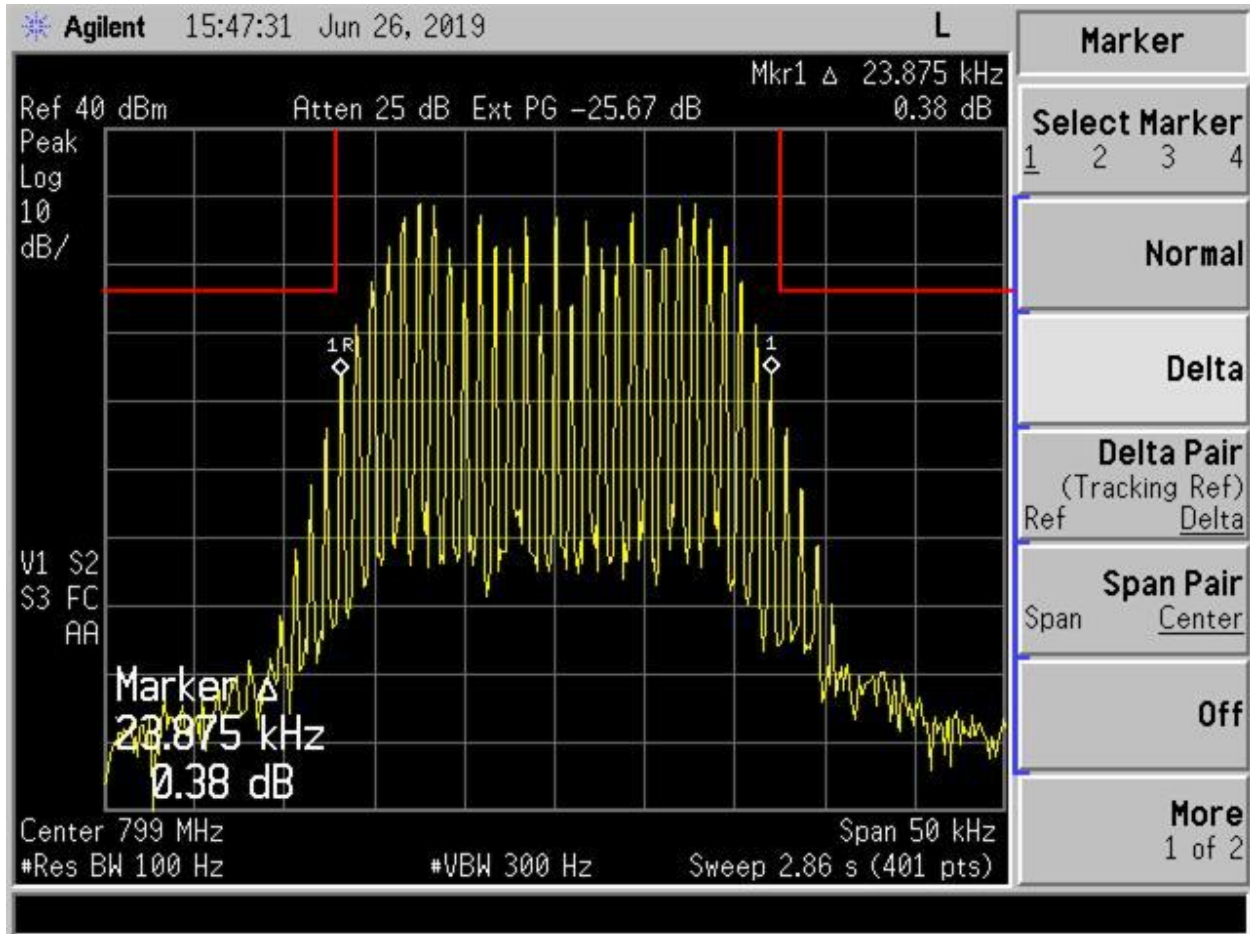


Figure 145. 799 MHz @ 25 kHz, Mask B

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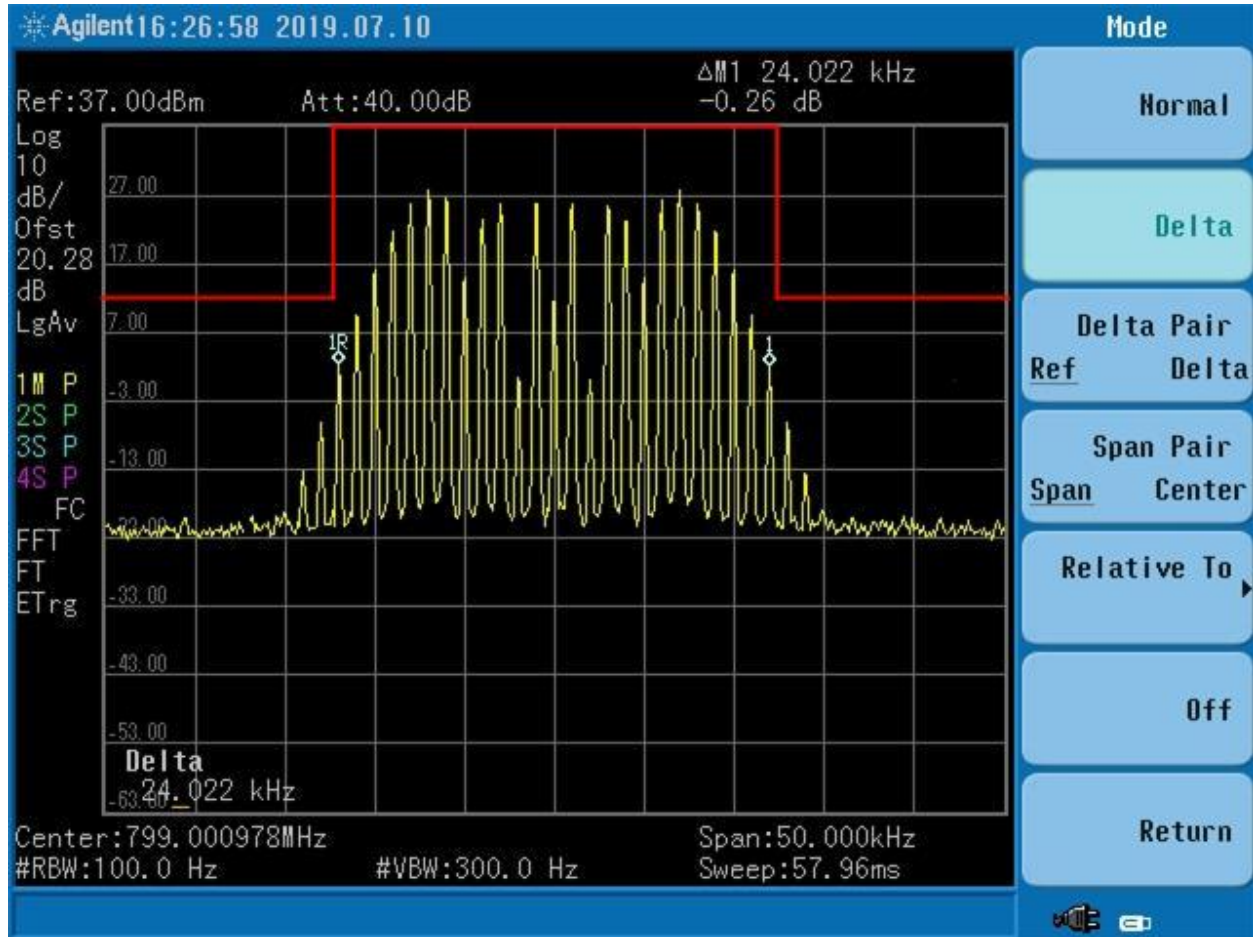


Figure 146. 799 MHz @ 25 kHz + 3.0 dB, Mask B

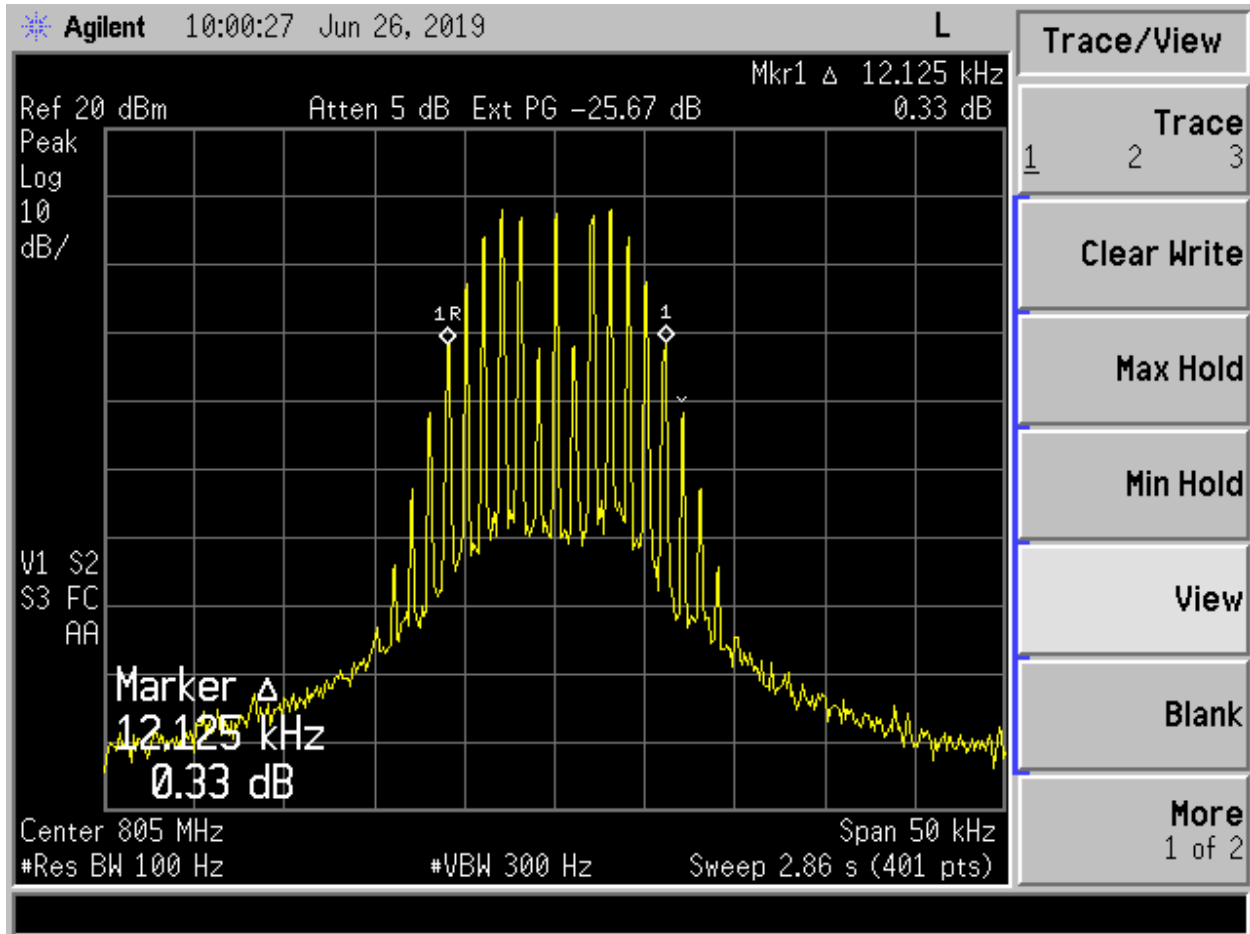


Figure 147. Input 805 MHz @ 12.5 kHz

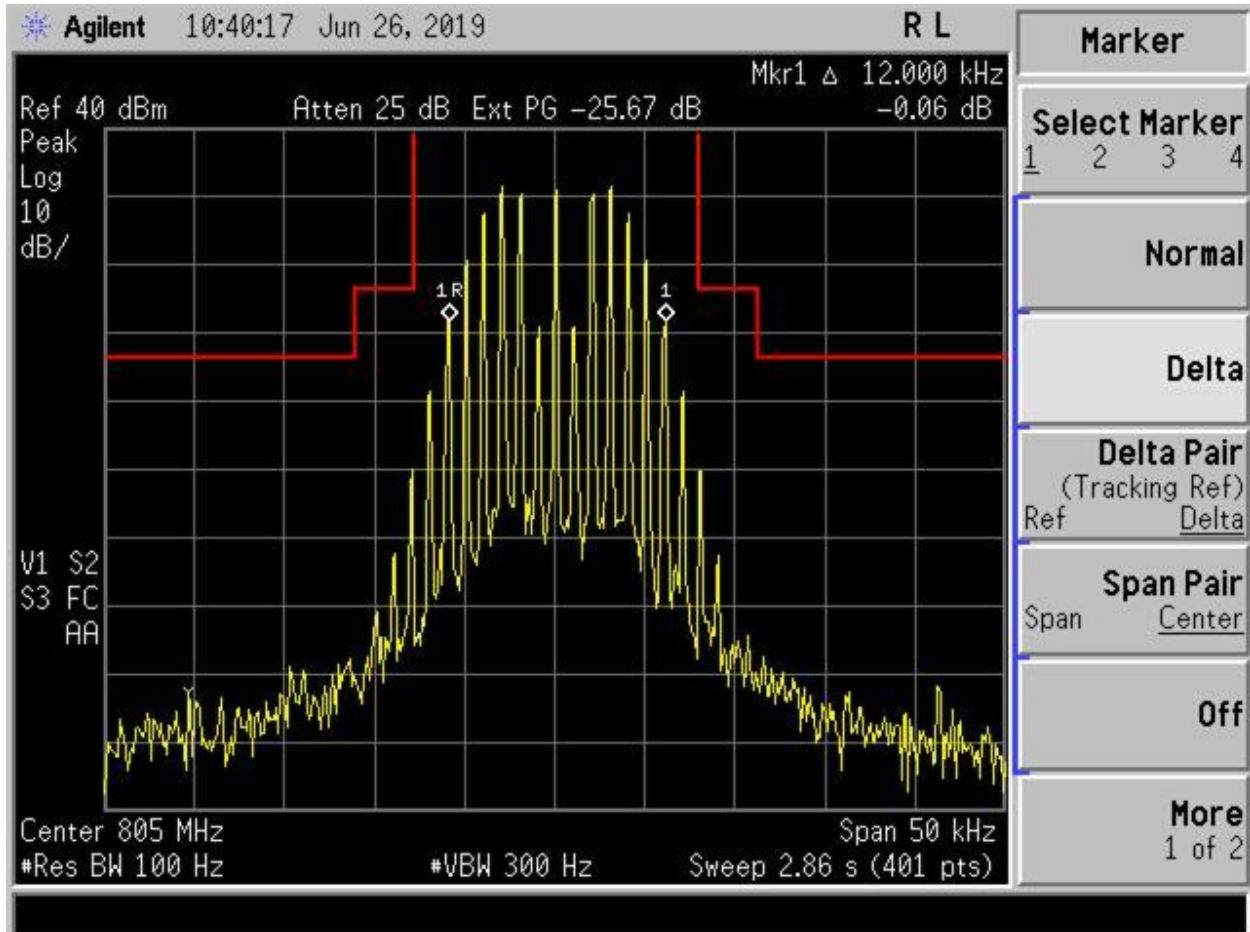


Figure 148. 805 MHz @ 12.5 kHz, Mask B

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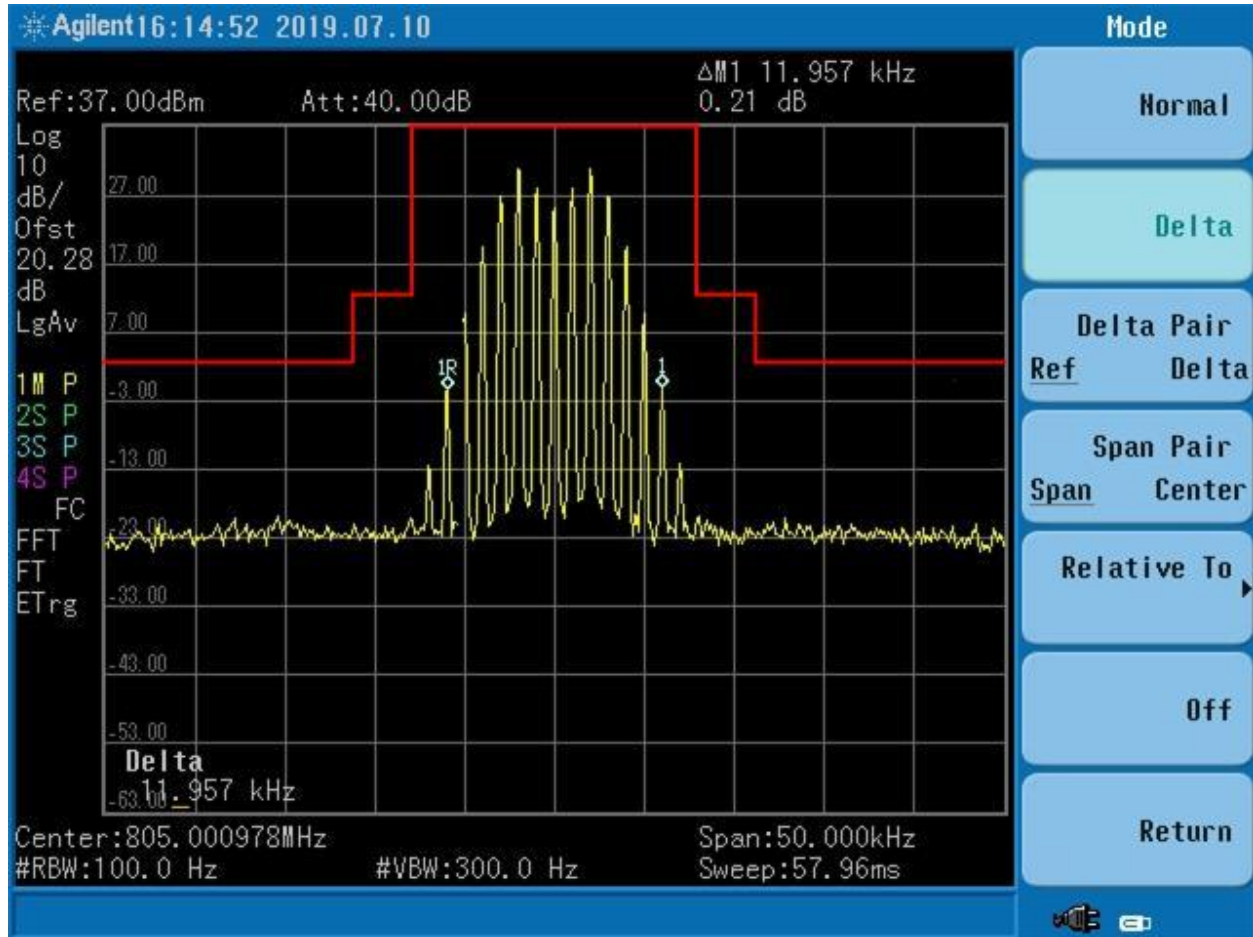


Figure 149. 805 MHz @ 12.5 kHz + 3.0 dB, Mask B

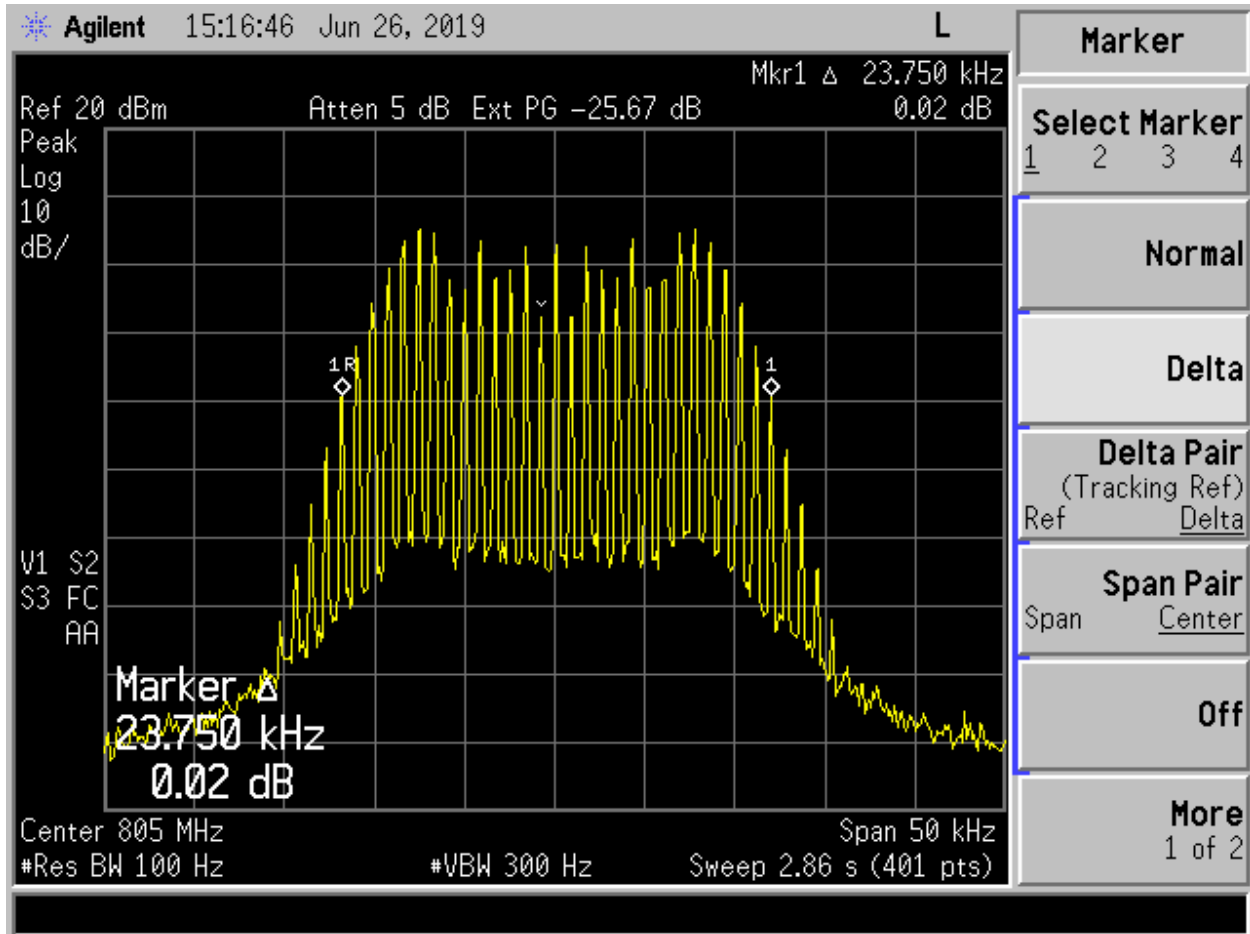


Figure 150. Input 805 MHz @ 25 kHz

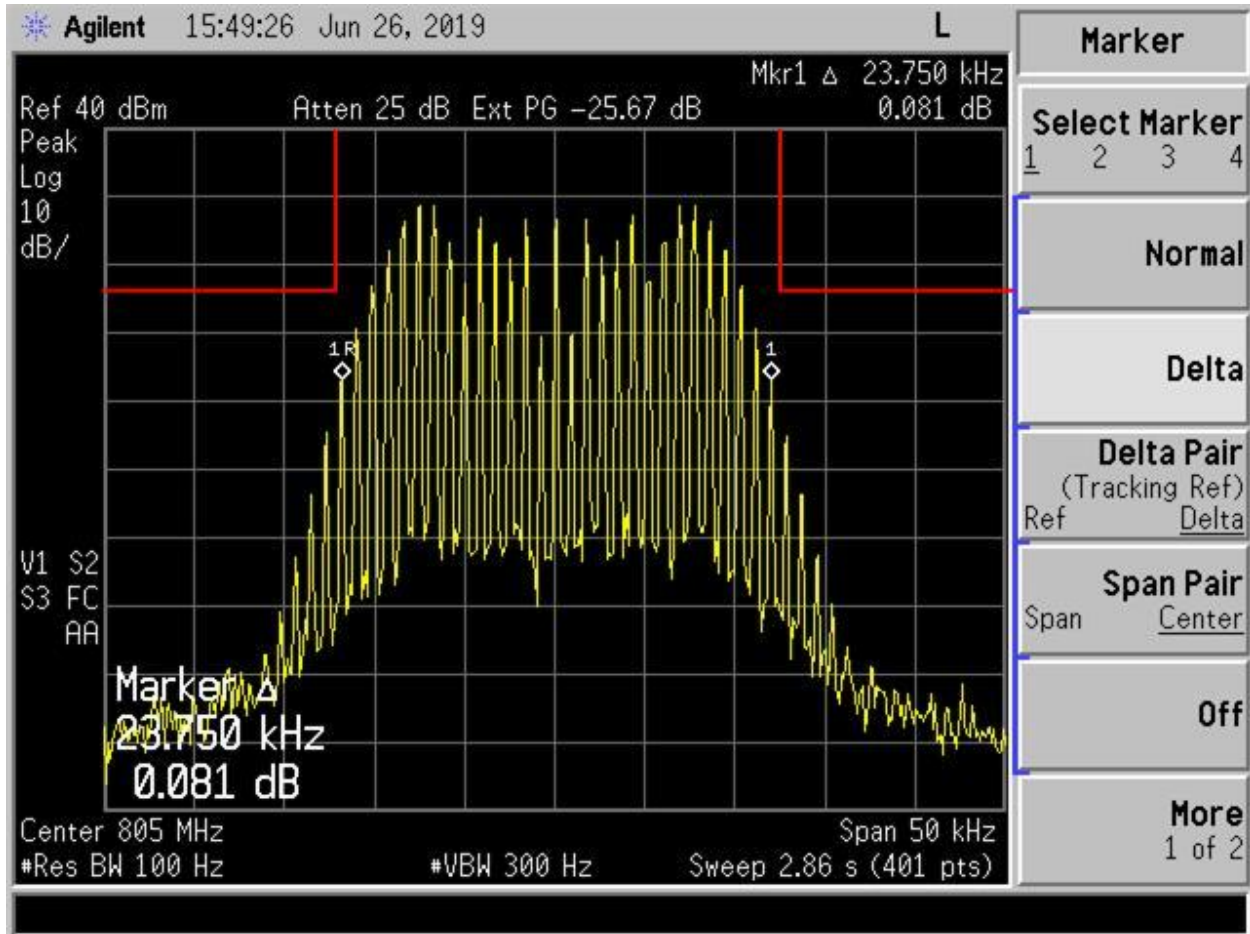


Figure 151. 805 MHz @ 25 kHz, Mask B

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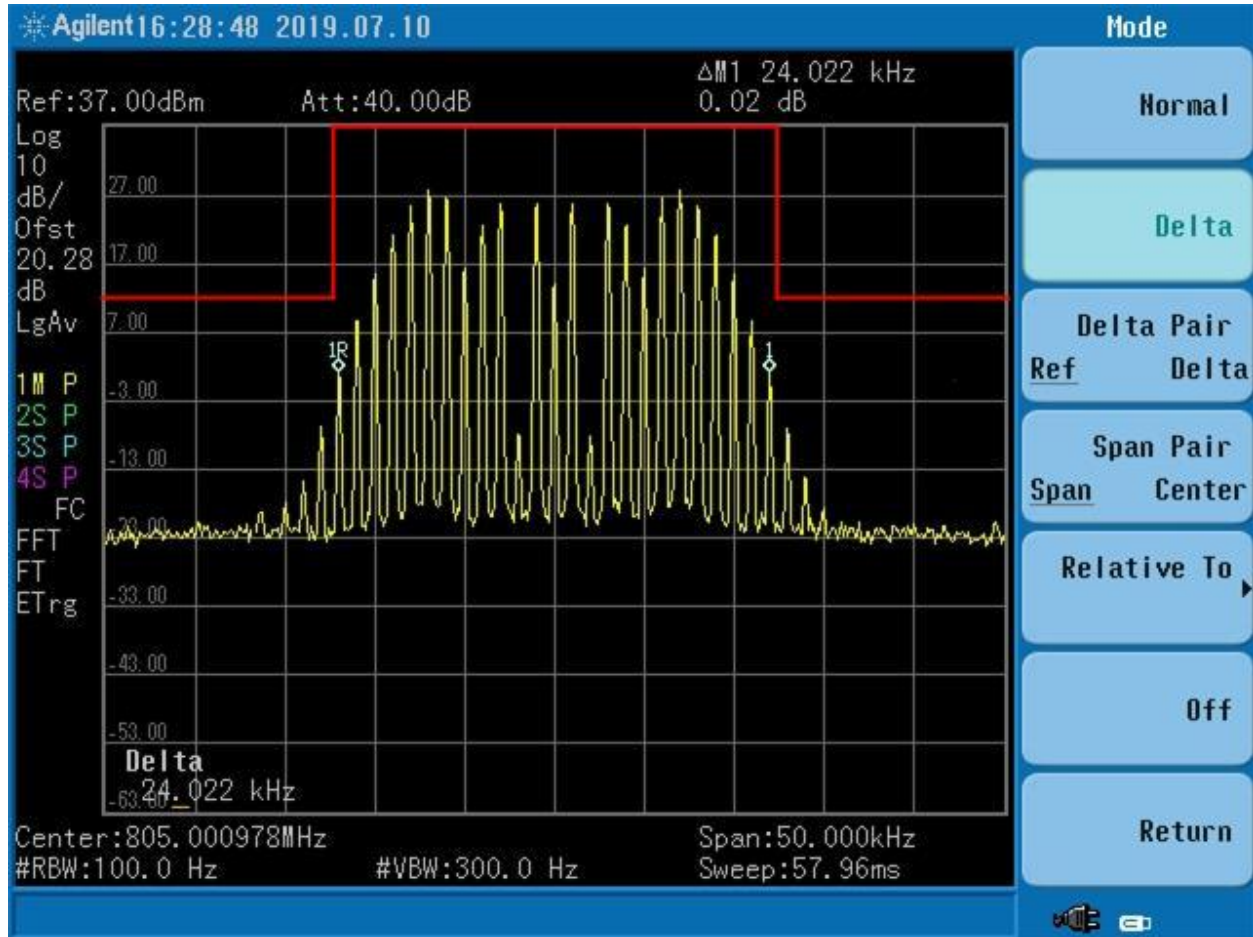


Figure 152. 805 MHz @ 25 kHz + 3.0 dB, Mask B

2.11.4 800 MHz Channel

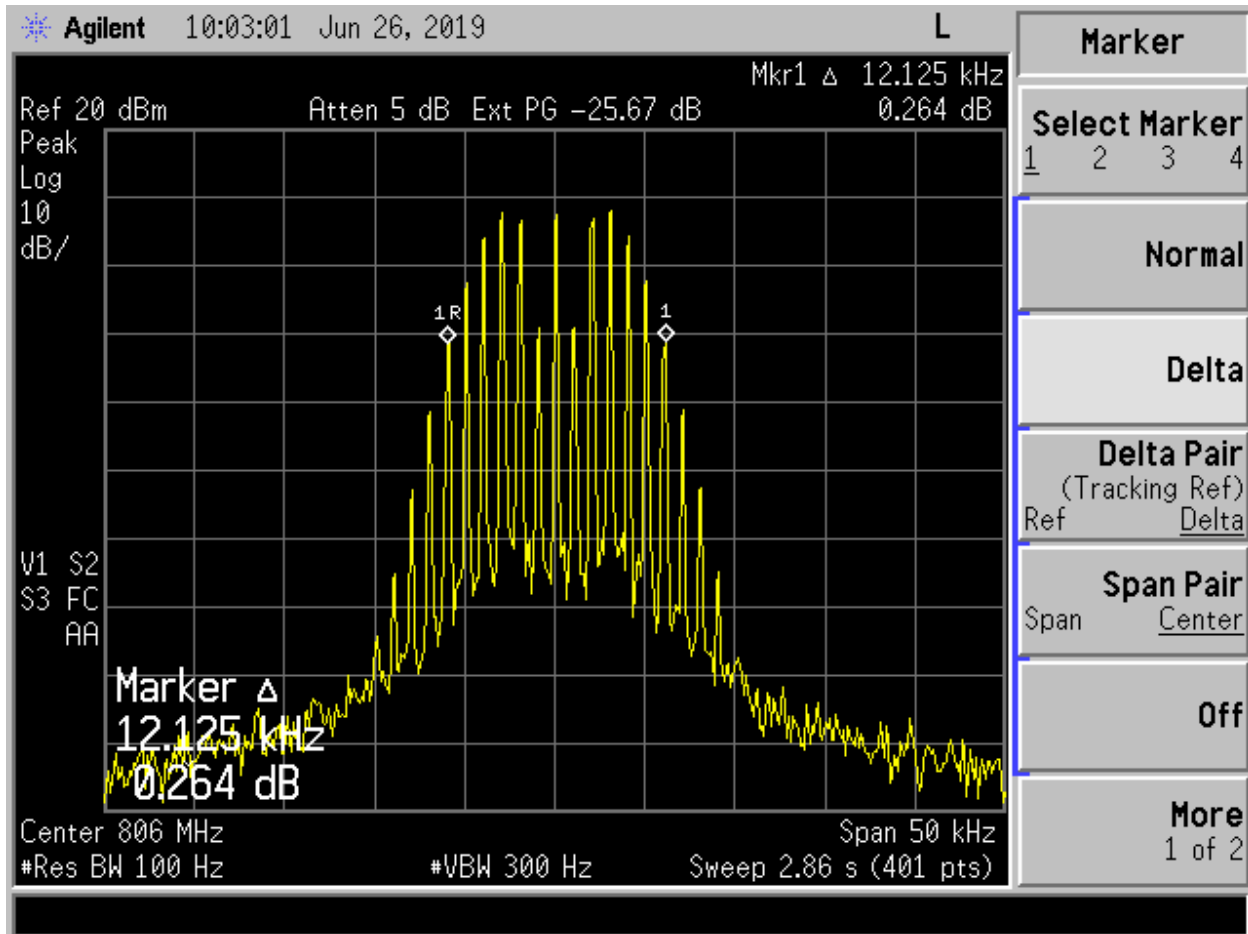


Figure 153. Input 806 MHz @ 12.5 kHz

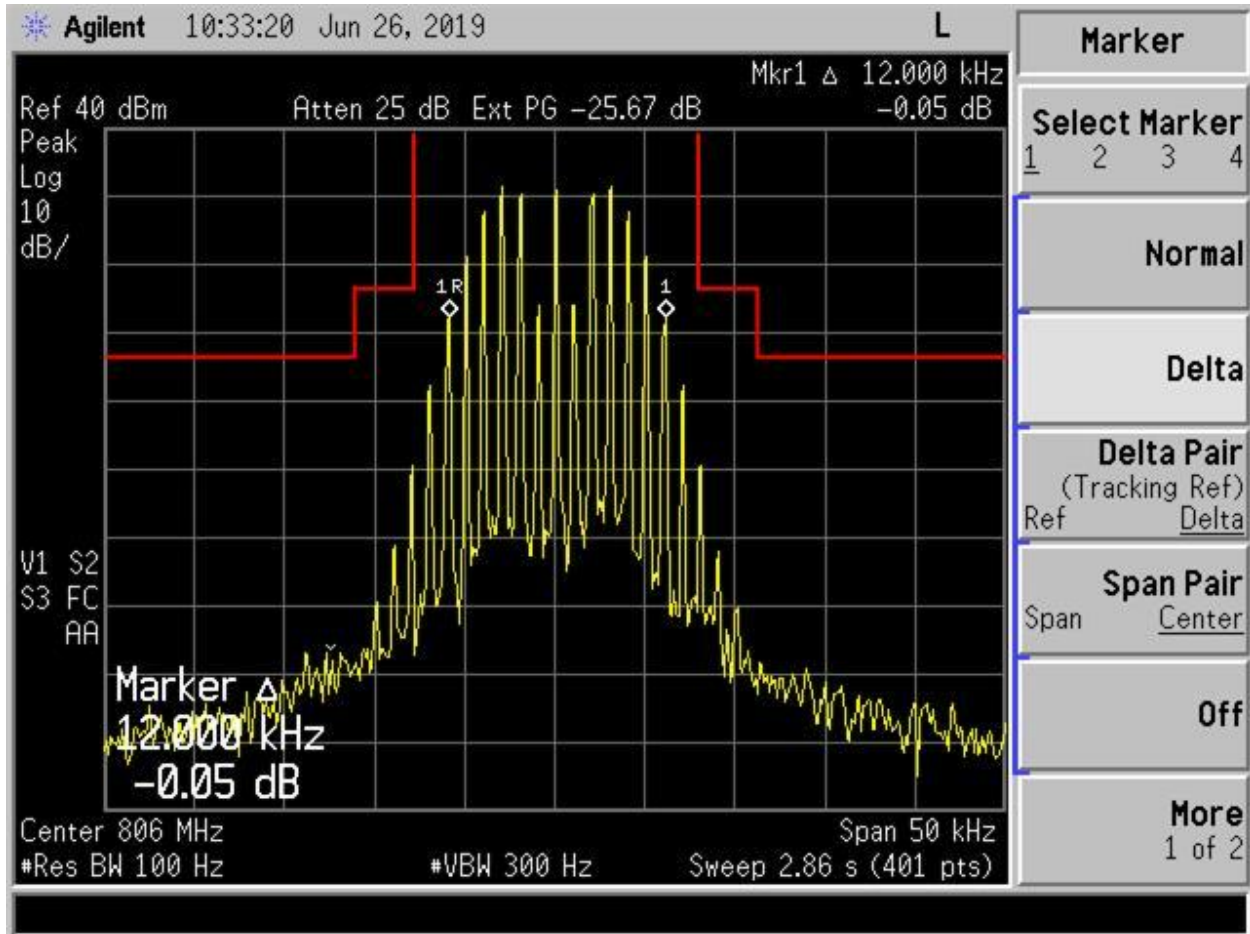


Figure 154. 806 MHz @ 12.5 kHz, Mask B

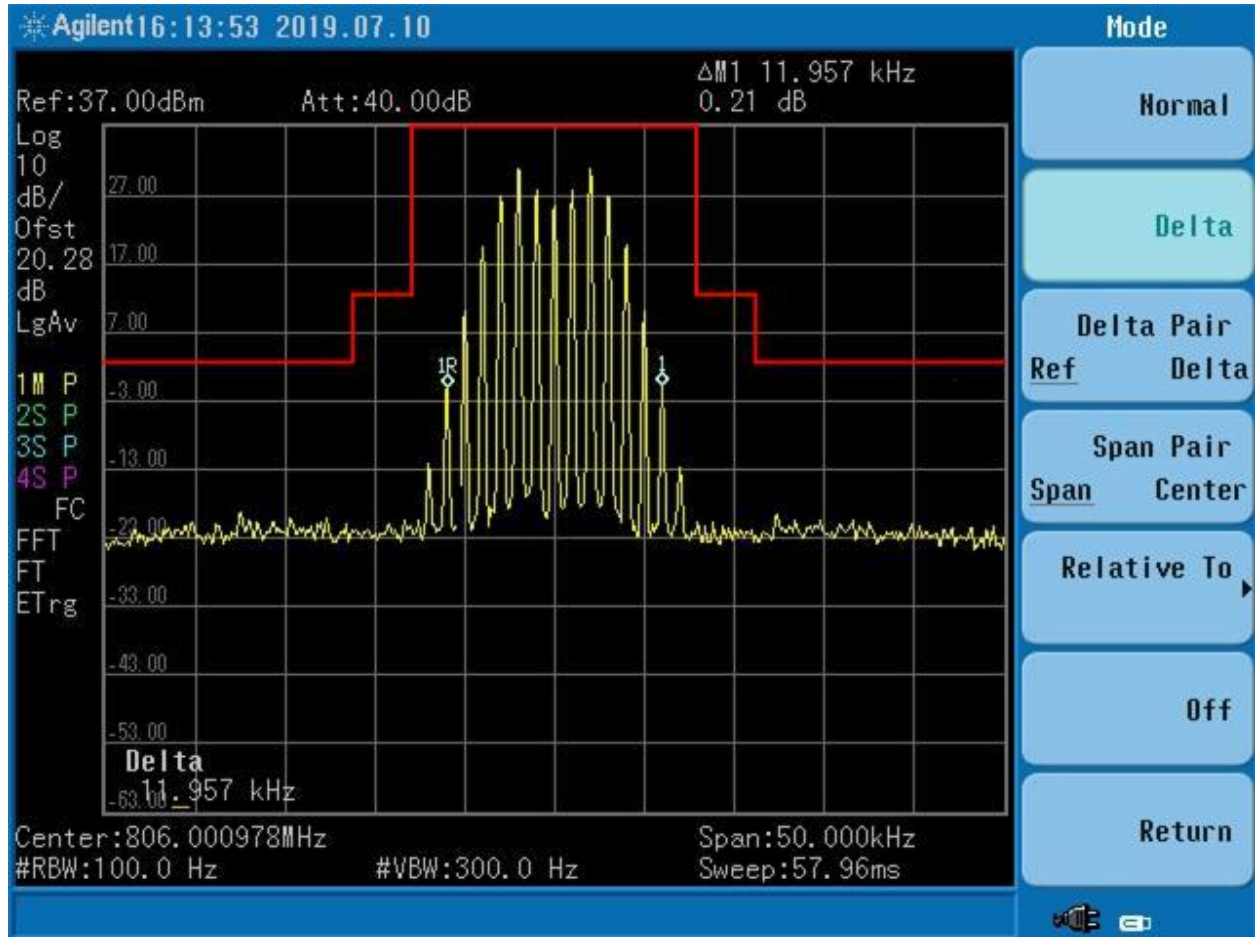


Figure 155. 806 MHz @ 12.5 kHz + 3.0 dB, Mask B

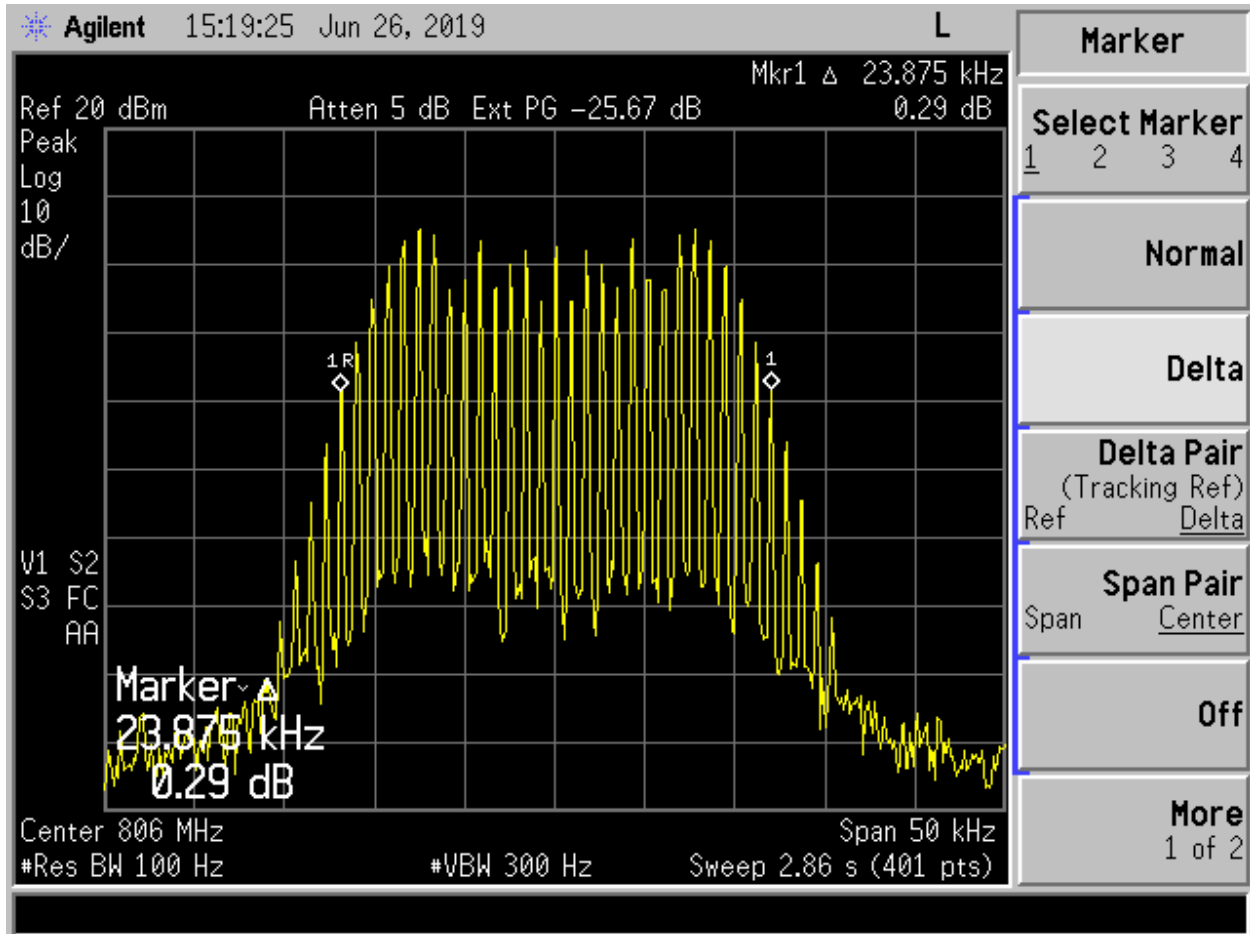


Figure 156. Input 806 MHz @ 25 kHz

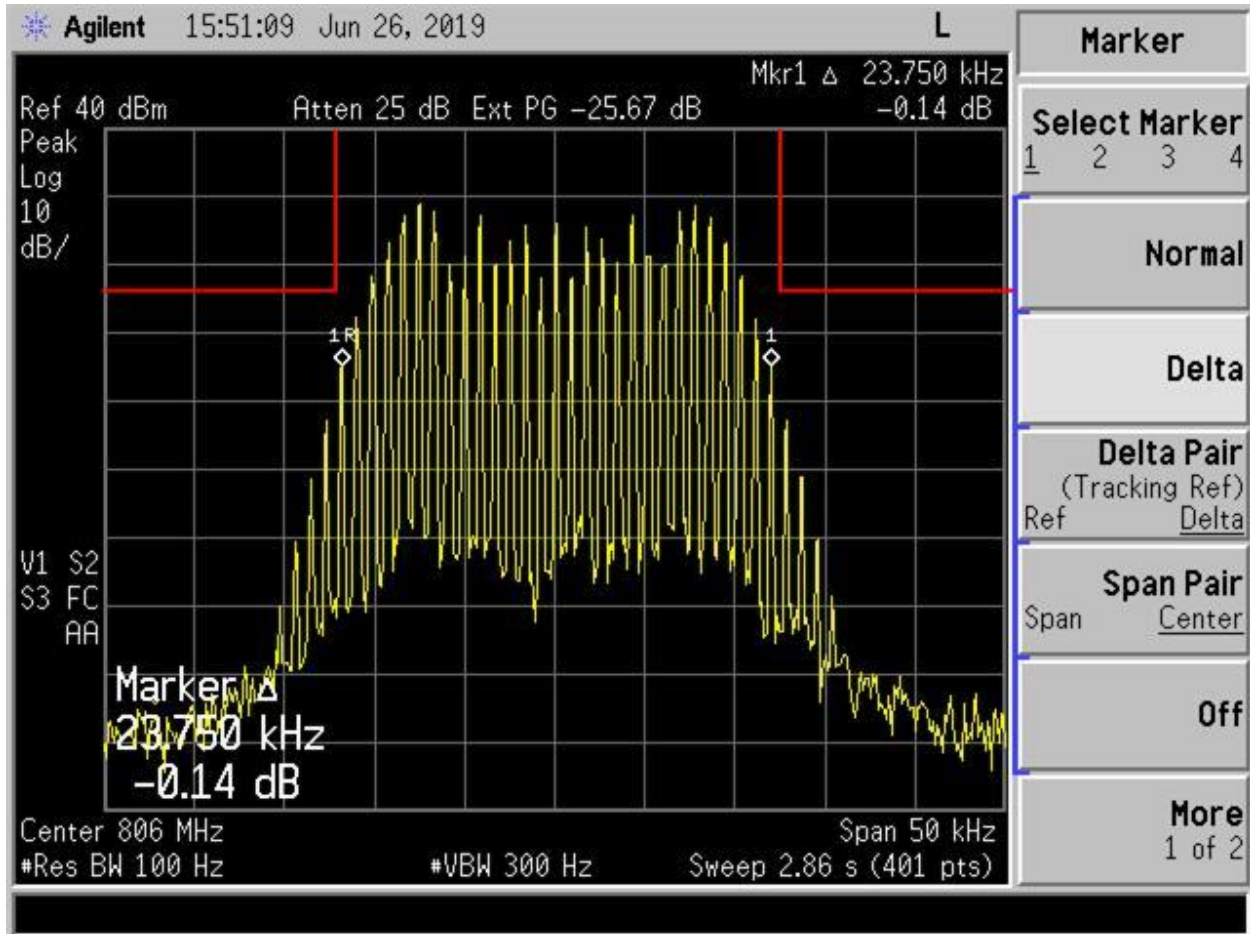


Figure 157. 806 MHz @ 25 kHz, Mask B

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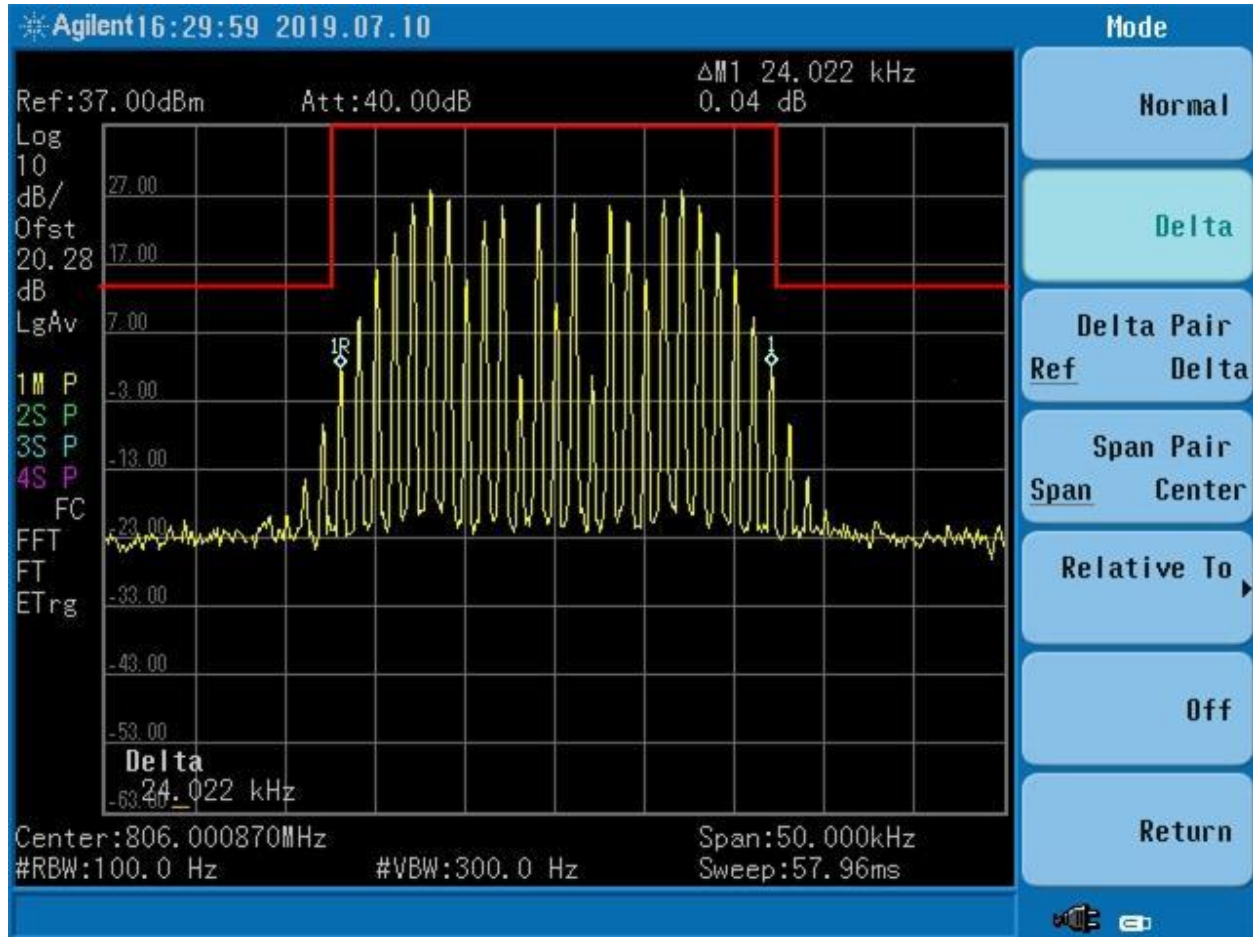


Figure 158. 806 MHz @ 25 kHz + 3.0 dB, Mask B

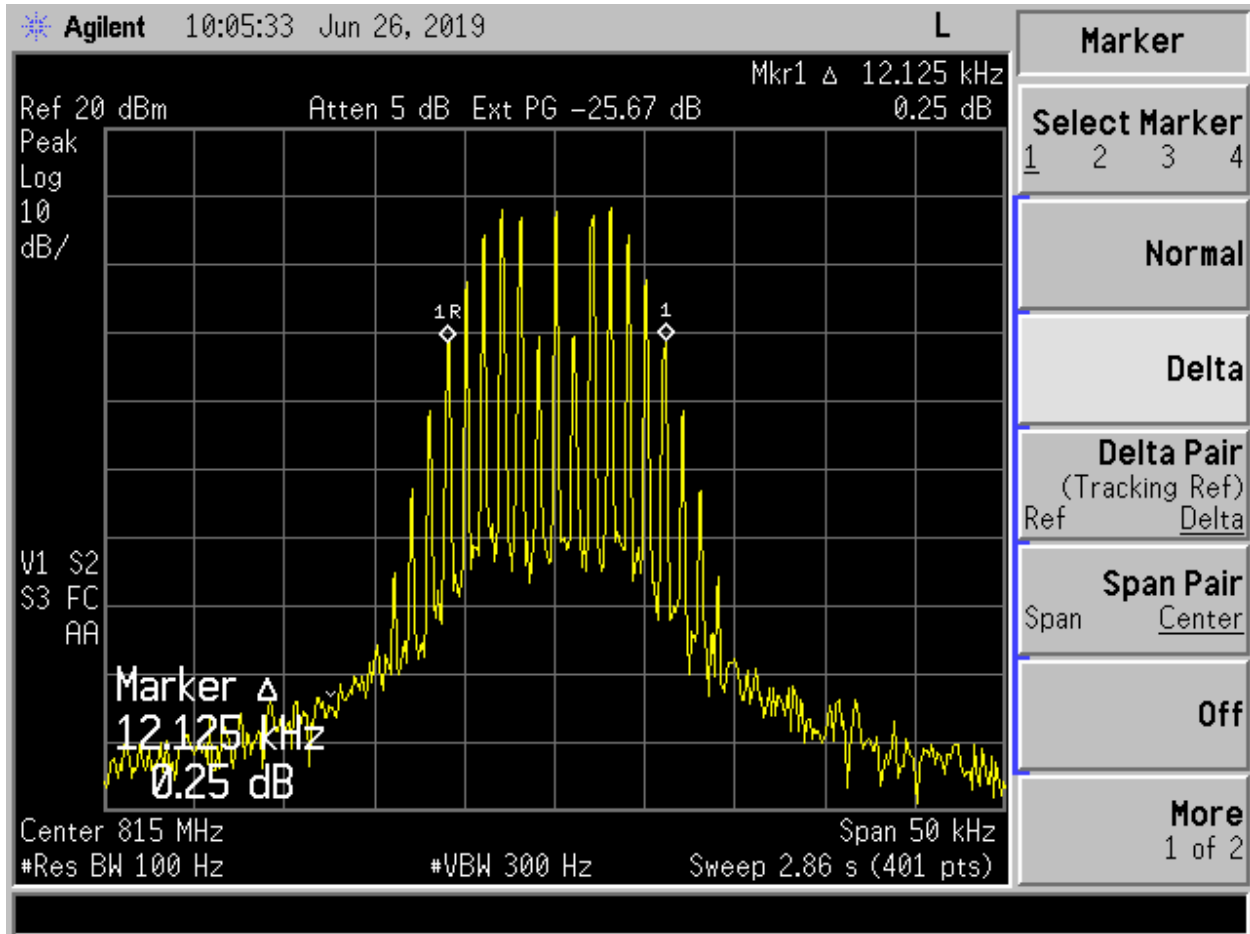


Figure 159. Input 815 MHz @ 12.5 kHz

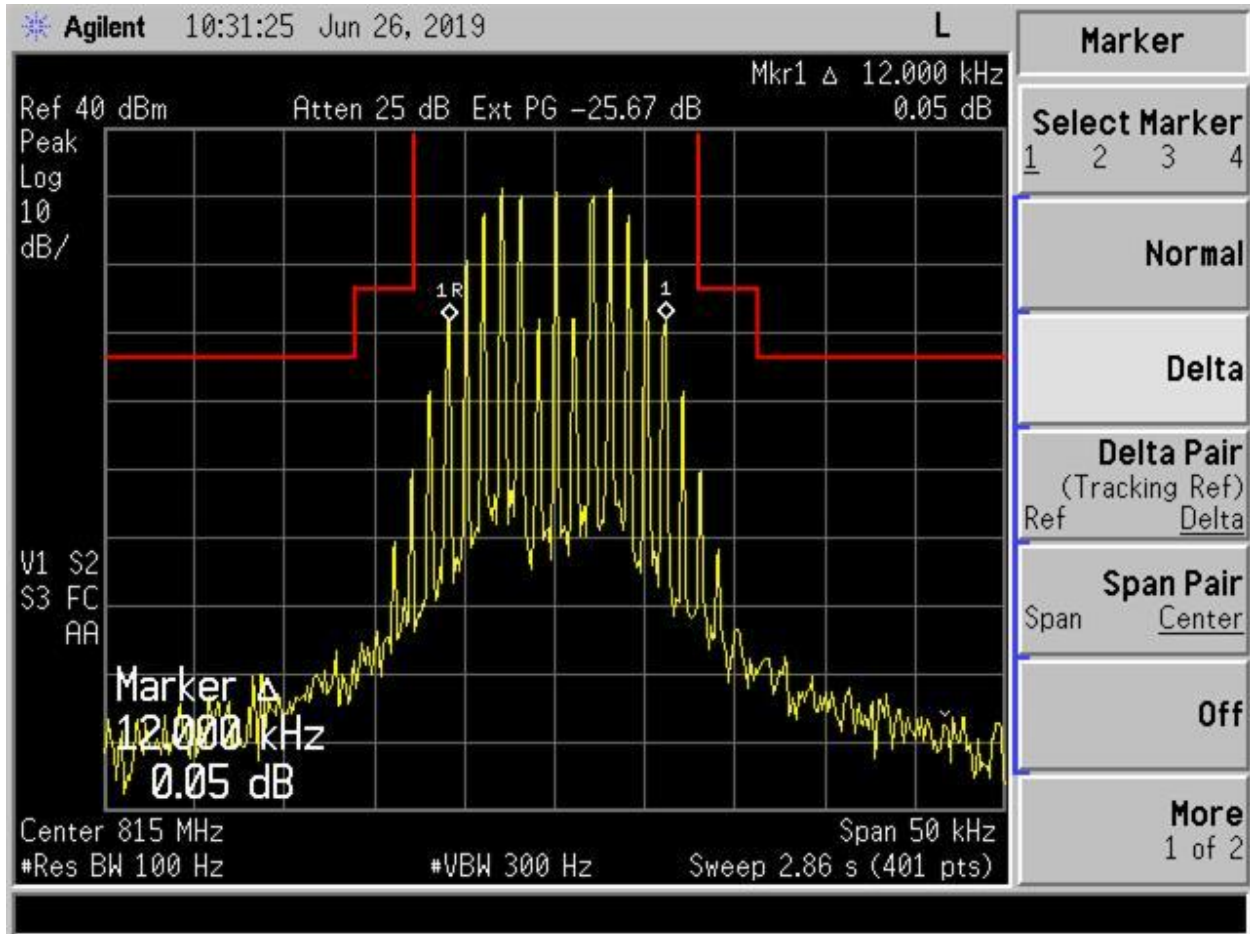


Figure 160. 815 MHz @ 12.5 kHz, Mask B

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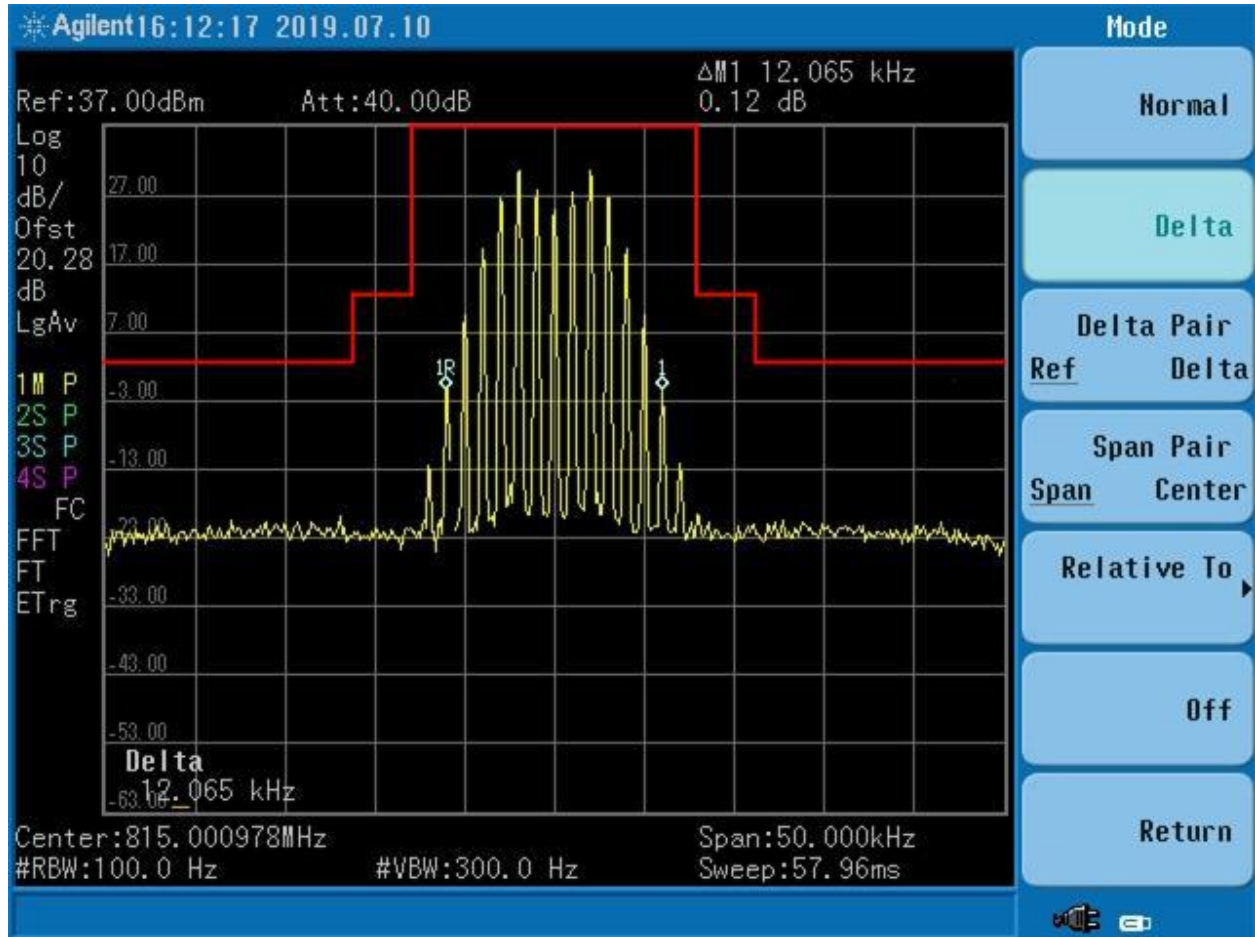


Figure 161. 815 MHz @ 12.5 kHz + 3.0 dB, Mask B

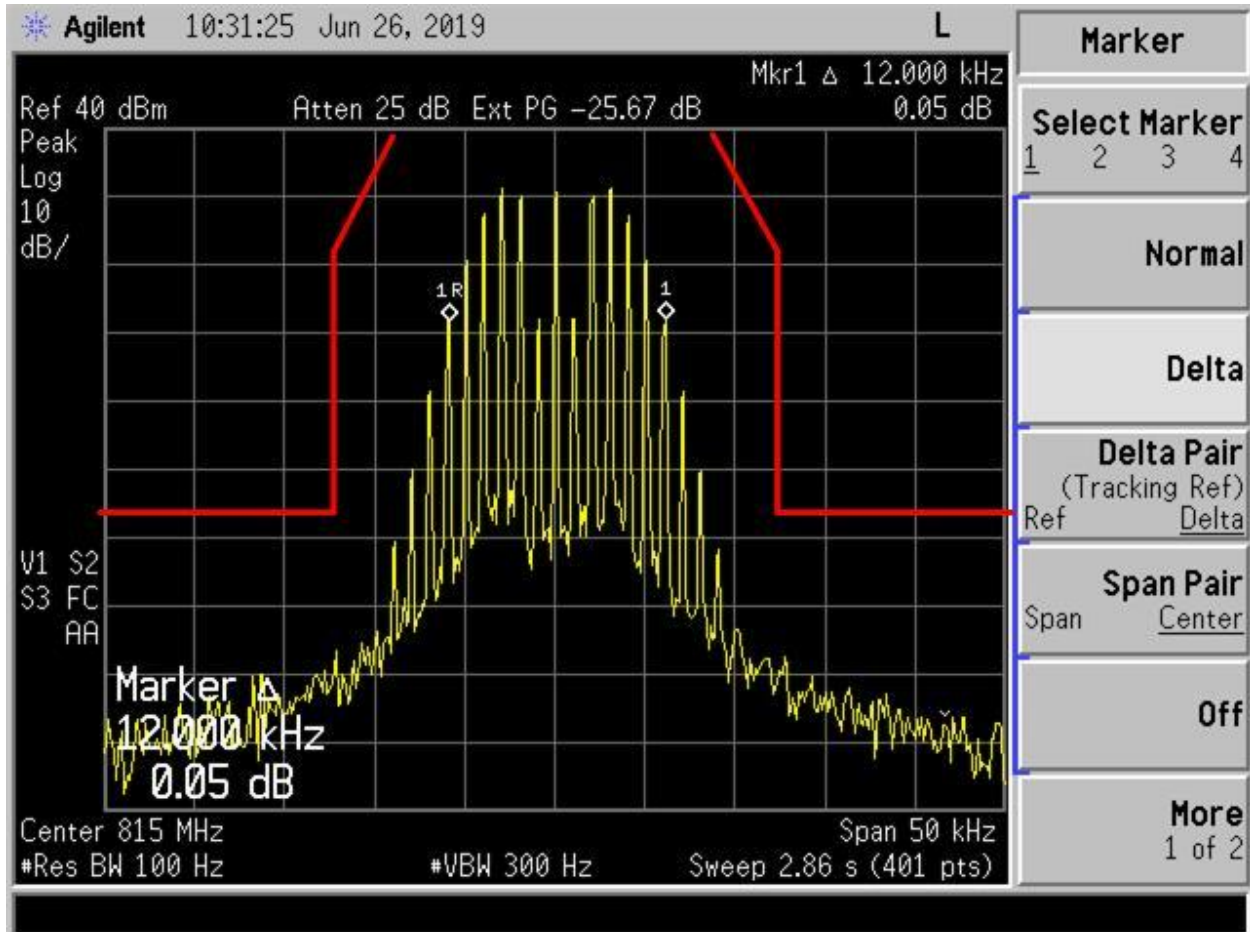


Figure 162. 815 MHz @ 12.5 kHz, Mask D

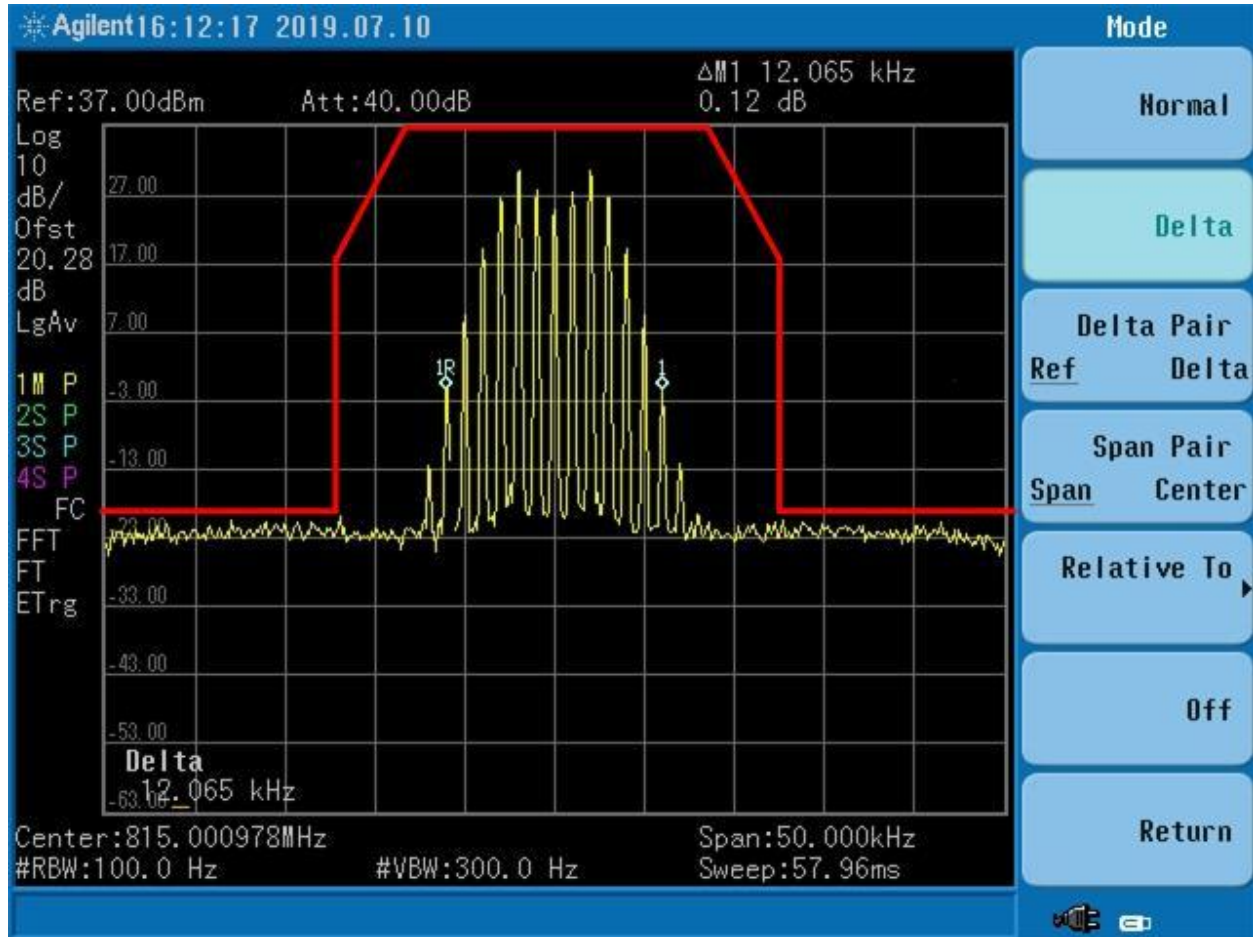


Figure 163. 815 MHz @ 12.5 kHz + 3dB, Mask D

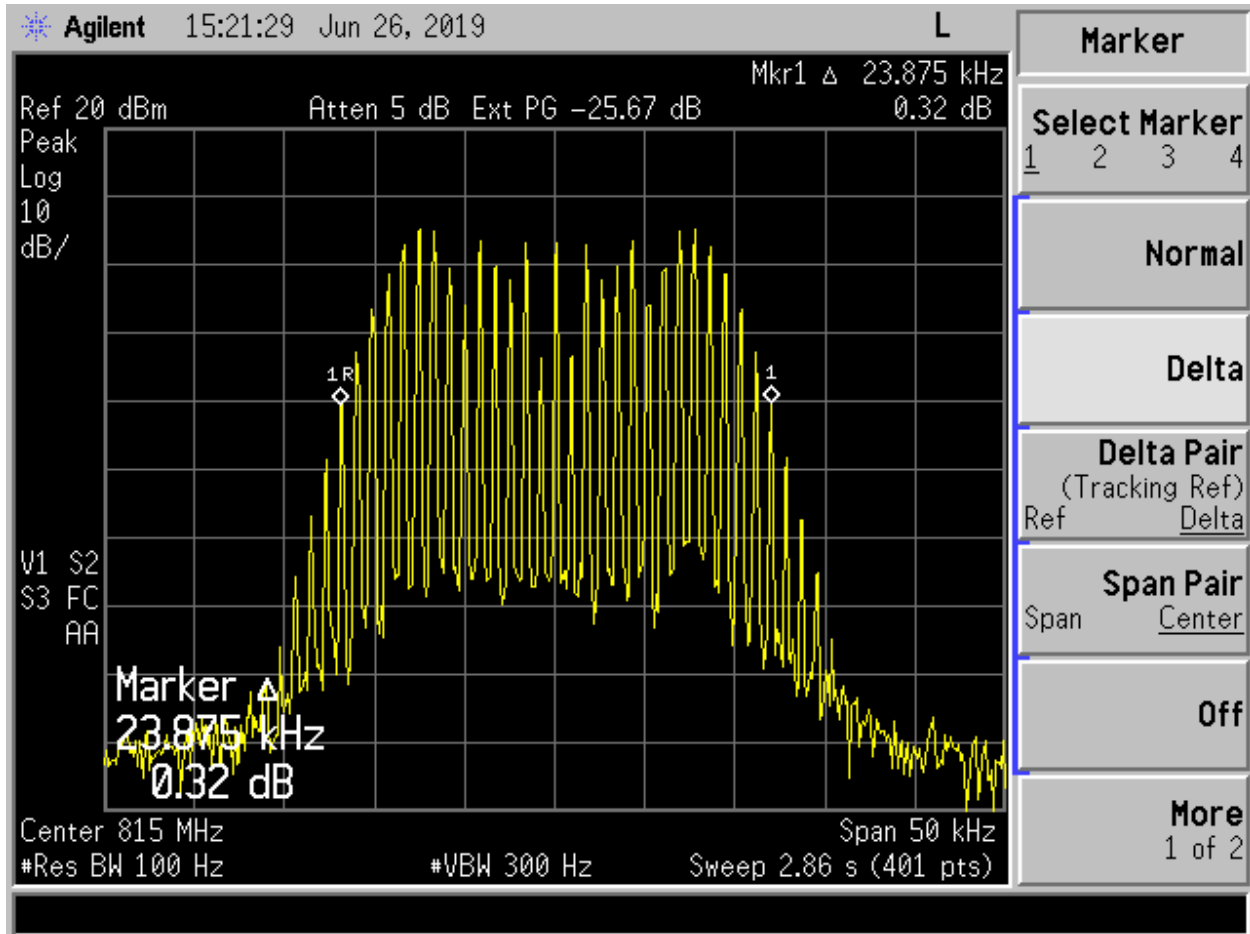


Figure 164. Input 815 MHz @ 25 kHz

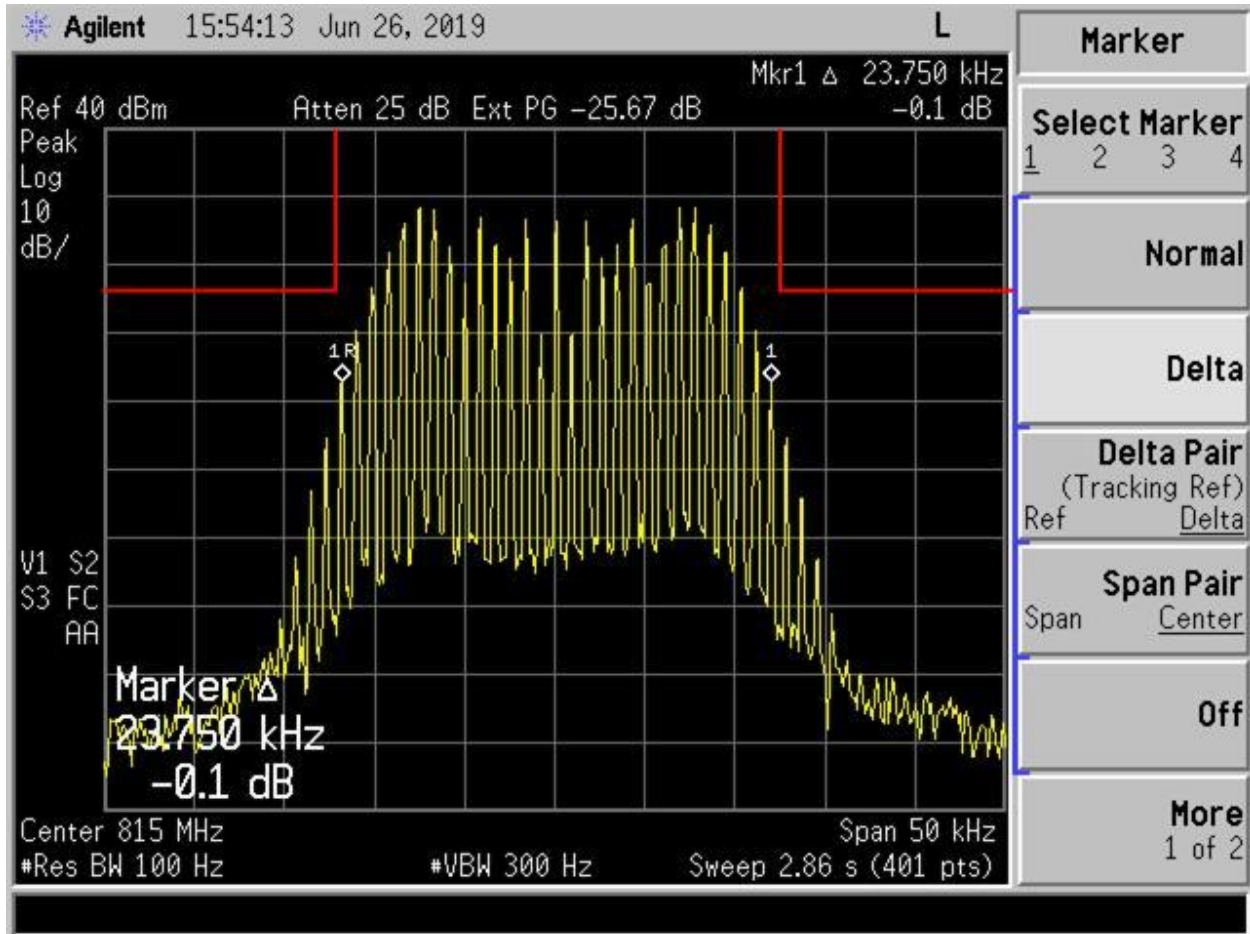


Figure 165. 815 MHz @ 25 kHz, Mask B

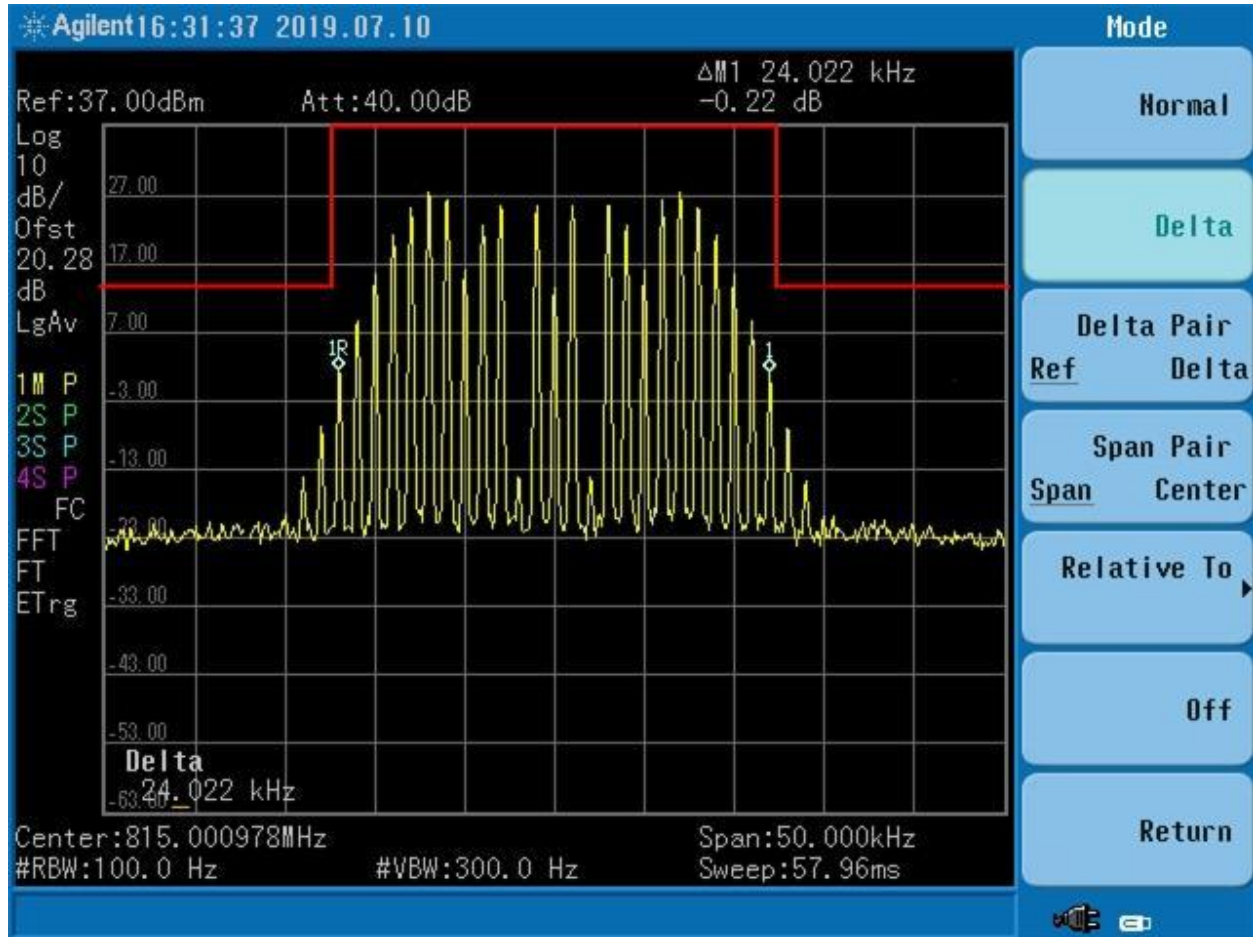


Figure 166. 815 MHz @ 25 kHz +3.0 dB, Mask B

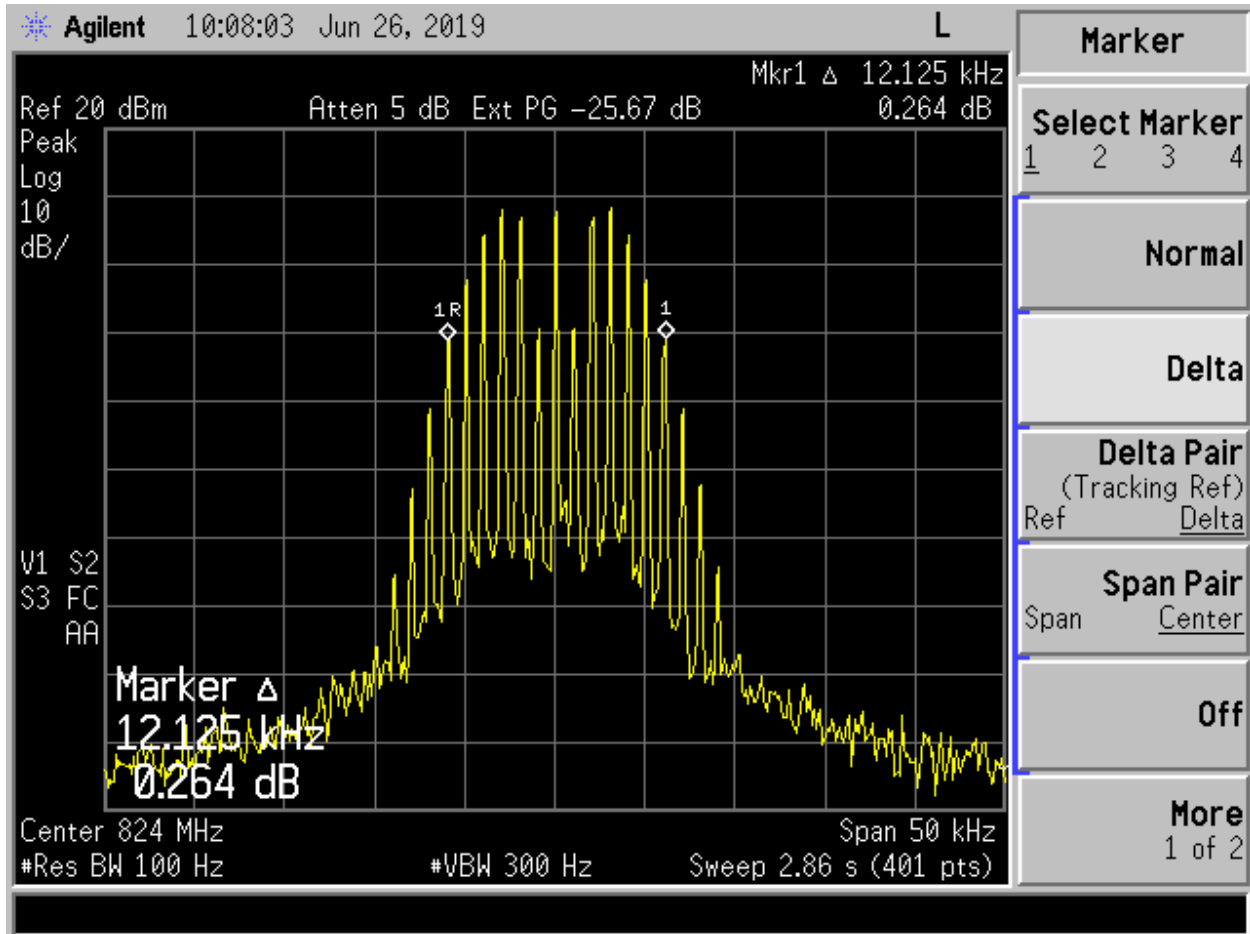


Figure 167. Input 824 MHz @ 12.5 kHz

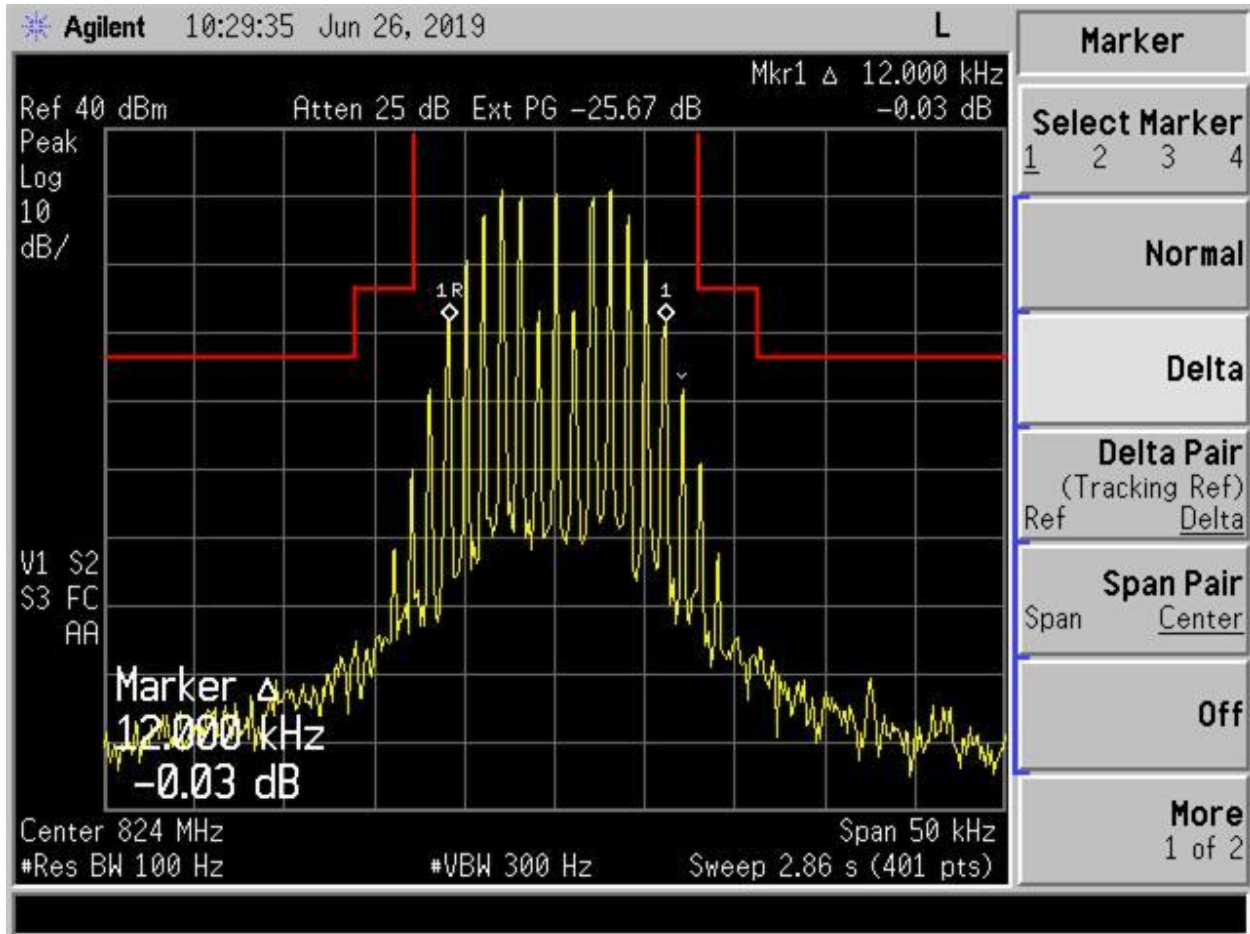


Figure 168. 824 MHz @ 12.5 kHz, Mask B

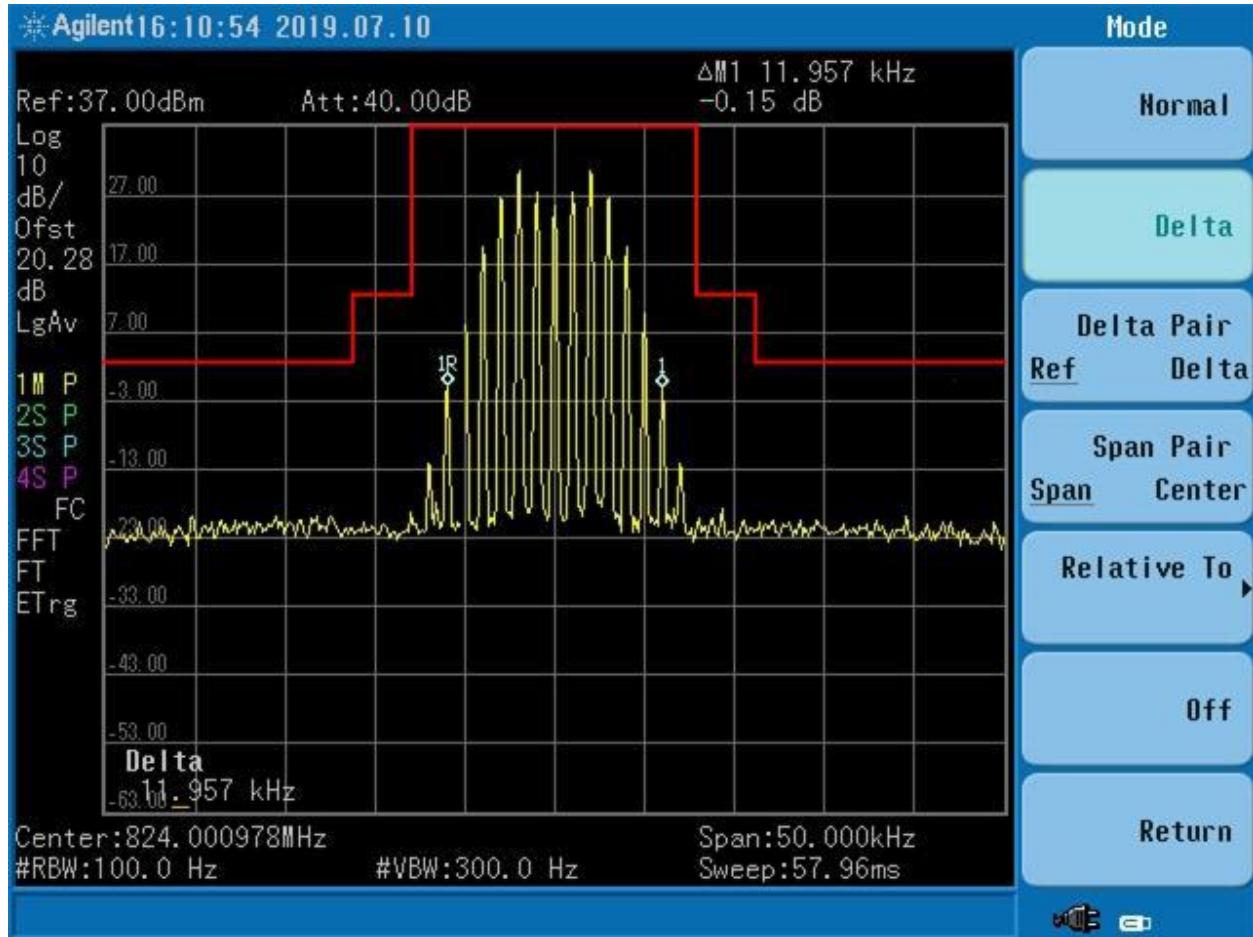


Figure 169. 824 MHz @ 12.5 kHz + 3.0 dB, Mask B

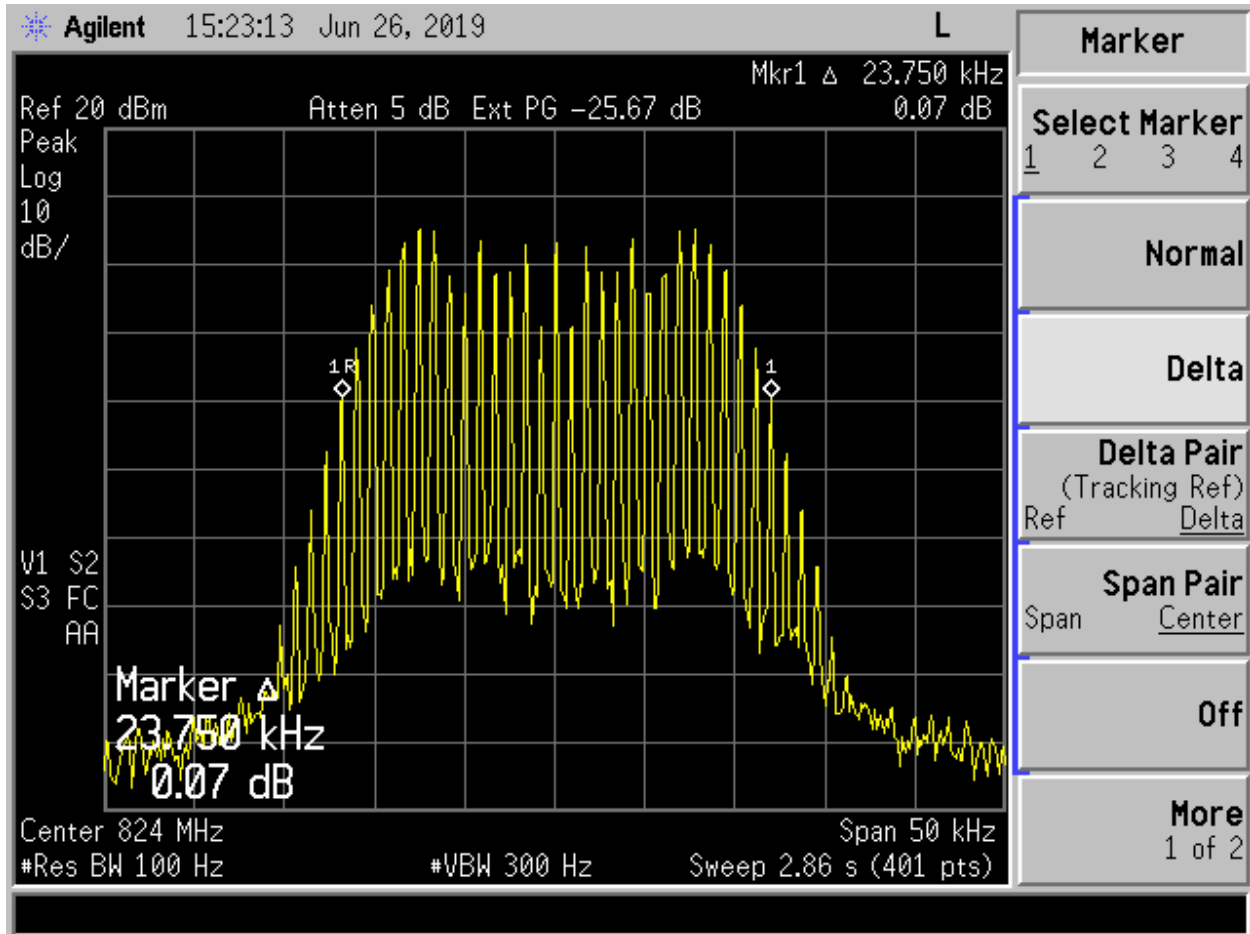


Figure 170. Input 824 MHz @ 25 kHz

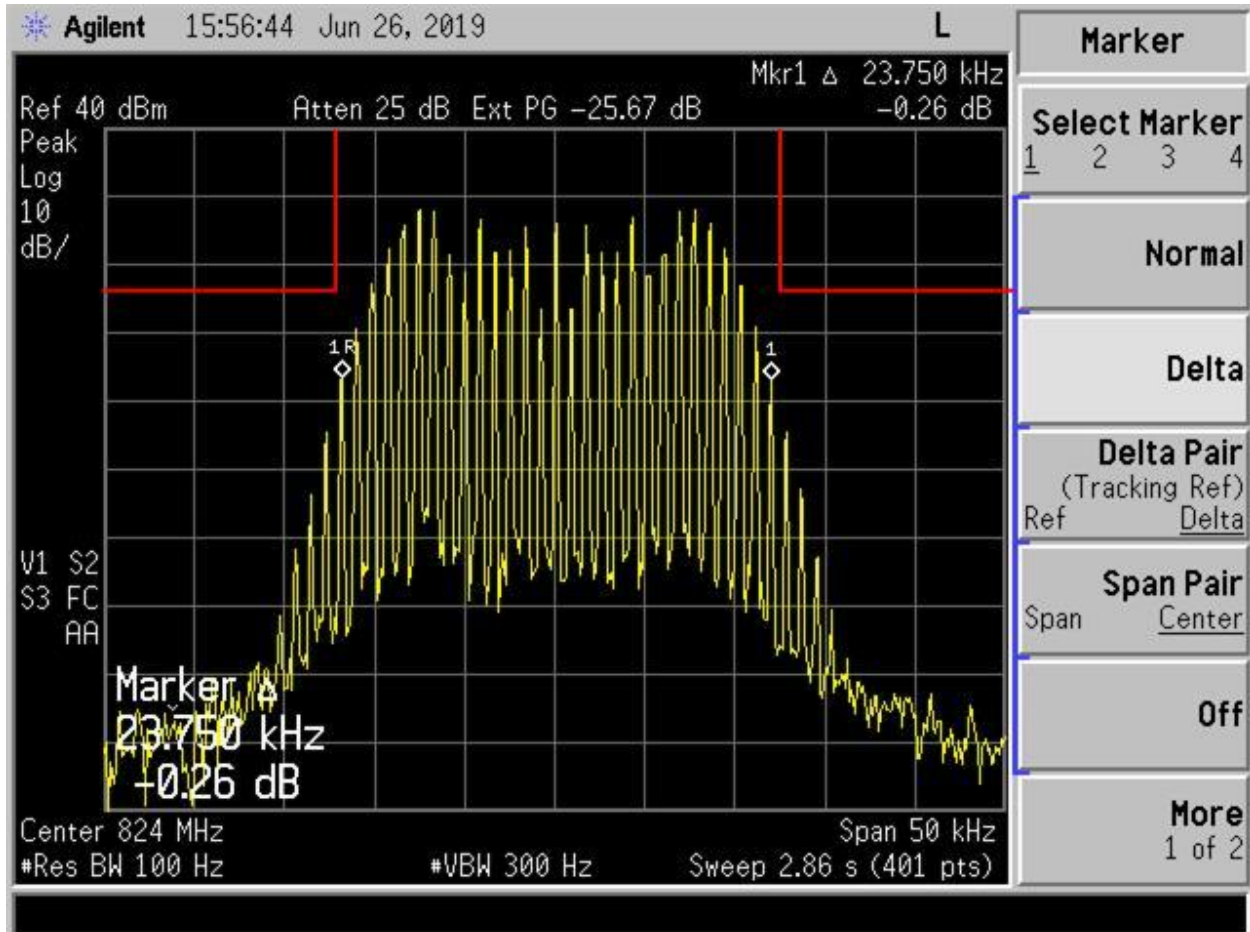


Figure 171. 824 MHz @ 25 kHz, Mask B

U.S. Tech Test Report:
FCC ID:
IC:
Report Number:
Issue Date:
Customer:
Model:

FCC Part 90 Certification
2AKSM-SAFE3
22303-SAFE3
19-0244
August 6, 2019
Safe-Com Wireless
SAFE-1001

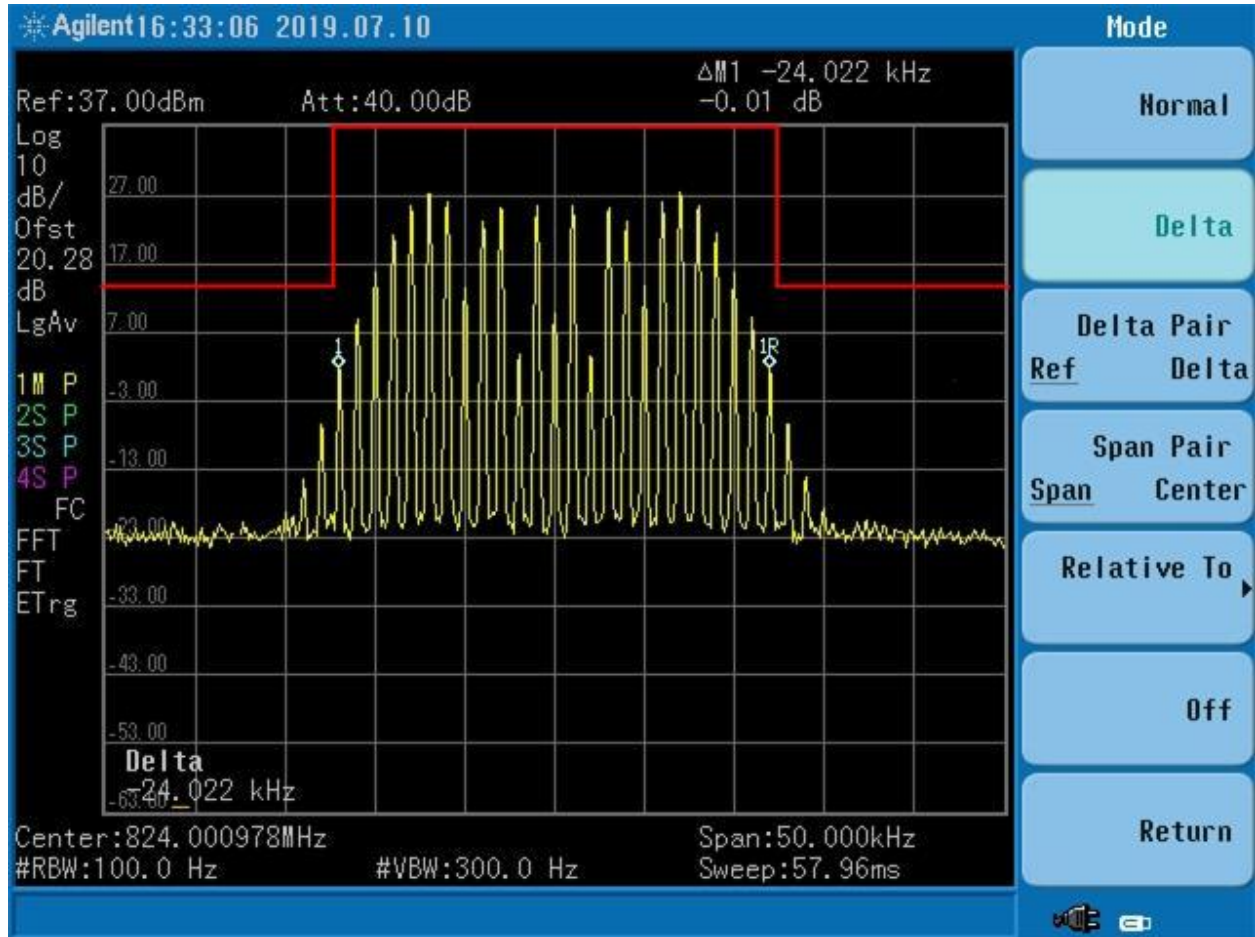


Figure 172. 824 MHz @ 25 kHz + 3.0 dB, Mask B

2.12 Spurious Emissions (FCC Section 90.219(d)(e)(3) and RSS-131, 6.5)

Spurious Emissions from a signal booster must not exceed -13 dBm within any 100 kHz measurement bandwidth.

2.12.1 Radiated Spurious Emissions Measurement

The EUT was tested in a semi-anechoic chamber. The EUT was set on a turntable with the EUT positioned 3m from the receiving antenna. A spectrum analyzer was used to measure the emissions and verify that the levels met the requirements for Radiated Emissions. The EUT was tested by rotating it 360° with the receiving antenna in both the vertical then horizontal position. The receive antenna was elevated from 1 m to 4 m to ensure that the maximum emission was captured. A signal generator was used to provide a signal to exercise the channel cards within the EUT. The EUT output was terminated with a 50 ohm non-radiating load.

The RBW was set to 100 KHz for measurements below 1 GHz and 1 MHz for measurements above 1 GHz. The VBW was 3 times the RBW.

FCC limit = -13 dBm (Assuming EIPR)

Radiated emission limit = $-13 \text{ dBm} - 20 \log(3\text{m}) + 104.8 = 82.25 \text{ dBuV/m}$

A correction value of 11.8 dBm was applied to correct the reference level to accurately represent the limit at -13 dBm.

The following plots show the worst-case results, which were measured with the antennas in both horizontal and vertical position.

2.12.1.1 VHF Radiated Spurious Emissions Plots

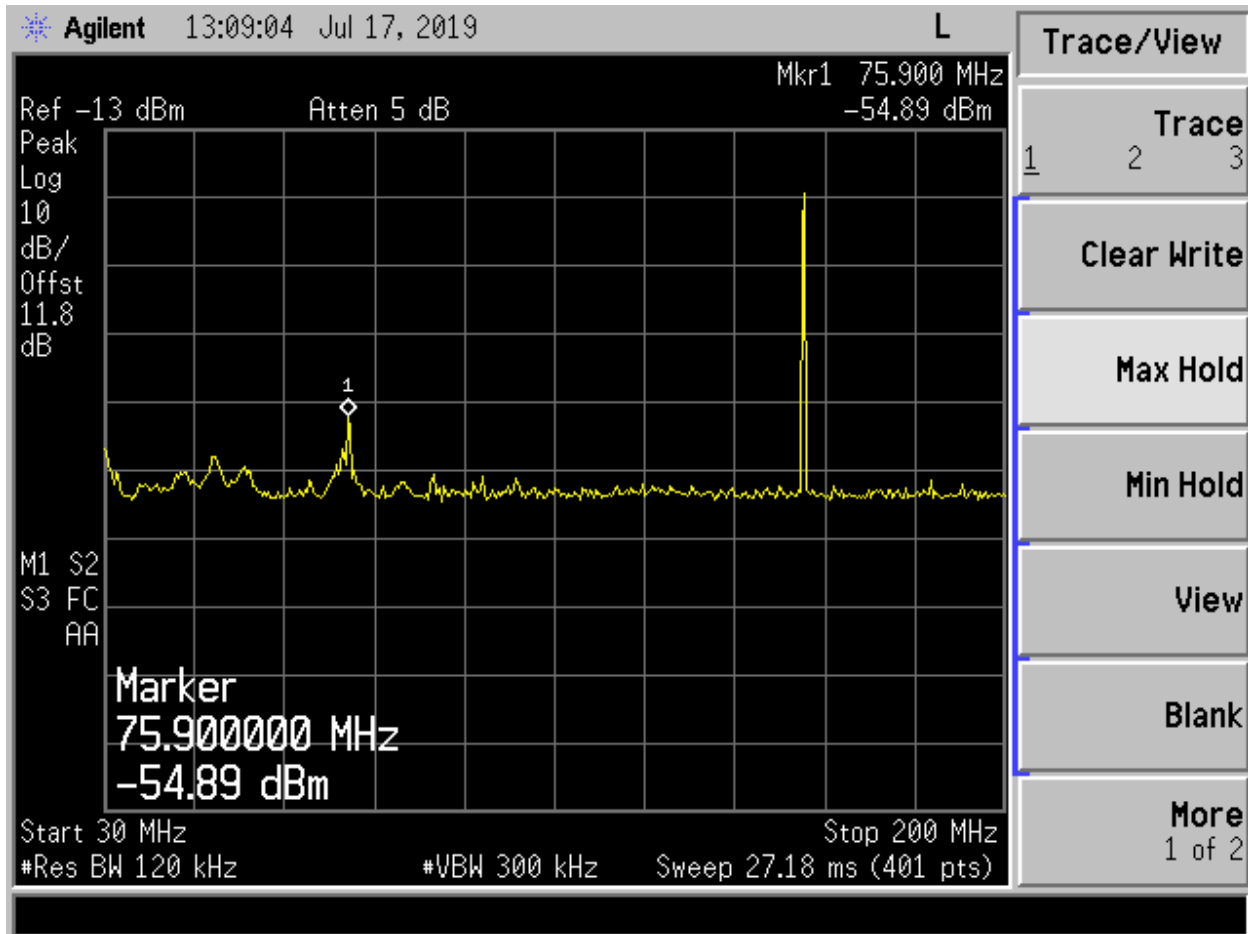


Figure 173. 162 MHz Horizontal, 30 – 200 MHz

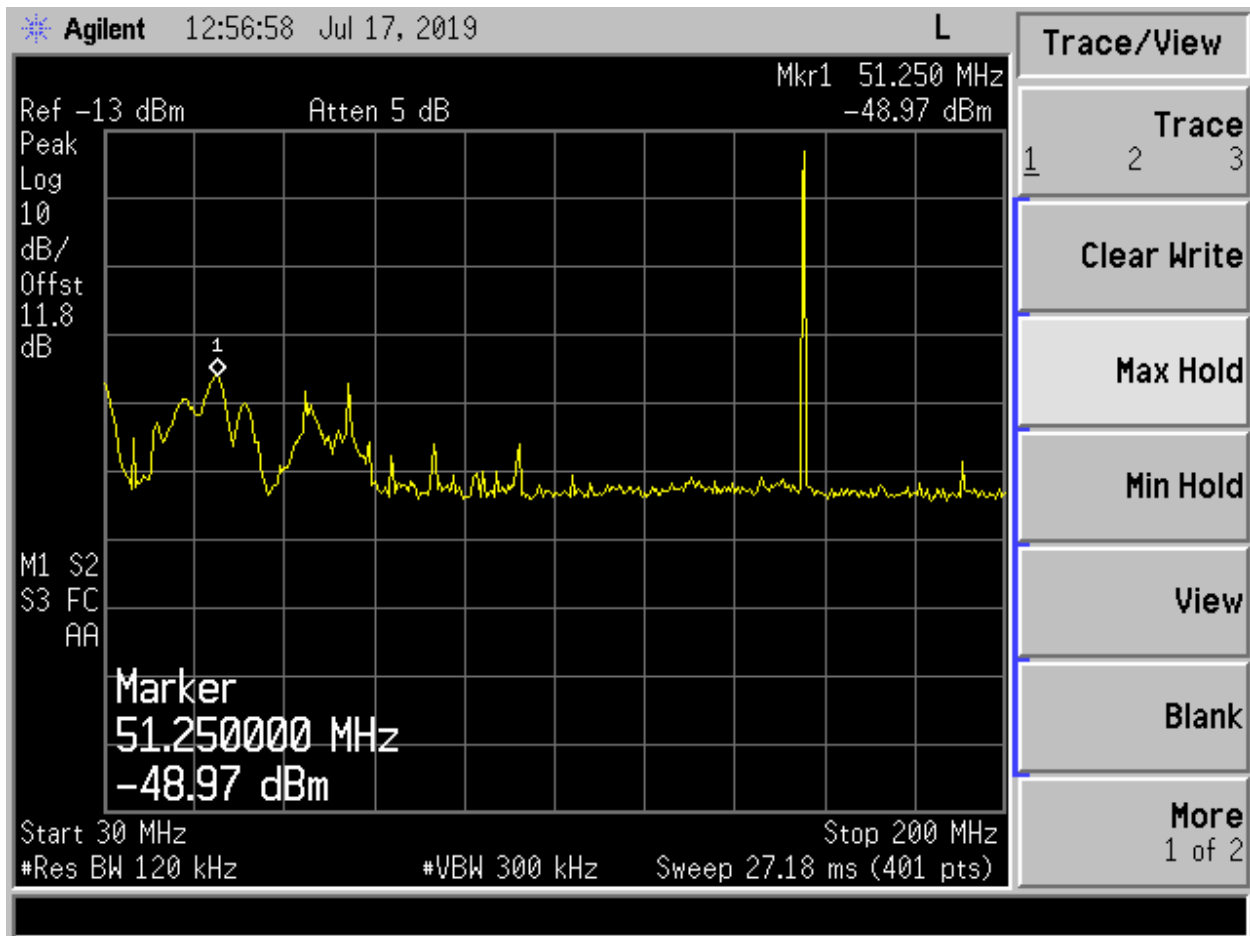


Figure 174. 162 MHz Vertical, 30 - 200 MHz

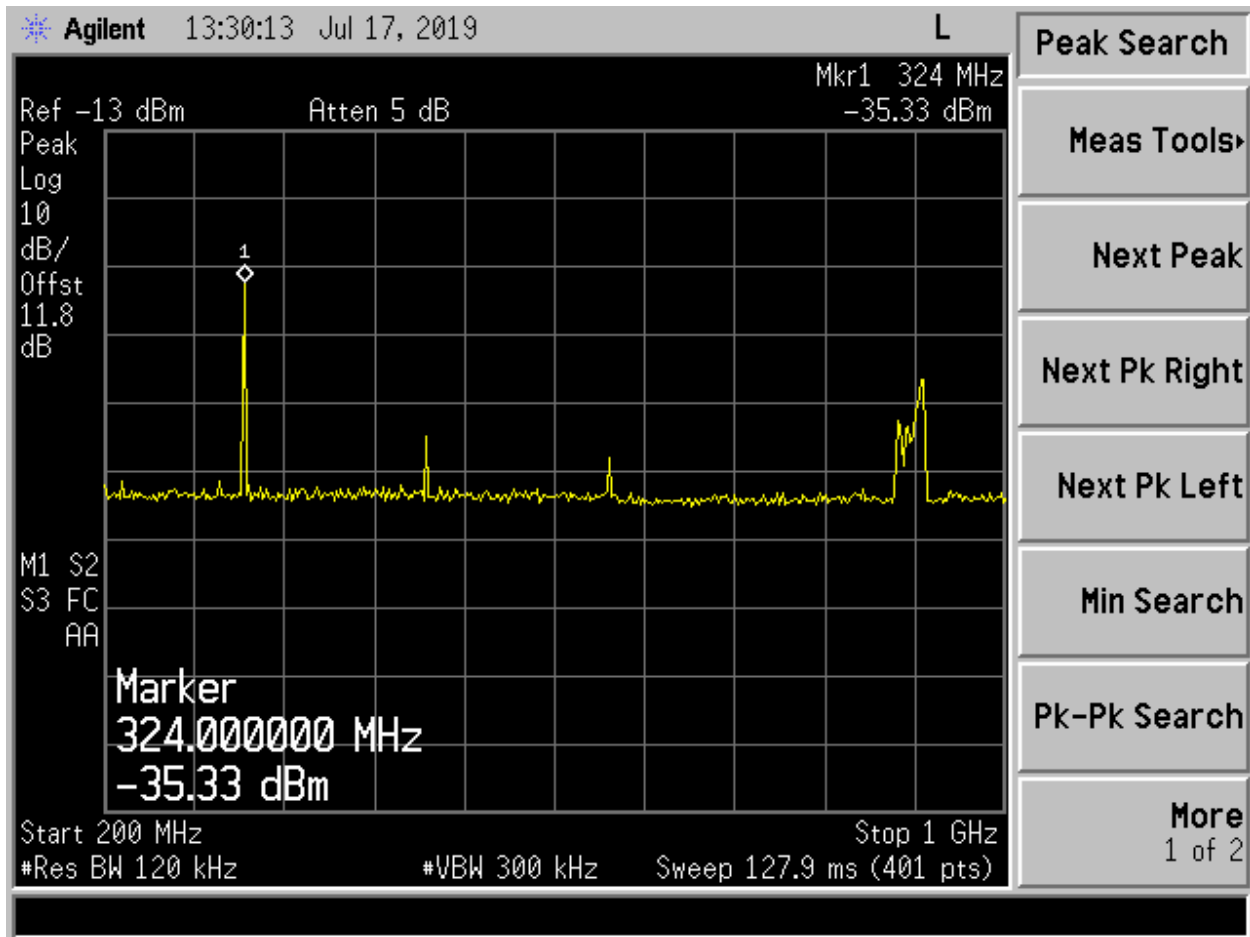


Figure 175. 162 MHz Horizontal, 200 MHz - 1 GHz

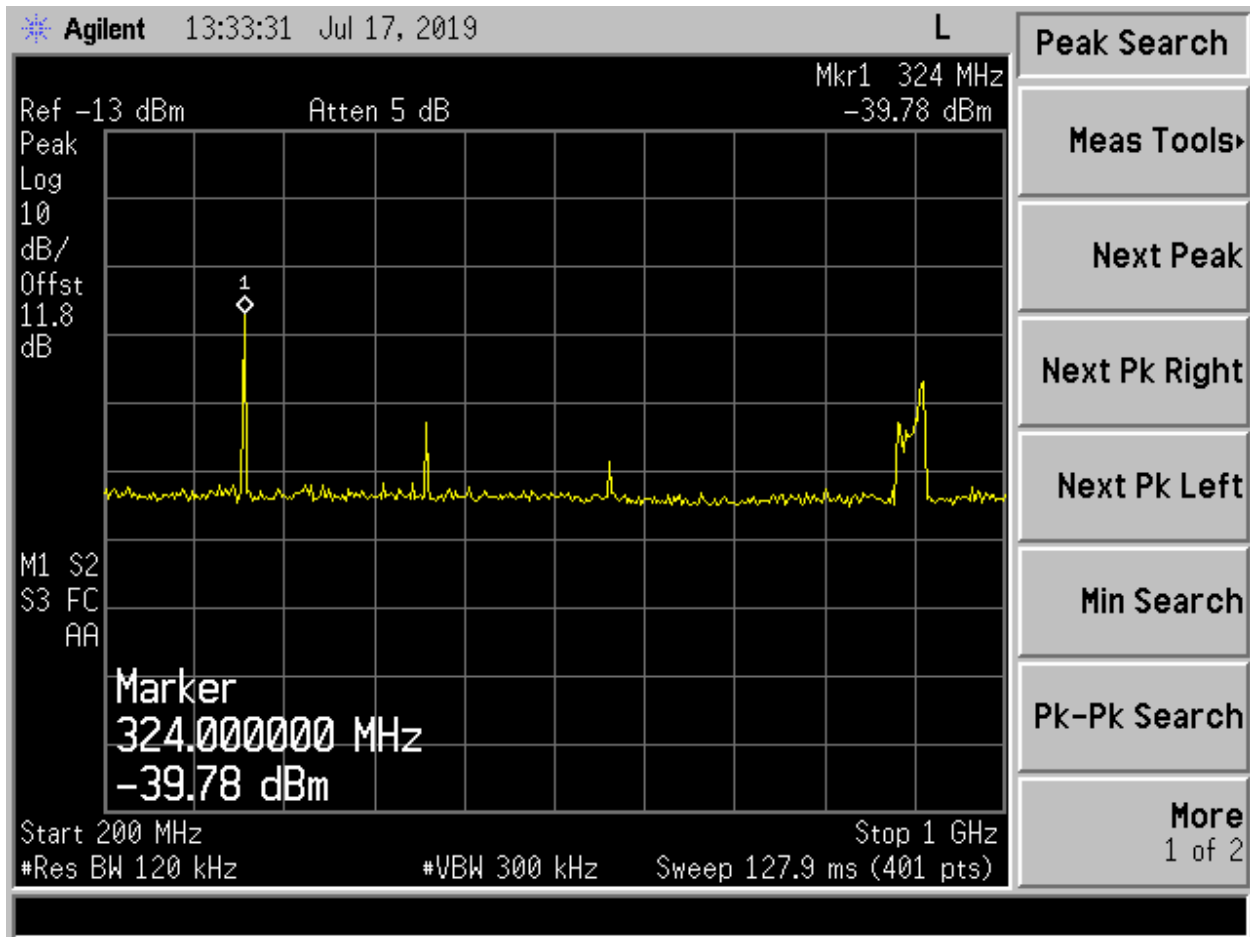


Figure 176. 162 MHz Vertical, 200 MHz – 1 GHz

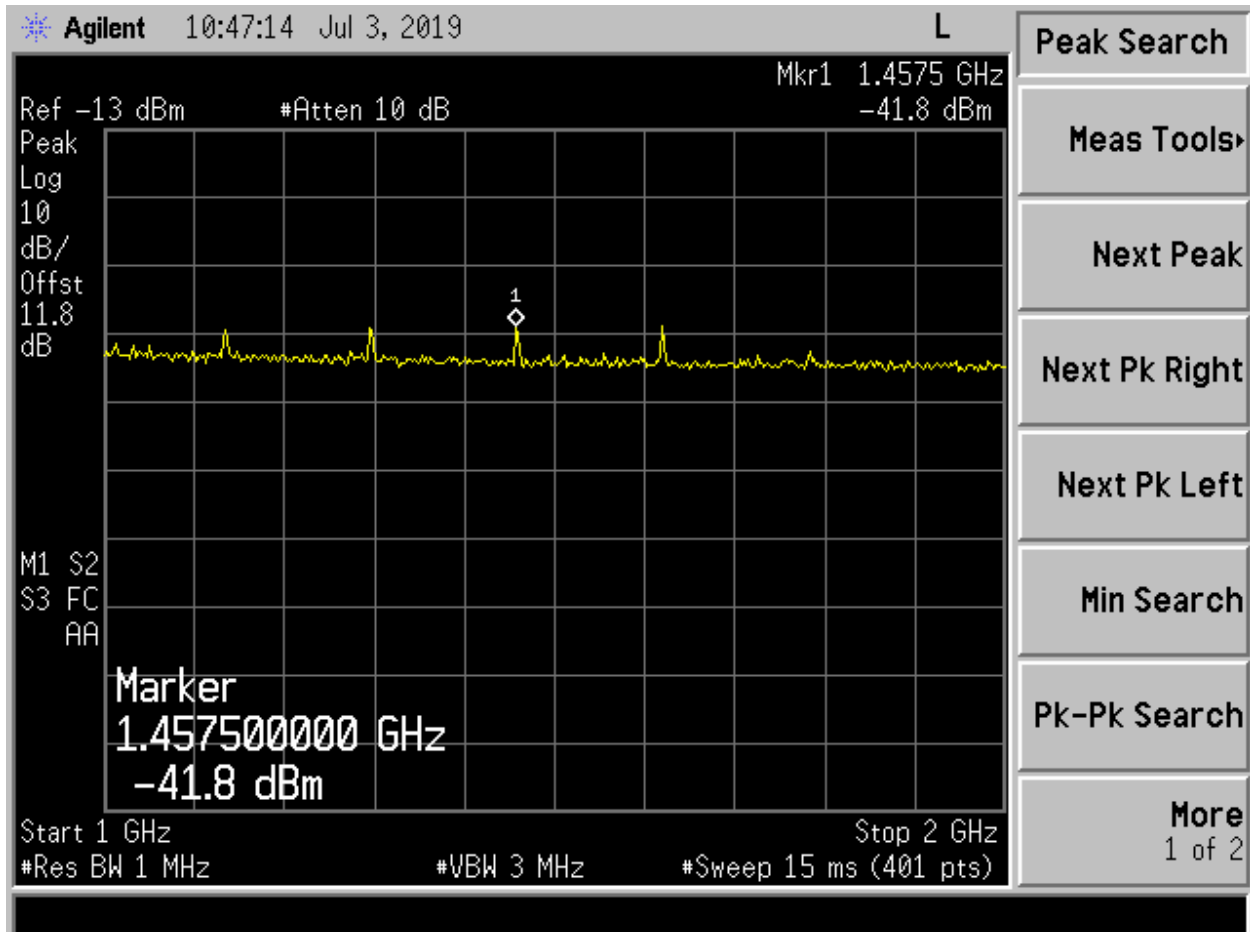


Figure 177. 162 MHz Horizontal, 1 – 2 GHz

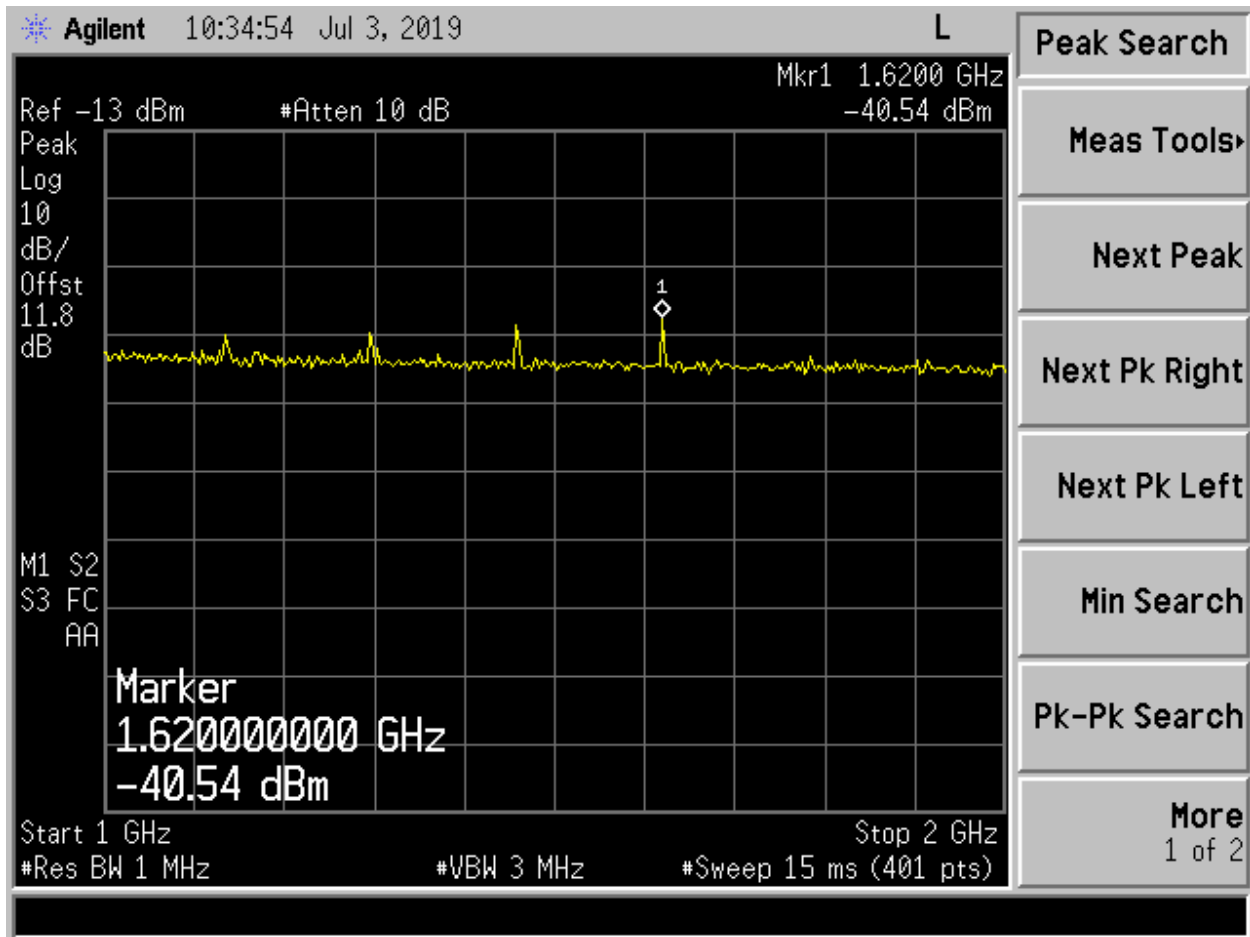


Figure 178. 162 MHz Vertical, 1 - 2 GHz

2.12.1.2 UHF Radiated Spurious Emissions Plots

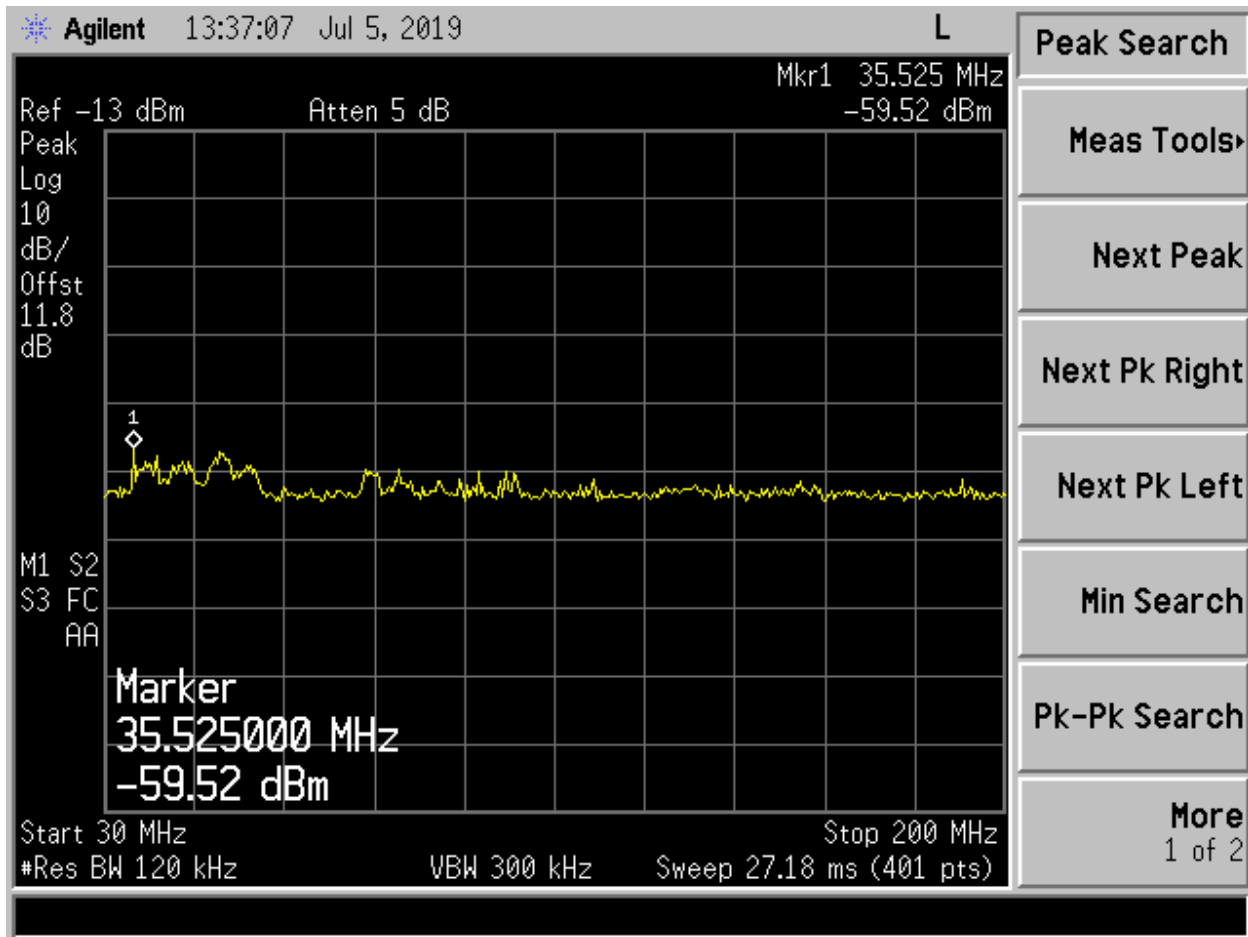


Figure 179. 407 MHz Horizontal, 30 – 200 MHz

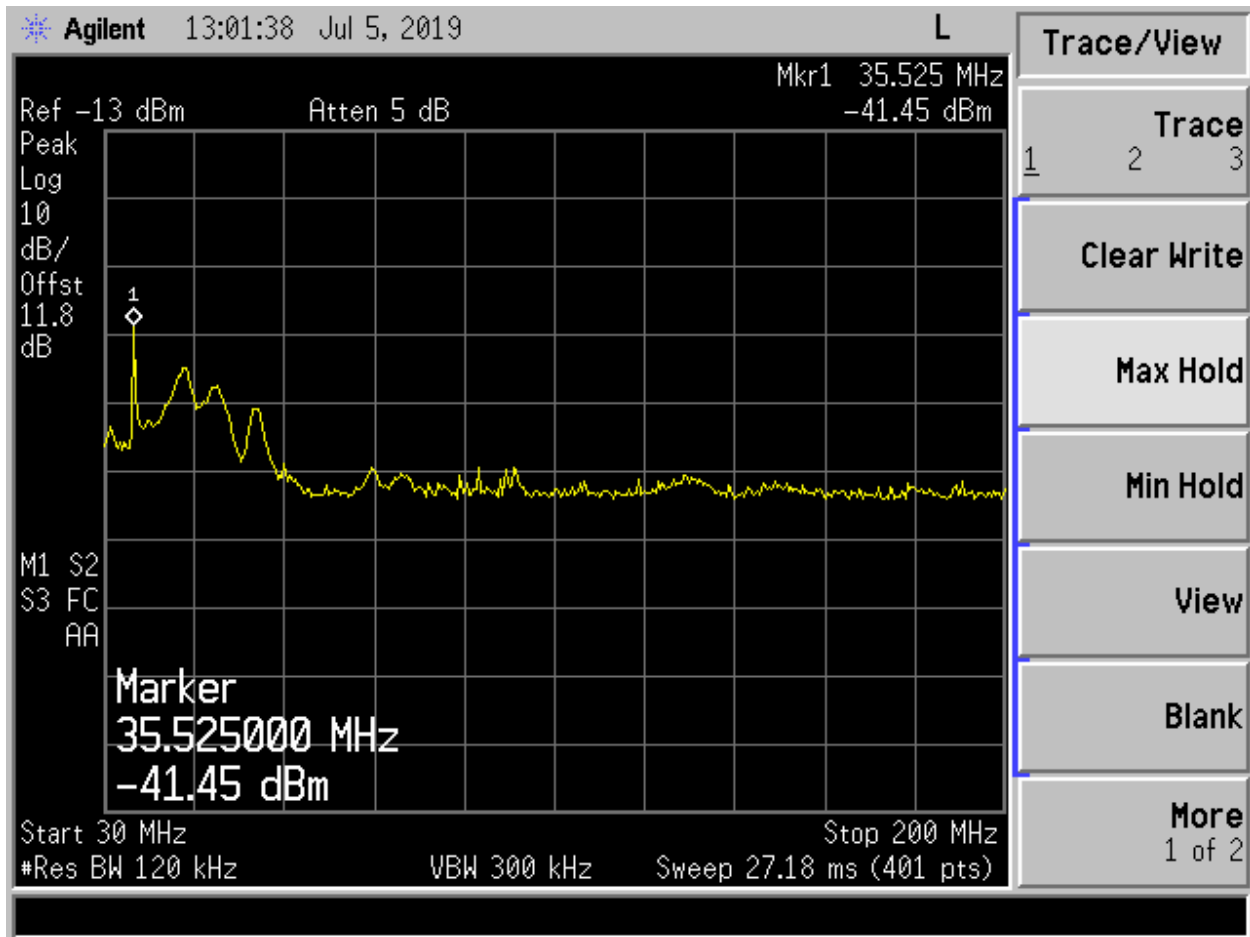


Figure 180. 407 MHz Vertical, 30 – 200 MHz

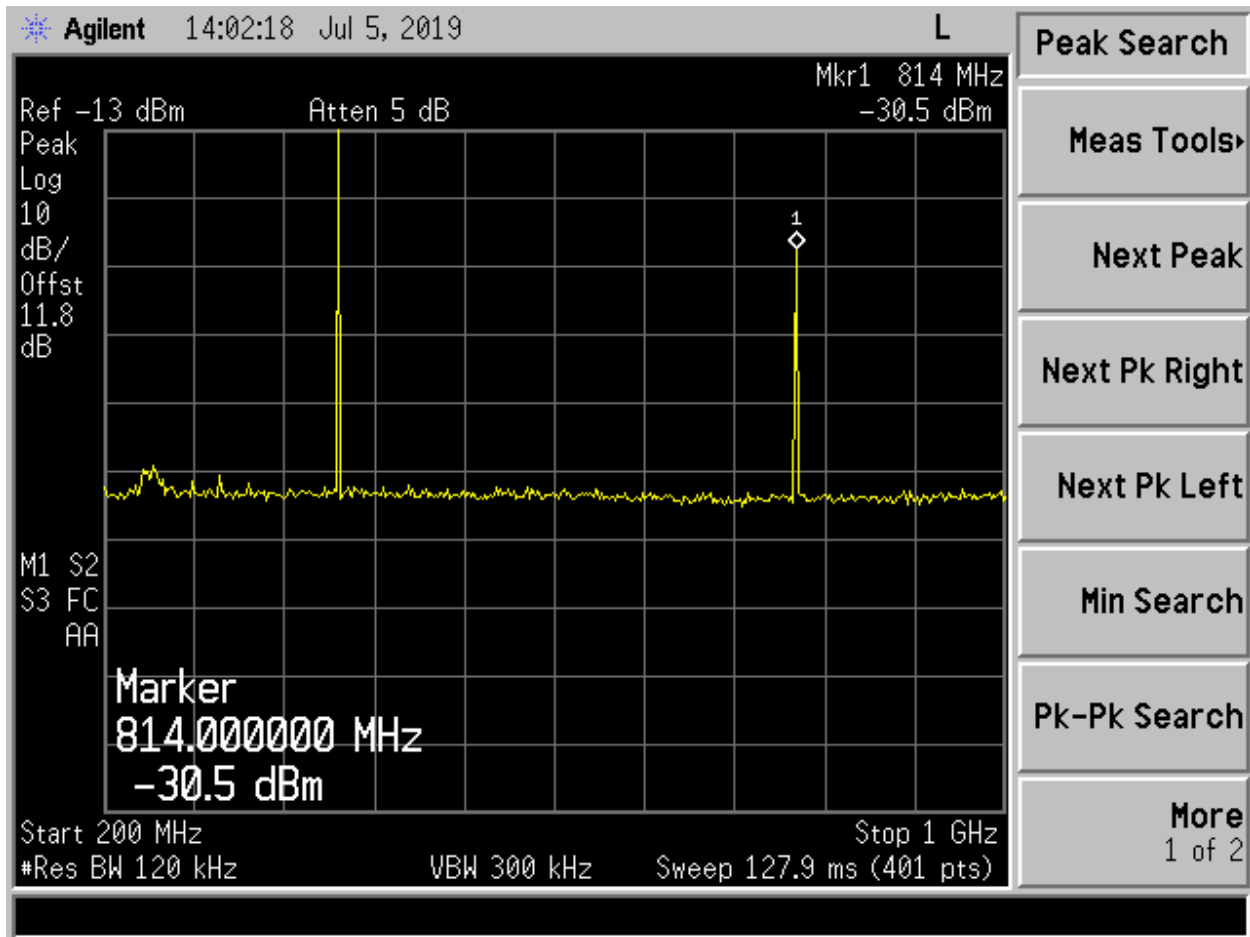


Figure 181. 407 MHz Horizontal, 200 MHz – 1 GHz

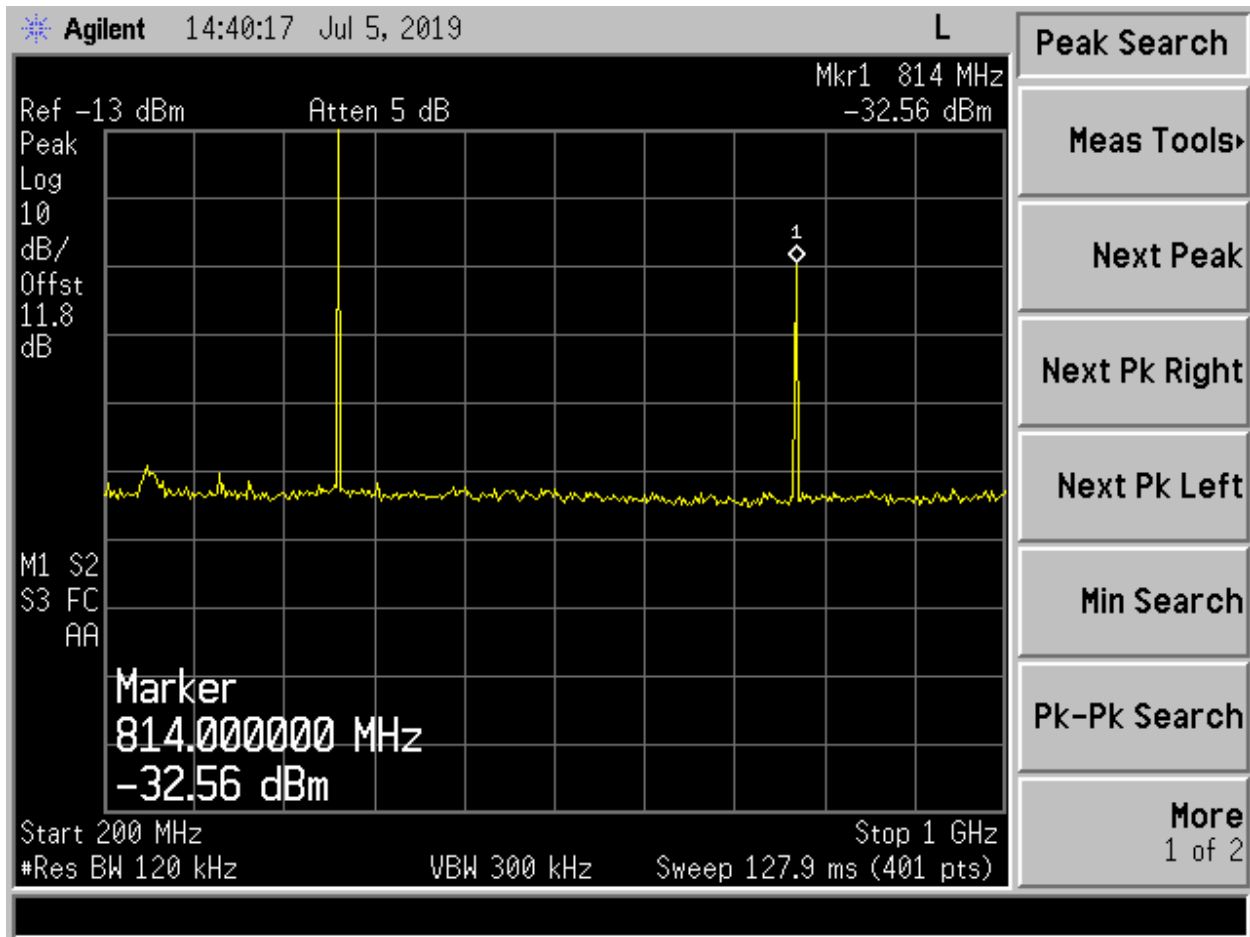


Figure 182. 407 MHz Vertical, 200 MHz – 1 GHz

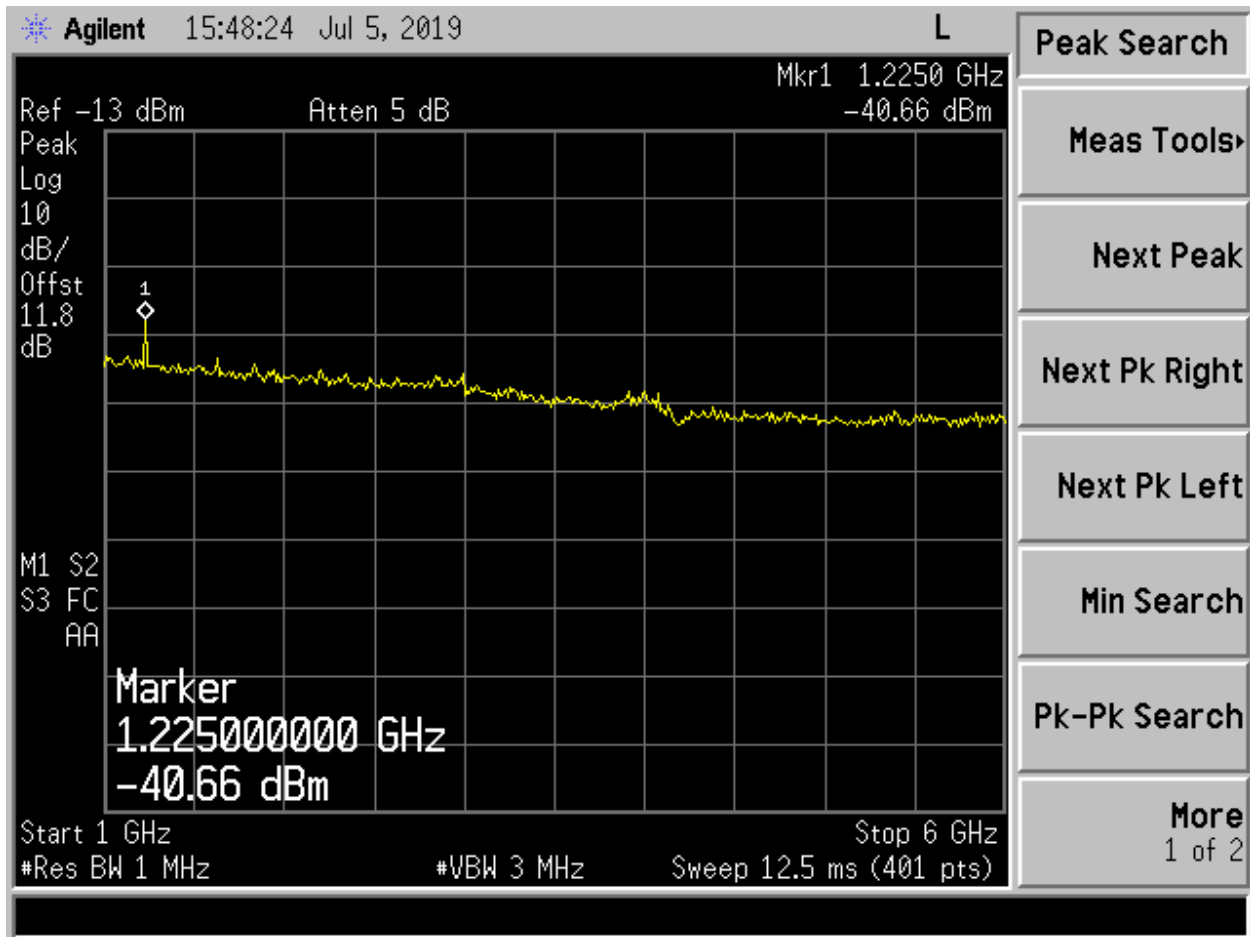


Figure 183. 407 MHz Horizontal, 1 - 6 GHz

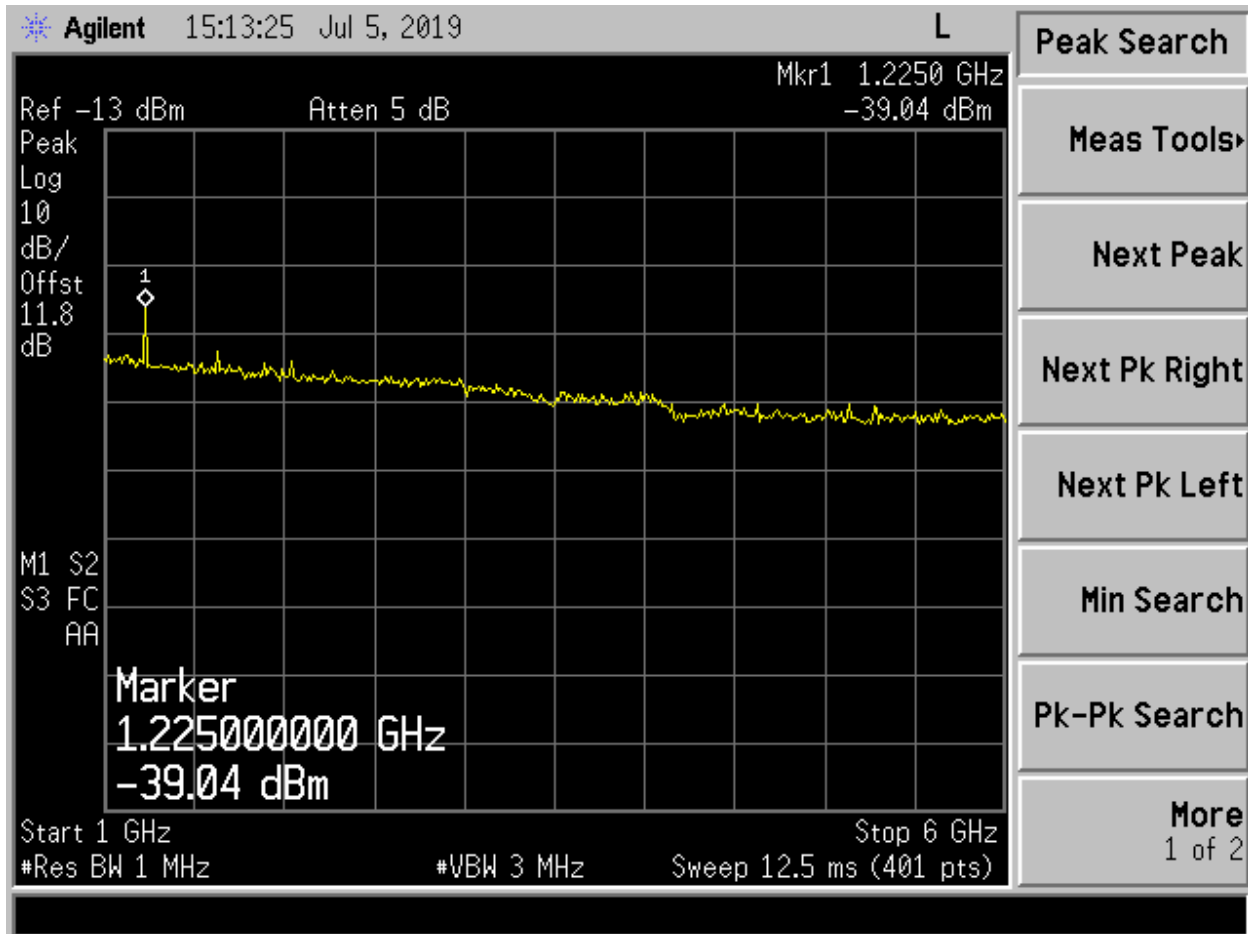


Figure 184. 407 MHz Vertical, 1 - 6 GHz

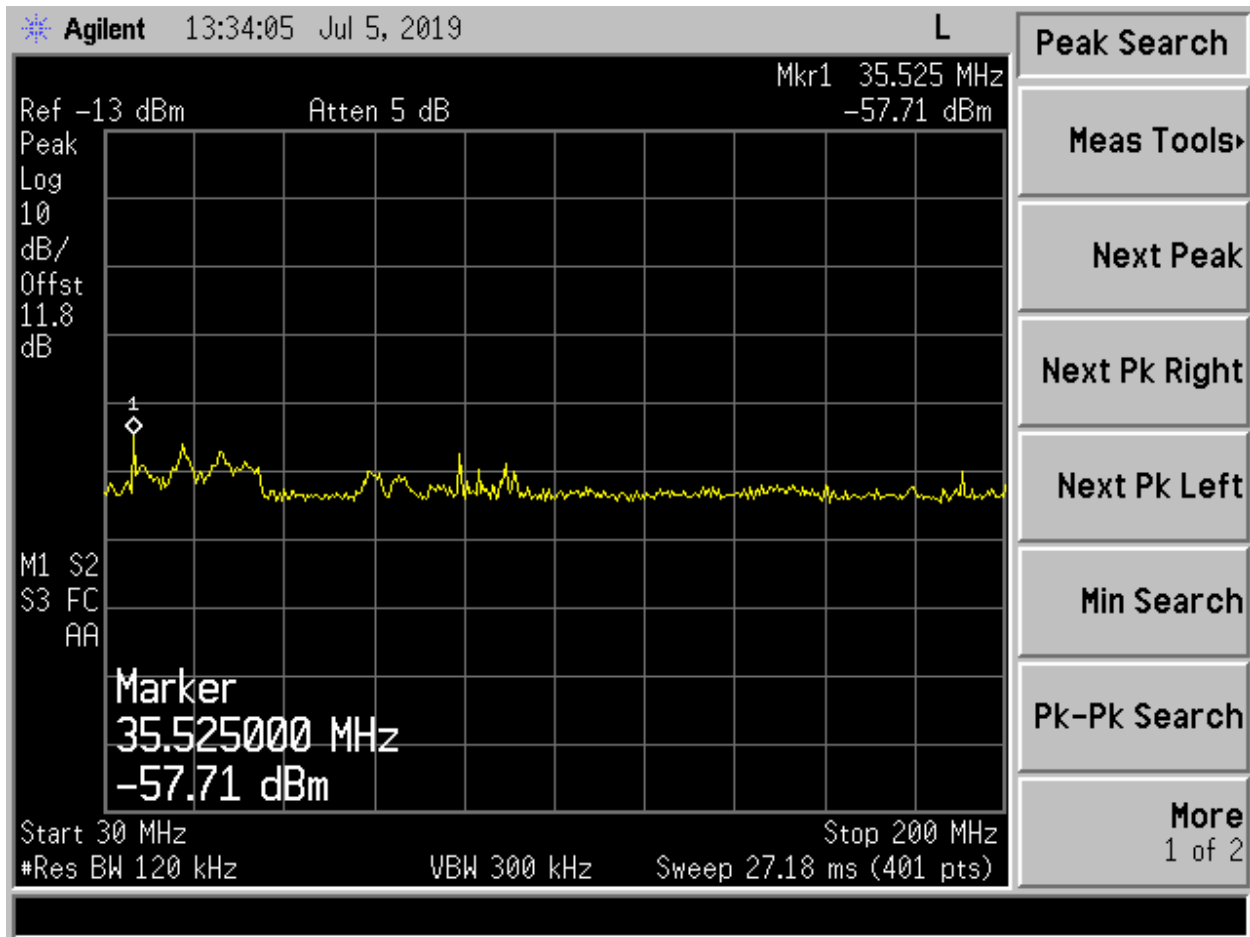


Figure 185. 421 MHz Horizontal, 30 - 200 MHz