SC1894 Wideband Performance results with NXP A2I35H060N Doherty at 3.5GHz
**NXP A2I35H060N Doherty Power Amplifier Data**

- **Amplifier Data**
  - NXP A2I35H060N, Doherty, LDMOS.
  - Operating Frequency: 3400-3600 MHz
  - Frequency tested: 3500 MHz
  - Gain = \(~23\)dB; \(P_{\text{sat}} = P_{\text{3dB}} = \sim 48.5\)dBm
  - \(V_{\text{dd}} = 28\)V
  - Drivers used:
    - NXP MMG20241H (\(~14.7\)dB gain) and Avago ALM-31322 (\(~13\)dB gain) between MXG and SC1894-EVK3400
    - 1 Avago ALM-31322 (\(~13\)dB gain) and 1 Avago ALM-32320 (\(~12.5\)dB gain) between SC1894-EVK3400 and NXP A2I35H060N PA.
    - **Very good linearity’s of the drivers are critical for wideband performance (\(-55\)dBc was achieved with \(2\times20\)MHz)**
  - SC1894-EVK3400 with FW 4.1.03.08
NXP A2I35H060N (23dB Gain) Performance Data Summary

- Requirement is -50dBc

<table>
<thead>
<tr>
<th>Output Power (dBm) @-50dBc ACLR</th>
<th>PAE (%)</th>
<th>PAR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x20 MHz LTE</td>
<td>37.5</td>
<td>26.5</td>
</tr>
<tr>
<td>LTE 20MHz</td>
<td>40.7</td>
<td>33</td>
</tr>
<tr>
<td>LTE 20MHz</td>
<td>39</td>
<td>30</td>
</tr>
<tr>
<td>LTE 10MHz</td>
<td>40.7</td>
<td>33</td>
</tr>
<tr>
<td>WCDMA4</td>
<td>37.5</td>
<td>26.5</td>
</tr>
<tr>
<td>LTE 3x20MHz</td>
<td>34</td>
<td>18.5</td>
</tr>
</tbody>
</table>

- RFIN Level needs to be higher at 3.5GHz than at other frequencies of operation.
  - Recommendation for all bands (except 3400-3800MHz)is 1<RFIN AGC (PDET)<8
  - For 3400-3800MHz, recommend using 7<RFIN AGC (PDET)<14

- How to read the results
  - ACLR1L-X: ACLR 1 Lower. ACLR1U-X: ACLR 1 Upper
  - X=0 means SC1894 is disabled. X=1 means SC1894 is enabled.
Test Set-up with SC1894 and NXP A2I35H060N
LTE3x20MHz 7dB PAR: 34dBm out; 18.5% efficiency
LTE2x20MHz 7dB PAR: 37.5dBm out; 26.5% efficiency
LTE20MHz 7dB PAR: 40.7dBm out; 33% efficiency
LTE20MHz 9.7dB PAR: 39dBm out; 30% efficiency
LTE10MHz 7dB PAR: 40.7dBm out; 33% efficiency
WCDMA4 (7.75dB PAR): 37.5dBm PAE 26.5% with EVM Improvement