

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 = ~23dB; Psat = P3dB= ~ 48.5dBm
- Vdd=28V
- Drivers used:
 - > NXP MMG20241H (~14.7dB gain) and Avago ALM-31322 (~13dB gain) between MXG and SC1894-EVK3400
 - > 1 Avago ALM-31322 (~13dB gain) and 1 Avago ALM-32320 (~12.5dB gain) between SC1894-EVK3400 and NXP A2I35H060N PA.
 - > **Very good linearity's of the drivers are critical for wideband performance (-55dBc was achieved with 2x20MHz)**
- SC1894-EVK3400 with FW 4.1.03.08

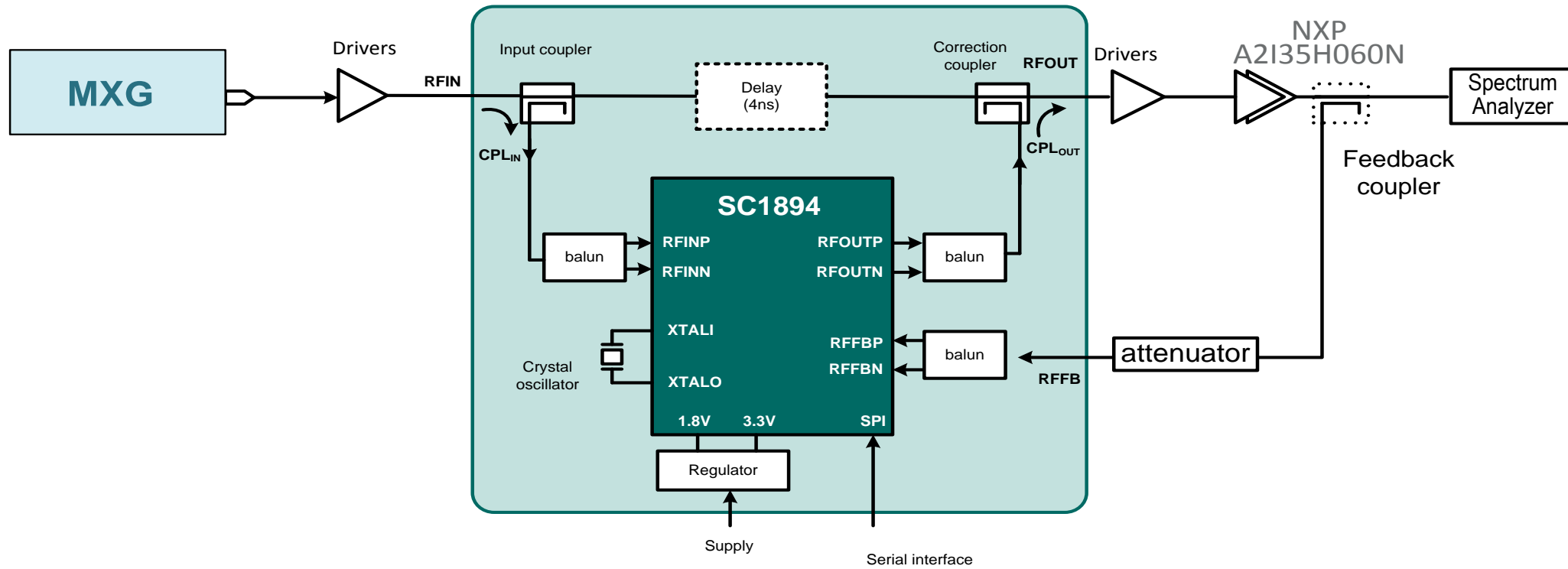
NXP A2I35H060N (23dB Gain) Performance Data Summary

- Requirement is -50dBc

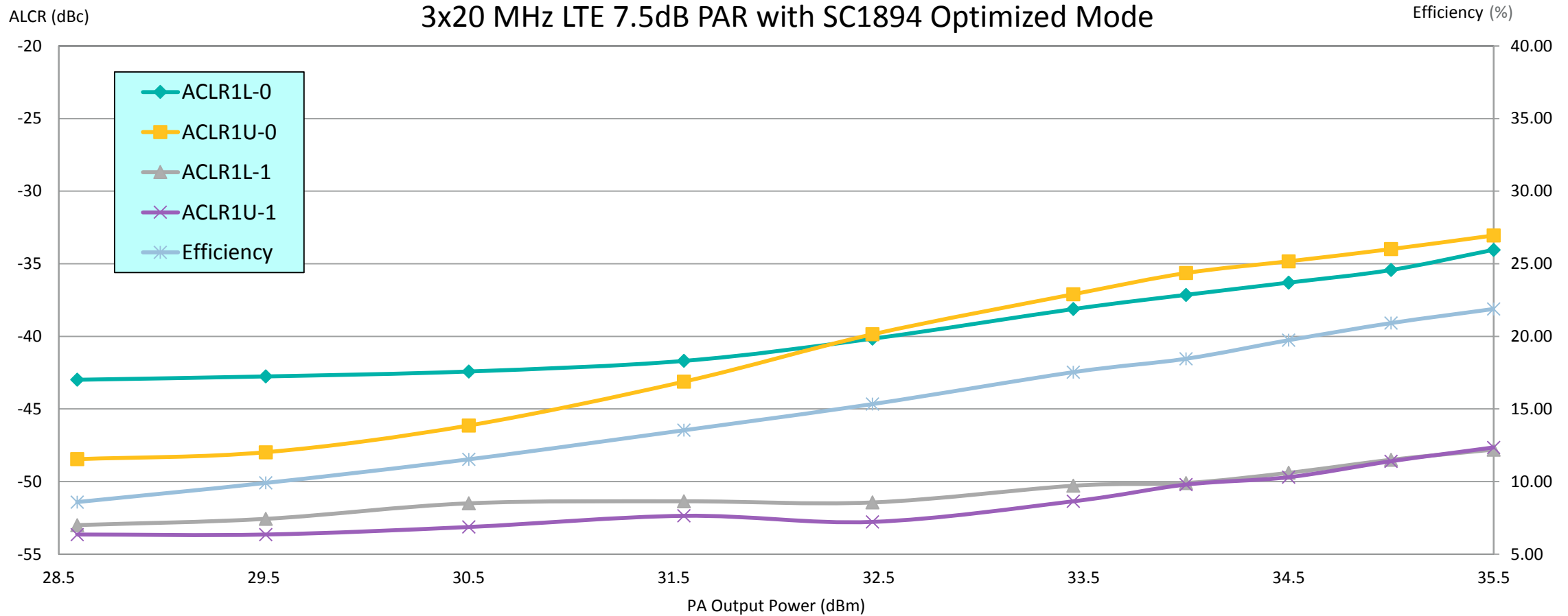
	Output Power (dBm) @-50dBc ACLR	PAE (%)	PAR (dB)
2x20 MHz LTE	37.5	26.5	7
LTE 20MHz	40.7	33	7
LTE 20MHz	39	30	9.7
LTE 10MHz	40.7	33	7
WCDMA4	37.5	26.5	7.75
LTE 3x20MHz	34	18.5	7.5

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

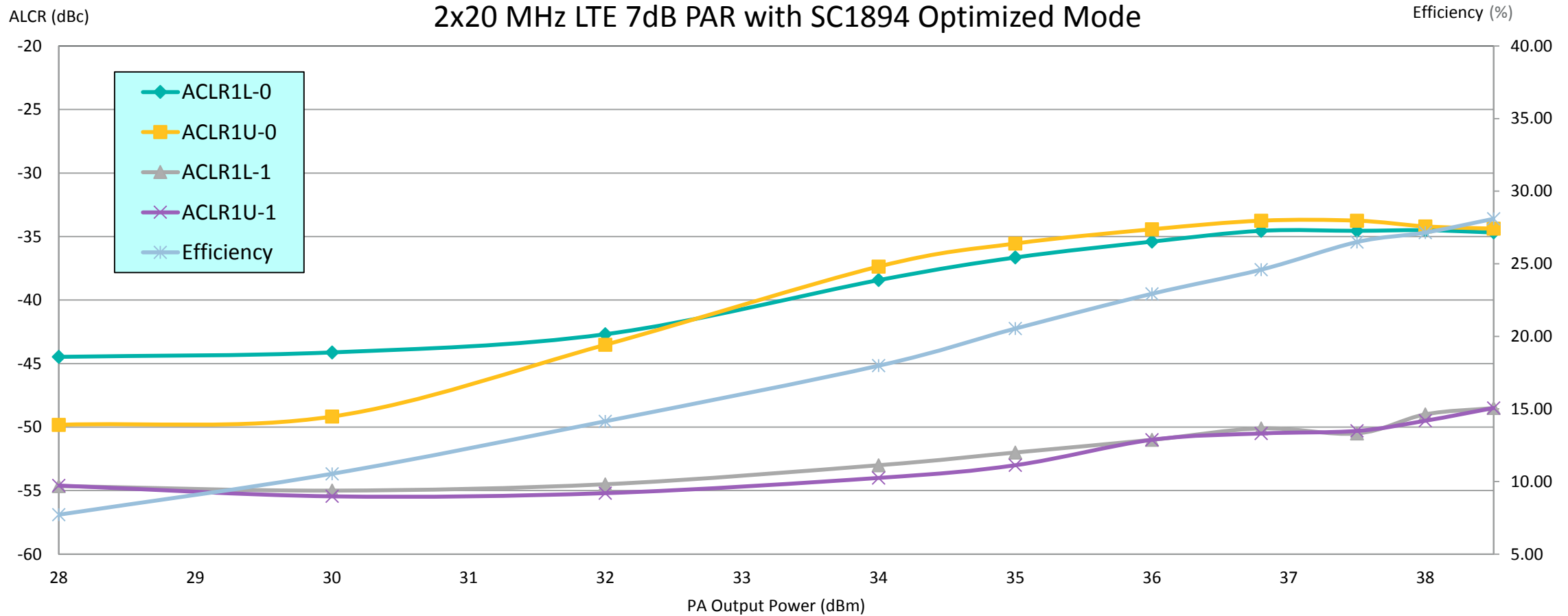
Test Set-up with SC1894 and NXP A2I35H060N



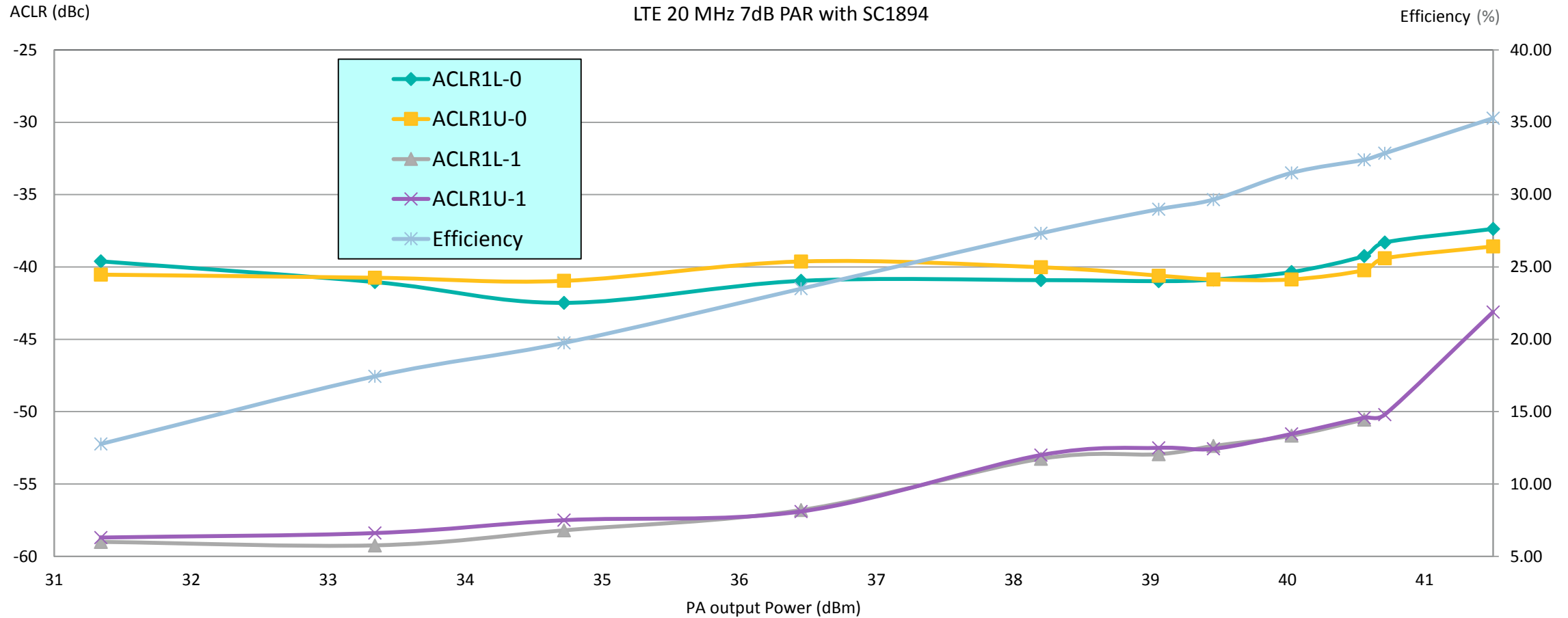
LTE3x20MHz 7dB PAR: 34dBm out; 18.5% efficiency



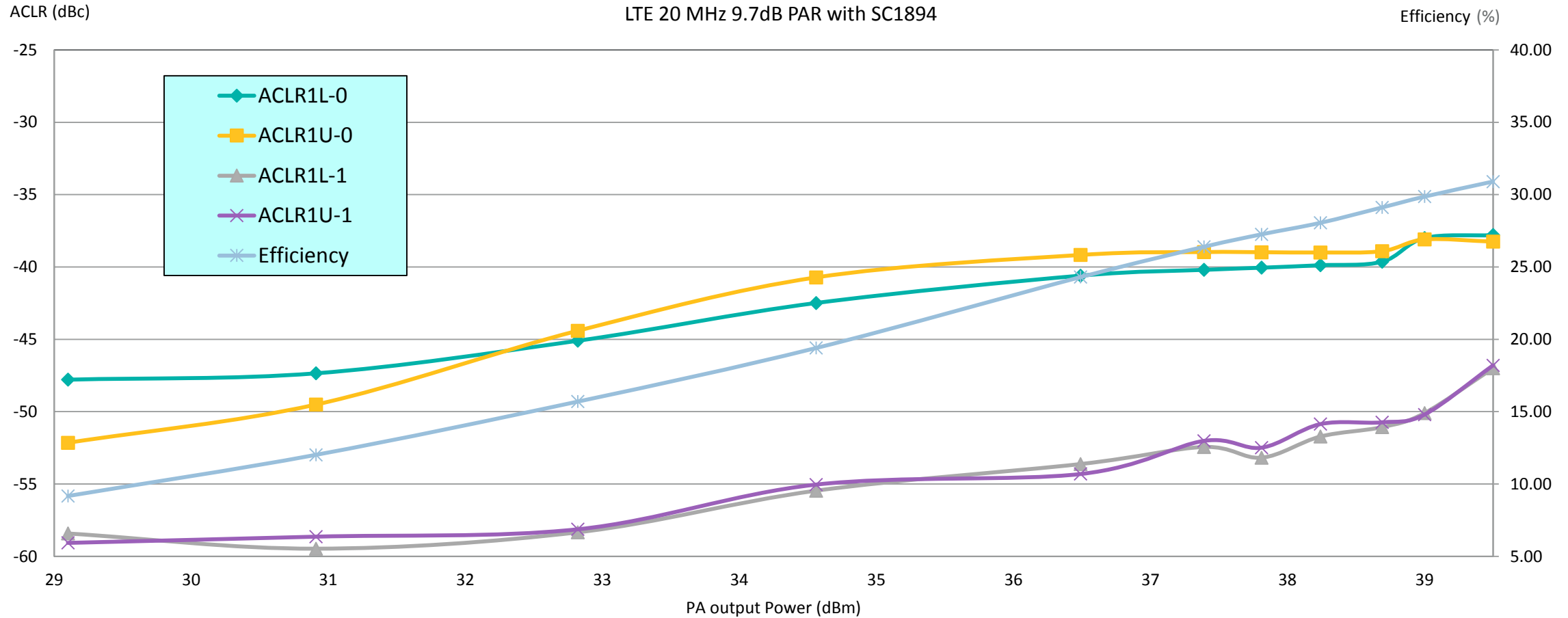
LTE2x20MHz 7dB PAR: 37.5dBm out; 26.5% efficiency



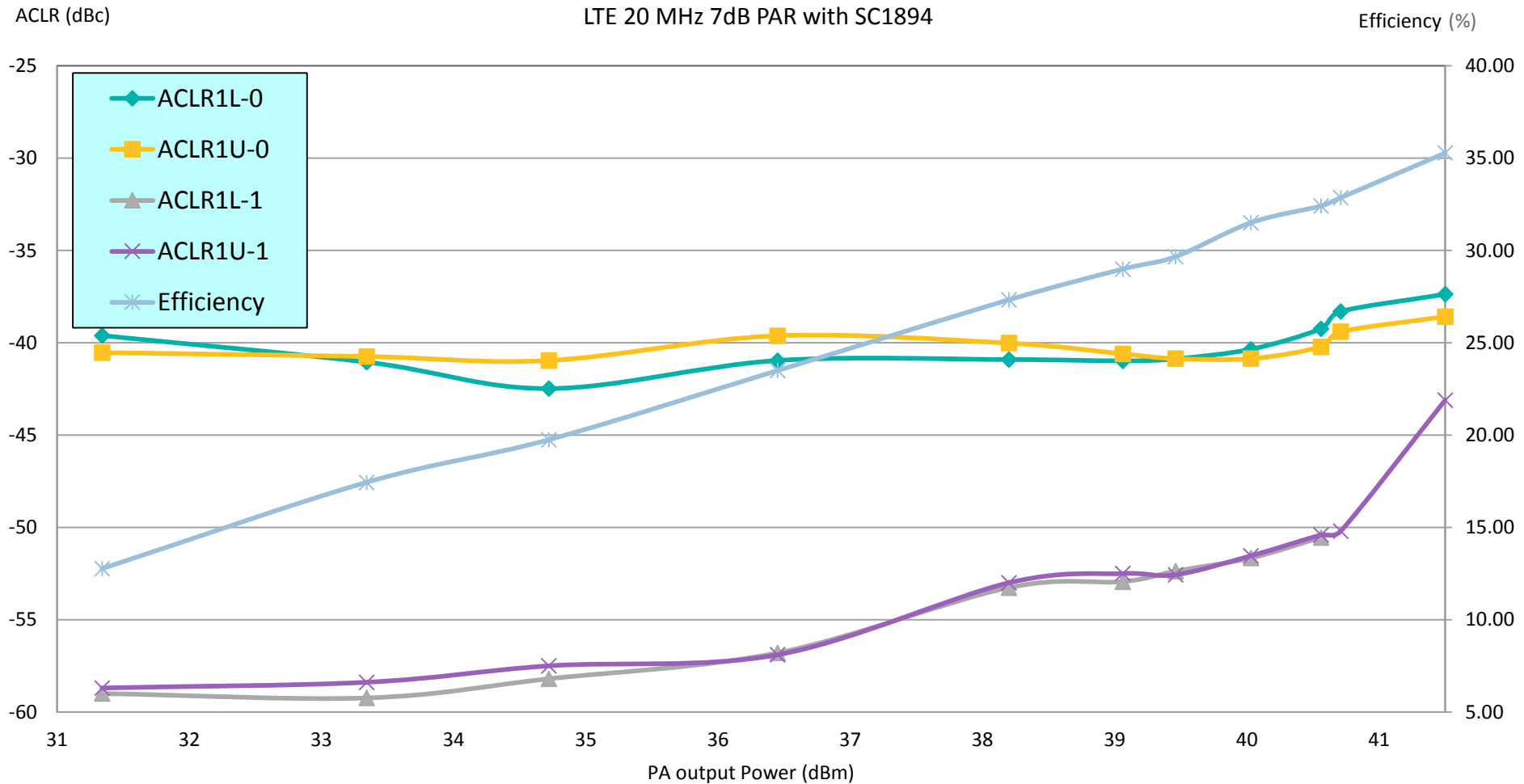
LTE20MHz 7dB PAR: 40.7dBm out; 33% efficiency



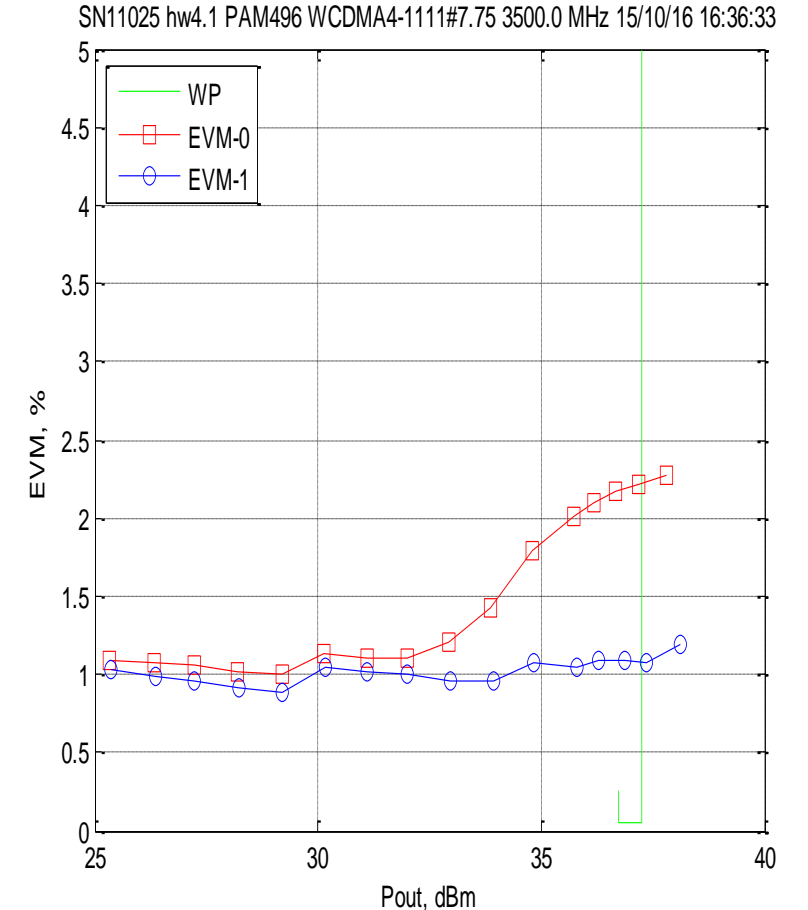
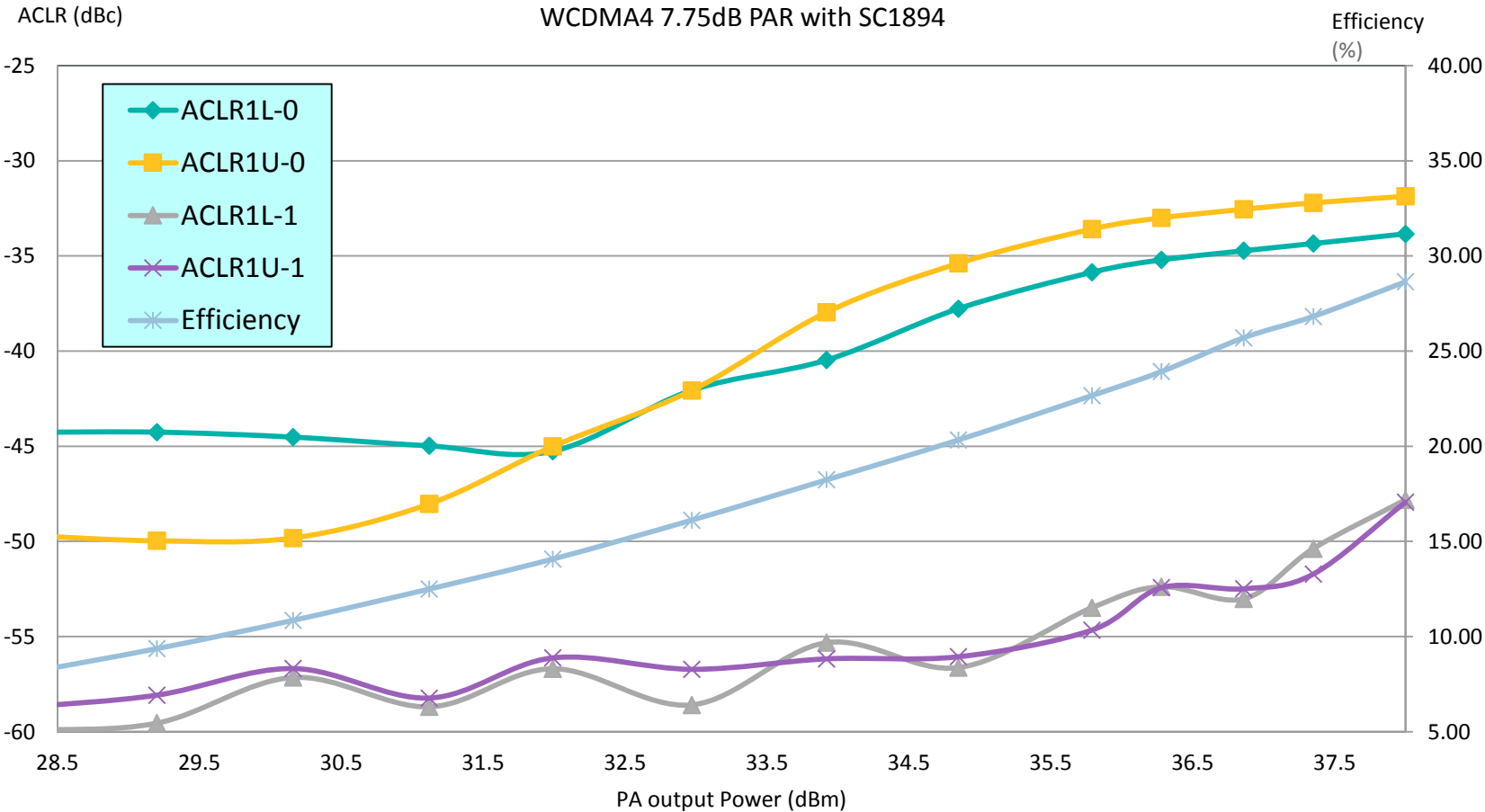
LTE20MHz 9.7dB PAR: 39dBm out; 30% efficiency



LTE10MHz 7dB PAR: 40.7dBm out; 33% efficiency



WCDMA4 (7.75dB PAR): 37.5dBm PAE 26.5% with EVM Improvement





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