LTI linearizers are based on correcting a power amplifier's (PA's) transfer characteristics, and when integrated with a PA can essentially match the performance of an ideal amplifier.

Current models are adjusted for best performance at mid band and a 2-tone test signal. Although this is often sufficient, the performance may be compromised when operating at the band edges, different back-off operating points, or under different signal traffic.

AAPD automatically optimizes HPA for each OPBO, operating frequency, and temperature. Self-corrects for HPA gain change over time. Continuous real-time monitoring provides ultimate C/I performance.

> 1 GHz bandwidth.

Adaptive Analog Predistortion Linearizer

Adaptive Analog Predistortion (AAPD) RF Block Diagram

Input Sampled Signal + Noise + Distortion

Output Sampled Signal + Noise + Distortion

Linearizer Technology, Inc.™

Predistortion Linearizers Can Give an Effective 4X Power Increase with Multicarrier Traffic
The AAPD linearizer takes this technology and enhances the RF performance by sampling the PA's spectrum, analyzing the spectrum, and adjusting the linearizer for optimum performance.

- The real-time optimization for best linearity occurs over the entire operating band (1 GHz or more), at any back-off operating point, and under multi-tone signal traffic (CW, QPSK, OQPSK, or combinations of signals).

- The AAPD linearizer in addition automatically provides constant HPA system gain. It even corrects for component aging.

Currently AAPD linearizers are available at the Ku, K, Ka, and Q operating bands for TWT's, KPA's, and SSPA's.

**TWTA Four-Tone Result**

![TWTA Four-Tone Result Image]

-14 dBc @ 50 W RF Output. (no linearization)

-29 dBc @ 50 W RF Output. (15 dB improvement with AAPDL)

**TWTA ACPR (OQPSK) Result**

![TWTA ACPR (OQPSK) Result Image]

-26.7 dBc @ 100 W, 1 SR (no linearization)

-38.5 dBc @ 100 W, 1 SR (11.8 dB improvement with AAPDL)