Adaptive Pre-Distortion Correction

Scintera's adaptive analog RF predistortion correction circuit (Fig. 4) samples the RF from the driver stage and keeps that RF signal in the analog domain, but modifies it with coefficients employing a Volterra Series expansion of the waveform. A Volterra Series is a model for nonlinear behavior that is similar to a Taylor Series, except that the Volterra Series can represent memory effects. Scintera's adaptive RF Power Amplifier Linearizer (RFPAL) IC samples and digitizes the RF output, and that sampling goes into digital circuits within the RFPAL chip. The digital section in-turn computes the needed analog coefficients for the RF signal-chain and then uses another directional coupler to mix the Volterra-coefficient-modified RF signal back into the RF path. The system needs to handle only enough RF signal power to properly correct the amplifier distortions. Most of the RF power stays in the main RF path, bypassing the IC. By keeping the RF in the analog domain, Scintera provides a system that consumes much less power (less than 1 watt typically) and requires fewer transmitter project design resources than does a digital-pre-distortion solution.

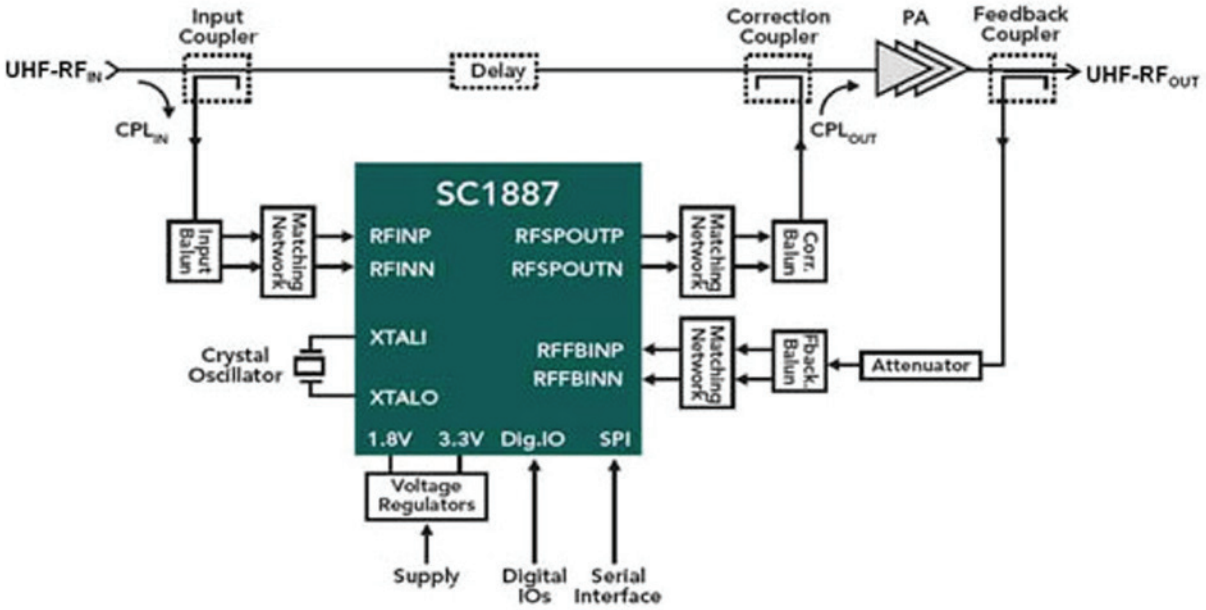

Figure 1: The Scintera Networks approach can correct a broadcast power amplifier's nonlinearities using an adaptive analog RF predistortion technique.

More information regarding Scintera's adaptive analog RF predistortion scheme is available ***here***. The delay line component needed for the Scintera solution can be found ***here***. In addition, the baluns and directional couplers from M/A-COM Technology Solutions are also ***available*** from Richardson RFPD.

Contact your local sales representative or learn more about Richardson RFPD online at www.richardsonrfpd.com.