Abstracts

High efficiency, wide dynamic range variable gain and power amplifier MMICs for wideband CDMA handsets

G. Hau, T.B. Nishimura and N. Iwata. "High efficiency, wide dynamic range variable gain and power amplifier MMICs for wideband CDMA handsets." 2001 Microwave and Wireless Components Letters 11.1 (Jan. 2001 [MWCL]): 13-15.

A linearized variable gain amplifier (VGA) and a two-stage power amplifier (PA) MMIC were developed for 1.95-GHz wideband CDMA (W-CDMA) handsets application. A complete PA block with power control ability was obtained by cascading the VGA with the PA. The linearized VGA consists of a predistorter (PD) integrated with a conventional VGA, performing dual function for achieving high linearity power control, as well as reducing output distortion level of the following PA. With the use of predistortion, the P/sub out/ and power added efficiency (PAE) of the PA block improved from 27.5 dBm and 39.8% to 28.5 dBm and 44.8%, respectively, measured at -35 dBc adjacent channel leakage power ratio (ACPR). Under power control operation, the control range of the PA block increased from 23.6 dB to 31.2 db, and ACPR reduction of over 10 dB was achieved with the use of linearized VGA.

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