Abstracts

A high-efficiency traveling-wave power amplifier topology using improved power-combining techniques

E.S. Shapiro, J. Xu, A.S. Nagra, F. Williams, Jr., U.K. Mishra and R.A. York. "A high-efficiency traveling-wave power amplifier topology using improved power-combining techniques." 1998 Microwave and Guided Wave Letters 8.3 (Mar. 1998 [MGWL]): 133-135.

Traditional distributed amplification techniques have allowed for high gain and bandwidth at the expense of low efficiency. The decreased efficiency is primarily due to the existence of an actively loaded artificial transmission line as the output, resulting in backward wave propagation. Using the same traditional input line distributed techniques to achieve high bandwidth, this research has explored a delay line and corporate combining output topology which improves the travelling-wave amplifier's (TWAs) efficiency at large signal by elimination of the backward waves. The broad-band output combiner transforms the amplifier load impedance to that of an optimum load for each device, thus realizing a traveling-wave power amplifier. The results for a 1-9-GHz hybrid circuit are presented.

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