Abstracts

Maximum efficiency and output of class-F power amplifiers

F.H. Raab. "Maximum efficiency and output of class-F power amplifiers." 2001 Transactions on Microwave Theory and Techniques 49.6 (Jun. 2001, Part II [T-MTT] (Special Issue on RF Power Amplification)): 1162-1166.

A class-F power amplifier (PA) improves efficiency and power-output capability (over that of class A) by using selected harmonics to shape its drain-voltage and drain-current waveforms. Typically, one waveform (e.g., voltage) approximates a square wave, while the other (e.g., current) approximates a half sine wave. The output power and efficiency of an ideal class-F PA can be related to the Fourier coefficients of the waveforms, and Fourier coefficients for maximally flat waveforms have been determined. This paper extends that theory by determining the coefficients for the maximum power and efficiency possible in a class-F PA with a given set of controlled harmonics.

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