Abstracts

Carrier power to intermodulation-distortion power-ratio-increasing technique in active phased-array antenna systems

T. Kaho, T. Nakagawa, K. Araki and K. Horikawa. "Carrier power to intermodulation-distortion power-ratio-increasing technique in active phased-array antenna systems." 2002 Transactions on Microwave Theory and Techniques 50.12 (Dec. 2002 [T-MTT] (Special Issue on 2002 International Microwave Symposium)): 2987-2994.

This paper describes a novel technique to compensate for the intermodulation (IM) distortion components of high-power amplifiers in an active phased-array antenna system. This technique uses IM phase control to break the strong association between carriers and IM components, and can make the radiation patterns of carriers and IM components different on active phased-array antenna systems. As a result, carrier power to IM power ratio (CAM) is increased in the carrier-beam direction. A newly developed IM controller can increase the C/IM of near-saturated solid-state power amplifiers and, therefore, achieve high power efficiency. This paper shows experimental results confirming this technique using a six-element linear array.

❑ Return to main document.