Abstracts

An Integrated, X-Band, Image and Sum Frequency Enhanced Mixer with 1 GHz IF

J.B. Cahalan, J.E. Degenford and M. Cohn. "An Integrated, X-Band, Image and Sum Frequency Enhanced Mixer with 1 GHz IF." 1971 G-MTT International Microwave Symposium Digest of Technical Papers 71.1 (1971 [MWSYM]): 16-17.

The integrated X-band mixer described herein has been developed for an integrated phased array system requiring a 1 GHz intermediate frequency. This high IF allows several novel design approaches. A single ended mixer is feasible since LO noise suppression is not necessary at such a high IF. Also, image (2f/sub LO/ - f/sub s/) and sum frequency (f/sub LO/ + f/sub s/) enhancement techniques can be used to recover a portion, of the energy normally lost in the mixing process; resulting in a conversion loss improvement of up to 1.5 dB in the enhanced mode as compared to the broadband mode of operation. To predict the "enhanced" mixer performance, to include a sum frequency port and also account for finite diode and filter losses.

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