Abstracts

Invariance of S/sub 21//S/sub 12/ and K-Factor Under Parallel Operation of Linear Two-Port Devices (Short Papers)

M. Ohtomo. "Invariance of S/sub 21//S/sub 12/ and K-Factor Under Parallel Operation of Linear Two-Port Devices (Short Papers)." 1993 Transactions on Microwave Theory and Techniques 41.10 (Nov. 1993 [T-MTT]): 2031-2034.

Based on a generalized circuit model for parallel-operated amplifiers with Iinear two-port devices, it has been proved that the S-parameter ratio S/sub 21//S/sub 12/ and hence MSG (Maximum Stable Gain) are invariant as long as the devices have an identical value of S/sub 21//S/sub 12/ and the input and output networks are reciprocal. The invariance of K-factor has been shown to hold for two cases: (i) devices are identical and input/output networks are lossless and symmetric with respect to each device, and (ii) identical admittances are added to the networks of case (i) so as to connect every device port with each other. Thus at least in these two cases, MAG (Maximum Available Gain) and U (Unilateral Gain) are invariant as well as MSG under parallel operation of linear two-port devices. The invariance of S/sub 21//S/sub 12/ and hence MSG applies to a variety of parallel-operated amplifiers such as distributed amplifiers and linear power amplifiers.

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