Abstracts

A Unified Analysis of Transmission Line Discriminators for F. M. Noise Measurements

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The transmission line discriminator is a well known system for measuring phase noise of an oscillator. Using several forms of these circuits, (particularly those patented by Ashley et al.) as a basis, we derive equations for the mixer I.F. output voltage, use these to determine the sensitivity of the discriminator and system threshold. This is related to a minimum detectable frequency deviation. Combining these theoretical equations and computer simulations with experimental results, we provide a unified analysis of frequency discriminators which goes well beyond any analysis available in current literature.

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