

Microwave secondary frequency standards: stability limits due to intrinsic fluctuations in frequency discriminator

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Limitations imposed on long-term frequency stability of microwave oscillators by intrinsic fluctuations in a frequency discriminator (FD) with RF modulation (Pound scheme) have been studied. It has been found that adding a microwave amplifier before detection, lowers the frequency discriminator noise floor by an amount equal to the amplifier gain. This offers the advantage of achieving high discriminator sensitivity without high levels of incident power or RF modulation index.

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