

Amplifier stability in the case of non-linear inductive loads

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Abstract-

A classical closed loop amplifier was constructed with a nonlinear inductive load and a sinusoidal current was inputted into the system in order to observe a self-oscillation. When in an amplifier, the load is inductive and non-linear; there will be a non-linear inductance on the loop of the amplifier. This problem can generate high-frequency oscillations in the circuit. These oscillations occur during the non-linear portion of the B-H curve (i.e) after the linear portion and before saturation. The objective of the research is to identify the conditions which lead to such oscillations. This paper provides the reasons for oscillations caused by Negative impedance and Inductive load saturation.

Index Terms- Negative Impedance, B-H curve, Non-Linearity, magnetic core saturation, Oscillations, Inductive Loads.

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