

## **Device Dispersion and Intermodulation In HEMTs**

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### **Abstract**

It has been shown previously that bias networks in microwave amplifiers can lead to complex intermodulation distortion effects. Here, we demonstrate that charge trapping effects in High Electron Mobility Transistors (HEMTs) can lead to additional anomalous intermodulation behaviour. This behaviour can be clearly observed as changes in intermodulation levels with tone-spacing, and two-tone asymmetry. Simulations using a simple model, that includes hole trapping effects, predicts similar intermodulation behaviour to measured behaviour. A Volterra-series analysis allows an understanding of the mechanisms involved.