

Theoretical Analysis Of The Intermodulation Performance Of Mach-Zehnder Modulators With Difference Frequency Injection

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Summary

Large signal analysis of Mach-Zehnder electro-optic modulators excited by three tone signals is presented. The special case of two equal-amplitude sinusoids plus a difference-frequency injection is considered in detail. The results show that even under large signal conditions it is possible, at least in theory, to totally eliminate the third-order intermodulation when the amplitudes of the equal-amplitudes input sinusoids and the difference-frequency injection are equal. This would be a promising technique for achieving highly linear Mach-Zehnder electro-optic modulators.

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