

## **Coupled Waveguides in GaN-based Lasers**

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### **Abstract**

GaN-based lasers include, apart from the separate confinement waveguide, a parasitic GaN buffer waveguide. The effect of coupling between the active laser waveguide and the buffer waveguide on the lasing modes is studied in terms of coupled mode formalism and a round-trip analysis. Assuming a low reflectivity internal mirror, Fabry-Perot modes with an intensity envelope, which resembles experimental measurements is obtained. The gradual change in the modes, taking part in the round-trip model, is presented as a function of wavelength and temperature. The influence of temperature changes on the peak wavelength of the output spectrum, predicted by this analysis, are in good agreement with experimental reports.