**Doping concentration of the distributed Bragg reflectors (DBRs) can strongly affect efficiency of the vertical cavity surface emitting laser (VCSEL) by increasing radiative recombination of carriers. In this paper, Integrating System Engineering Technology Computer Aided Design (ISETCAD) software was used to enhance the performance of GaN-based VCSEL by changing doping concentrations of the DBRs. the effect DBRs doping concentration on the threshold current and differential quantum efficiency in GaN VCSELs has been investigated.**