CHAPTER V
CONCLUSIONS

Using the time-honored method of melt-quenching, it was possible to successfully produce glasses with a composition of $27.5Gd_2O_3$-(72.5-x) B_2O_3-xDy_2O_3 (where x = 0.05, 0.1, 0.5, 1.0, and 1.5 mol%). The original encapsulating method will be the subject of this thesis study. According to the XRD spectra, these glasses have an amorphous structure. The photoluminescence and electroluminescence capabilities contributed to the white light emission demonstration. FTIR spectra were utilized to analyze the glasses' structural properties, and the results show distinct peaks associated with the borate network. It was discovered that Dy^{3+}doped Gd_2O_3-B_2O_3 glasses have emission spectra with the most incredible intensity at 0.5 mol% when monitored at 275 nm excitation and at 1.5 mol% when scanned at 350 nm excitation. When the Dy_2O_3 content is considered, the temporal decay profile exhibits a lifespan that falls in the range of 0.680 to 0.492 ms. A white emission in the CIE 1931 color coordinate suggests these glasses may be suitable for encapsulating LEDs. To research electroluminescence, bell-shaped glasses containing blue LEDs were developed.