

Electronic Supplementary Information

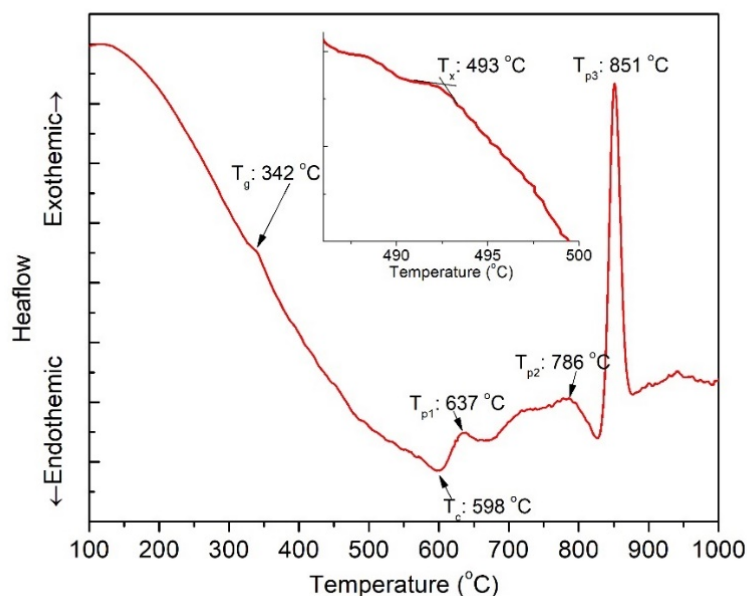


Fig. S1 DTA analysis of TNLC-0.5Tb0.5Sm2Yb lithium niobium tellurite glass sample

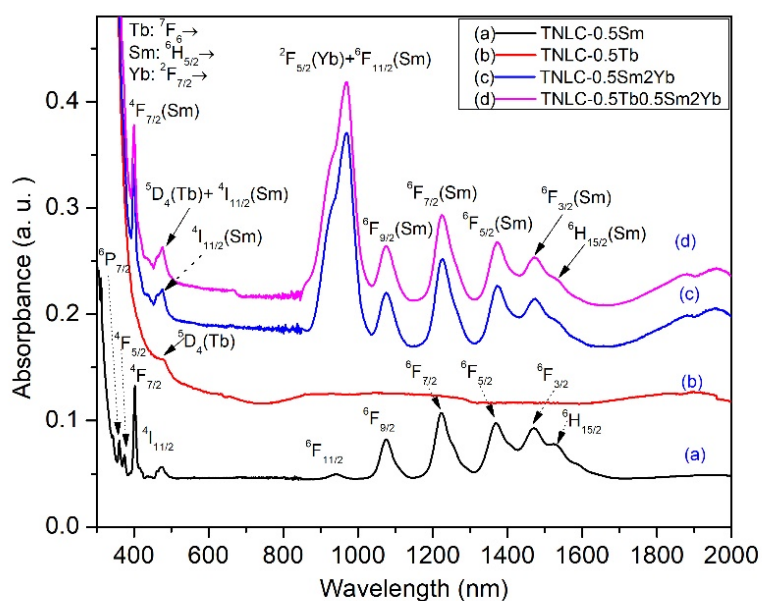


Fig. S2 Absorption spectra of TNLC-0.5Tb, TNLC-0.5Sm, TNLC-0.5Tb0.5Sm, and TNLC-0.5Tb0.5Sm2Yb lithium niobium tellurite glass samples.

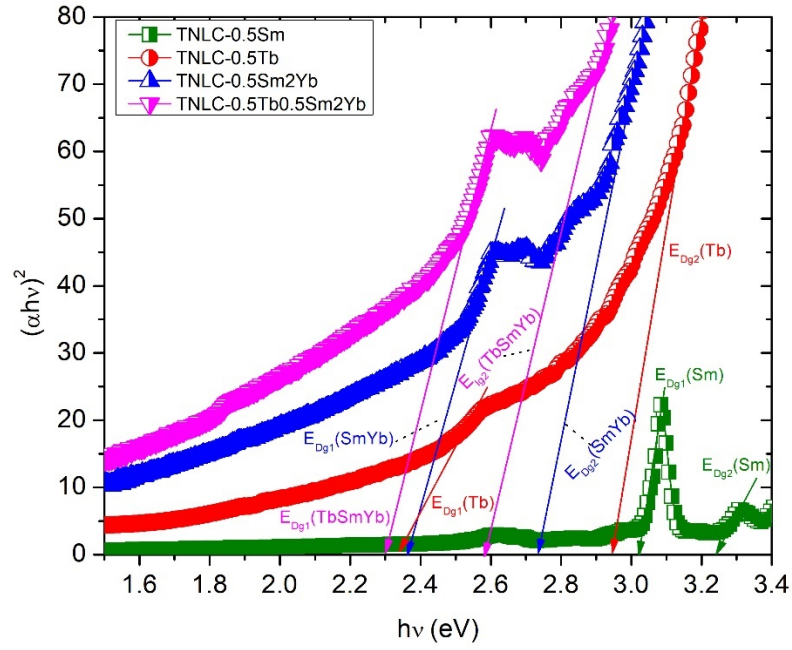


Fig. S3(a) Direct optical bandgaps of TNLC-0.5Sm, TNLC-0.5Tb, TNLC-0.5Sm2Yb, TNLC-0.5Tb0.5Sm2Yb glass samples.

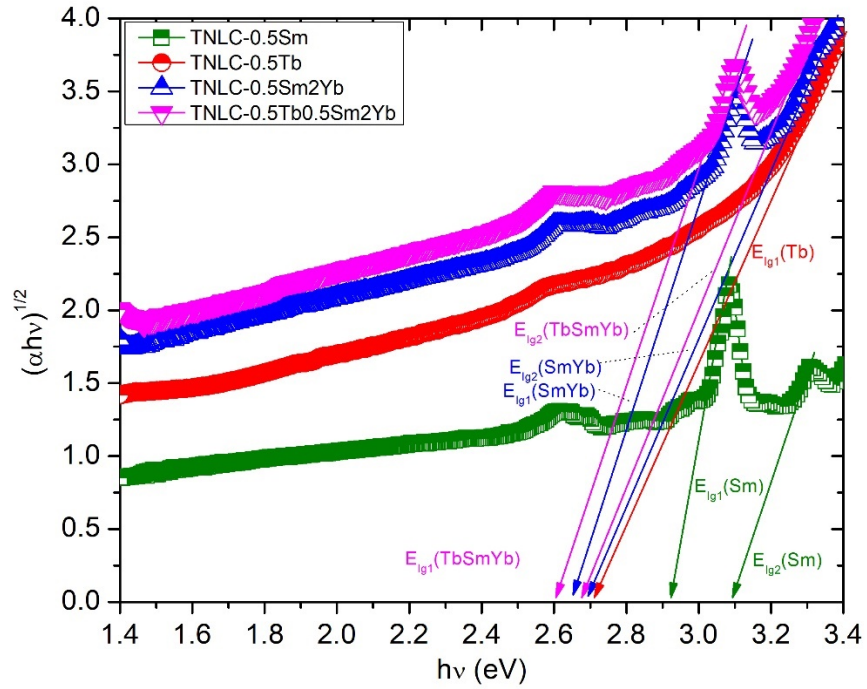


Fig. S3(b) Indirect optical bandgaps of TNLC-0.5Sm, TNLC-0.5Tb, TNLC-0.5Sm2Yb, TNLC-0.5Tb0.5Sm2Yb glass samples.

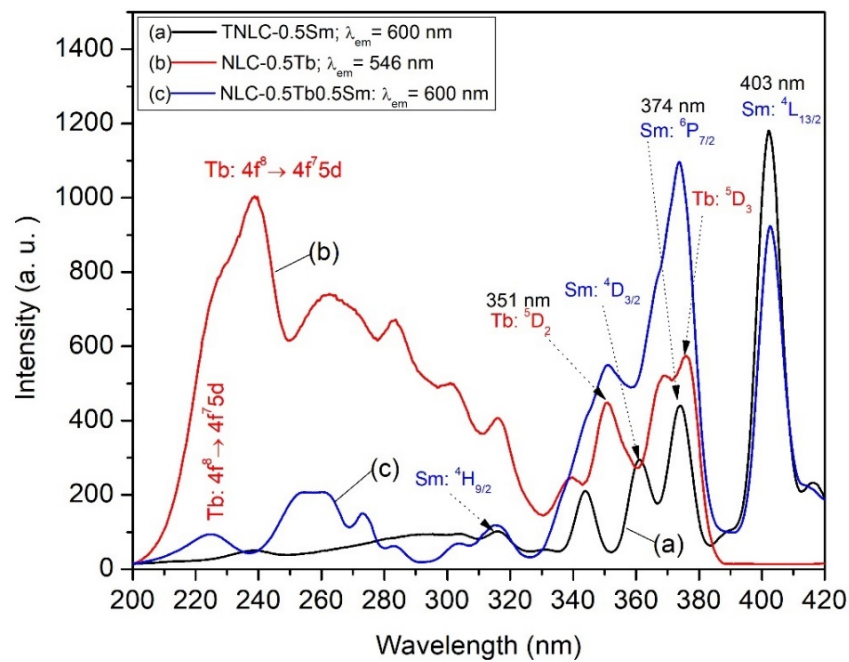


Fig. S4 Excitation spectra of TNLC-0.5Tb, TNLC-0.5Sm, and TNLC-0.5Tb0.5Sm lithium niobium tellurite glass samples.

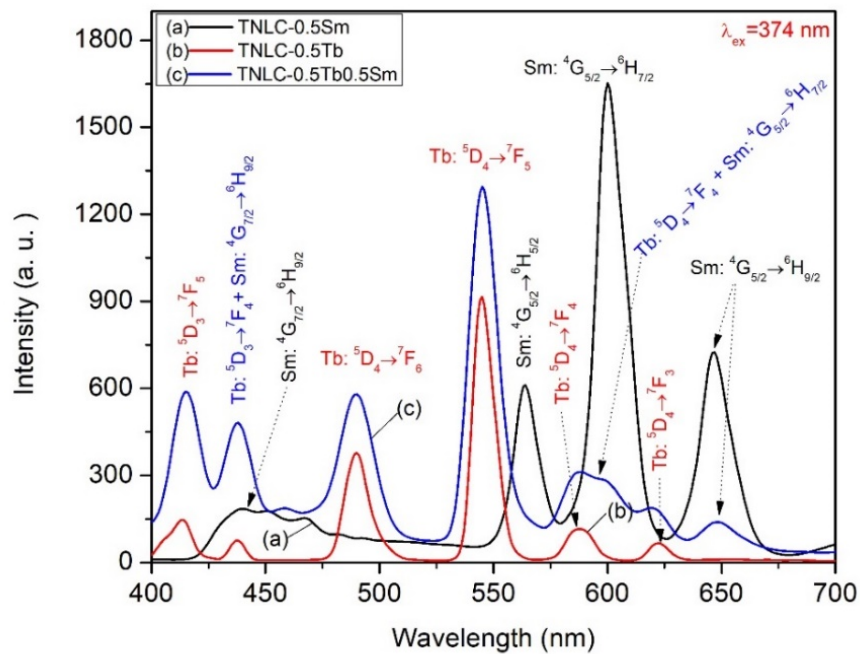


Fig. S5 VIS emission spectra of TNLC-0.5Tb, TNLC-0.5Sm, and TNLC-0.5Tb0.5Sm lithium niobium tellurite glass samples under 374 nm excitation.

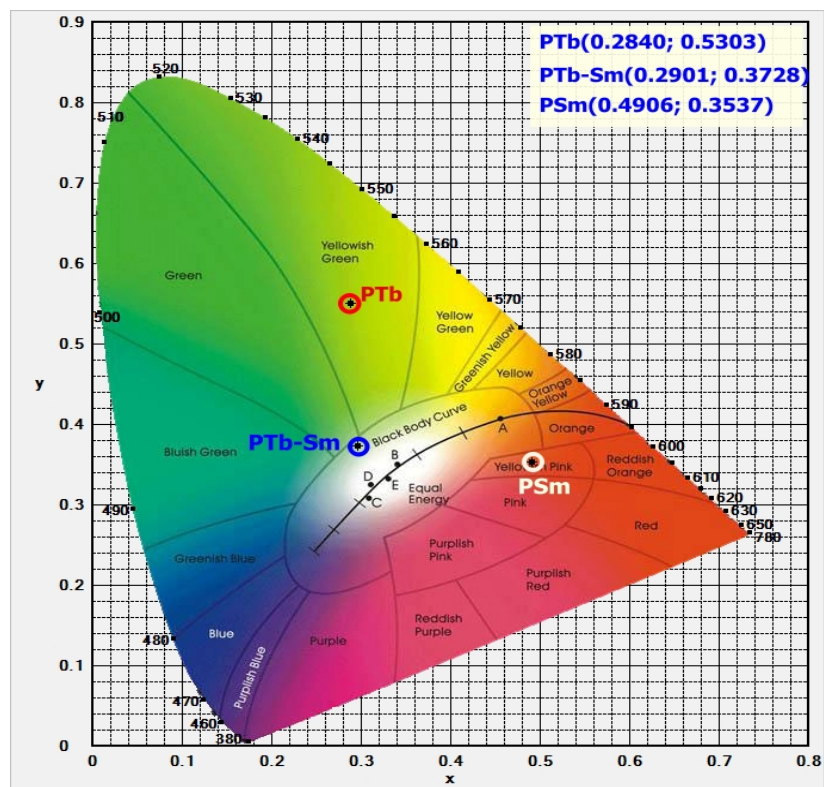


Fig. S6 CIE 1931(x; y) color coordinates for VIS emission spectra of TNLC-0.5Tb, TNLC-0.5Sm, and TNLC-0.5Tb0.5Sm glass samples under 374 nm excitation.

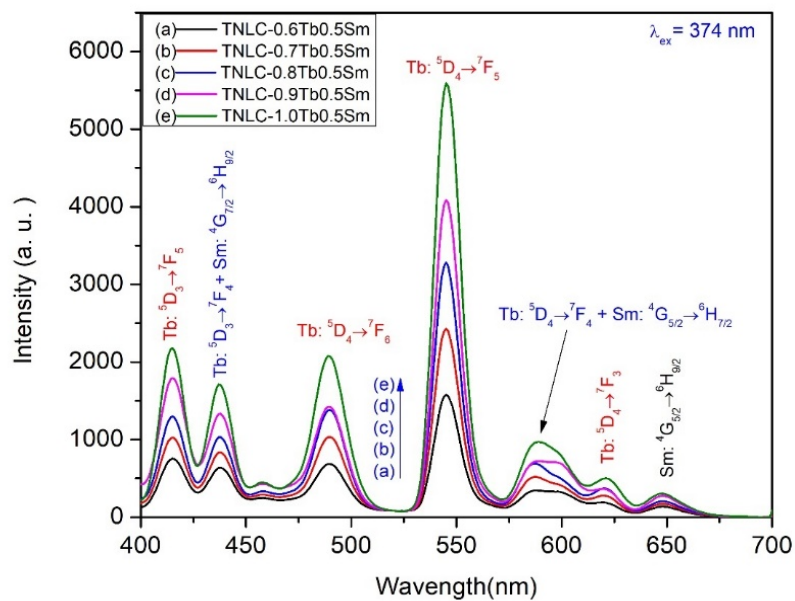


Fig. S7 VIS emission spectra of TNLC-pTb0.5Sm (p = 0.6, 0.7, 0.8, 0.9, and 1.0 mol. %) glass samples under 374 nm excitation.

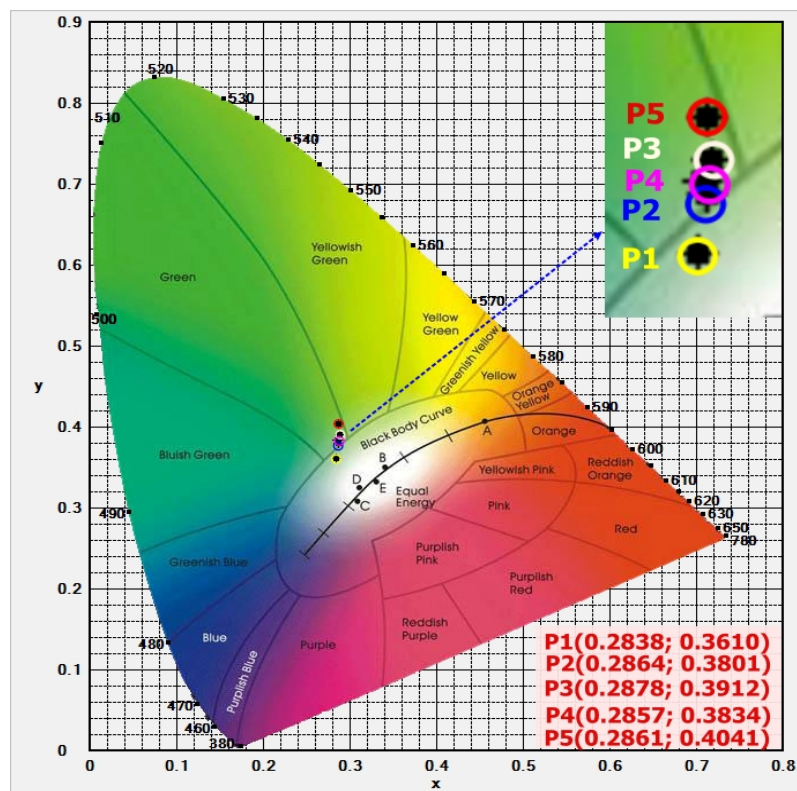


Fig. S8 CIE 1931 (x; y) color coordinates for VIS emission spectra of TNLC-pTb0.5Sm (p = 0.6, 0.7, 0.8, 0.9, and 1.0 mol. %) glass samples under 374 nm excitation.

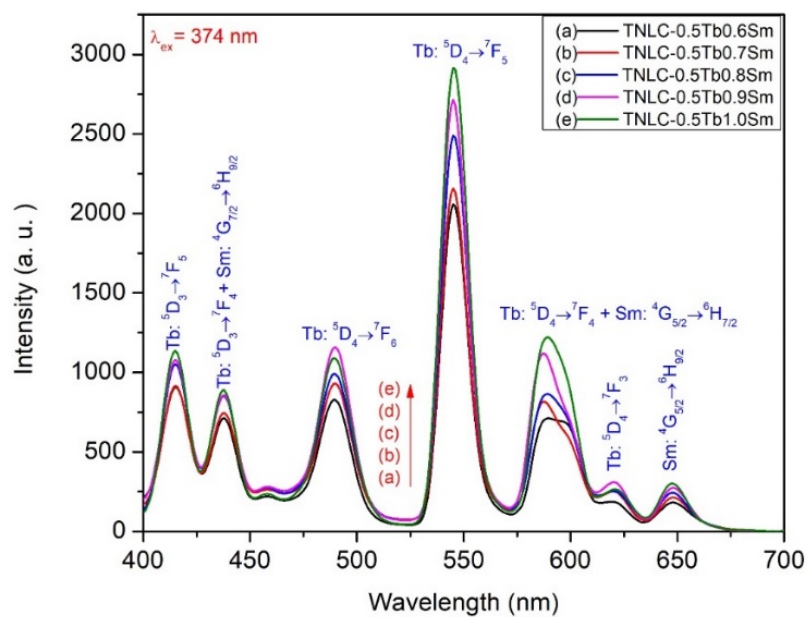


Fig. S9 VIS emission spectra of TNLC-0.5TbqSm (q = 0.6, 0.7, 0.8, 0.9, and 1.0 mol. %) glass samples under 374 nm excitation.

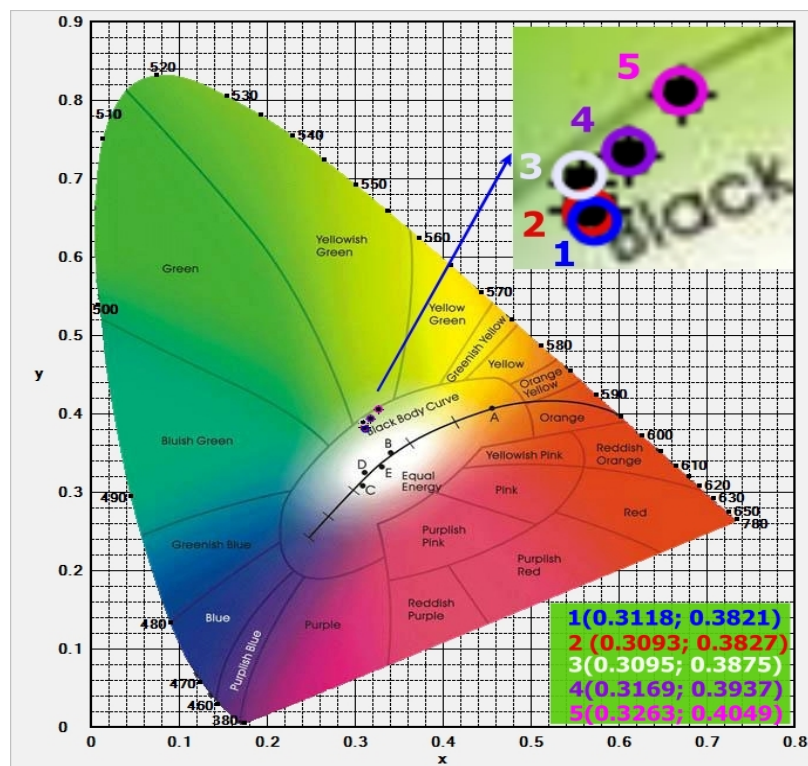


Fig. S10 CIE1931 (x; y) color coordinates for VIS emission spectra of TNLC-0.5TbqSm (q = 0.6, 0.7, 0.8, 0.9, and 1.0 mol. %) glass samples under 374 nm excitation.

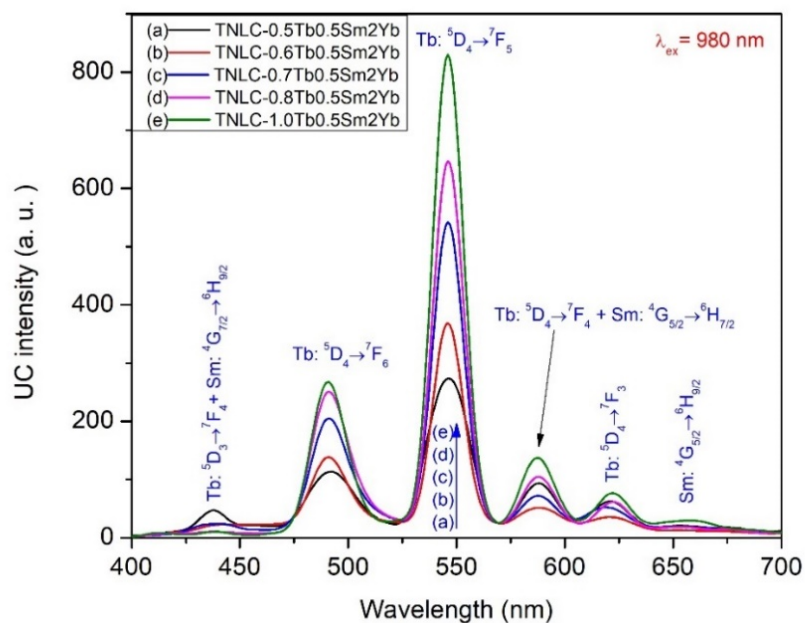


Fig. S11 UC emission spectra of TNLC-pTb0.5Sm2Yb (p = 0.5, 0.6, 0.7, 0.8, and 1.0 mol. %) glass samples under excitation of 980 nm LD.

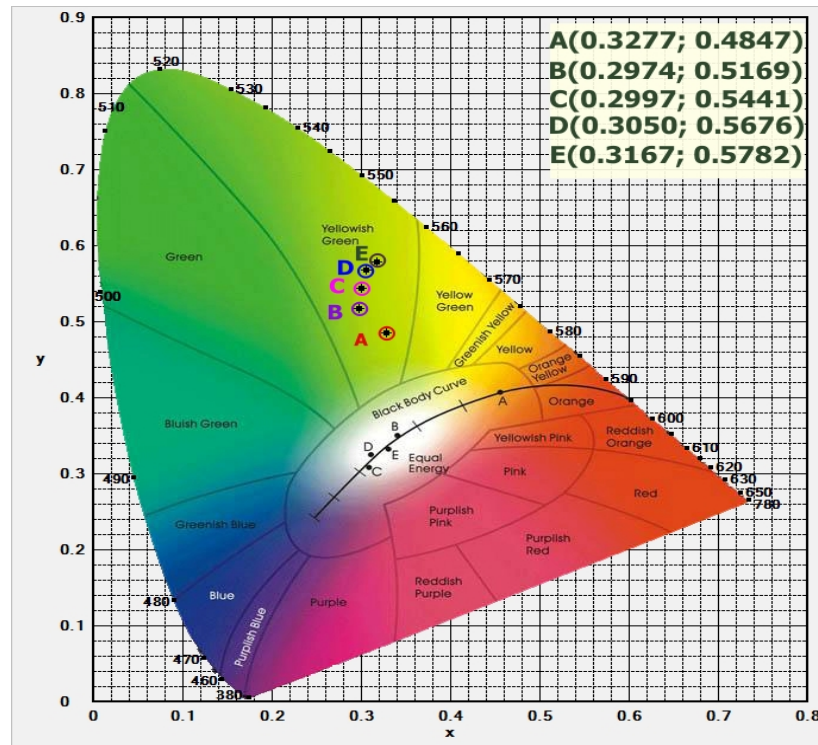


Fig. S12 CIE 1931(x; y) color coordinates for UC emission spectra of TNLC-pTb0.5Sm2Yb (p = 0.5, 0.6, 0.7, 0.8, and 1.0 mol. %) glass samples under excitation 980 nm LD.

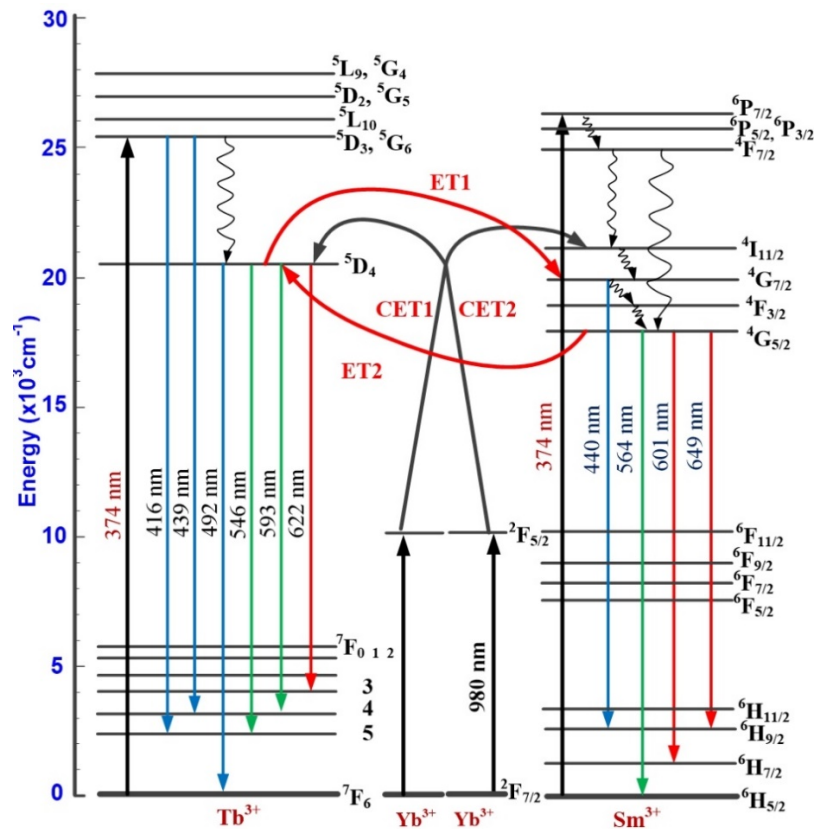


Fig. S13 Energy levels of Tb³⁺, Sm³⁺, Yb³⁺ ions and mechanisms of VIS, UC emissions CET1, CET2, ET1, and ET2 processes in TNLC glass system.

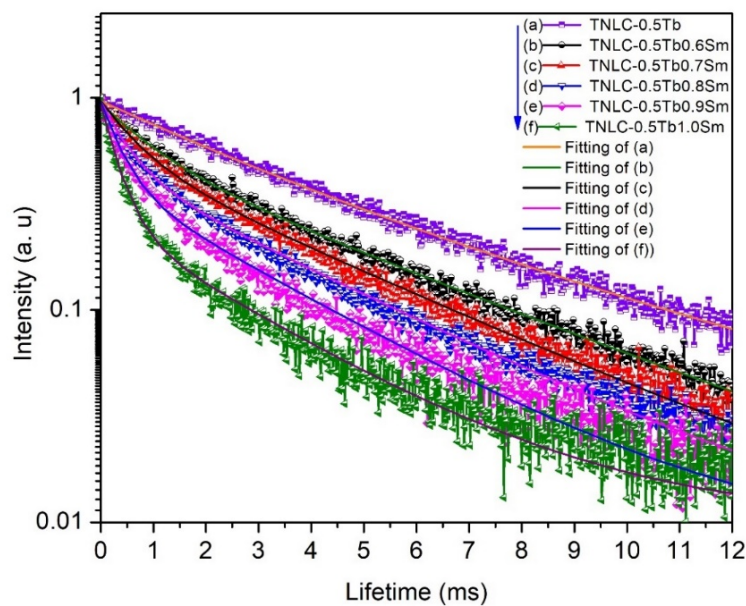


Fig. S14 Decay lifetimes at $^5D_4 \rightarrow ^5F_6$ transition of Tb^{3+} in TNLC-0.5TbqSm ($q = 0, 0.6, 0.7, 0.8, 0.9$, and 1.0 mol. %) glass samples under 374 nm excitation.

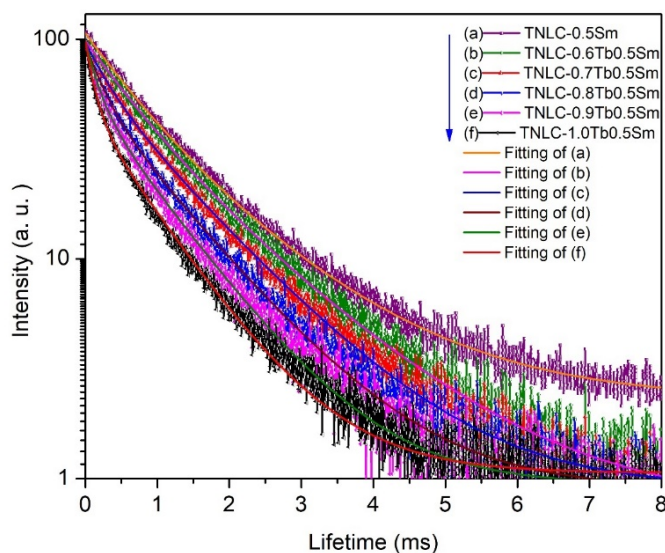


Fig. S15 Decay lifetimes at $^4G_{5/2} \rightarrow ^6H_{5/2}$ transition of Sm^{3+} in TNLC-pTb0.5Sm ($p = 0, 0.6, 0.7, 0.8, 0.9$, and 1.0 mol. %) glass samples under 374 nm excitation.

