Supporting Information

Color-Tunable Persistent Luminescence in New Oxyfluoride Glass and Glass Ceramic Containing Mn$^{2+}$: $\alpha$-Zn$_2$SiO$_4$ Nanocrystals

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**Figure S1.** Transmittance spectra of the precursor glass (PG) and two representative glass ceramic (GC-3h, GC-9h) samples.

**Figure S2.** Luminescent decay curves of Mn$^{2+}$: $^4T_{1g}(G) \rightarrow ^6A_{1g}(S)$ at 620 nm for PG and Mn$^{2+}$: $^4T_{1}$ (G) $\rightarrow ^6A_{1}(S)$ at 524 nm for GC-9h, under 260 nm excitation.
**Figure S3.** PersL decay curves by monitoring at (a) 524 nm and (b) 620 nm in the GC samples with different annealing durations. (c) Mn$^{2+}$ doping concentration dependent persistent decay curves by monitoring at 620 nm in the PG samples.

**Figure S4.** Persistent luminescence spectra of GC-7h sample at different time intervals (15-3600s) after ceasing the 260 nm excitation.
Figure S5. Persistent decay curves of the Mn$^{2+}$ doped (a) PG and (b) GC samples excited at various wavelengths.
**Figure S6.** EPR spectrum of the Mn$^{2+}$ doped glass ceramic.

**Figure S7.** The composition dependent PersL decay curves in 55SiO$_2$-20KF-(25-x)ZnF$_2$-xZnO glasses by monitoring at 620 nm upon 260 nm excitation for 5 min.