Tunable Luminescence of Ce\(^{3+}/\)Mn\(^{2+}\)-coactivated Ca\(_2\)Gd\(_8\)(SiO\(_4\))\(_6\)O\(_2\) through Energy Transfer and Modulation of Excitation: Potential Single-Phase White / Yellow-Emitting Phosphors

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Figure S1. The XRD patterns of (a) CGS: x Ce$^{3+}$ (x = 0.01-0.09) and (b) CGS: 0.05 Ce$^{3+}$, y Mn$^{2+}$ (y = 0.01-0.30) samples sintered at 1350 °C for 2 h in H$_2$/N$_2$ (5%/95%). The standard data of Ca$_2$Gd$_8$(SiO$_4$)$_6$O$_2$ (JCPDS No.28-0212) is shown as reference.
Figure S2. Raman spectrum of the prepared polycrystalline material Ca$_2$Gd$_8$(SiO$_4$)$_6$O$_2$ (a) and Ca$_2$Gd$_8$(SiO$_4$)$_6$O$_2$: 0.05Ce$^{3+}$, 0.03Mn$^{2+}$ (b) samples.
**Figure S3.** The variation of PL spectra of CGS: $x\text{Ce}^{3+}$ samples with the Ce$^{3+}$ concentration ($x$, mol%) under 287 nm UV excitation.
Figure S4. The peak position of CGS: 0.05Ce$^{3+}$, yMn$^{2+}$ samples as a function of Mn$^{2+}$ concentration (y) under 287 nm UV excitation.
Figure S5. Decay curves of Ce$^{3+}$ emission in CGS: 0.05Ce$^{3+}$, yMn$^{2+}$ (y = 0.01, 0.03, 0.05) samples excited at 355 nm and monitored at 428 nm.
Figure S6. Energy transfer efficiency from Ce$^{3+}$ to Mn$^{2+}$ in CGS: 0.05Ce$^{3+}$, yMn$^{2+}$ (0-0.50) samples ($\lambda_{ex} = 287$ and 330 nm).