Supporting Information

High-Performance Green Emission from Mn^{2+}-Doped 0D OIHMH Crystals for White LEDs and Anti-Counterfeiting Applications

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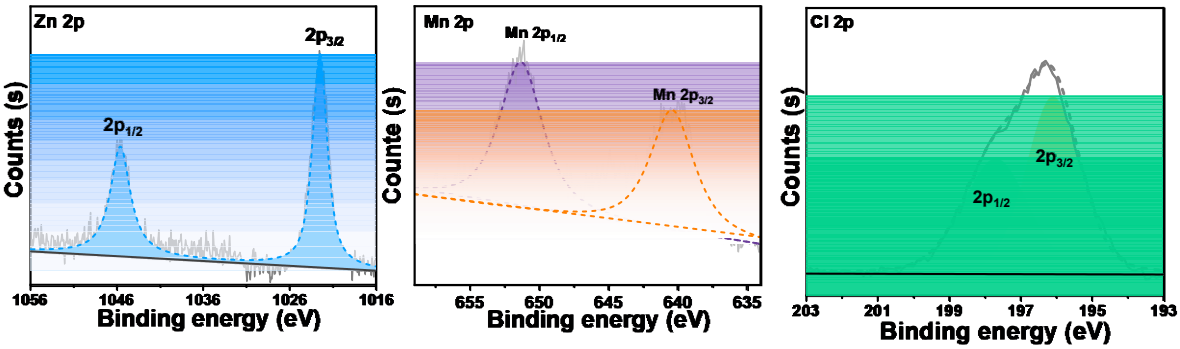

Fig. S1 High-resolution XPS full spectra of Zn 2p, Mn 2p, Cl 2p for $C_6H_{14}N_2ZnCl4:Mn^{2+}$.

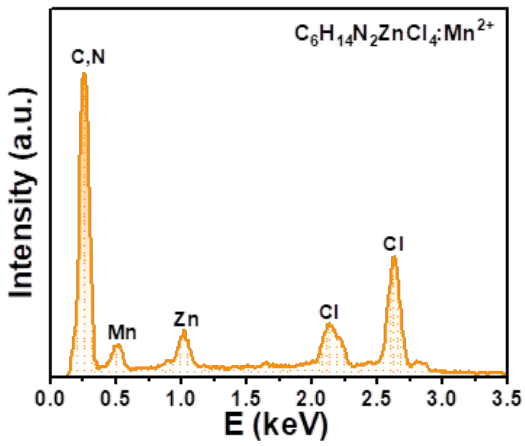

Fig. S2 The EDS pattern of $C_6H_{14}N_2ZnCl4:Mn^{2+}$.

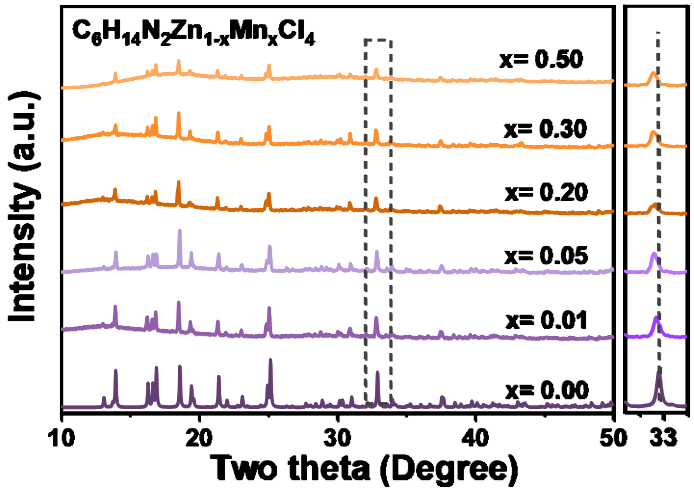

Fig. S3 The XRD patterns of $C_6H_{14}N_2Zn_{1-x}Mn_xCl_4$ with various Mn^{2+} ions concentrations.

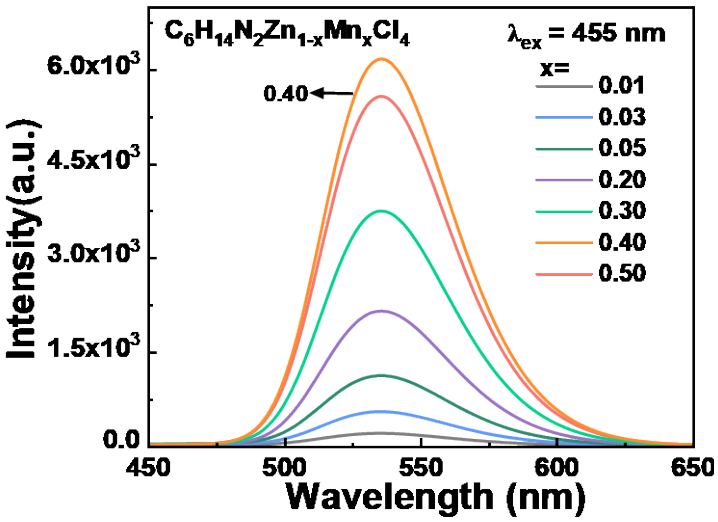

Fig. S4 PL spectra of $C_6H_{14}N_2Zn_{1-x}Mn_xCl_4$ with various x values under 455 nm

excitation.

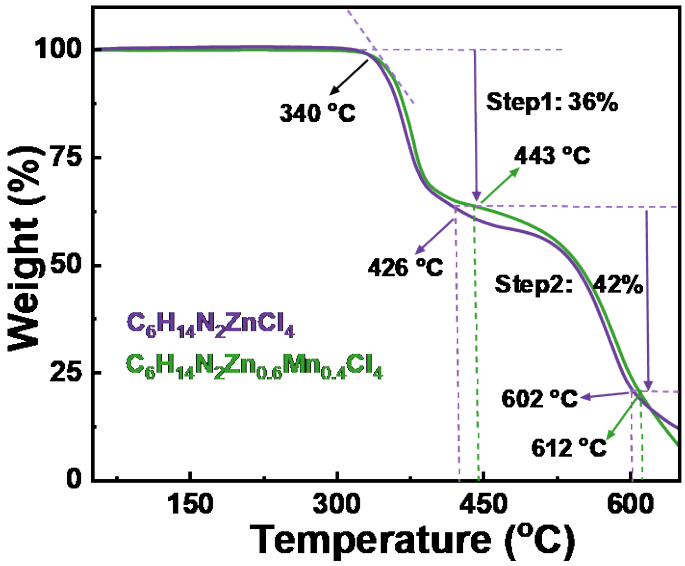

Fig. S5 Thermal gravimetric analysis (TGA) curves measured from room temperature to 900 °C at the heating rate of 10 °C min^{-1} on a synchronous thermal analyzer (TGA/DSC, Mettler, Switzerland).

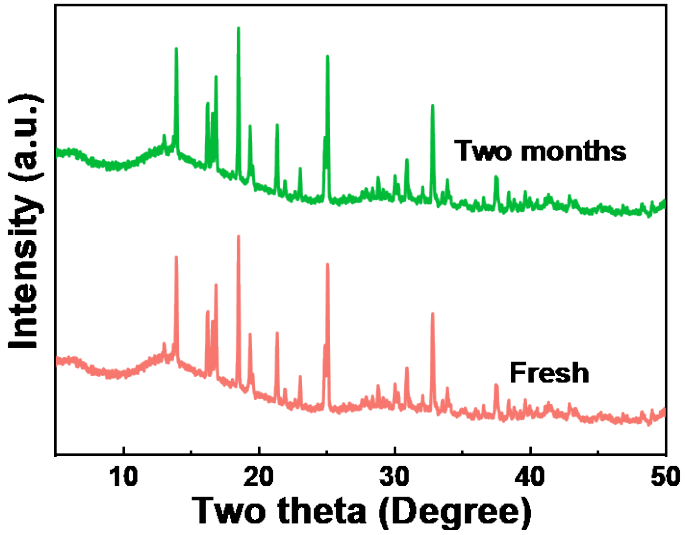

Fig. S6 XRD of $C_6H_{14}N_2Zn_{0.6}Mn_{0.4}Cl_4$ after being exposed to air for different months.

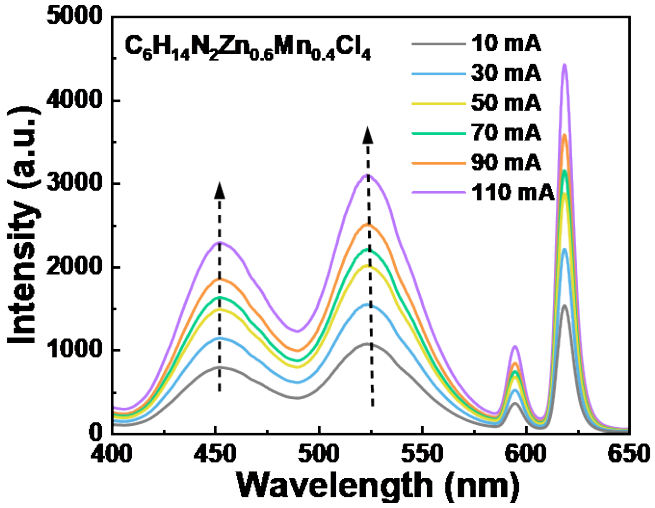

Fig. S7 EL spectra of $C_6H_{14}N_2Zn_{0.6}Mn_{0.4}Cl_4$-based LED under different applied current.

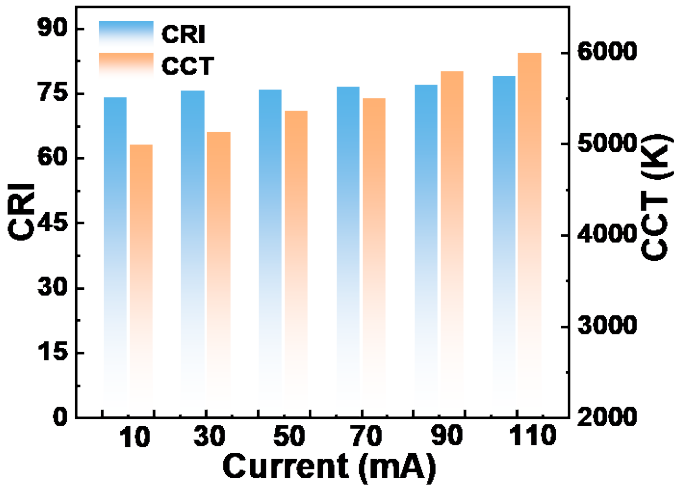

Fig. S8 CCT and CRI of $C_6H_{14}N_2Zn_{0.6}Mn_{0.4}Cl_4$-based LED under different applied current.

Table S1 Comparison of efficiency and thermal decomposition temperature with reported relevant materials.

Materials	Emission peak (nm)	PLQY (%)	Thermal decomposition (°C)	Ref
$(C_8H_{20}N)_2MnCl_4$	520	87%	300	[1]
$\{TETA[Pb_2Cl_6]_n:Mn^{2+}$	551	25%	450	[2]

Cs_2ZnCl_4:30%Mn^{2+},10%Sb^{3+}	530	64.43%	600	[3]
M_2CdCl_4:Mn^{2+}	605	87%	297	[4]
$[(CH_3)_4N]_2MnX_4$	523	51%	300	[5]
$C_6H_{14}N_2ZnCl_4$:Mn^{2+}	535	70%	340	This work

References：

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