Electronic Supplementary Information

Te^{4+}-doped Cs_2SnCl_6 scintillator for flexible and efficient X-ray imaging screens

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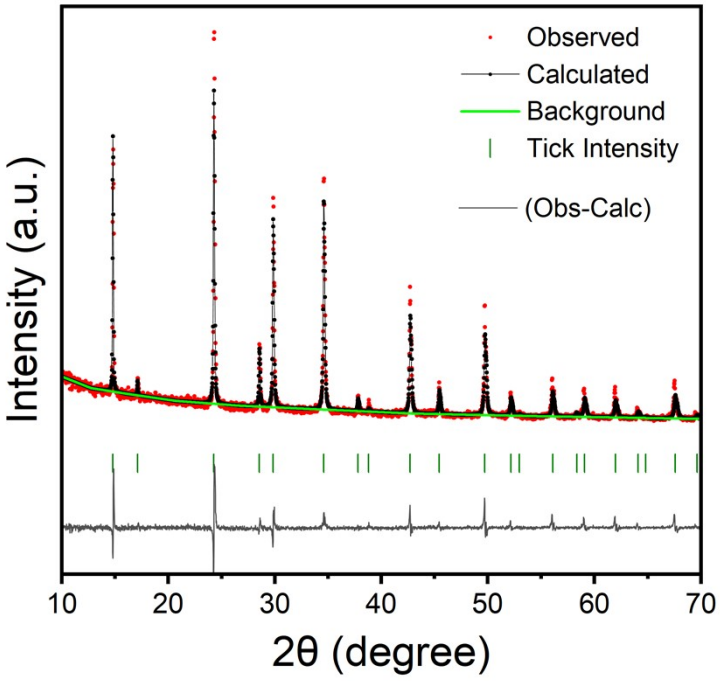

Figure S1. Rietveld refinement of XRD data for Cs_2SnCl_6:1.4%Te MCs.

Table S1 The calculated lattice parameters of Te^{4+}-doped Cs_2SnCl_6 microcrystals via Rietveld refinement of XRD patterns. **(**a: cell lattice parameters, *V*: cell volume, R_{wp}: weighted profile factor, R_p: the reliability factor of the profile, χ^2: goodness of fit.)

Sample	a（Å）	V（Å^3）	Rwp（%）	Rp（%）	χ^2
Undoped	10.3853	1120.101	10.07	6.83	5.530
0.4% Te	10.3861	1120.338	10.02	6.86	5.750
0.9% Te	10.3872	1120.725	9.41	6.64	4.870
1.4% Te	10.3882	1121.050	9.53	6.37	4.680
1.9% Te	10.3912	1122.010	9.87	6.88	5.365
2.5% Te	10.3941	1122.789	10.12	6.32	4.862

Table S2 Nominal and actual Te/(Sn+Te) co-doping concentrations in Cs_2SnCl_6: Te MCs. The nominal Te doping ratio was defined as the molar ratio of Te/(Sn+Te) in the precursor solution, and the actual Te/(Sn+Te) ratio was determined by ICP-MS.

Sample	Nominal (mol%)	Actual (mol%)
1	0.4%	0.99%
2	0.9%	1.16%
3	1.4%	2.22%
4	1.9%	3.35%
5	2.5%	4.10%

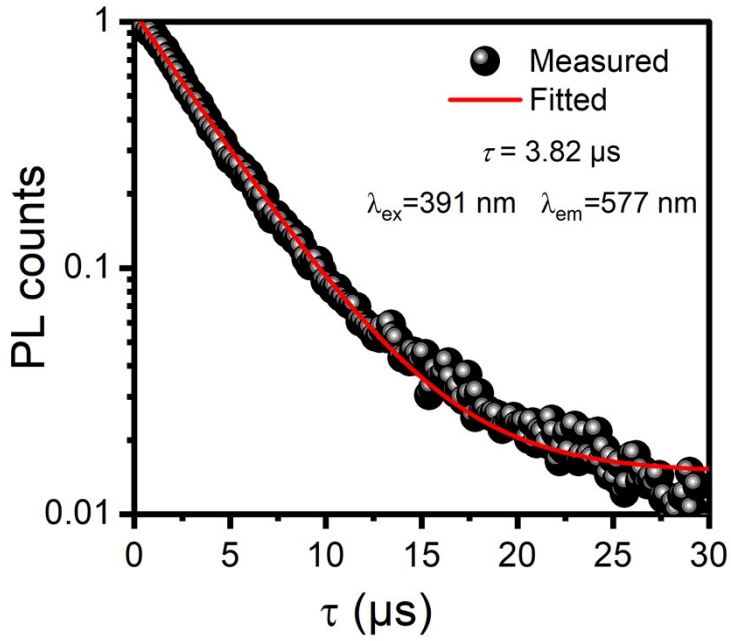

Figure S2. PL decay curve of Cs_2SnCl_6:1.4%Te MCs collected on an Edinburgh FLS980 spectrophotometer with λ_{ex}=391 nm and λ_{em}=577 nm. An average lifetime of 3.82 μs was derived from a biexponential fitting.

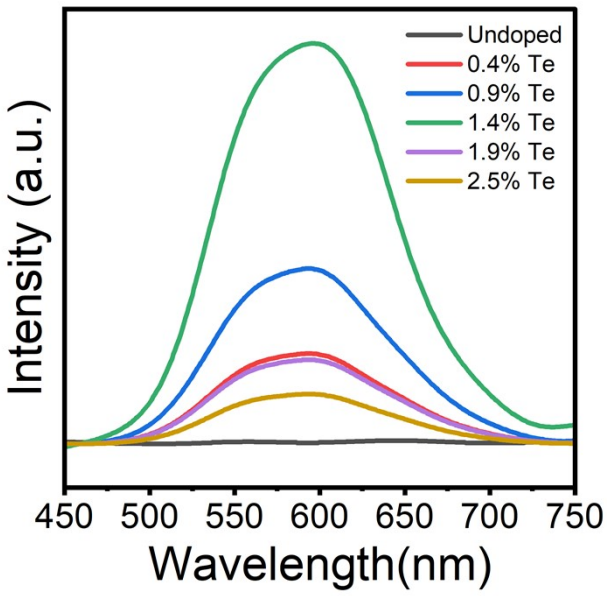

Figure S3. RL of Cs_2SnCl_6:Te MCs with different Te doping levels (dose rate: 10 $\mu Gy_{air}/s$, voltage: 40 kV).

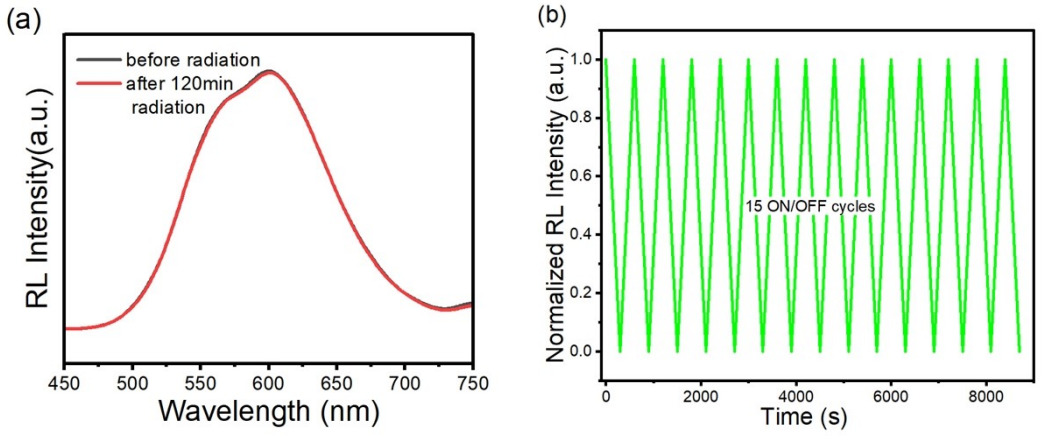

Figure S4. (a) RL spectra obtained from Cs_2SnCl_6:1.4%Te MCs before and after a continuous X-ray irradiation for 120 min (dose rate: 10 $\mu Gy_{air}/s$, voltage:40 kV). (b) luminescence intensity was also monitored within 15 consecutive X-ray on/off cycles (dose rate: 10 $\mu Gy_{air}/s$, voltage:40 kV, exposure time: 300 s).

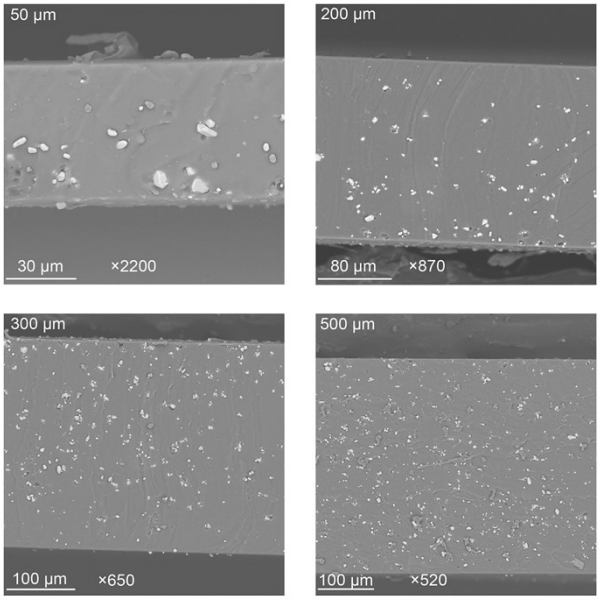

Figure S5. Cross-sectional SEM images of Cs_2SnCl_6:1.4%Te@PDMS screens with different thicknesses.

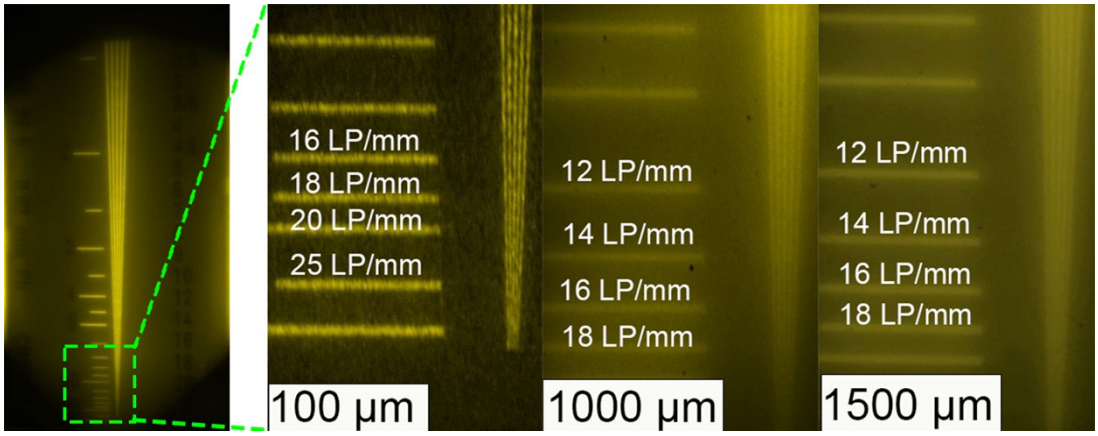

Figure S6. X-ray images of the standard X-ray test pattern plate using Cs_2SnCl_6:1.4%Te@PDMS films with thicknesses of 100μm, 1000 μm, and 1500 μm.