Supplementary Information

A Nanoimprinted Artificial Engram Device

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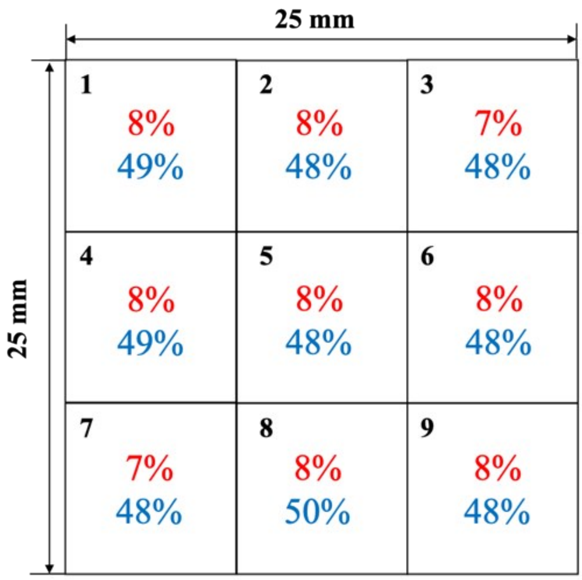

Fig. S1 The relative diffraction efficiencies measured at different locations after heating (120 °C for 30 seconds) and UV irradiation (100 mW/cm^2 for 3 hours). The device area is divided into a 3 by 3 grid. the relative diffraction efficiencies measured at different locations range from 7% to 8% after heating (marked in red) and from 48% to 50% after UV irradiation (marked in blue). The standard deviation is less than 0.7%. A good device uniformity is demonstrated.

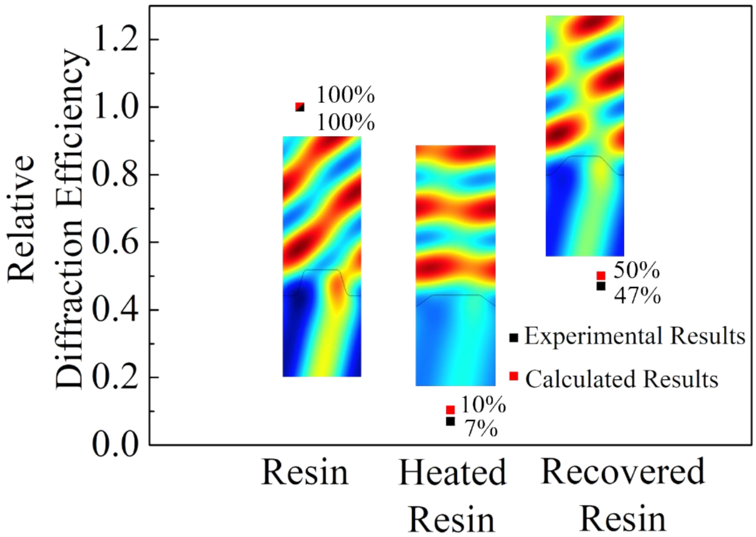

Fig. S2 Experimental (black solid squares) and calculated (red solid squares) relative diffraction efficiencies of a pristine SPC-347 UVCR grating, the grating after the heating treatment (120 ℃ for 30 seconds) and the heat-treated grating after the natural restoring process (2 days). The inset figures show the corresponding spatial distribution of the electromagnetic field $|E|^2$ in a periodic unit structure for a 532 nm plane wave at an incident angle of 25° to the surface normal of the device. The calculation was carried out using a finite element method using a commercial software COMSOL Multiphysics 5.2a.