Electronic Supplementary Material (ESI) for Materials Advances.

Supporting Information

of

An Anticounterfeiting Technology Combining InP Nanoparticle Ink and Versatile Optical Device for Authentication

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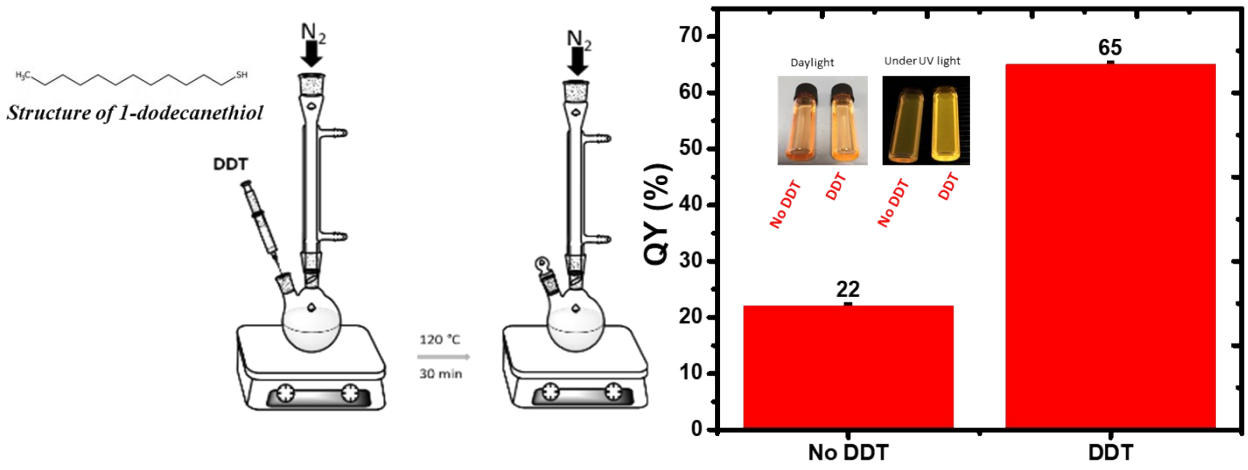

Figure S1. Schematic illustration of synthesis setup of DDT addition and its effect on improving quantum yield.

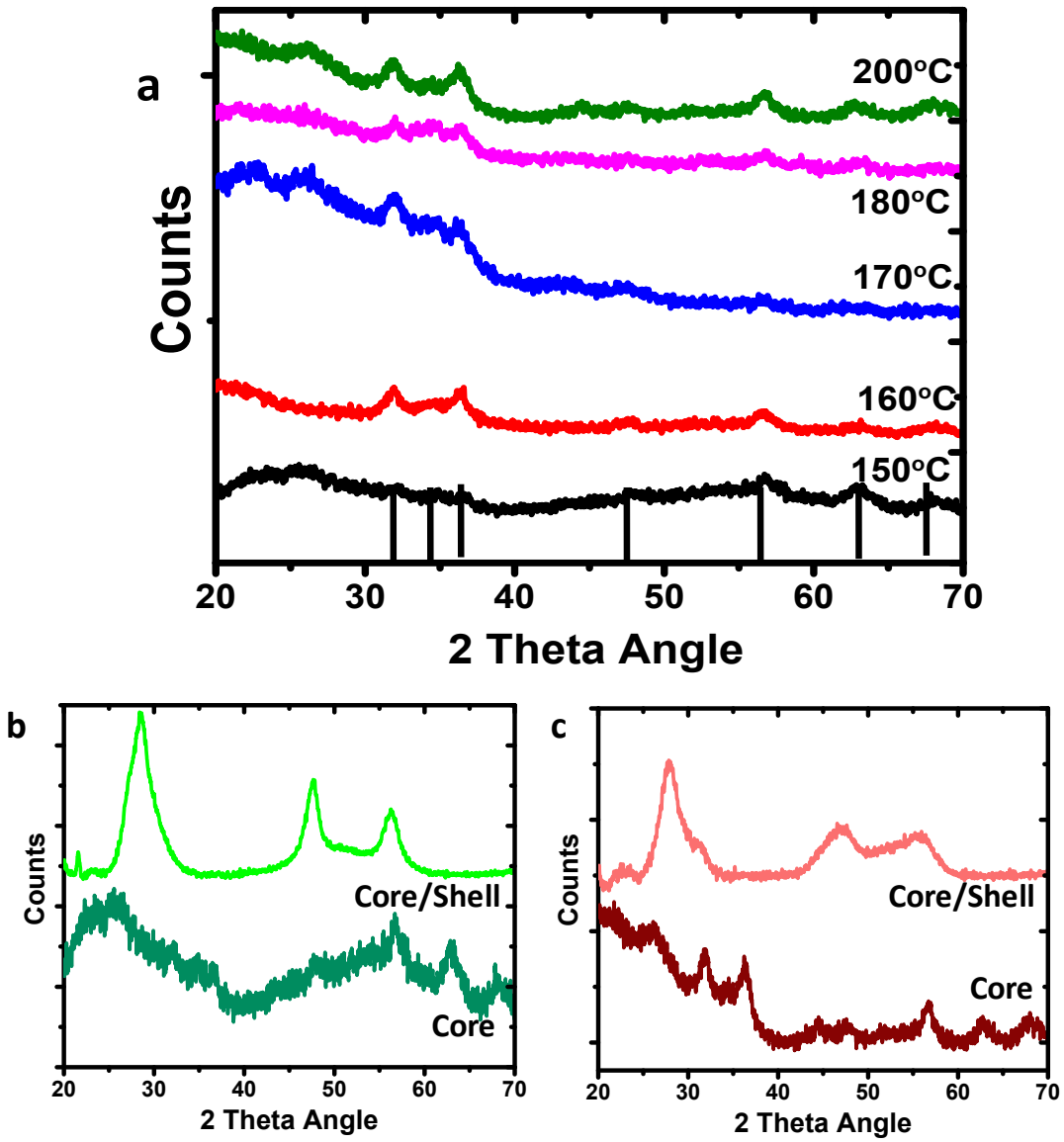

Figure S2. a) The XRD diffractogram of the InZnP core nanoparticles with different core reaction temperatures. The solid black lines represent the reference lines of ZnO structure (JCPDS: 36-1451). The effect of ZnS shell addition on the crystal structure of InZnP/ZnS core/shell nanoparticles was shown for b) 150°C and c) 200°C.

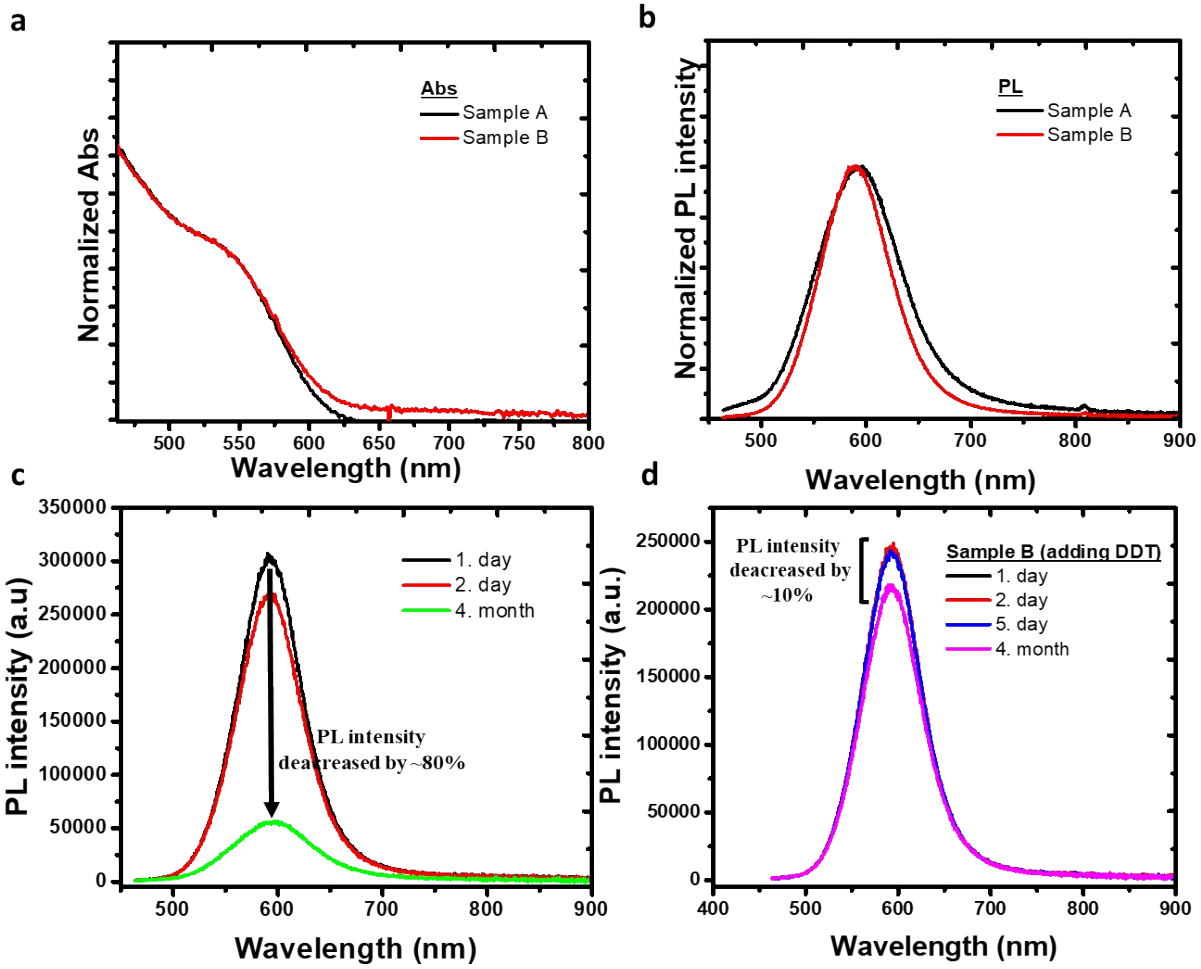

Figure S3. a) Absorption and b) photoluminescence spectra of nanoparticles before and after DDT. Photoluminescence spectra of c) Sample A and d) Sample B at different days.

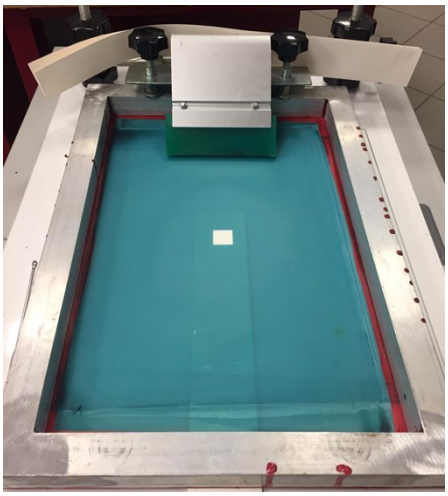

Figure S4. Photograph of the screen printing device.

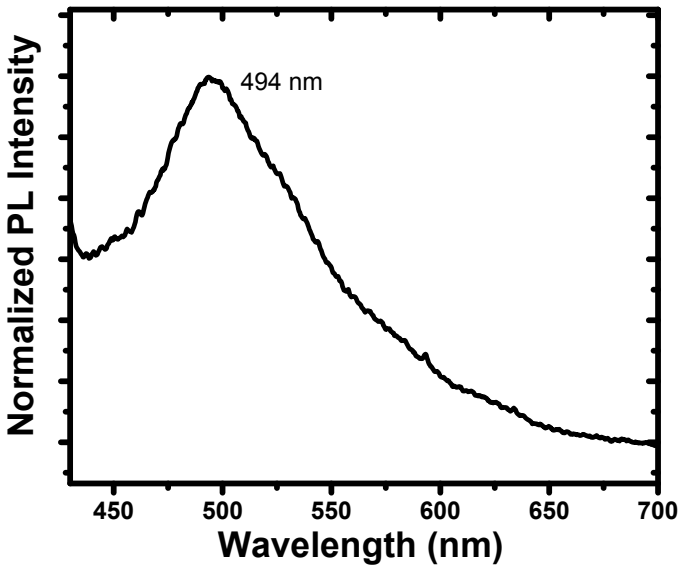

Figure S5. PL spectrum of the commercial varnish used.

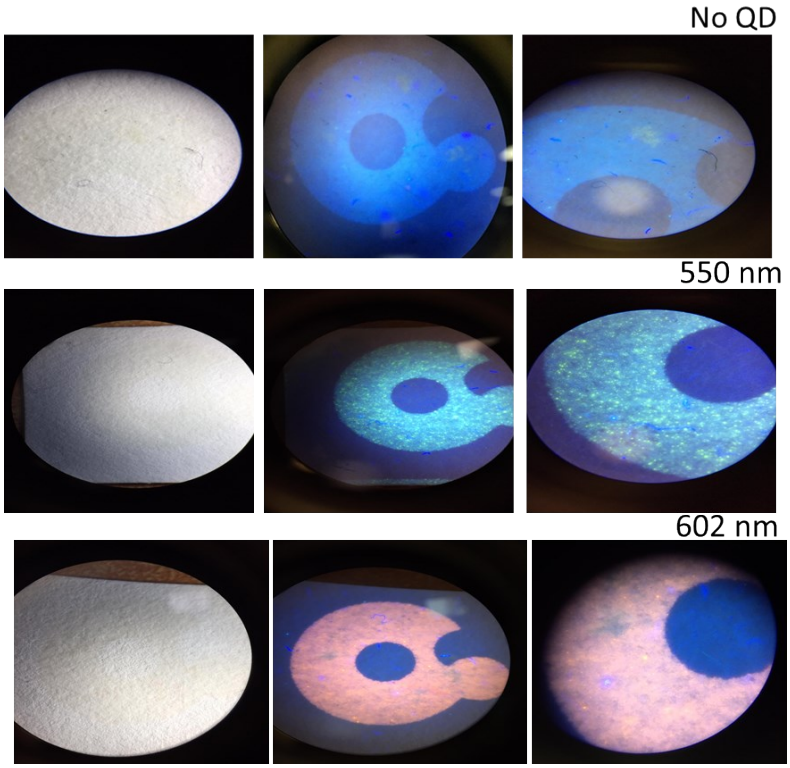

Figure S6. Stereo microscope photographs of the logos printed on papers. Photographs show logos without and with nanoparticles emitting at 550 nm and 602 nm, from the top to the bottom respectively.

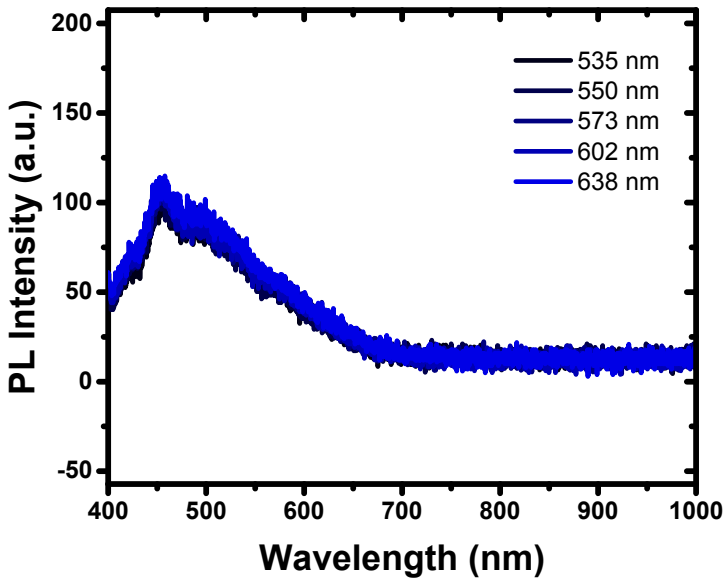

Figure S7. The PL spectra of screen-printed patterns on papers. The QD concentration in the ink was 0.1% (v/v). The labels represent the emission wavelengths of QDs.

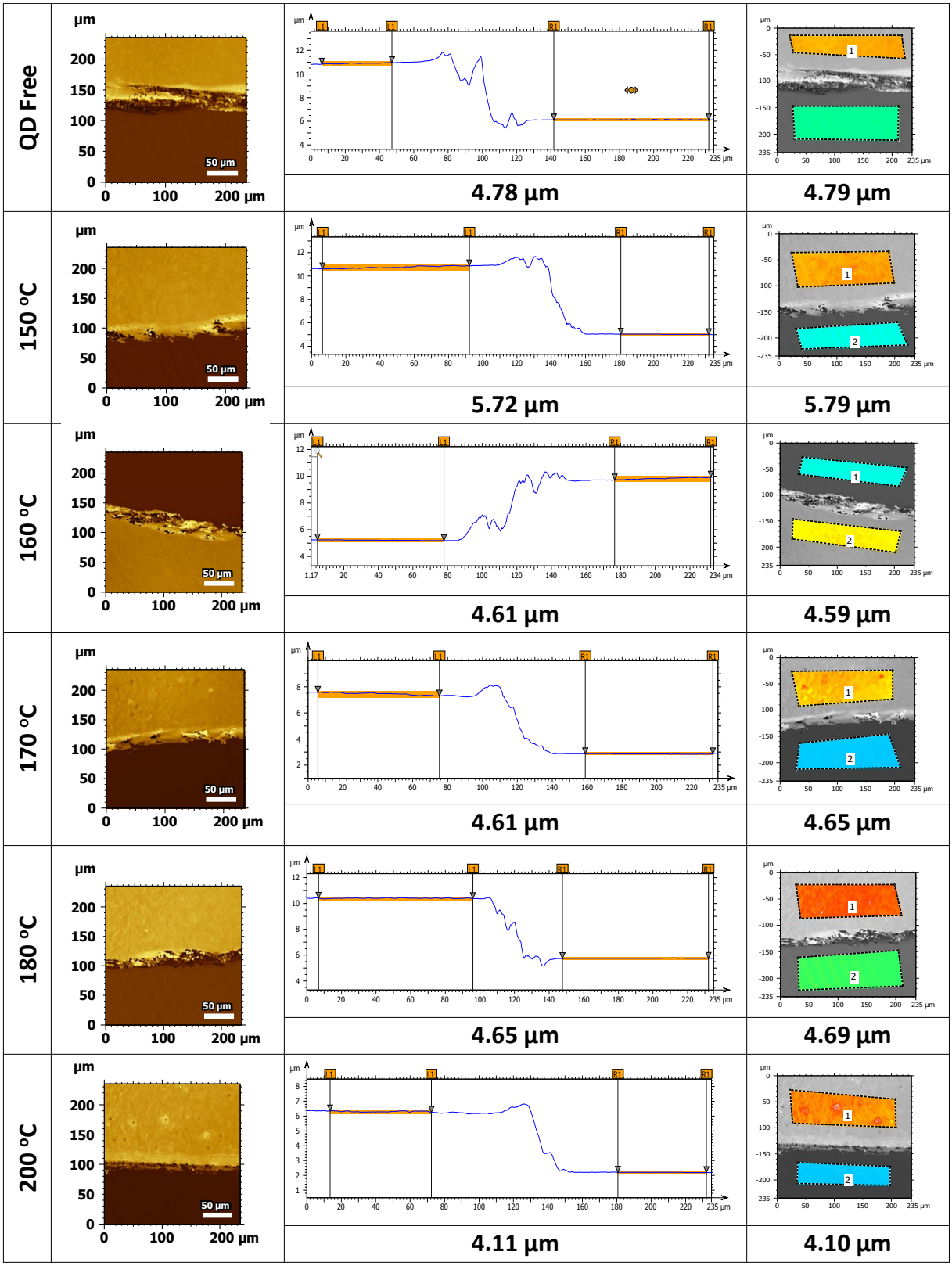

Figure S8. Thickness measurements of screen-printed glass substrates with and without QD incorporation by optical profilometer

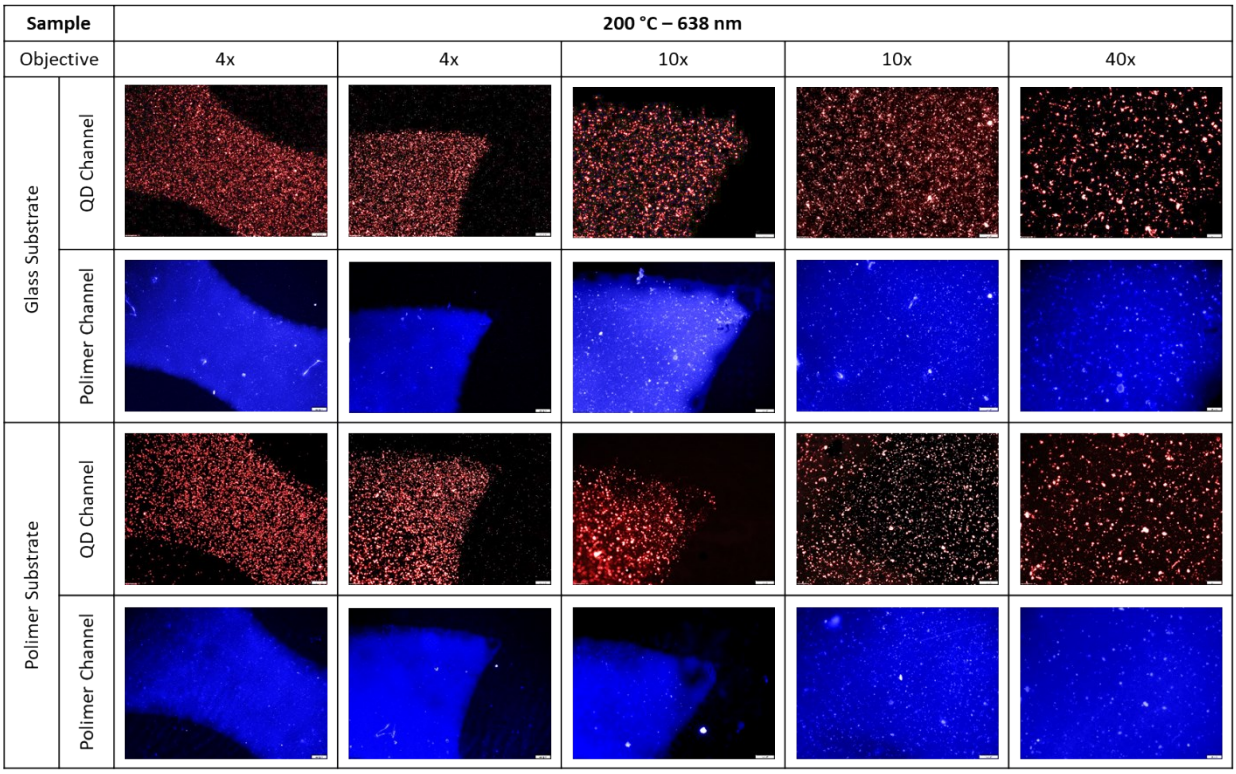

Figure S9. Photographs of the part of logo patterns printed with inks containing the red-emitting nanoparticles, emitting at 638 nm on the polymer and glass substrates. The images were taken by a confocal microscope with Hg lamp and red emission filter, using different objectives, to verify the homogenous distribution of nanoparticles.