Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary data to accompany:

Heteroleptic copper(I) sensitizers: hole-transporting units in 5,6- versus 4,7-positions of a 2,9-dimethyl-1,10-phenanthroline ancillary ligand

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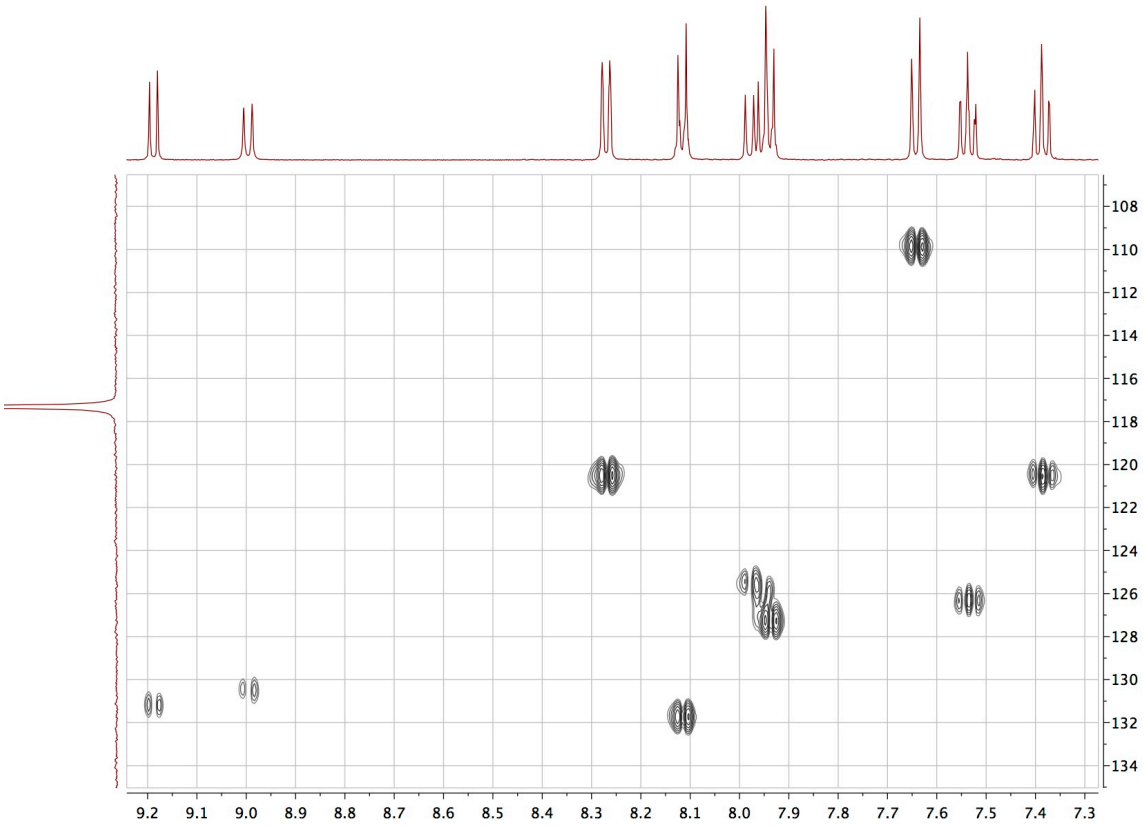
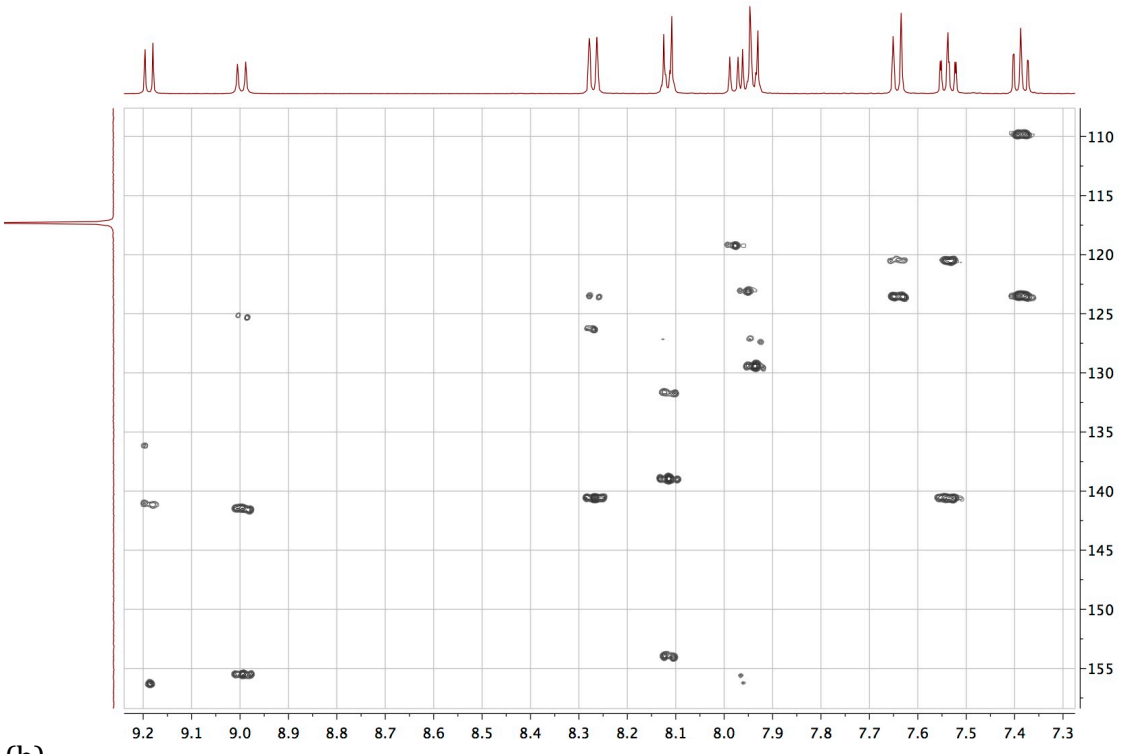


(a)



(b)

Fig. S1. Aromatic regions of the (a) HMQC and (b) HMBC spectrum of $[Cu(\mathbf{4})_2][PF_6]$ as a representative example of spectra of the homoleptic copper(I) complexes. (500 MHz instrument, $CDCl_3$). ^{13}C NMR chemical shifts were assigned using the 2D spectra.

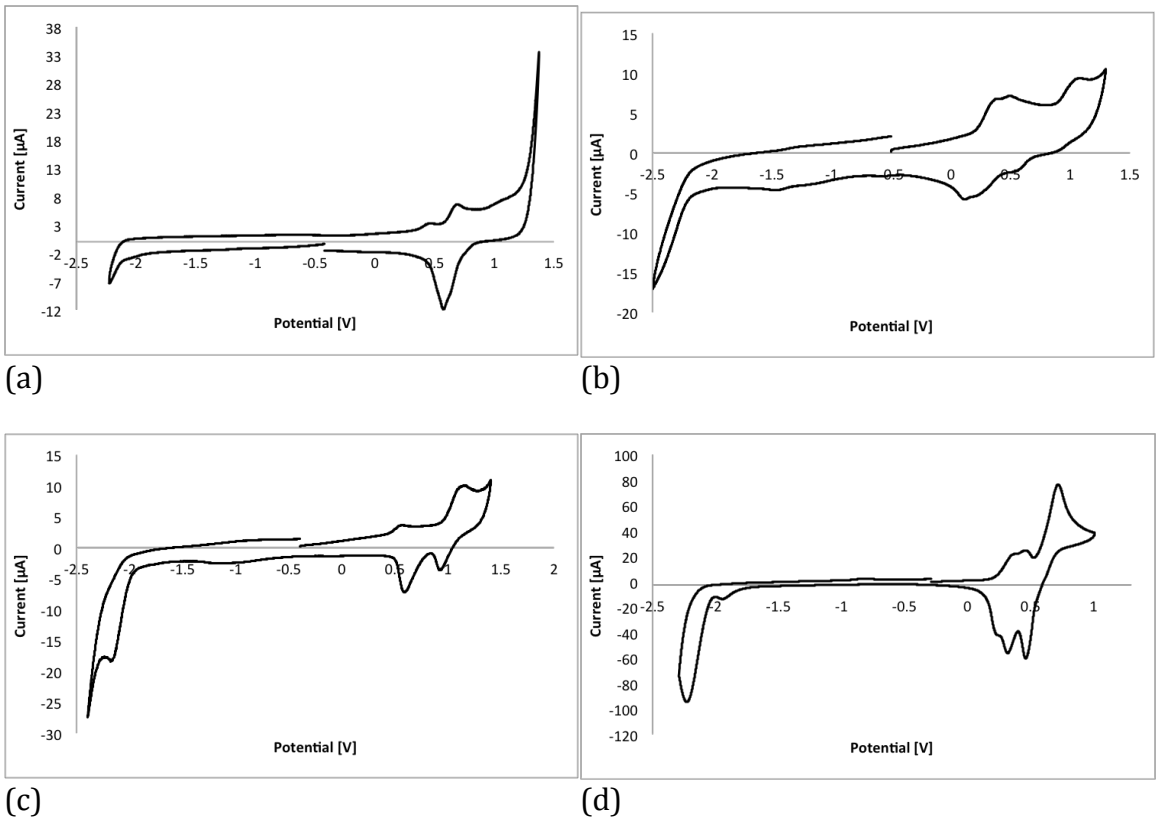


Fig. S2. Cyclic voltammograms of (a) [Cu(**2**)$_2$][PF_6], (b) [Cu(**3**)$_2$][PF_6], (c) [Cu(**4**)$_2$][PF_6] and (d) [Cu(**5**)$_2$][PF_6] in CH_2Cl_2. Supporting electrolyte = 0.1 M [^{n}Bu$_4$N][PF_6]; the scan rate was 0.1 V s^{-1}; ferrocene = internal standard.

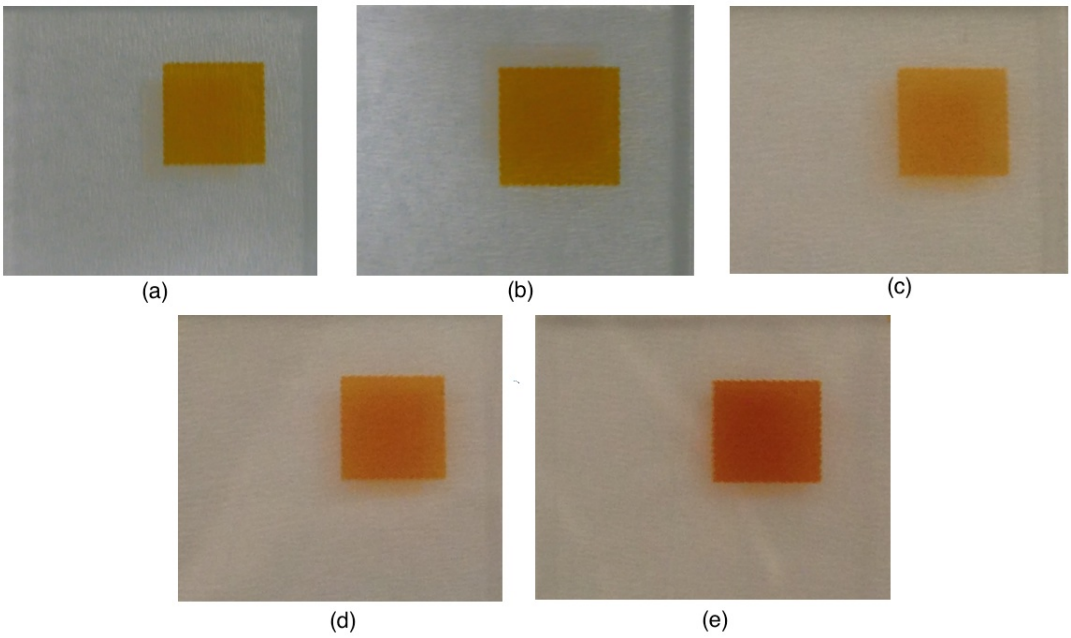


Fig. S3. Photographs of TiO_2 electrodes functionalized with (a) [Cu(**6**)(**1**)]$^+$, (b) [Cu(**6**)(**2**)]$^+$, (c) [Cu(**6**)(**3**)]$^+$, (d) [Cu(**6**)(**4**)]$^+$ and (e) [Cu(**6**)(**5**)]$^+$.

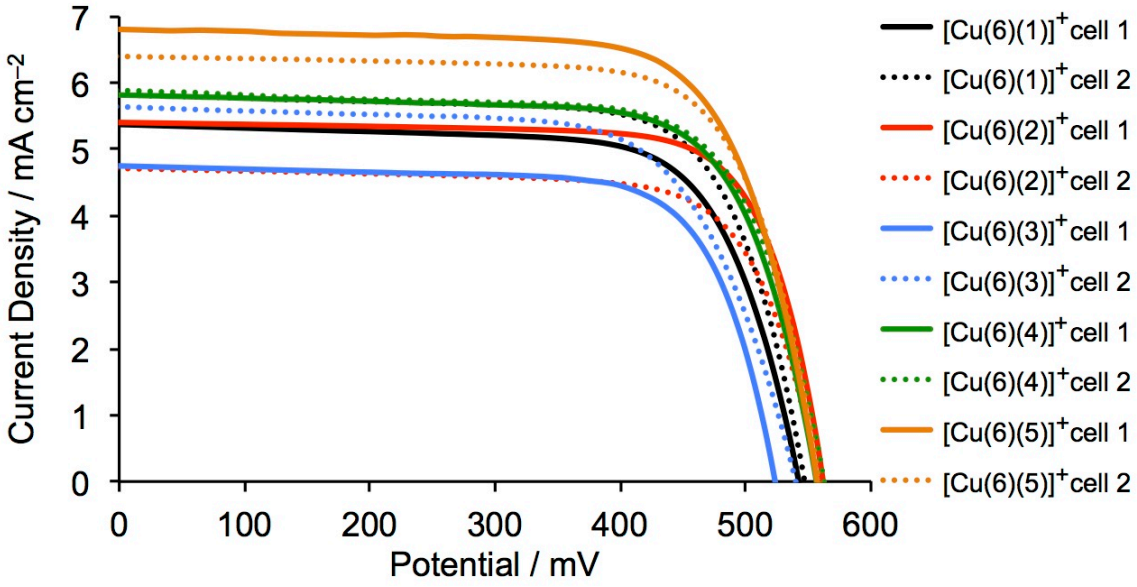


Fig. S4. *J-V* curves for duplicate DSCs on the day of cell assembly.

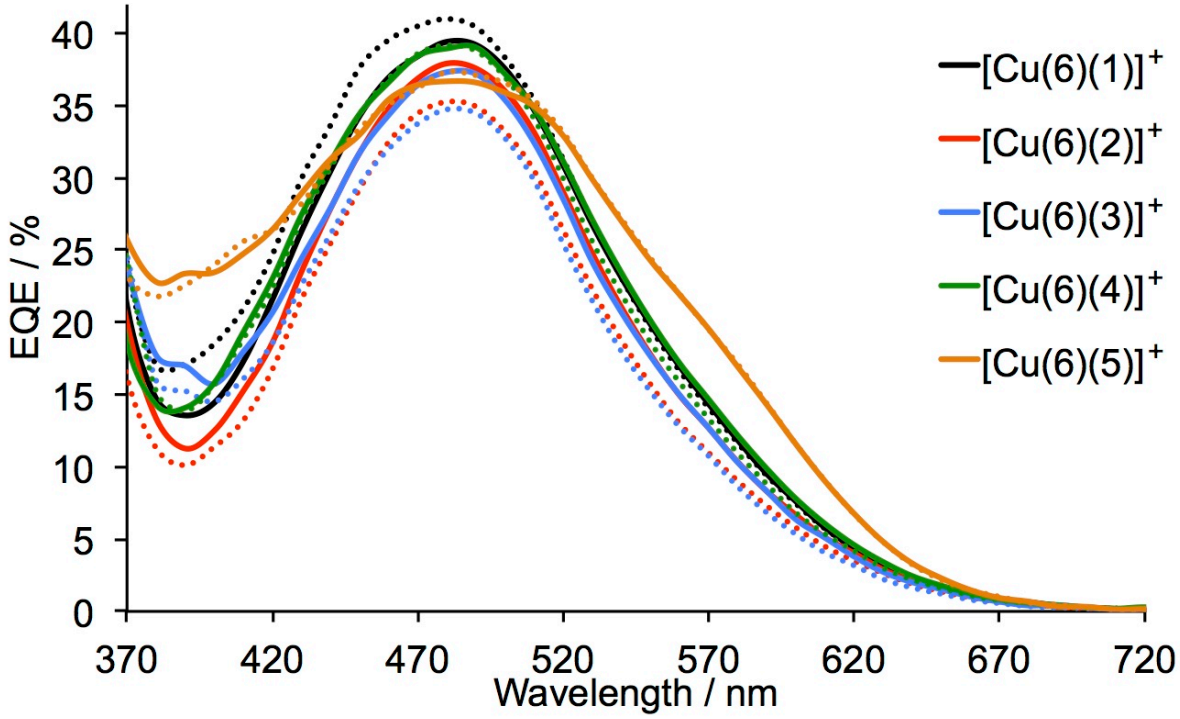


Fig. S5. EQE spectra of duplicate DSCs (solid and dotted curves of the same colour) containing the copper(I) dyes; the spectra were recorded 3 days after cell assembly.

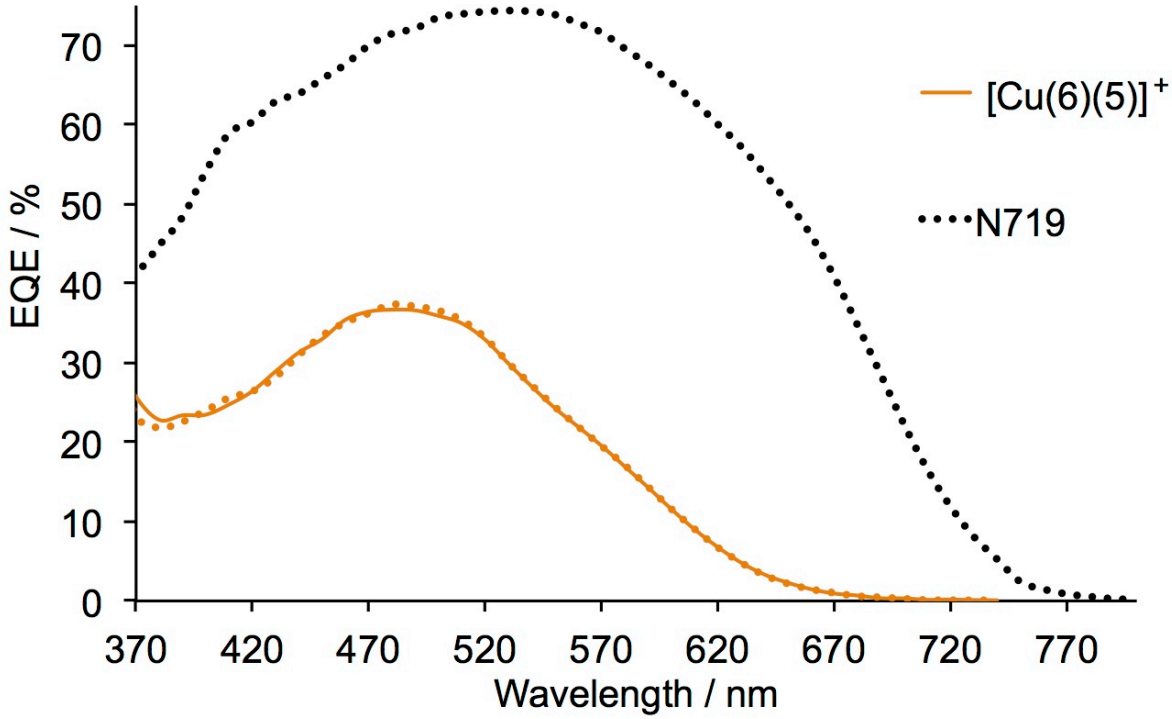


Fig. S6. Comparison of the EQE spectra of duplicate DSCs containing [Cu(**6**)(**5**)]$^+$ (solid and dotted orange curves) with the EQE spectrum of an N719 sensitized DSC; the spectra were recorded 3 days after cell assembly.