

## Supporting Information

### Efficient red emission from poly(vinyl butyral) films doped with a novel europium complex based terpyridyl as ancillary ligand: synthesis, structural elucidation by Sparkle/RM1 calculation, and photophysical properties

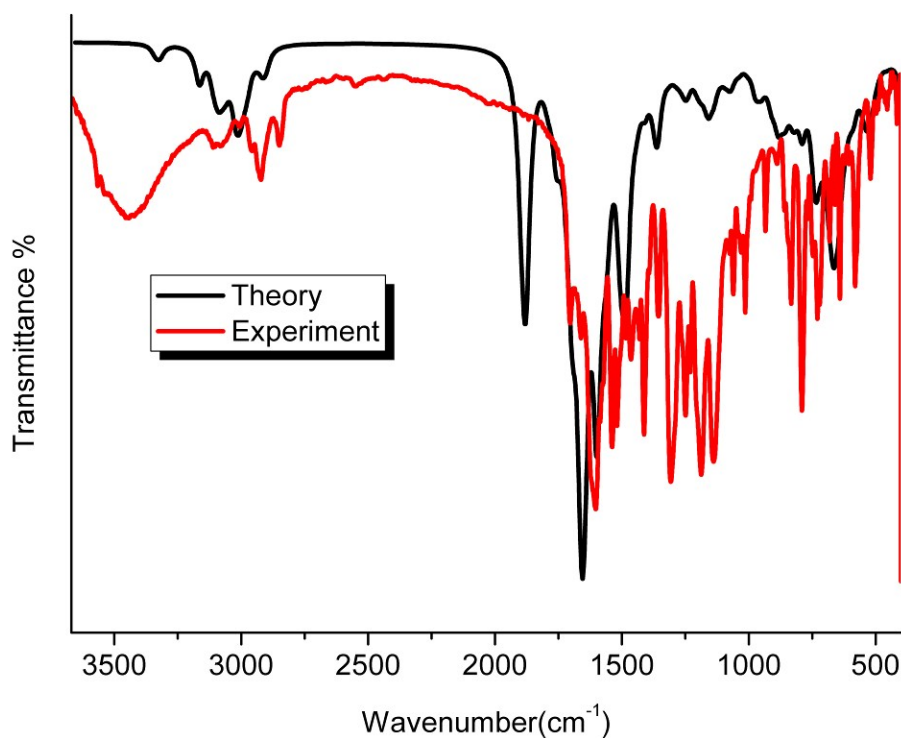
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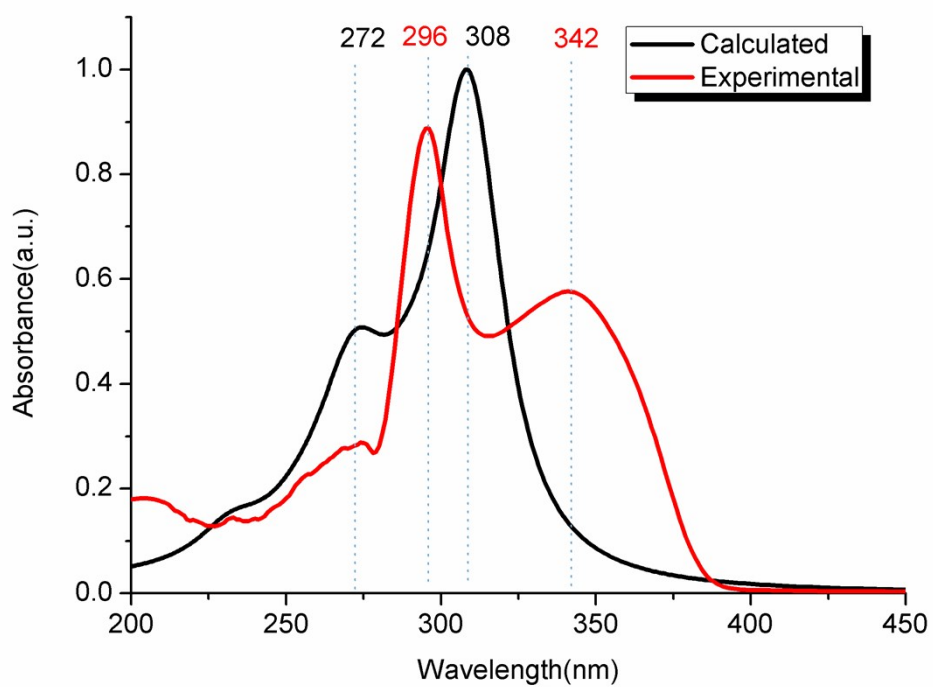
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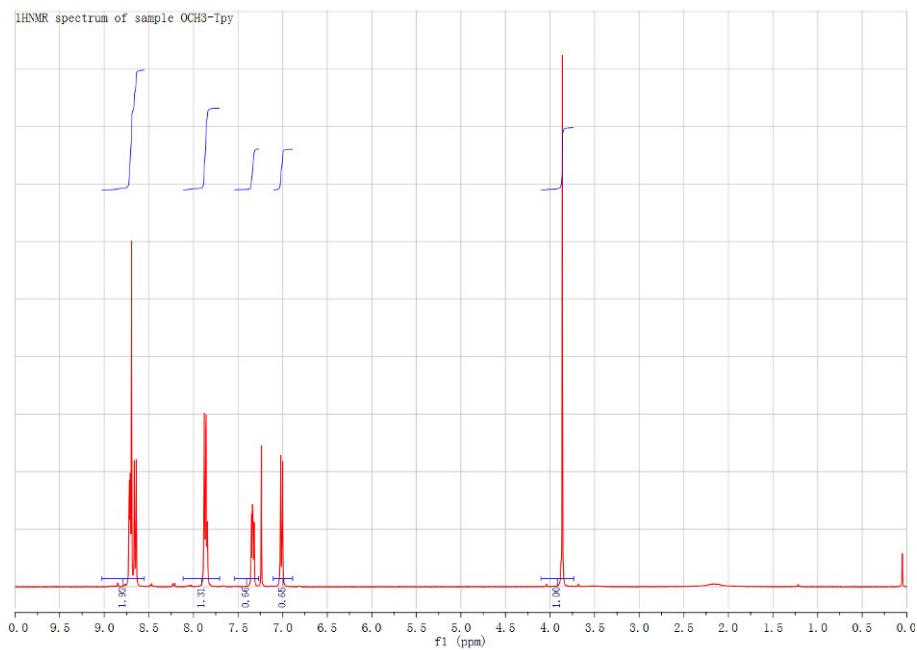
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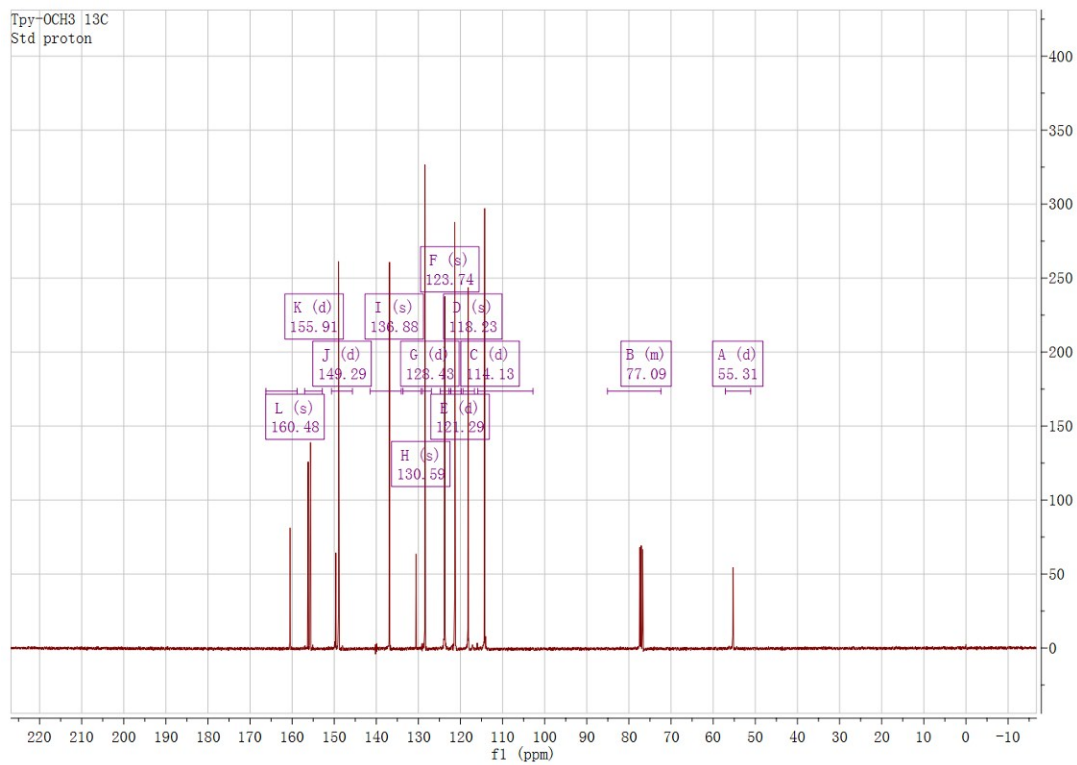
**Figure S1** The experimental and simulated FTIR spectra of  $\text{Eu}(\text{TTA})_2\text{Tpy-OCH}_3 \cdot 2\text{H}_2\text{O}$ .



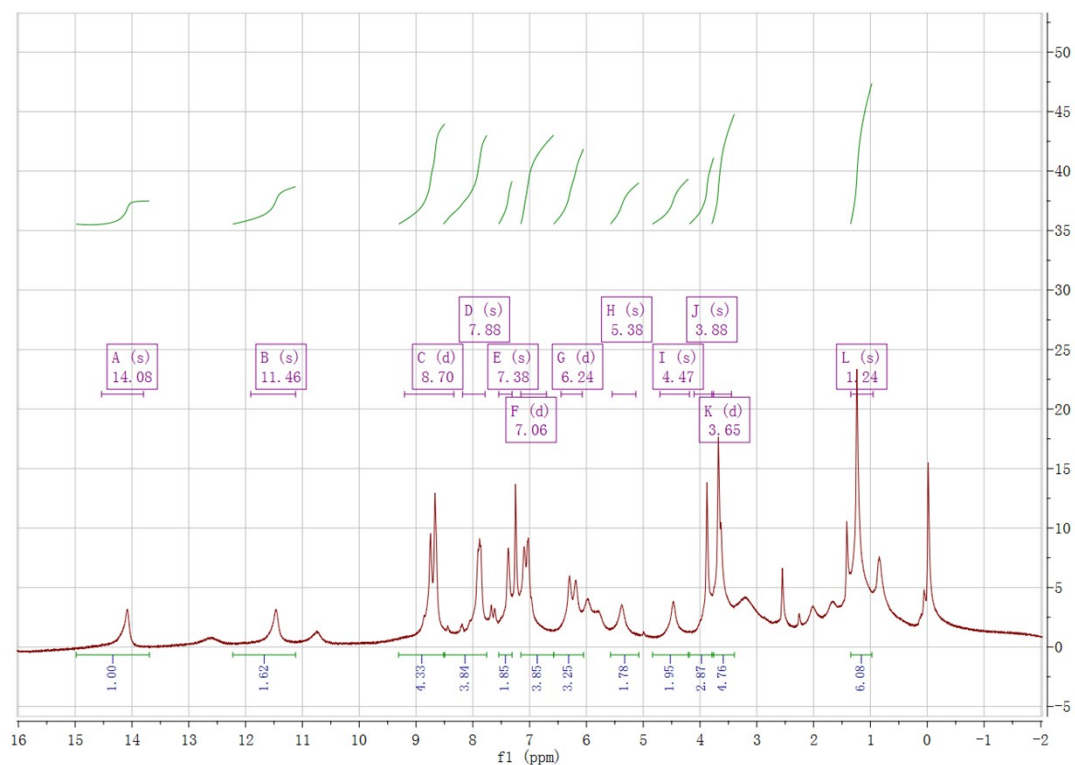
**Figure S2** The experimental and simulated UV-vis absorption of  $\text{Eu}(\text{TTA})_2\text{Tpy-OCH}_3 \cdot 2\text{H}_2\text{O}$ .



**Figure S3**  $^1\text{H}$  NMR(400 HMz) spectra of ancillary ligand  $\text{Tpy-OCH}_3$  in  $\text{CDCl}_3$ .

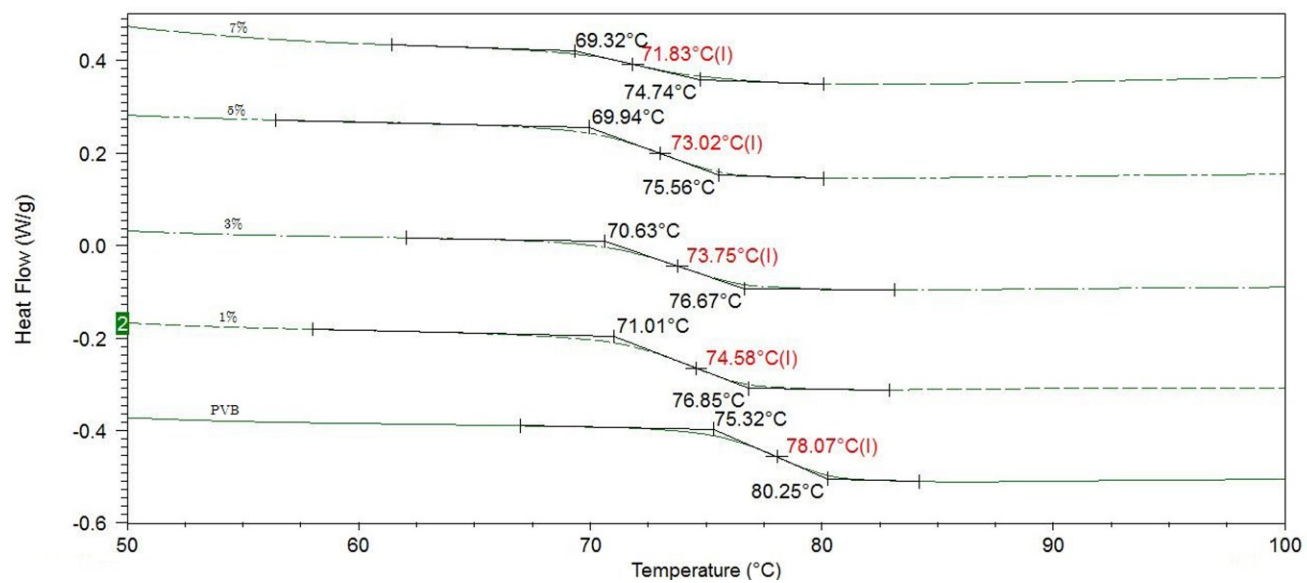


**Figure S4**  $^{13}\text{C}$  NMR(100 HMz) spectra of ancillary ligand Tpy-OCH<sub>3</sub> in CDCl<sub>3</sub>.



**Figure S5**  $^1\text{H}$  NMR(400 HMz) spectra of Eu(TTA)<sub>2</sub>Tpy-OCH<sub>3</sub>·2H<sub>2</sub>O in CDCl<sub>3</sub>.





**Figure S8** DSC curves of PVB and Eu/PVB films.