Supplementary Information

Multi-spectral imaging with infrared sensitive organic light emitting diode

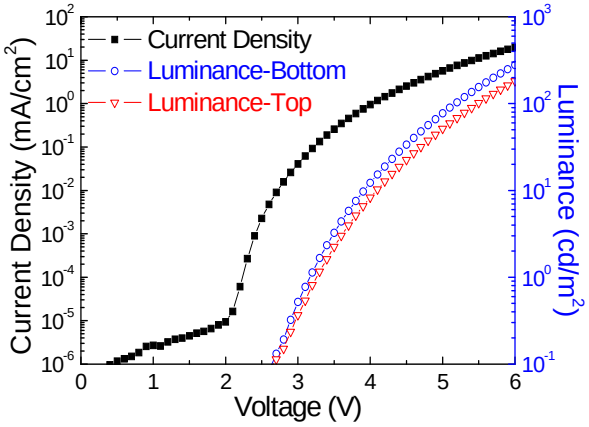
Do Young Kim, Tzung-Han Lai, Jae Woong Lee, Jesse Manders, and Franky So*

Department of Materials Science and Engineering, University of Florida, Gainesville, FL 32611 (USA).

*Correspondence to: fso@mse.ufl,edu

Supplementary Figures

a



b

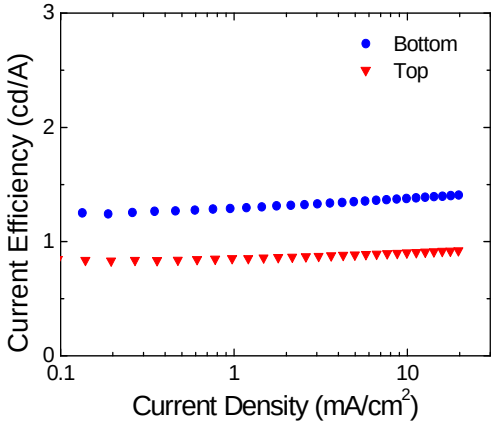


Figure S1. (**a)** Luminance-current density-voltage (L-I-V) characteristics and (**b**) current efficiencies plot of the transparent OLED with the Mg:Ag/Alq_3 transparent top cathode.

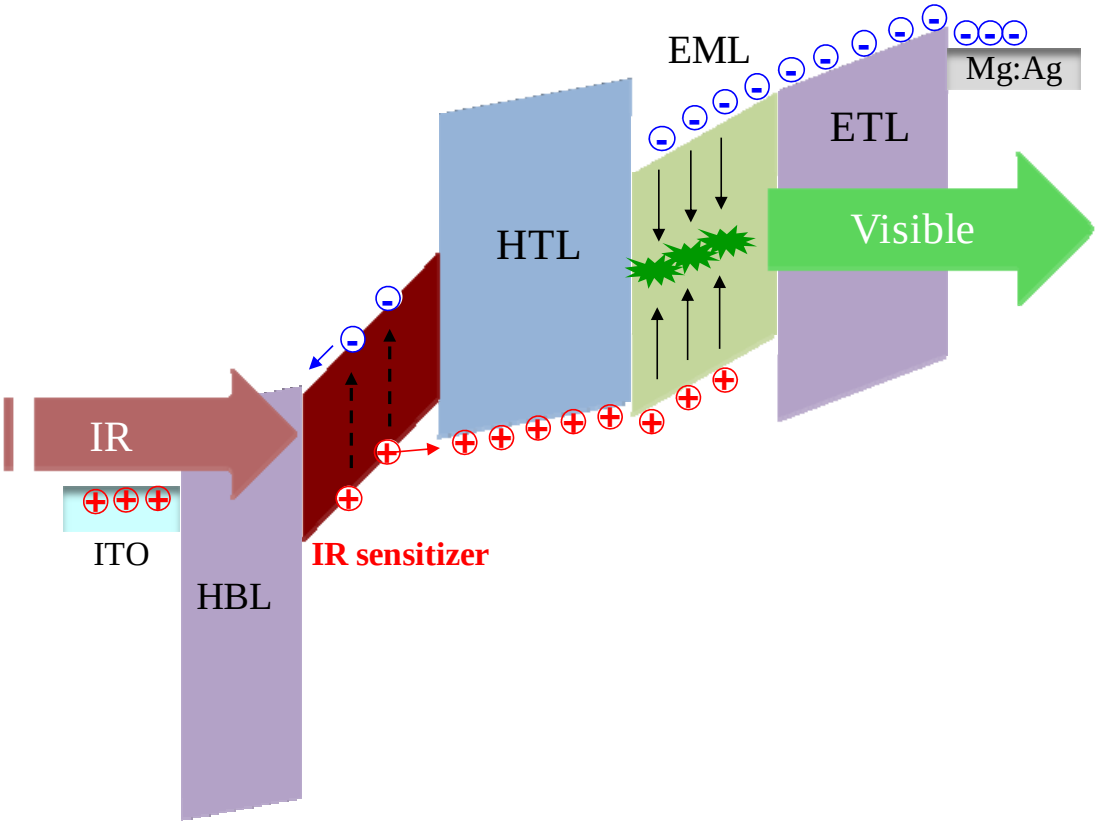
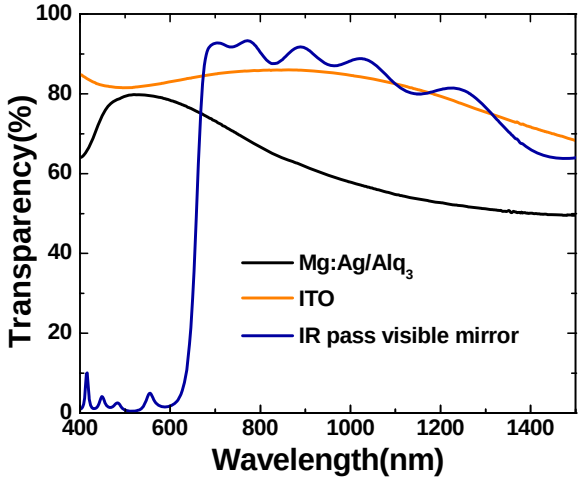
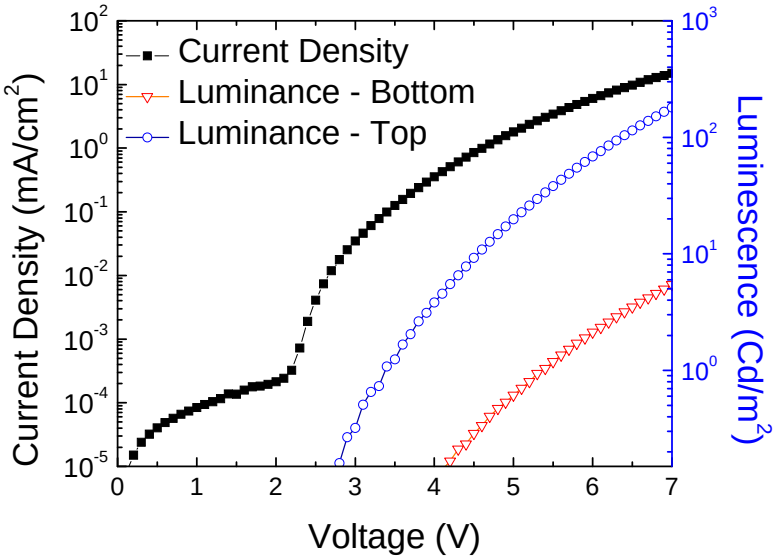


Figure S2. Schematic energy band diagrams of the IR sensitive OLED in the IR illumination.

a


Transparency(%)
Wavelength(nm)
Mg:Ag/Alq3
ITO
IR pass visible mirror

b


Current Density
Luminance - Bottom
Luminance - Top
Current Density (mA/cm2)
Luminescence (Cd/m2)
Voltage (V)

c

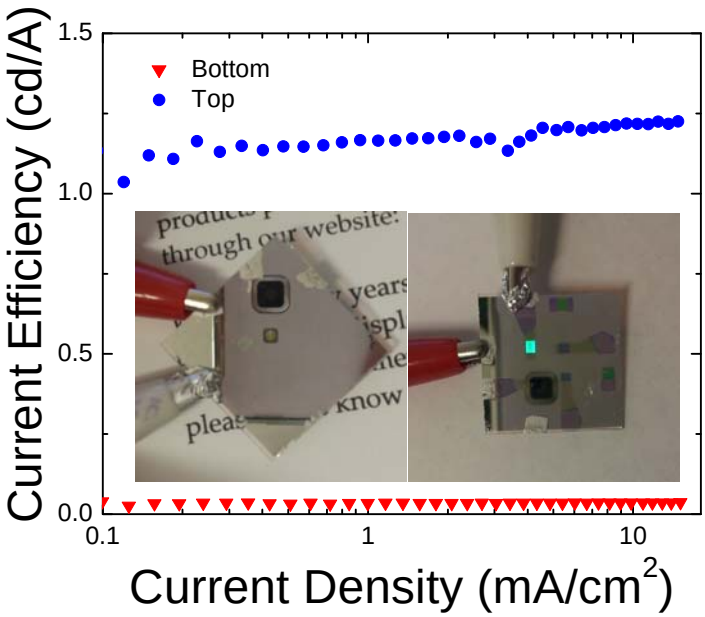


Figure S3. (**a**) the transparency spectra of the ITO anode as a control bottom electrode, the IPVM/ITO anode as a IR transparent, visible reflective bottom electrode, and the Mg:Ag/Alq_3 cathode as a visible transparent top electrode, and (**b**) L-I-V characteristics and (**c**) current efficiencies plot of the top emitting OLED with the IPVM/ITO bottom electrode and the Mg:Ag/Alq_3 top electrodes.

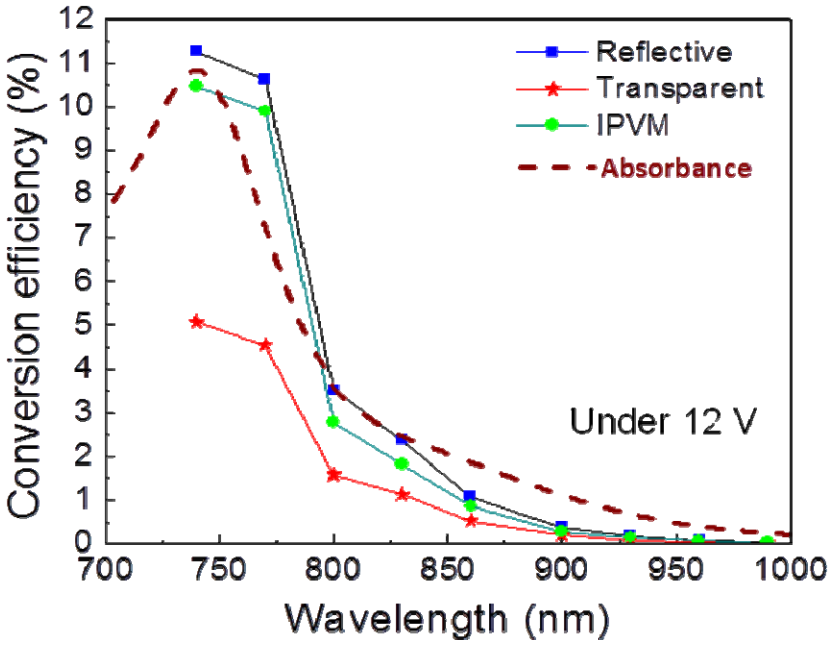
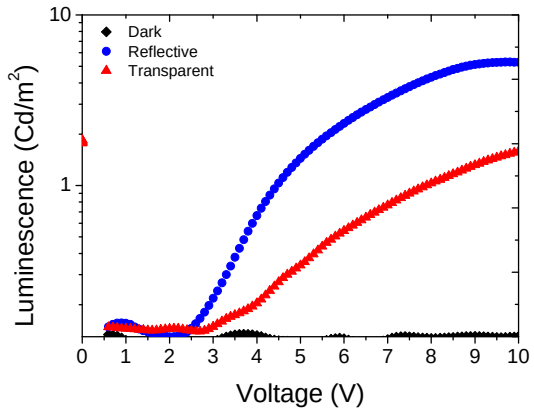


Figure S4. Comparison of spectral p-p conversion efficiencies of reflective, transparent, and IPVM IR-OLEDs with the SnPc:C_{60} IR sensitizer and the absorption spectrum of the SnPc:C_{60} IR sensitizing film.

a



b

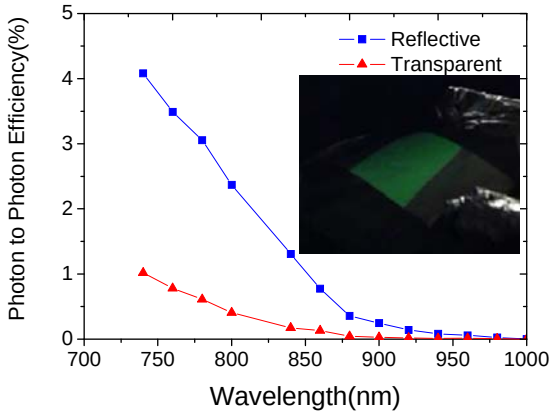


Figure S5. (**a**) L-V characteristics and (**b**) spectral p-p conversion efficiencies of the flexible IR-OLEDs (insert - the image of a flexible device).

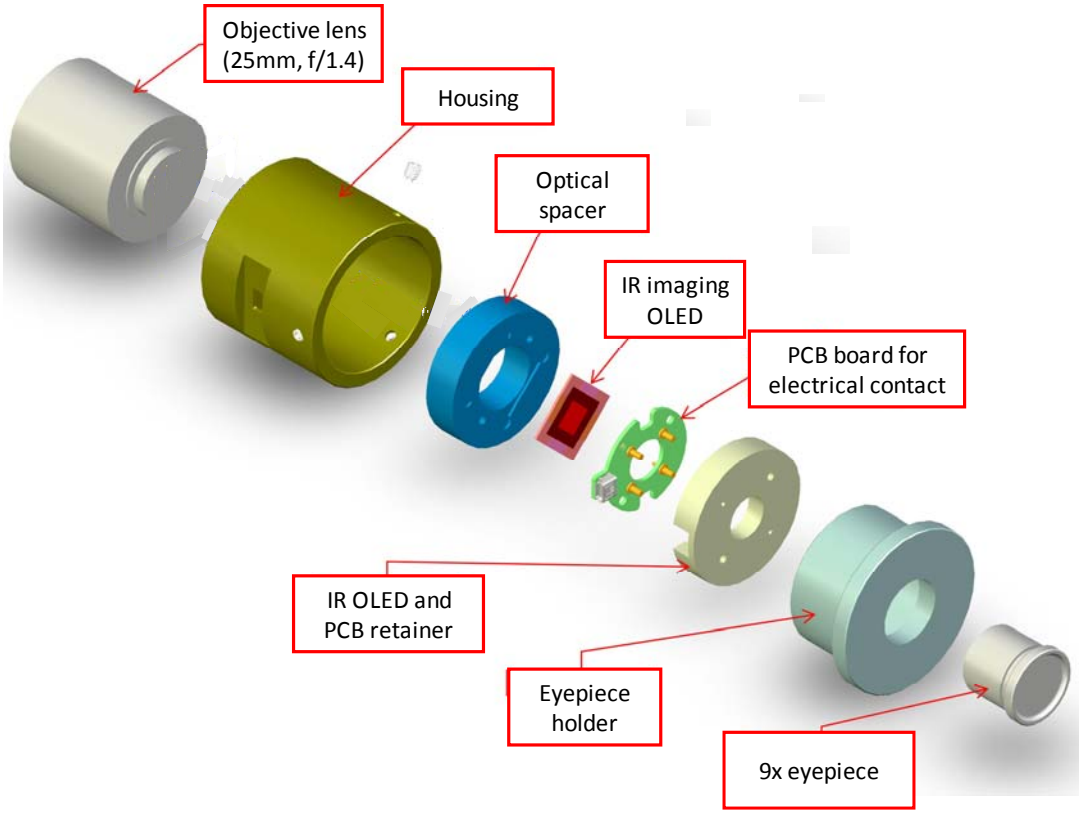


Figure S6. Schematic diagram of the monocular direct view IR imager with the transparent IR-OLEDs.

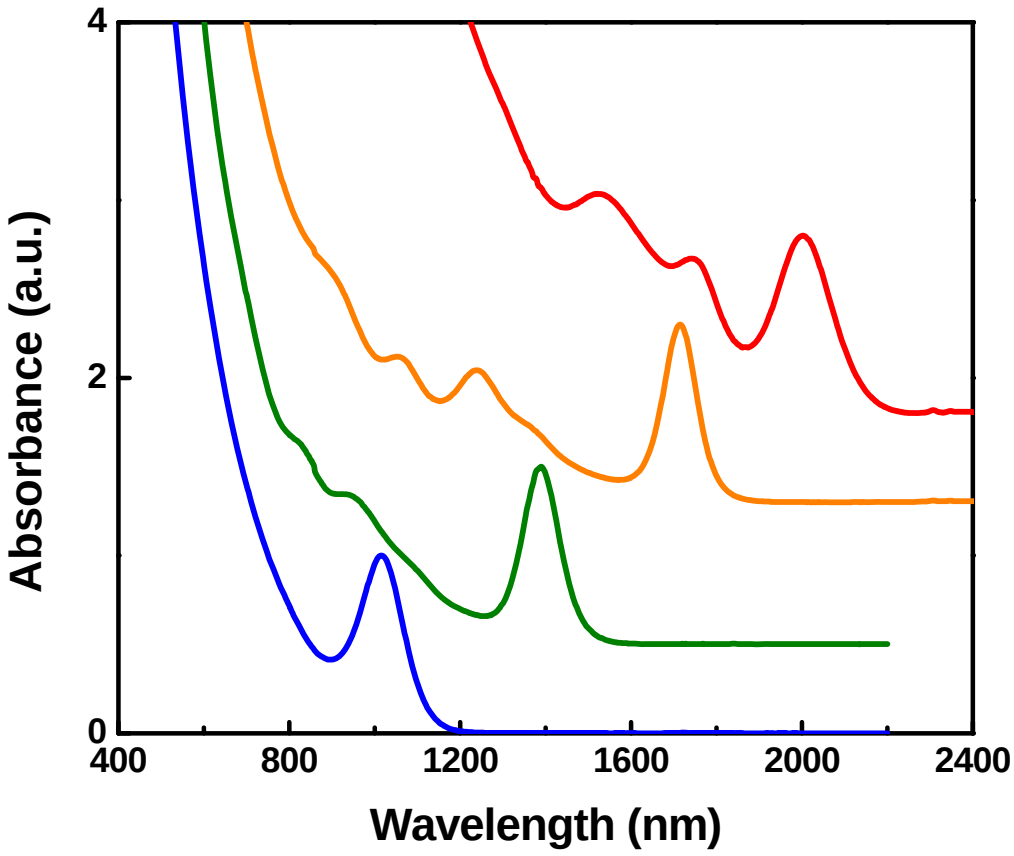


Figure S7. Absorption spectra of PbS nanocrystals.