

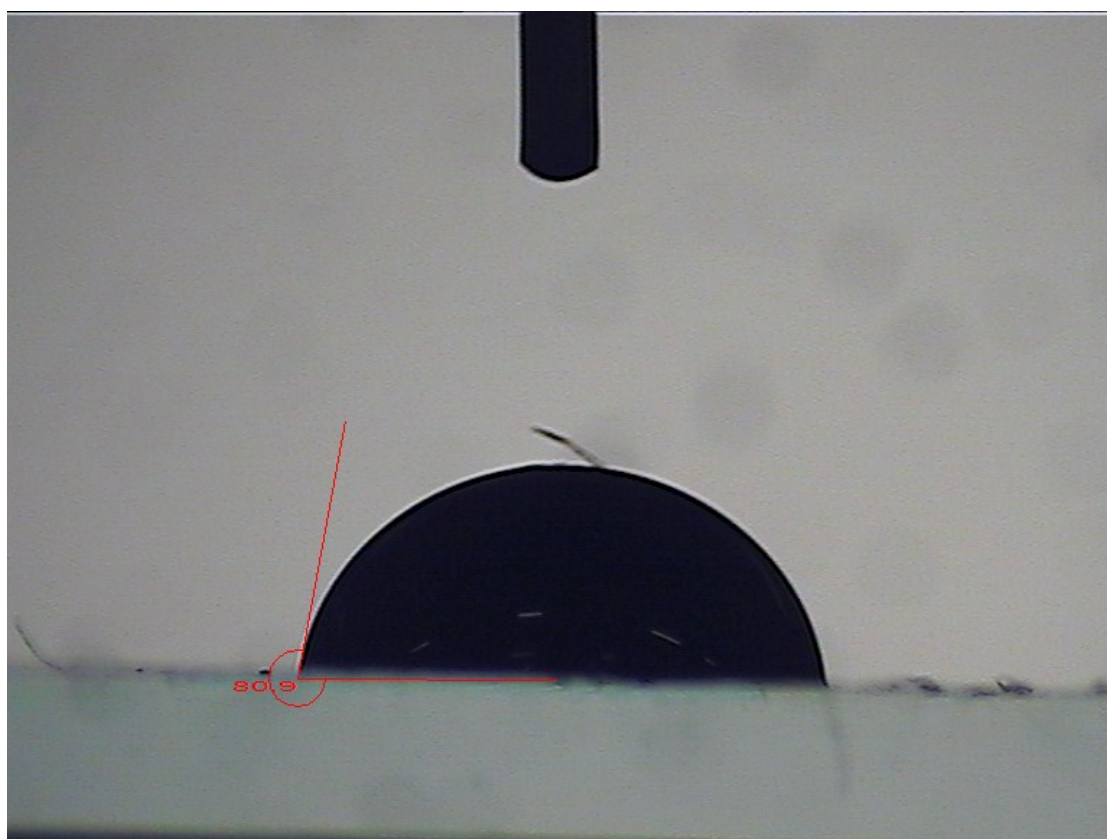
## Supporting Information

### Alternating-Current Driven Quantum-Dot Light-Emitting-Diodes with High Brightness

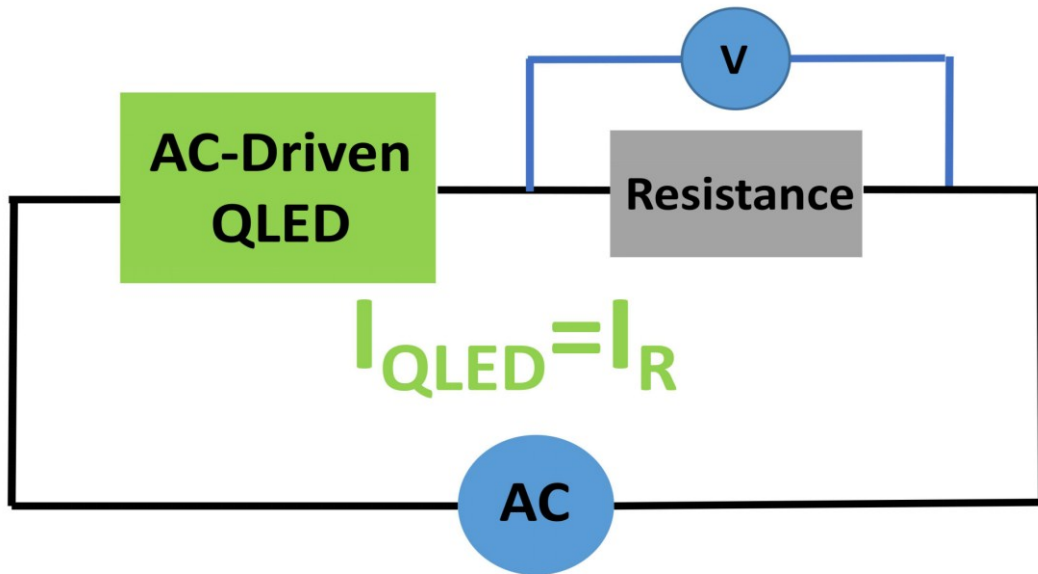
Fengtian Xia, Shuming Chen\*,

Department of Electrical and Electronic Engineering, Southern University of Science  
and Technology, Shenzhen, 518055, P. R. China

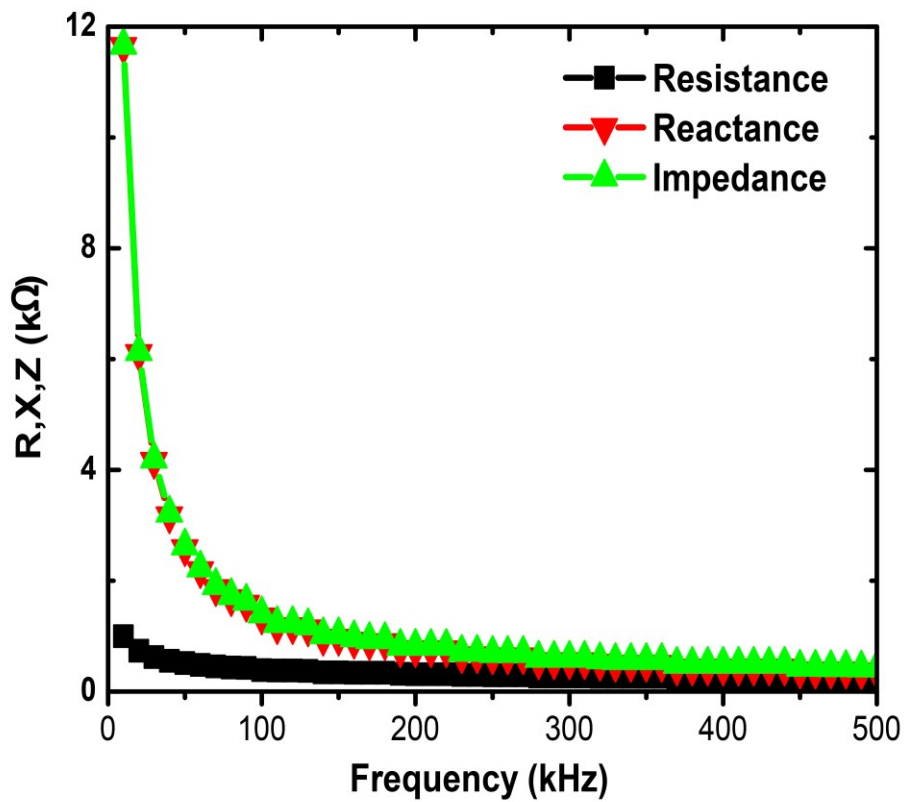
chen.sm@sustc.edu.cn



**Figure S1.** Contact angle of PEDOT:PSS deposited on P(VDF-TrFE-CFE).



**Figure S2.** Method of measuring the current of AC-driven QLED.



**Figure S3.** Resistance, reactance and impedance as functions of frequency.

**Table S1.** The key performances of the representative AC-driven devices in literature.

Device Structure	Device Type	Insulation Type	Color	Max L (cd m <sup>-2</sup> )	Max CE (cd A <sup>-1</sup> )	Ref.
ITO/SiO <sub>2</sub> /Alq <sub>3</sub> /SiO <sub>2</sub> /Al	AC-OLED	Double-insulation	Blue	-	-	1
ITO/PVP/PVK/BND/MEH-PPV/ITO/PVK/BND/MEH-PPV/PVP/Al	AC-OLED	Double-insulation	Orange-Red	261	-	2
ITO/SiO <sub>2</sub> /CNT:PS-b-PPP:F8BT/Au	AC-OLED	Single-insulation	Yellow	350	-	3
ITO/HfO <sub>2</sub> /MeO-TPD:F6TCNNQ/Spiro-TAD/TCTA:Ir(ppy) <sub>3</sub> /Bphen/Bphen:Cs/HfO <sub>2</sub> /Al	AC-OLED	Double-insulation	Green	500	-	4
ITO/P(VDF-TrFE)/PVK:Ir(ppy) <sub>3</sub> /Ca/Al	AC-OLED	Single-insulation	Green	550	-	5
ITO/SiO <sub>2</sub> /MeO-TPD:F4TCNQ/NPB/Ir(MDQ) <sub>2</sub> (acac)/BPhen/BPhen:Cs/SiO <sub>2</sub> /Al	AC-OLED	Double-insulation	Orange-Red	1000	-	6
ITO/HfO <sub>2</sub> /MeO-TPD:F4TCNQ/NPB/Ir(MDQ) <sub>2</sub> (acac)/BPhen/BPhen:Cs/HfO <sub>2</sub> /Al	AC-OLED	Double-insulation	Orange-Red	1500	-	7
ITO/SiO <sub>2</sub> /NWNTs:PS-b-P4VP/B-G-R Layer/Ag	AC-OLED	Single-insulation	Red	5000	-	8
			Green	6000		
			Blue	2300		
ITO/SWNTs:P(VDF-TrFE-CFE)/P3HT:F4TCNQ/PVK:OXD-7:Ir(ppy) <sub>3</sub> /TmPyPB:Li <sub>2</sub> CO <sub>3</sub> /LiF/Al	AC-OLED	Single-insulation	Green	7210	33.8	9
ITO/P(VDF-TrFE-CFE)/Poly-TPD:F4TCNQ/PVK:OXD-7:Ir(ppy) <sub>3</sub> /TmPyPB/LiF/Al	AC-OLED	Single-insulation	Green	13500	72.5	10
ITO/P(VDF-TrFE-CFE)/P3HT:F4TCNQ/PVK:OXD-7:Phosphors/TmPyPB/LiF/Al	AC-OLED	Single-insulation	Orange-Red	1600	8.8	11
			Green	13800	76.4	
			Blue	3000	15.8	
ITO/P(VDF-TrFE-CFE)/P3HT:F4TCNQ/PVK:OXD-7:Ir(ppy) <sub>3</sub> /TmPyPB/LiF/Al	AC-OLED	Single-insulation	Green	20500	110.7	12
ITO/Al <sub>2</sub> O <sub>3</sub> /ZnS/ZnSe/ZnS:Mn/ZnS/ Al <sub>2</sub> O <sub>3</sub> /ITO	AC-TFEL	Double-insulation	Orange	-	-	13
ITO/SiO <sub>2</sub> /F8BT:QDs/Au	AC-Q/OLED	Single-insulation	Green	650	-	14
ITO/SiO <sub>2</sub> /QDs:PIB/SiO <sub>2</sub> /Al	AC-QLED	Double-insulation	R/G/B	-	-	15
ITO/AL <sub>2</sub> O <sub>3</sub> /QDs:PIB/ZnO/ZnS:Cu/Conductive tape	AC-QLED	Single-insulation	R/G/B	-	-	16
Al/Si/Si QD/Si/SiO <sub>2</sub> /ITO	AC-QLED	Double-insulation	Near Infrared	-	-	17
ITO/QDs:MEH-PPV/Phosphor/Ag	AC-QLED	Double-insulation	Orange	18.6	-	18
			Green	82.3		
			Blue	49.2		
ITO/P(VDF-TrFE-CFE)/MoO <sub>3</sub> /TFB/QDs/ZnMgO/Al	AC-QLED	Single-insulation	Green	65760	4.4	ours

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