

Organic light-emitting diodes based on new n-doped electron transport layer

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Abstract

Organic light-emitting diodes with 8-hydroxy-quinolinato lithium doped 4'7-diphenyl-1, 10-phenanthroline as electron transport layer (ETL), and etrafluro-tetracyano-quinodimethane doped 4,4',4''-tris(3-methylphenylphenylamono) triphenylamine as hole transport layer (HTL) are demonstrated. The conductivity of carrier transport layers with different doping concentration is examined by hole-only and electron-only devices. Compared with the referenced device (without doping), the current efficiency and power efficiency of the p-i-n device are enhanced by approximately 51% and 89%, respectively. This improvement is attributed to the improved conductivity of the transport layers and the efficient charge balance in the emission zone. (C) 2008 Elsevier B.V. All rights reserved.

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