

UV and DUV Laser Cutting of OLED Displays for an enlarged active area

Alexej Belakowski, Ralf Knappe, Fabian Soerensen, Yiyun Kang

Coherent GmbH, Opelstraße 10, D- 67661 Kaiserslautern, Germany

Corresponding author: Alexej.Belakowski@coherent.com

A key aspect of premium mobile phones is the high-quality OLED display. Over the past years a tremendous effort has been made to maximize the active display area. Thus, the quality of the shape and hole cut are important and are becoming the focus of improvement efforts.

Currently, pico- and femtosecond UV lasers are used to cut the shape with a minimal HAZ. The main factors to optimize the cut quality are the pulse energy, the pulse repetition rate, the wavelength and the setup of beam expander, scanner and F-Theta Lenses.

We will present our latest cutting results and the influence of the several process parameters. Overall, the influence of the pulse duration could be of a second order when operating the laser system in the optimal process parameter range. The outlook from UV to DUV will show some breakthrough results.