Direct measurement of spatial Wigner function with area-integrated detection
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abstract We demonstrate experimentally a novel technique for characterizing transverse spatial coherence using the Wigner distribution function. The presented method is based on measuring interference between a pair of rotated and displaced replicas of the input beam with an area-integrating detector, and it can be superior in regimes when array detectors are not available. We analyze the quantum optical picture of the presented measurement for single-photon signals and discuss possible applications in quantum information processing.