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Estimation of extrinsic detection efficiency using intrinsic detection sensitivity of the commercial single photon detector KIYOTAKA HAMMURA, XIULAI XU, FREDERIC BROSSARD, DAVID WILLIAMS, Hitachi Cambridge Laboratory — The detection efficiency (DE) of the commercial single-photon-receiver based on InGaAs gate-mode avalanche photodiode is estimated using the detection sensitivity (DS). Instalment of a digital-blanking-system (DBS) to reduce dark current makes the difference between DS, which is an efficiency of the detector during its open-gate/active state, and the total/overall detection efficiency (DE). By numerical simulations, it is found that the average number of light-pulses, blanked by DBS, following a registered pulse is 0.333. DS is estimated at 0.216, which can be used for estimating DE for an arbitrary photon arriving rate and a gating frequency of the receiver.

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