

Method for evaluation of the shape and dimensions of a photo-sensitive element of a scanning infrared photo-receptor (IR-FPA)

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This article discusses the features of measuring the NEP of scanning IR FPAs in case of projecting the image of a small object into the plane of the matrix of photosensitive elements, it is shown that the existing method of measuring the NEP of IR FPAs does not allow to obtain the correct result without taking into account the shape and dimensions of the photosensitive element (PSE). A new technique for estimating the shape and size of the PSE based on the application of the Richardson-Lucy iterative deconvolution method is described. The results of applying the proposed technique on real photodetector modules (PM) are presented. Significant differences were found in the PSE sizes of different PM submatrices. It is proposed to use the image of a horizontal slit to correct the non-uniformity of the voltage sensitivity.

Keywords: scanning infrared FPA, measurement technique, PSE size, decorrelation, Richardson-Lucy method, Cartesian product, NEP.

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