

The probability distribution function for the sum of squares of independent random variables

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Abstract: In the paper, the probability distribution function is derived for the sum of squares of random variables for nonzero expectations. This distribution function enables one to develop an efficient one-step algorithm for phase ambiguity resolution when determining the spatial orientation from signals of satellite radio-navigation systems. Threshold values for rejecting false solutions and statistical properties of the algorithm are obtained.

Keywords: probability distribution functions normal distribution, variance, squared standard deviation

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