

RELIABILITY FOR K TH ORDER STATISTICS

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Abstract: In the area of stress - strength models there has been a large amount of work regarding the estimation of the reliability $R = P\{X_1 < X_2\}$ when X_1, X_2 are independent random variables belonging to the same univariate family of distributions. In this paper we calculate $P(Y_k < Y_{k+1})$, where $Y_k = X_{k,n} + X_{k-3,n}$; $X_{1,n} \leq \dots \leq X_{1,n}$ and $X_{k,n}$ are the k th order statistics and variables $(X_{k,n})_{k=1,n}$ are independent and identically distributed (i.i.d) with the common distribution Gamma.

Key words: extreme value theory, max domain of attraction, reliability.

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