

Test for New Better Than Used in Average at Specific Interval Based on the Total Time on Test Transform

By

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Abstract

Let F be a life distribution with survival function $\bar{F} = 1 - F$ and finite mean $\mu = \int_0^{\infty} \bar{F}(x)dx$. The scaled total time on test transform is defined by $\phi_F(t) = \frac{1}{\mu} \int_0^{F^{-1}(t)} \bar{F}(x)dx$. The properties of $\phi_F(t)$ for new better (worse) than used in average at specific interval NBUASI (NWUASI) is investigated. Test statistics for testing exponentiality against NBUASI (NWUASI) are proposed. Selected critical values are tabulated for sample size $n = 5(1)50$. Powers of the tests are estimated by simulation and finally an example of 40 patients of blood cancer disease demonstrate its practical application in medical science.