

ABSTRACT

Acceptance sampling plays a fundamental role in the field of statistical quality control analysis. It deals with the acceptance and rejection of the lot submitted for inspection by assuming that the lot size is large enough. A sample is selected for studying the quality characteristics of the submitted lot. A good acceptance sampling plan not only reduces the time and labor required for inspection and the cost of construction but also increase the accuracy of the decision regarding the lot disposition.

In this dissertation, an economic reliability group acceptance sampling plan is designed for truncated life tests, when a tester accommodating a multiple number of items as a group and can be tested simultaneously, when the life time of an item is assumed to follow the generalized Pareto distribution with two shape parameters.

The test termination ratios are obtained by considering various levels of the producer's risk while the acceptance number, group size and the number of groups are fixed in advance. The operating characteristics values for various quality levels are also obtained. The comparison of the proposed reliability test plan is done with the existing group acceptance sampling plan available in the literature such as Aslam et. al. (2010). Therefore, we can say that the proposed test plan is preferable than the existing group acceptance sampling plan in terms of test time and cost. The results are explained with the help of tables, OC curve and numerical examples.

We see as the group size increases for the fixed values of acceptance number "c" and the number of groups "g", the test termination ratios decreases and as the acceptance number and the number of groups increases the termination ratios also increases for fixed value of group size. It can observe that the values of the operating characteristic increases with the increase in quality level.