# Design of Bayesian MDS Sampling Plan Based on the Process Capability Index

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**Abstract :** In this paper, a variable multiple dependent state (MDS) sampling plan is developed based on the process capability index using Bayesian approach. The optimal parameters of the developed sampling plan with respect to constraints related to the risk of consumer and producer are presented. Two comparison studies have been done. First, the methods of double sampling model, sampling plan for resubmitted lots and repetitive group sampling (RGS) plan are elaborated and average sample numbers of the developed MDS plan and other classical methods are compared. A comparison study between the developed MDS plan based on Bayesian approach and the exact probability distribution is carried out.
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