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Safety and quality: "SUCCESS" is the goal (1)

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THEORETICAL KNOWLEDGE AND ADEQUATE METHODICAL APPROACHES - THE ANALYTICAL BASE TO ENSURE THE RELIABILITY AND SAFETY OF THE COMPLEX TECHNICAL SYSTEMS

Abstract

The effectiveness of space programs is determined not only interesting content and original ideas, but to a large extent the quality of performance. It should be emphasized that the concentrated expression of the quality of performance of technical systems determining the sustainability of their operation are reliability and security. As a rule, technical solutions which provide an acceptable level of performance are formed on the basis of mathematical models obtained by the analysis of deterministic patterns to a certain extent abstracted physical structures and phenomena. In this case, you must take into account the random factors that give the results of experiments element of uncertainty. Random event or simply a case, it is a fact that may or may not occur, and the quantitative relationship between these events are determined by means of independent Bernoulli trials. The same name is the analytical expression formula binomial probability distribution of the random variables. Using it, you can determine how many parts is suitable and what is sent back for revision. The probability that the event n trials A realized k times, and don't realized n-k time is p k q p-k. A typical example is the entrance control of parts supplied for assembly systems and equipment. However, it is impossible (not advisable) to withdraw from the production cycle costly (unique) space. Therefore the methodological approach in this case will be different. Tests are carried out on the second Bernoulli scheme, code, tests are carried out to the first failure. Perform n independent trials until the first success: that is, And when the event happened in the k - trial, the previous k - 1 trial it hasn't happened. Here, if k = 1, 2, 3,..., we get a geometric progression with the first term p and the denominator q: p, qp, q2p, ..., qk-1 p, so this is called the geometric distribution. Examples of random variables distributed according to the law, are a number of shots to hit, the number of tests to failure, etc. Depending on the structure and nature of objects independent tests performed by different, adequate methodical approach.