# Statistical Tests of the Distribution of Errors in Manually Digitized Cartographic Lines

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**Abstract**

This paper presents a study of error distribution of GIS data from manual digitization based on experiments. First, an experiment is conducted by digitizing selected features on a cadastral map by several operators. The experimental data sets with random error are generated by eliminating the effect of the systematic error and blunder error. Second, several statistical tests are conducted to analyze the statistical distribution of the map digitization error. It is found that, in the said conditions, the nature of manual digitization error is different from the normal distribution but closer to a new random error distribution — NL distribution. Finally, the functions of the NL distribution are given.