

## **Analysis of contact resistance data with Weibull distribution function**

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Contact resistance is one of important characteristics to be measured and analyzed for achieving better performance of mechanical switching devices. Actual contact resistance values are varied among operations (measurements) due to changes in contact surface conditions, for example, deposition and/or removal of arc products, as well as pip and/or crater formation by material transfer and erosion phenomena. Distribution of contact resistance data will imply certain information on contact surface conditions. Accordingly, it will be possible to obtain some useful information through analysis of contact resistance distribution with a certain distribution function.

The authors are trying to apply Weibull function to measured contact resistance distribution. For that purpose, the original computer program has been constructed, and used to analyze the actual measured data. The three Weibull parameters (the location parameter  $R_0$ , the scale parameter  $R_a$ , and the shape parameter  $m$ ) to be acquired through Weibull fitting will be used to compare several sets of measured contact resistance data under different operation conditions.

In this paper, the algorithm of Weibull fitting will be presented. The Weibull analysis will be conducted for some sets of contact resistance data of Ag and Ag-based contacts obtained from switching operations, and its usefulness will be studied.

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