

# Investigate the Influence of Contact Impedance on Digital Signal Transmission by Computer Simulation Method

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**Abstract:** It is found that electric contact failure of connectors can cause high error code rates in communication systems. This problem has been studied theoretically and experimentally. Since the erratic characteristics of contact failure caused by different factors, such as corrosive films and dust particles on the contact surfaces, the reduction of the normal force due to the stress relaxation of the spring elements, and fretting etc., it is very difficult to control the magnitude of the contact impedance caused by various factors and the results of experiment are unstable and unrepeatable. In order to investigate the influence of the magnitude of the contact impedance on the signal transmission in different frequency not only qualitatively but also quantitatively computer simulation method is adopted in this paper. Results not only show the effects of the contact impedance on the signal transmission clearly but also show that the frequency of signal also has some effects on the signal transmission.