

Effects of Electrical Contact Failure on High Speed Digital Signal Transmission

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In digital communication systems, the deleterious effects of connect degradation at coaxial connector is one of the major causes of declining quality of communication. This paper describes the effects of contact degradation caused by contamination at coaxial connector on transmitted signal integrity and error code rate. Based on finite element method (FEM), the transmission of high frequency current in degraded coaxial connectors is simulated and analyzed. An improved model of contact impedance is introduced and its influence on high speed signal transmission is investigated. The impedance of degraded coaxial connectors is measured, the phenomena of contact failure which lead to error code in signal transmission are confirmed in our experiments.