

ASSESSMENT OF THE QUALITY OF CURRENT COLLECTION

The study sets out to develop an improved understanding of the impact of excessive pressures and loss of contact on current collection performance and considers alternative ways to measure overall performance.

The extent of wear is the logical basis by which to judge the general quality of current collection from overhead wire contact. In theory the forces generated must not exceed the strength limitations of the components, and movements must be small enough to stay within the mechanical constraints of the equipment, the gauge clearance limits, and the electrical limits. These limits however, can be regarded as characteristic of a particular system.

Interruption of current can be considered unacceptable; however, performance standards are based on excessive wear. Other criteria are not approached except at overhead features such as neutral sections, where localised wear is considered with peak forces, movements, accelerations and contact losses.

Excessive pressures are expected to enhance wear by mechanical abrasion, while loss of contact will result in arcing, which may enhance electrical wear by erosion and local heating, and mechanical wear by roughening the contact surface.