

CONDUCTOR RESISTANCE OF CABLES

CRITICAL TEST CONDITIONS IDENTIFIED	WHEN TO ACT	SUGGESTED PREVENTIVE ACTION ACTIVITIES
Resistance measurement	Every test	<ul style="list-style-type: none"> The resistance measurement will be a low value and therefore the choice of suitable equipment is imperative. Equipment selected should have good repeatability and sensitivity at the ranges of results expected. Perform spot check on a sample with a known result to ensure an appropriate reading is obtained. Also check that the sample measurement is repeatable by testing at least in duplicate, preferably by changing the direction of the current flow.
Resistance measurement	periodically	Calibrations in the normal cycle
Determination of cable temperature	Every test	<ol style="list-style-type: none"> The measurement of sample temperature can be more accurately performed if the sample is allowed to equilibrate, and the temperature probes are as close as possible to the actual wires. Reduce the duration that current flows through the sample to avoid possible effects of self heating.
Determination of sample length	Every test	<ol style="list-style-type: none"> The physical length of the sample is a critical part of the measurement. Therefore, measure this as accurately as possible. Take care that the sample is not stretched while being fitted to the measuring instrument
Sample preparation	Every test	Due to the importance of obtaining accurate temperature readings, the conditioning of the sample (to equilibrium) is very important.
Quality of connections	Every test	Due to the sensitivity of the measurements being conducted, it is very important to ensure that nothing related to connection of the sample interferes with the test measurement.

This document was developed by the participants of IECEE CTL PTP Workshop during 2009. The purpose of the document is to provide examples of activities that could be employed by laboratories to minimize the risks of obtaining inaccurate test results. The document does not claim to be exhaustive, and does not make any guarantees. Users of the document are advised to consider the content individually, then adjust and/or supplement their activities as applicable to the particular circumstances in their laboratory.