

**STUDY COMMITTEE B2**
**Terms of reference of Working Group WG B2.42 : 2010-2012**

<b>Working Group title:</b> Guide to Operation of Conventional Conductor Systems above 100°C	
<b>Convener :</b> <b>Len Custer</b>	<b>Secretary :</b>
<p><b>Needs of Target Groups: TAG Survey Oct 2009:</b></p> <ul style="list-style-type: none"> <li>• Increased power flow with existing lines</li> </ul> <p><b>Needs of Target Groups: SC B2 Strategic Plan, July 2009:</b></p> <ul style="list-style-type: none"> <li>• Safely operate lines at their thermal limit</li> <li>• Provide more reliable lines</li> </ul> <p><b>Terms of reference</b></p> <p>Quantify the various detrimental effects (conductor creep elongation, annealing of aluminium, connector degradation) of high temperature operation on existing transmission line conductor systems. Conventional conductors, connectors and hardware will be included. Emphasis will be upon extended operation at temperatures above 100°C.</p> <p>Incorporate references to previously published Electra papers on annealing, creep elongation, and sag-tension as well as the recent IEEE Guide 1283.</p> <p><b>Background</b></p> <p>A recent IEEE Guide 1283 considers this topic but does not incorporate the most recent research. In many cases, in order to increase power flow in existing thermally limited transmission lines, the maximum allowable operating temperature of the line's conductors has been pushed to high levels. Lines built 40 years or more ago to be operated at 50°C to 75°C are being re-specified to temperatures in excess of 150°C. Connector failures, clearance violations, and acceleration of normal material degradation can ensue.</p> <p><b>Expected Contributions from other Committees:</b></p> <p>Various members of TAG B2.04 have extensive knowledge regarding high temperature operation of conventional conductor systems. They will be asked to contribute even though not formal members of the group.</p> <p>TAG B2.06 members will also be asked to contribute. These experts have extensive knowledge concerning high temperature effects in connectors and conductor hardware.</p> <p><b>Deliverables and Time Schedule:</b></p> <p>Technical brochure + ELECTRA summary: Guide to the calculation of line for Application of Direct Real Time Capability Monitoring Systems for Overhead Transmission Lines.</p> <p>Time schedule:- to be published by end 2012.</p> <p><b>Links with other SCs:</b> <b>CIGRE SCs: None required</b></p>	

**Approval by TC Chairman : Klaus Fröhlich**
**Date : 30/03/2010**