

**STUDY COMMITTEE B2****Terms of reference of Working Group WG B2.43 : 2010-2012****Working Group title:**

Guide for Thermal Rating Calculations for Overhead Lines with high temperatures and real-time weather & load data

Convener :
Javier Iglesias

Secretary :

Needs of Target Groups: TAG Survey Oct 2009:

- Increased power flow with existing lines HTLS conductors

Needs of Target Groups: SC B2 Strategic Plan, July 2009:

- Operate lines at their thermal limit
- Provide more reliable lines

Terms of reference

Expand the thermal model in Cigré TB 207 (2002) to improve the accuracy of calculations at low wind speed and to allow calculations with new types of high temperature conductors. In particular, the revised thermal model will allow ac resistance calculations at the high current densities typical of lines operating at their thermal limit.

In addition, a more flexible solar heat input calculation will be added and a temperature tracking algorithm developed for use in real-time rating calculations (coordination with WG 36). A numerical format for the heat balance will be added and explained to allow convenient numerical calculation by users.

Background

The present thermal rating calculation method (TB 207) was intended for use with bare stranded conductors at modest current densities (e.g. <2 amps/mm²) with constant weather parameters. Recent use of conductors at current densities as high as 5 amps/mm², surface temperatures up to 250C, and variable real-time weather and load data need to be addressed. More sophisticated calculation methods for sag-tension (TB 324), AC resistance (TB 345), and new high temperature wire materials, need to be referenced and incorporated into the recommended Cigré thermal rating calculation method.

Expected Contributions from other Committees:

Various members of TAG B2.04 have extensive knowledge regarding thermal rating calculations. They will be asked to contribute even though not formal members of the group.

TAG B2.06 members will also be asked to contribute.

Deliverables and Time Schedule:

Technical brochure + ELECTRA summary: Guide to the calculation of line for Application of Direct Real Time Capability Monitoring Systems for Overhead Transmission Lines.

Time schedule:- to be published by end 2012.

Links with other SCs:

CIGRE SCs: C2

CIGRE SC B2 AGB2.04,

Approval by TC Chairman : Klaus Fröhlich

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