**Supplementary File**

This file is intended to the description of the extensions introduced in the submitted paper to the journal ACTA IMEKO with respect to the conference paper presented in the workshop on technical diagnostics IMEKO TC-10 taken place in Milan, on the 27-28 th June 2016.

The main extension is represented by the Reliability, Availability and Maintainability (RAM) Analysis performed considering the Overhead Transmission Lines (OHTLs) outages occurred at different voltage levels and in each Italian macro region.

The most important conclusion that can be derived is that the joint evaluation of the results obtained from these two different approaches (Severity factor analysis and RAM analysis) provides a set of information that enables a complete evaluation about the impact of outages on the OHTLs operation, involving at the same time key concepts of the reliability theory as MTTR, MTBF, availability, failure rate and maintainability but also other physical and economical concepts as interrupted power and not transmitted energy.

It can be stated, therefore, that the proposed methodology, is a useful and effective tool for the identification of the transmission network criticalities and the prioritization of the research activities aimed at a better understanding of the failure modes and failure mechanisms affecting the lines, with the final objective to increase their reliability and enhance the maintenance activities planning and performance, at both local and national levels.

In order to help the reviewers to easily detect the extensions introduced in the paper, however, these added parts have been written with a different color font.

We finally would like to thank the editors for giving us the possibility to submit our paper to ACTA IMEKO Special Issue on IMEKO TC10 – 2016.

Best Regards,

The authors