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Reference: **902**

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Type:

**Technical Brochures**

Title:

**High-Frequency Transformer and Reactor Models for Network Studies - Part C: Grey Box Models**

The reliable and safe operation of the transformer requires that the dielectric stresses imposed by transient overvoltages are kept within acceptable limits. Grey-box models of transformers can be either simplified models or ladder-type detailed models. CIGRE JWG A2/C4.52 has reviewed alternative grey-box models with consideration to parameter determination, accuracy and to the inclusion of such models in electromagnetic transient (EMT) simulation programs for use in general transient studies. The simplified models can range from a single capacitor to 50 Hz standard models with added capacitances. Alternative variants are analyzed and compared against transformer measurements for accuracy validation. Models that are obtained from test report data alone tend to have too low attenuation. Usage of damping factors can improve the accuracy. The capacitance values that are to be used in the models can come from the test report, but they need to be modified to account for the series capacitance and winding connections. The frequency range of the simplified models is limited upwards to the transformer's first resonance peak. The resulting models are straightforward to apply in EMT simulation programs. Modeling by a detailed, fitted ladder network is still an area of research and needs more exploration. This TB is one of five TBs from the JWG.

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More Informations :

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