A.8.5.

Experience with test after installation

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Since its foundation in 1927, KEMA's High-Voltage Laboratory has been involved in testing cables and accessories for Dutch utilities and manufacturers and during the last 15-20 years for clients world-wide. This testing includes type testing at the KEMA laboratories and test after installation or so-called TAI. For HV cables, these on-site tests after installation were originally performed with DC and later on with oscillating wave voltages. Nowadays DC is recognised as being not effective and even more being harmful for XLPE cables and oscillating wave voltages have become obsolete for HV cables. The alternative, series resonant testing, is now widely accepted, which is reflected in today's standards and requirements.

In this paper KEMA's experience with series resonant testing of cable circuits after installation is illustrated, based on the results of almost 6 years of performing tests after installation. In these 6 years we have tested over 200 cable circuits in high and extra high voltage range. This experience is presented as general figures and subdivided by cable, joints and terminations. Preliminary results indicate that with 10% of all the tests a breakdown occurs, this number increasing for higher voltages (150kV) and longer circuit lengths. These results are an indication of the value of this test after installation and may help utilities to determine what tests might be appropriate to be confident about newly installed high voltage cable circuits.