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(Trial-Use Supplement to
IEEE Std 262-1973,
ANSI C57.12.90-1973)

IEEE Trial-Use Standard Dielectric Test Requirements for Power Transformers for Operation on Effectively Grounded Systems 345 kV and Above

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Sponsor

Transformers Committee of the
IEEE Power Engineering Society

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Foreword

(This foreword is not a part of IEEE Std 262B-1977, IEEE Trial-Use Standard Dielectric Test Requirements for Power Transformers for Operation on Effectively Grounded Systems 345 kV and Above.)

Dielectric standards for power transformers are normally provided through ANSI C57.12.00, General Requirements for Distribution, Power, and Regulating Transformers and ANSI C57.12.90, Test Code for Distribution, Power, and Regulating Transformers. These standards had their origins in the days of ungrounded systems, rod-gap coordination, and generally conservative insulation levels. While modifications have been made to reflect modern practice, these standards have become increasingly difficult to apply in the case of transformers in the Extra High Voltage range.

This new standard represents several years of work by the Working Group on revision of Dielectric Tests of the Transformers Committee of the IEEE Power Engineering Society to develop dielectric requirements in line with current technology. The key elements are:

1. Lower Lightning Impulse insulation levels.
2. Chopped wave insulation levels set at 110 percent of lightning impulse insulation levels.
3. Retention of the 83 percent relation between switching impulse and lightning impulse insulation levels.
4. Establishment of phase-to-phase switching impulse insulation levels at 3.4 times maximum peak 60 Hz voltage to ground.
5. A new low-frequency test at 1.5 times maximum operating stress for one hour with the transformer connected as in service.
6. Incorporation of partial discharge monitoring during the low-frequency test with a 150 micro-volt limit.

The Working Group on Revision of Dielectric Tests, of the Dielectric Tests Subcommittee, of the Transformer Committee, had the following membership at the time this standard was developed and approved:

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