

# Evaluation of in-plane flux distribution in 3phase 100kVA transformer core

## Abstract

These papers describe the result of measurement and evaluate the behaviours of inplane flux distribution on 100kVA 3phase distribution transformer assembled with the combination of 60°-45° T-joint. Methodology that is used in this investigation is measurement of flux distributions in transformer core by using no load test and arrays of search coil in Cold Roll Grain Oriented (CRGO) material of transformer core lamination. The measurement involves the fundamental and third harmonics component of the easy and hard direction of flux density at each location measurement. The instantaneous flux flow through the core within one magnetising cycle is analysed with displaced by 120° in time. The locus of the localised flux distribution throughout the magnetising cycle is illustrated the rotational flux produced in the T-joint region of the threephase three limbstransformer core. The localized flux density at the outer of combination of 60°- 45° T-joint is 1.4T and rises to be 1.68T at the inner edges of right yoke passes over to the butt joint of middle limb when the transformer core energized at flux density 1.5 T 50Hz. At the same place the high third harmonic of peak in-plane flux is 0.23T. The transfer offlux between lamination takes place until a point is reached where the material in the region butt joint of yoke lamination, which is directly above the butt joint and the flux higher but did nott, reaches saturation.