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Review

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A REAL TIME STUDY ON CONDITION MONITORING OF DISTRIBUTION TRANSFORMER USING THERMAL IMAGER

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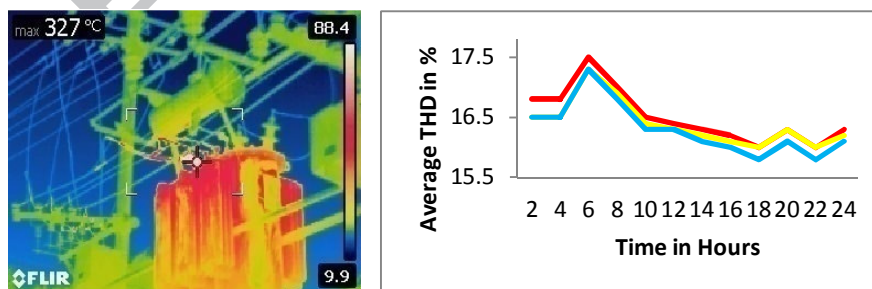
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ABSTRACT

The transformer is one of the critical apparatus in the power system. At any cost, a few minutes of outages harshly influence the power system. Hence, prevention-based maintenance technique is very essential. The continuous conditioning and monitoring technology significantly increases the life span of the transformer, as well as reduces the maintenance cost. Hence, conditioning and monitoring of transformer's temperature are very essential. In this paper, a critical review has been made on various conditioning and monitoring techniques. Furthermore, a new method, hot spot indication technique, is discussed. Also, transformer's operating condition is monitored by using thermal imager. From the thermal analysis, it is inferred that major hotspot locations are appearing at connection lead out; also, the bushing of the transformer is the very hottest spot in transformer, so monitoring the level of oil is essential. Alongside, real time power quality analysis has been carried out using the power analyzer. It shows that industrial drives are injecting current harmonics to the distribution network, which causes the power quality problem on the grid. Moreover, the current harmonic limit has exceeded the IEEE standard limit. Hence, the adequate harmonics suppression technique is need an hour.

Graphical Abstract



Abbreviations

CIGRÉ-International Council on Large Electric Systems, OLTC-On Load Tap Changer
 UHF-Ultra High Frequency detection, PD-Partial Discharge, SFRA-Sweep Frequency
 Response Analysis, CO-carbon monoxide, CO₂-carbon dioxide, PCC- Point of Common

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