

Abstract:

Very costly power transformers are used to step down the high voltage to the distribution line voltage. Efficient operation is only possible if the distortion caused by unwanted harmonics is kept to a minimum level. It is possible to install filter on the primary side of the power transformer as well as on the input ports of the consumer networks (Load Networks). The filters on the primary side of the transformer will protect the high voltage transmission network and the power transformer itself. The filters at the input ports of the consumer networks will protect the power transformer as well as the transmission network from the unwanted harmonics produced on the load side. In this paper we only address the first filtering scheme our prime objective been enhancement of power quality and improve transformer efficiency. We simulate the power transformer and designed filter in a software in order to study the enhancement in transformer that results due to removal of the unwanted harmonics. The usefulness of a filter is clearly seen when a comparison is made to the power transformer without any attached filter. It is found that the filter amplitude of 3rd, 5th and 7th harmonics is reduced and transformer efficiency improved by reducing harmonics.