ASPECTS REGARDING THE COEFFICIENT OF HARMONIC VOLTAGE WAVE PROPAGATION OF A TRANSFORMER

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Abstract. In the paper the operation of a transformer under a non-sinusoidal state is analysed aiming how the voltage wave propagates. The state being stationary and the area of interest limited to the first 40 harmonics it is considered the linear scheme of the transformer without taking into account the capacities between the primary and the secondary windings, between windings and between windings and ground. It is defined the coefficient of harmonic voltage wave propagation. In the case of the electric traction, the impedance connected at the secondary coil of the transformer 110/27.5 kV is the equivalent circuit of the electric locomotive which generates harmonic currents. It is shown that the value of the coefficient of harmonic voltage wave propagation depends on the load connected at the secondary coil of the transformer, on the short circuit reactance on fundamental of the transformer and on the harmonics order.

Key words: distorted state; harmonic current flow.