

Zlatko Kolondzovski
Lidija Petkovska
Electrotechnical Faculty – Skopje

ANALYSIS OF THE SYNCHRONOUS MACHINE REACTANCES AND SOME METHODS FOR THEIR DETERMINATION

ABSTRACT

The purpose of this work is to perform a complex analysis of the reactances of synchronous machines and to analyze the significance in different operating regimes. Here are analyzed the following reactances: synchronous, subtransient, transient, inverse and zero reactances. Also, here are described some methods for experimental determination of these reactances and they were performed on Mawdsley's synchronous generator in the laboratory of electrical machines and transformers at the Faculty of Electrical Engineering in Skopje. The rated data of the generator are: $S_n=3$ kVA, $U_n=240$ V, $I_n=4.17$ A, $i_{vn}=5.5$ A, $n_n=1500$ vrt/min, $f_n=50$ Hz. The obtained experimental results are compared with the analytical ones, estimated according to the Kazovsky's method, and satisfactory accuracy is obtained.

Keywords: Synchronous machine, reactance, experimental determination.