

Possibilities for Reluctance Synchronous Machines Parameters Experimental Determination

Monica-Adela Enache*, Aurel Campeanu*, Sorin Enache* and Ion Vlad*

*University of Craiova, Electrical Engineering Faculty, menache@em.ucv.ro

Abstract - A few methods for the experimental determination of the reluctance synchronous machines parameters are detailed in this paper. Since this paper is not a reluctance synchronous machine (RSM) test handbook, all the tests will not be described, certain references being recommended for this purpose. In the first part of the paper there is presented an experimental stand for the reluctance synchronous machines parameters determination. The stand includes a data acquisition board KPCI 3102. In the second part, there are presented the experimental tests, performed with a flux barriers machine rated at 1,2 kW. There have been considered the determination of the stator resistance, the longitudinal synchronous inductance, the transversal synchronous inductance, the leakage inductances, the longitudinal and transversal magnetization inductances and the sub-transient reactances. It is called the attention to the modern method for obtaining the longitudinal and transversal synchronous inductances. The longitudinal and transversal synchronous inductances have been determined by means of a method consisting in a direct current decreasing through the stator winding, the rotor being at rest and positioned so that the longitudinal axis coincides with the axis of the phase A. Finally there are presented the conclusions emerging by experimental tests, conclusions which confirm the theory presented in the literature. It is emphasized that the reluctance synchronous motors parameters can be determined easy and quickly by means of the test stand we conceived and built.