Electrodynamic Behaviour of the LHC Superconducting Magnet String during a Quench, L. COULL, D. HAGEDORN, G. KRAINZ, F. RODRIGUEZ-MATEOS, R. SCHMIDT, CERN, Geneva - A string of three dipole magnets and one quadrupole magnet, representing a half cell of the future LHC collider, was assembled and tested at CERN. It is the task of the Magnet Protection System to make sure that high temperatures in the magnets and high voltages between coils and ground in case of a quench are kept within safe limits. The magnets are by-passed by protection diodes which are located in the cold mass. In case of a quench most of the stored magnetic energy is dissipated in the resistive parts of the magnets. Several tests on this string configuration were done during test runs at a temperature of 1.9 K. This paper describes the electrodynamic behaviour during a fast discharge (i.e. after a quench) of the LHC Test String. A simulation program was developed to evaluate parameters which cannot be directly measured, like the current distribution in magnets and diodes, as well as the dissipated energy. The simulation program gives also the possibility for worst-case calculations, for example non-uniform magnet quench characteristics and protection heater delays. This paper reports on the results of the experiments and the predictions of the simulation program.