



“Gheorghe Asachi” Technical University of Iasi, Romania



ANALYSIS OF MAGNETIC GRADIENT SIGNAL IN UNSHIELDED ELECTROMAGNETIC ENVIRONMENT

Miuta Carmina Rau, Octavian Baltag*

*“Gr. T. Popa” University of Medicine and Pharmacy of Iasi, Department of Medical Bioengineering,
15 Universitatii Street, 700115 Iasi, Romania*

Abstract

The paper analyses the spatial distribution of the magnetic field and the first and second order gradients produced by two sources, a disturbances source and a biosignal source, as well as the effect of the gradiometer basis on gradient measurement. The contribution of a magnetic disturbance to signal/disturbance ratio is analyzed when the biomagnetic field is measured in an electromagnetic unshielded environment.

Key words: biomagnetic signal, gradiometer, magnetic disturbance, signal to noise ratio, SQUID

Received: February 2013; Revised final: June, 2013; Accepted: June, 2013

*Author to whom all correspondence should be addressed: octavian.baltag@bioinginerie.ro; miuta.carmina@gmail.com; Phone: +40232 213 573, Fax: +40232 213 573