

Application of 40-channel SQUID Gradiometer System for the Comparison of Magnetocardiograms from Healthy Subjects and Patients with WPW Syndrome and DCM

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The aim of this study is to confirm clinical usefulness of magnetocardiogram (MCG) by analyzing MCG data of health subjects and patients with Wolff-Parkinson-White (WPW) syndrome and Dilated Cardiomyopathy (DCM). Measurements of MCG signals were done with a home-made 40-channel SQUID gradiometer system. MCG signals of about 30 healthy subjects were measured as the reference of MCG signals. For a WPW syndrome patient, we measured the MCG signals before and after the surgery, and compared the difference. Among the DCM patients, 7 patients showed meaningful MCG signals. From the measured magnetic field distributions, current vector maps were obtained to show the myocardium current activity. By comparing the MCG signals and current maps, we showed the differences in the analysis results between the healthy subjects and patients with heart diseases.

keywords : SQUID gradiometer, magnetocardiogram, current map, heart disease