Miniaturized UWB Antenna for Brain-Machine-Interface

Author(s) - Institution(s):
Kamya Yekeh Yazdandoost, NICT
Ryu Miura, NICT

Corresponding author email: yazdandoost@nict.go.jp

Corresponding WG group: TWGB

Abstract:

Antenna for Brain-Machine-Interface (BMI) needs to be very small, due to limited available space in human head. Ultra Wideband (UWB) technology with their low cost, low power consumption and high data rate is one of the strong candidate for medical implanted devices. Possibility to have a miniature antenna and as a result small implanted device, put the UWB system on the top for the Brain-Machine-Interface application. This paper presents the design of a very small UWB antenna which is placed in the skull bone and covered with head tissues, i.e. fat and skin. Therefore, antenna needs to be biocompatible, hence will not be rejected by the tissue surrounding. Tissue electrical properties around the implanted antenna has significant effect on the antenna performance, thus, electrical properties of tissues were considered on the time of antenna design.