

DEVICE FOR SPATIAL ORIENTATION DETERMINING OF THE SENSOR POSITION IN MEDICINE

A. A. Bardyshev^{1,*}, V. S. Verbitskii²

¹*Department of Microelectronics and Semiconductor Devices, Technical University of Moldova, Chisinau, Republic of Moldova*

²*Department of Microelectronics and Semiconductor Devices, Technical University of Moldova, Chisinau, Republic of Moldova*

*E-mail: bardyshev.alexandr@gmail.com

Nowadays there are several types of Imagistics some of which are dangerous to the human body, such as X-rays, while others are expensive and require highly skilled personnel, such as MRI. This abstract will show the idea of visualization the transmitting device which can be placed in a capsule or surgical instrument by means of electromagnetic waves of low frequency (15kHz - 16 kHz), which are not harm the human body. For realization of this idea was developed cheap and easy to use device. Fig.1 shows the block diagram of the transmitting and receiving devices.

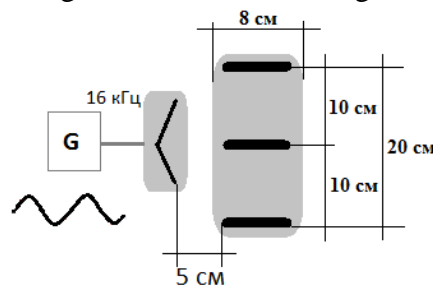


Figure 1. Block diagram of the transmitting and receiving devices

To determine the location of the transmitter in this environment it was proposed to design two inductors arranged relative to each other at a small angle (150grad.). This allows the magnetic field produced by the coils to be different in different planes, which makes it possible to determine the position of the transmitter in volume.

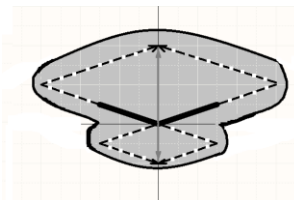


Figure 2. The magnetic field formed by the transmitter coil in x plane

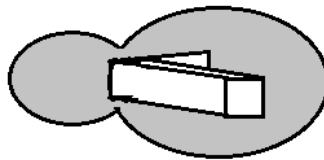


Figure 3. The magnetic field formed by the transmitter coil in y plane

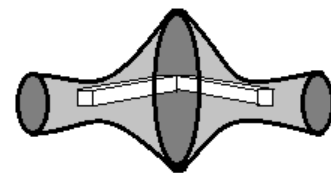


Figure 4. The magnetic field formed by the transmitter coil in z plane

Fig.5 shows the block diagram of the receiving device:

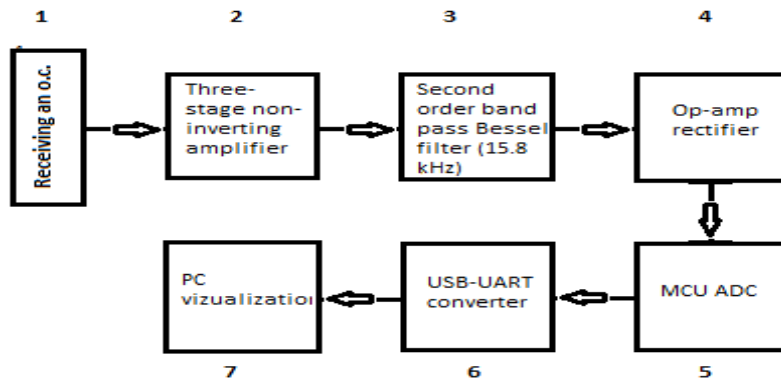


Figure 5 Block diagram of the receiving device