

V. K. Pandey, P. C. Pandey, and J. N. Sarvaiya, Impedance simulator for testing of instruments for bioimpedance sensing, IETE J. of Research vol. 54(3), pp. 203 - 207, 2008

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Abstract - Bioimpedance sensing is a non-invasive technique for measuring parameters related to tissue structure or physiological events. Generally, the impedance is sensed by injecting a high frequency low intensity current through a pair of electrodes placed across the selected region of the body and monitoring the voltage developed across the same or another pair of electrodes. The base value of the impedance and its variation can be used, with the help of an appropriate model, for obtaining diagnostic information. For testing and calibration of instruments developed for bioimpedance sensing, we have developed an impedance simulator by using a microcontroller and analog switches. It can be used for measuring sensitivity and frequency response for bioimpedance signals, and for studying the effect of various electrode configurations and common mode interference caused by bioelectric sources and external pickups.