Antony Rajan / Prof. P. C. Pandey (supervisor), “A simulator for transient evoked otoacoustic emission”,M.Tech. Dissertation, Biomedical Engineering Group, Department of Bioscience and Bioengineering, Indian Institute of Technology Bombay, June 2013.

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## ABSTRACT

Transient evoked otoacoustic emission (TEOAE) audiometry is a fast and objective procedurefor screening of hearing loss as it does not require responses from the subject. Aim of this project is to develop a TEOAE simulator which can mimic the response of an ear to a transient stimulus for use in testing and calibration of TEOAE audiometers.For simulating different types of ear, dominant frequency components present in the TEOAE response should be selectable, and the latency and the level of dominant frequency component should be in accordance with the stimulus intensity. A microcontroller based instrument is developed for the simulator along with a PC based graphical user interface to set the parameters of the TEOAE response. To test the simulator, electrical part of a TEOAE audiometer is also developed, using a microcontroller based circuit for stimulus generation and response acquisition and serial port interface to a PC for further signal processing and spectral analysis.