

THE EFFECT OF BACKGROUND NOISE ON CLICK EVOKED OTOACOUSTIC EMISSIONS

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This study was to determine the effect of background noise on click evoked otoacoustic emissions (CEOAE) that involved two test modes that are Quickscreen (QS) mode and Original (ORI) mode. The type of background noise used was speech noise. Forty-five adult subjects with the age ranged between 19 to 25 years old were involved. Results showed that the QS mode was more robust to the effect of background noise than the ORI mode. This was because at 60 dBA of background noise level, 86.7 % of the subjects passed the QS mode compared to the 60% passing rate of the ORI mode. The maximum permissible level of background noise where it still shows high validity for both modes is 60 dBA for QS mode and 55 dBA for ORI mode. However, statistical analysis showed that there was no significant difference between the two modes ($p > 0.05$). The most frequent failure rate was observed at 0.8 kHz for QS mode and 1.0 kHz for the ORI mode. The ORI mode showed shorter averaged test time up to 40 dBA background noise level. But as the background noise level increased > 40 dBA, the QS mode showed shorter averaged test time. In general, the test modes used showed longer test time when the noise level > 60 dBA. There was a significant difference ($p < 0.05$) in the averaged test time for background noise level of 55 dBA background noise ($r \geq 0.6$). Besides that, the pass and fail reliability of CEOAE test for the QS mode proved to have strong correlation ($r \geq 0.6$). The findings of this study highlighted that the background noise does affect the recordings of CEOAE where it increases the test time and reduces the specificity. However, CEOAE is suitable to be applied in clinics without the sound proof room as long as the background noise does not exceed 60 dBA for the QS mode and 55 dBA for the ORI mode.

Abdul Wahat, N. H. 2001. The Effect of Background Noise on Click Evoked Otoacoustic Emissions. Bachelor of Audiology Thesis. Universiti Kebangsaan Malaysia.