Assessment of an ICA-Based Method for Detecting the Effect of Attention in the Auditory Late Response

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Abstract : In this work a new independent component analysis (ICA) based method for noise reduction in evoked potentials is evaluated on for auditory late responses (ALR) captured with a 63-channel electroencephalogram (EEG) from 10 normal-hearing subjects. The performance of the new method is compared with a single channel alternative in terms of signal to noise ratio (SNR), the number of channels with an SNR above an empirically derived statistical critical value and an estimate of the effect of attention on the major components in the ALR waveform. The results show that the multichannel signal processing method can significantly enhance the quality of the ALR signal and also detect the effect of the attention on the ALR better than the single channel alternative.