

Oscillatory waveform and spectral power analysis of quantitative EEG (qEEG) signals during listening to the Fatihah Chapter

[Samhani Ismail, Mohammed Faruque Reza, Mohd Ariff Sharifudin, Rabiatal Adawiyah Abdul Rohim]

Abstract— Brain oscillations are the prevalent features that may reflect the underlying physiological processes. Quranic sound stimulus which gained high attention in neuroimaging studies shows that the brain oscillations changed during perceiving the stimulus. Its rhythmic structure was assumed to interact with brainwaves rhythms producing neural entrainment. Hence this study was performed to investigate the oscillatory waveforms and spectral power changes to uncover the underlying neuronal mechanisms. Brain electrical data were measured by using the Electroencephalography followed by waveform analysis and Discriminant Analysis. Results showed that the waveforms amplitude were reduced, and a rhythmic and symmetrical pattern were found during listening to the Fatihah Chapter acoustic stimulus. Spectral power analysis showed that listening to this stimulus activate greater neural population associated with behavioral and cognition enhancement

Keywords — Brain oscillation, Brain waveform, Cognitive neurosciences, quantitative Electroencephalography, Quranic therapy, Spectral power