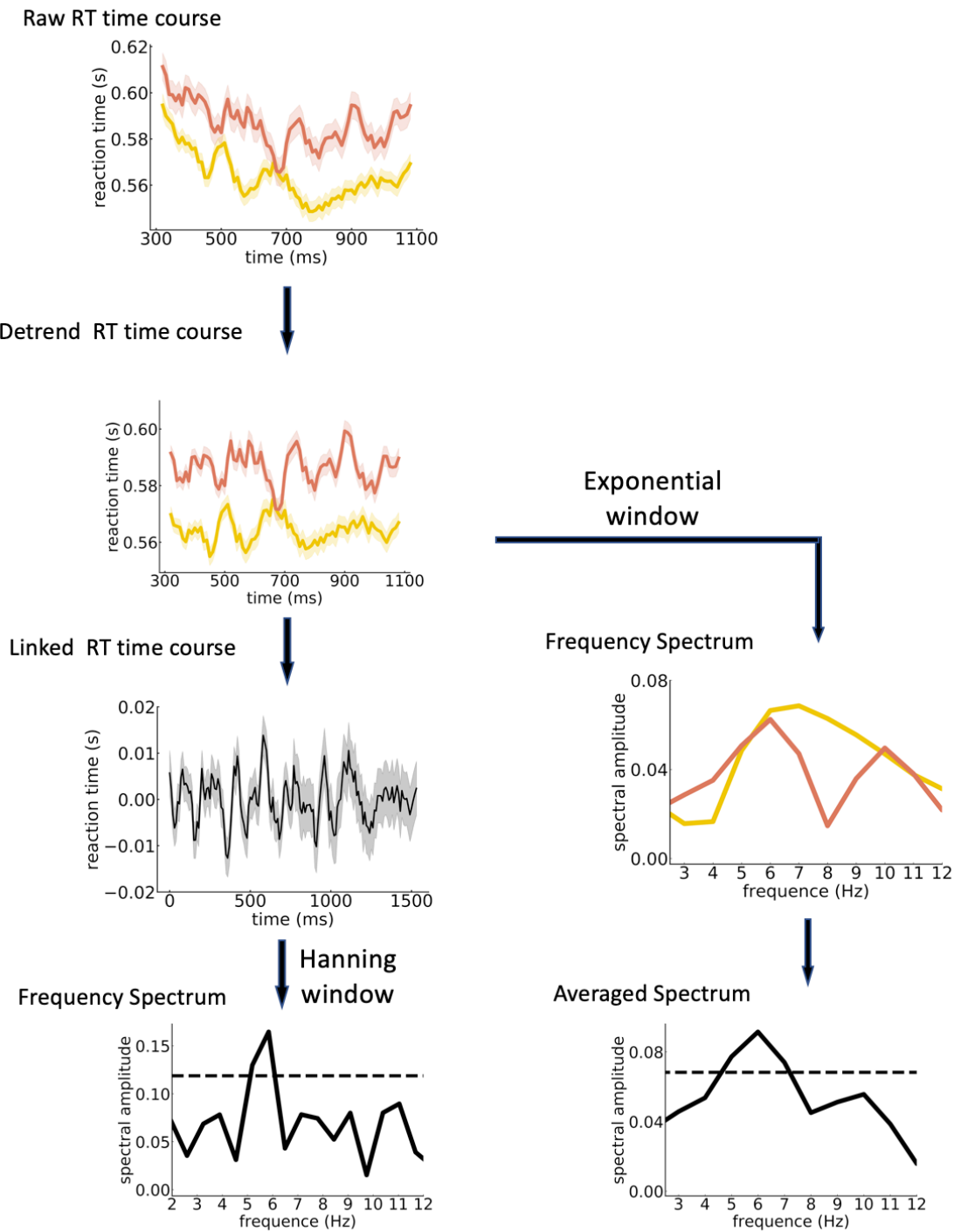
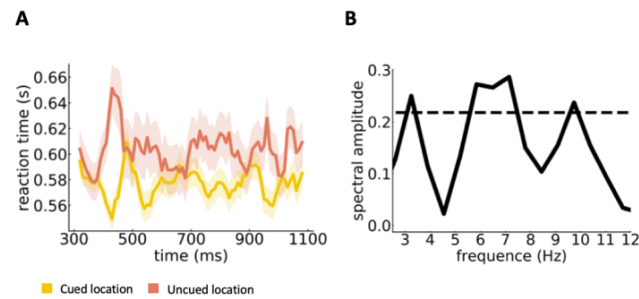


## Supplement Figure

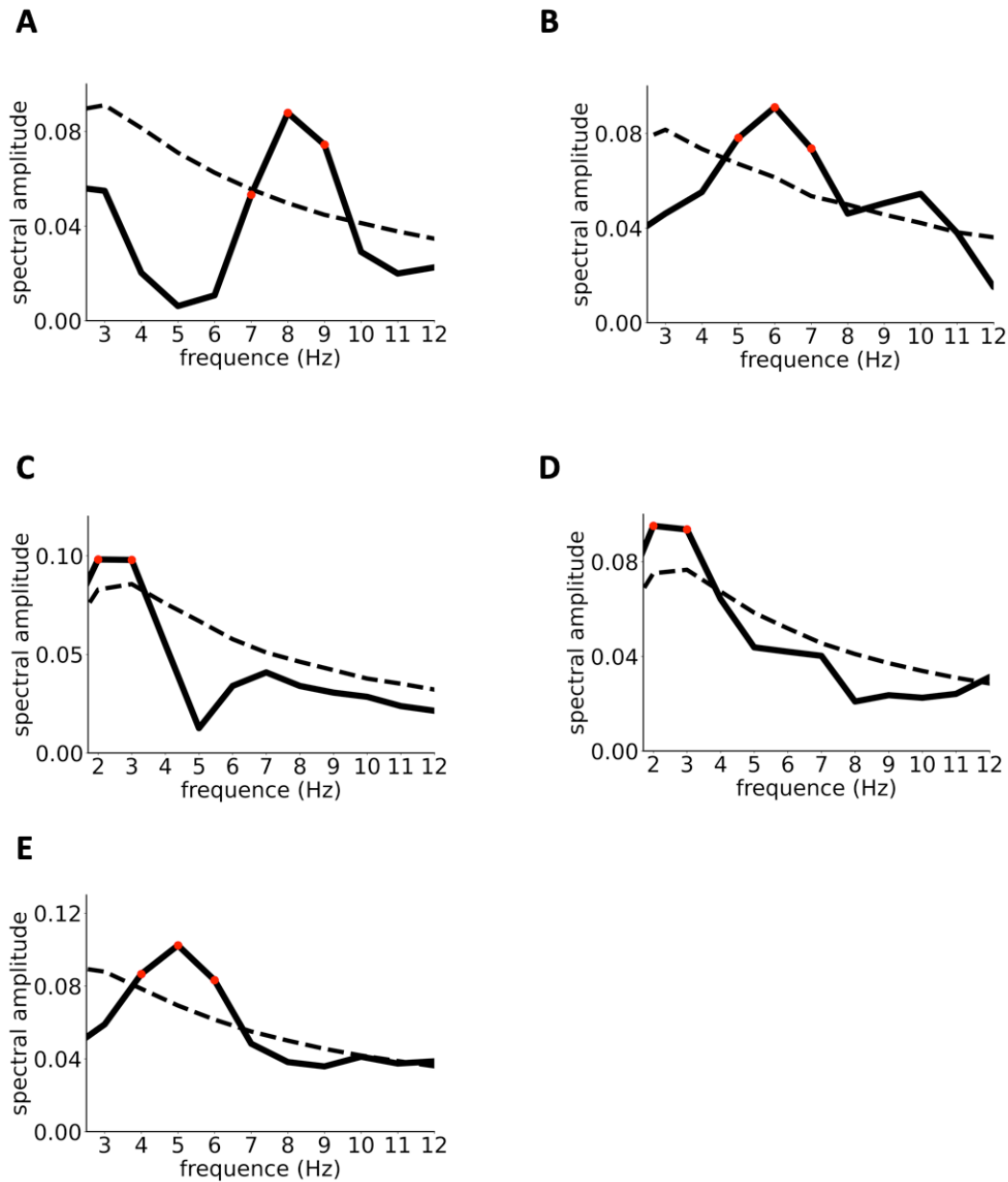


S1 Fig. Analysis pipeline to identify oscillation frequency in behavior. Raw data were smoothed

with a 50 ms time bin and first order and second order detrending was applied to each time course. Then, time courses at different locations were concatenated to generate a single time course, and a Hanning window was applied to convert the time course to the frequency domain. The absolute values of the FFT output were used as the frequency spectrum (left column). To identify the amplitude of each location, we also applied an exponential window to each time course and convert the time course to the frequency domain. The frequency spectrum was then averaged to identify the common frequency peak (right column).



S2 Fig. Attentional oscillation in attending two locations task (Experiment 2) that excluding trials containing microsaccades. (A) Group averaged time courses of RT for cued location and uncued location. The shaded regions reflect  $\pm 1$  SEM. (B) Frequency spectrum of the concatenated time course of RT. The dashed line indicates the significance threshold ( $p < 0.05$ ) estimated by permutation test and was corrected for multiple comparisons.



S3 Fig. Averaged frequency spectrum in different experiments of 1-4 locations. The dashed line indicates the significance threshold estimated by AR surrogate (Brookshire, 2022). Red dots represent the significant frequency amplitude corrected by cluster based multiple comparison ( $P < 0.05$ ). (A): One-location task; (B): Two-location task; (C): Three-location task; (D): Four-location task; (E): Two-location (linked) task.