

## Supplementary Materials

- 1. Lux measurements CRT screen**
- 2. Control experiment refresh rate**

### **1. Lux measurements CRT screen**

Luminous emittance of the Dell M933s CRT screen was measured using a lux meter (DVM1300 Velleman) with the probe directly against the monitor. The background emitted 27 lux, with a variation over the screen surface of +/- 1 lux. At the fixation cross the luminous emittance was 29.3 lux. The luminous emittance of the stimuli varied over the screen from 29.5 to 32.5 lux. These values did not differ for the 3 different conditions.

### **2. Control experiment screen refresh rate**

The experimental stimuli elicited gamma oscillations around 60 Hz. As the refresh rate of the monitor was 60 Hz as well, we conducted a control experiment manipulating the screen refresh rate.

#### *Subjects.*

Eight healthy volunteers (7 females and 1 male, age 21-25) performed the experiment after having given informed consent. Three female subjects were excluded from analysis because of excessive artifacts in the EEG data (< 40 remaining trials).

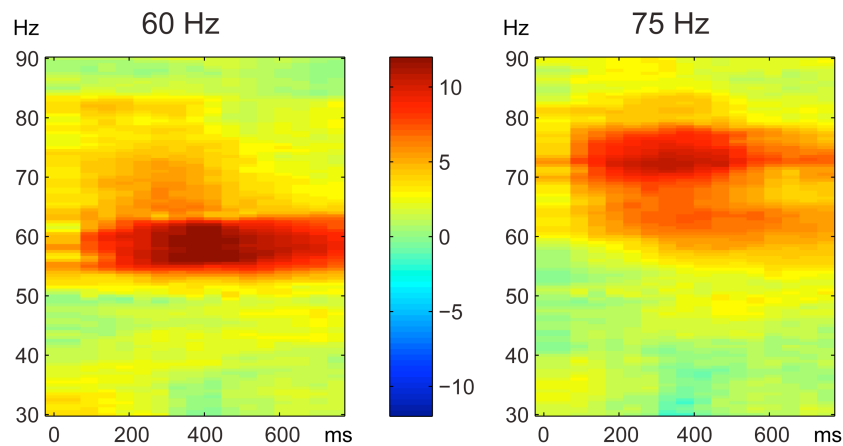
#### *Materials and Procedure*

The experiment was exactly the same as the experiment described in the main paper. The participants performed the experiment twice, once with the computer screen refresh rate at 60 Hz and once at 75 Hz. Subjects started with either 60 Hz or 75 Hz (counterbalanced). The same analysis procedure was followed as in the main paper. Both the 58-62 Hz and the 73-77 Hz frequency windows were statistically analyzed. Normalized power values of the 60-Hz and 75-Hz condition were compared (for all conditions combined).

#### *Results*

Figure S1 shows the gamma response elicited by the experimental stimuli (all conditions combined) when presented with a 60-Hz and a 75-Hz monitor refresh

rate. For the 58-62 Hz frequency window, a larger gamma response was seen when stimuli were presented with a 60-Hz refresh rate ( $p < .001$ ). For the 73-77 Hz frequency window a larger gamma response was seen when stimuli were presented with a 75 Hz refresh rate ( $p < .001$ ).



**Figure S1.** Time-frequency presentation (all conditions combined) compared to an absolute baseline of 300-100 ms before stimulus onset, when presented with a refresh rate of 60 Hz (left) and a refresh rate of 75 Hz (right). Color codes represent z-values. Gamma power is compared to an absolute baseline of 300-100 ms before stimulus onset, and averaged over six parieto-occipital electrodes (PO3, O1, Oz, POz, PO4, O2).