Supplementary Methods

1 Movie showing evolution of high-frequency neural activity induced by word task

Data correspond to Jung et al. (2007) from our laboratory, which used an identical experimental paradigm and stimuli.

For each recording site, in each patient, TF Wilcoxon maps were averaged across all frequencies in the 50-150 Hz band to provide a time-course of activation, for each condition (Attended vs. Unattended).

Stimulation commences at t = 0 ms and for a duration of 150 ms.

At each time point, color at each vertex of the brain mesh indicates the average activation measured in all intracerebral sites located within a 1.5 cm distance of that vertex.

The top row shows the response to attended words, while the bottom row shows response to unattended words.

References

Jung, J., Mainy, N., Kahane, P., Minotti, L., Hoffmann, D., Bertrand, O., Lachaux, J.-P., 2007. The neural bases of attentive reading. Hum Brain Mapp.



Fig. S1. iEEG recording sites in patients Pt1, Pt2, and Pt3. For each patient, colored balls indicate on individual 3D MRI reconstruction of the cortex, sites where iEEG was recorded, where alpha/beta suppression was observed ($\alpha\beta$), and where gamma band responses were found (γ). Note that in Pt2, there was only one site (in green) with significant stimulus-induced spectral modulations. In Pt3, all sites shown on the right panel ($\alpha\beta,\gamma$) showed both alpha/beta suppression and gamma increase, except for the site noted "only $\alpha\beta$ ", where there was no gamma band response. Color serves only as a visual aid for correspondence between views.



Fig. S2. ABS MEG topography for left hemisphere of patient Pt1



Fig. S3. ABS MEG topography for right hemisphere of patient Pt1



Fig. S4. ABS MEG topography for patient Pt2



Fig. S5. ABS MEG topography for patient $\mathrm{Pt3}$



Fig. S6. MEG gamma band responses and alpha/beta suppression in a fourth patient. Legend is the same as for Figures 2 to 5. In this patient, we found no spectral modulations in the gamma band in bipolar iEEG data, probably because iEEG sites were not located in regions relevant for this task. MEG data however, show clear gamma band responses and alpha/beta suppressions, predominantly over occipital sensors. The suppression is significantly stronger for targets. The absence of GBR in those iEEG recordings might be explained by the fact that the intracerebral electrodes sampled only right frontal regions, away from the cardinal reading network. Although there were no GBR in bipolar iEEG recordings, we found such responses in the monopolar data, that is, iEEG recordings referenced to a common, inactive, intracranial site. This is an indication that GBR occurred at the cortical level, in sites distant from the iEEG electrodes, since monopolar recordings, in contrast to bipolar recordings, receive contributions from sources located several centimeters away from the recording sites.