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### **The effect of a single 60 minute Wi-Fi electromagnetic field exposure on spontaneous EEG activity of healthy human volunteers**

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The aims of the present study were to 1) build and test a Wi-Fi exposure system (2.4 MHz, 802.11g, Pout=100mW) from off-the-shelf parts and to 2) investigate potential neurophysiological effects of a single 60 min Wi-Fi exposure addressed by spontaneous EEG (sEEG). We recorded sEEG of 7 healthy young volunteers from Fz, Cz and Pz electrode locations. In a double-blind task design the subjects were exposed to either sham or genuine Wi-Fi exposure in two separate sessions. The subjects' task was to watch a silent documentary film during the entire length of the sessions. Each session was comprised of three consecutive recording blocks (~10 min. each). During the second recording block subjects were exposed to either sham or genuine Wi-Fi irradiation. We did not find any significant main effect of Wi-Fi exposure on any of the extracted EEG spectral components (delta, theta, alpha I, alpha II, beta I, beta II). However, by segregation of post-exposure recording blocks to 5 two-min time fragments, we found a weak Exposure×Time fragment interaction ( $p=0.07$ ) in the beta II frequency band, indicating increased power after genuine Wi-Fi exposure. Although the present preliminary results do not indicate significant changes of EEG spectral components due to genuine exposure, more experimental data are needed to draw final conclusion in the present paradigm concerning the effects of Wi-Fi electromagnetic field exposure on sEEG activity.

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