Reviewer's report

Title: Effects of short-term radiation emitted by WCDMA mobile phones on teenagers and adults

Version: 3 Date: 19 December 2013

Reviewer: Martin Roosli

Reviewer's report:

This is a well conducted and well described study on a public health relevant topic. A few issues could be improved in a revision prior to publication.

Major Compulsory Revisions

• It is not clear why from the HRV data only the LFP/HFP ratio was considered for analysis. SDNN and RMSSD are also suitable markers for the activity of the autonomous nervous system and such data should be available in this study as well.

• Only in the discussion but not in the method is written that only relative changes of the LFP/HFP have been considered in the data analysis and this is why the ratio was 100% for all groups in stage 1. It is not clear why such an analysis approach has been considered for this outcome but not for the others. I would prefer to use original data for all analyses. Moreover, ANOVA assumes normally distributed data, which is most likely not to be the case for the relative changes of the LFP/HFP ratios.

• The symptom data should also be presented in a table or better described in the text. From the discussion (2nd para, p. 17) it seems that only 8 symptoms notifications occurred in the study. Thus, this study with health subjects had a low power to detect an EMF effect on symptoms. This may be added to the discussion.

• I would not call the study counterbalanced if 14 teenagers and 15 adults received sham exposure first. Although the imbalance is probably too small to create relevant bias.

• Figure 3 cannot be read.

• I feel that McNemar is not the most suitable analysis methods for the perception data. May be logistic GEE models would provide an overall analysis instead of many tests.

• The first sentence in the discussion is pure speculation or needs proper citation.

Discretionary Revisions

• The rational of sufficient sample size based on another study investigating a different outcome and not observing an effect is not convincing (p. 16, line 4-9), because absence of effect might be due to the small sample size.

• To present percentage is misleading, better report absolute numbers ->3.8%=1
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests