

## Summary of a presentation given at a THG seminar in 2009 by Denise Wallace, University of Essex

The team at the University of Essex was researching sensitivity to base station signals as a result of public concern and a suggestion in the Stewart Report that a sub-group of people may be hyper-sensitive.

The study set out to determine whether exposure to a TETRA base station signal caused symptoms in one or both groups. The sample of participants consisted of 132 controls and 51 sensitives matched for age and gender. A TETRA signal and a sham signal were used.

The testing environment was with the participant seated and the antenna behind a screen. Participants received instructions via a computer terminal which were back-projected onto the screen. The signal was modelled on an Airwave TETRA signal - that is, a continuous 420MHz signal. Whether or not traffic is carried on the channel has a profound effect on the waveform therefore a ratio of timeslot occupancy of 50% traffic/no traffic was applied over the period of testing.

Data was collected over three sessions with at least one week between them. The first session included an open provocation test where participant and researcher both knew when the signal was switched on/off. This consisted of a 15-minute exposure to a TETRA or sham signal, a two minute wash-out period and a further 15-minute exposure followed by memory and concentration tests. Following the open provocation test was a quick double-blind test, when neither participant nor researcher knew the signal condition. The purpose of this test was to establish if participants could tell when the base station was on/off. The test comprised four 5-minute exposures (e.g. TETRA/SHAM/TETRA/SHAM) and participants then judged whether the base station was on or off and stated how sure they were.

Sessions 2 and 3 were double-blind with only one exposure condition tested in each 50-minute session. As well as completion of memory and concentration tasks, physiological measures were taken, and subjective questionnaires completed about symptoms and well-being. Follow-up questionnaires were used to track symptoms over a six day period following exposure.

Results will be made publicly available once they have been approved for publication by a scientific journal. This process is currently underway.

### Questions

#### *1 Has a similar study been conducted with participants being put under stress?*

There is a certain degree of stress inherent in cognitive studies - for example the completion of a timed mental arithmetic test James Rubin had found some studies that had tested under conditions of stress, with similar results.

Outside the exclusion zone around an antenna, power levels from a TETRA base station are much lower than from a handset and power decays rapidly with distance. There is a limit as to how far one can test different combinations of potential sources of sensitivity, but one has to decide whether there is any reason to believe that combinations could be different.

*2 Are there any plans to repeat this study?*

That will depend on whether there are perceived problems as something needs to give impetus to (and funding for) a study.

*3 Are there concerns about ambulance crew using TETRA in proximity to patients, medical equipment or pacemakers?*

The Medical Devices Agency is responsible for safe use of medical equipment and understandably takes a precautionary approach. No reports about concerns are known. Operational procedures for use by the emergency services are designed so that equipment is used appropriately and safely

*4 Why are provocation studies conducted over short periods and not over several hours?*

Symptoms such as headaches usually come on quickly, and on a practical note, the study must be designed so as to attract sufficient volunteers to produce statistically reliable results.

*5 Why did the study exclude epileptics?*

In this kind of study it is usual to take a precautionary approach and exclude subjects with conditions such as epilepsy or claustrophobia. There is no evidence that exposure to a radio frequency signal causes epileptic attacks. Research has to be ultra cautious and ethical in its approach.

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