

**Summary of a presentation give at a THG seminar in 2009 by  
Professor Adrian Burgess of University of Aston, Birmingham**

*The slides associated with this presentation may be viewed [here](#).*

The aim of this study was to examine the acute neuro-cognitive effects of exposure to a TETRA signal. The initial study design was to compare participants with high and low levels of exposure to TETRA with those who reported health symptoms that they attributed to TETRA use. However, accurate call data were only available for about 70% of the participants but extreme users were selected as far as possible. On average, the volunteers spent 47 minutes per month using the handsets, generally for very short calls of less than 5 seconds duration so the proportion of times the handsets were transmitting was very low even allowing for network 'handshakes'.

The acute effects of exposure to TETRA were evaluated in a double-blind provocation. The focus of the study was on the effects of TETRA on EEG (brain waves), in particular the Beta rhythm (13-19Hz) because of concerns expressed in the Stewart report about the possible effects of 16Hz modulation. The hypothesis was that if TETRA signals have an acute impact on the brain, the effect should show up in the beta wave EEG range. The study also looked across the EEG spectrum in case there were effects at other frequencies.

The EEG equipment used during the study was shielded to prevent interference with the EEG recording equipment.

A liberal definition of symptomatic officers was used – anyone who attributed any symptom at any time to use of the TETRA radio and 107 volunteers were found. A higher proportion of women than men were symptomatic and those who reported symptoms also tended to report higher levels of anxiety. There were some physiological differences as well. Those who self-reported symptoms showed lower power in the beta frequency range but this appears to be a pre-existing difference (beta is known to relate to anxiety levels) and was not related to TETRA exposure.

There was some correlation between greater exposure and better memory, but this was an aged-related effect, because younger officers tended to experience greater exposure possibly as they were more likely to be out on the beat.

The results of the provocation study are currently being checked, and the TETRA Health Group will arrange for them to be made known to seminar participants once they are available.

The support from the police forces for this study was better where they were already participating in the long term health monitoring study being conducted by Imperial College London.

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