

The TETRA (Airwave) £2.3 bn system was introduced in 2000-05 for use by the emergency services. TETRA replaced VHF radios. It will be replaced with the ESN by 2022. It was not safety tested.

Ill health from TETRA

TETRA can produce the specific ill health symptoms caused by similar radiation. These include: cancers, cardiovascular effects (e.g. irregular heartbeat, shortness of breath, stroke), hypersensitivity to electromagnetic energy, neurological effects (e.g. sleep disorders, dizziness, nausea, headaches, migraine), reduced fertility, and skin effects (rashes, itch). Similar 2G and 3G radio frequency (RF) radiation shows 'clear evidence' of causing cancer ([NPT, 2018](#))

Reasons why TETRA is especially dangerous

1. Low carrier frequency

TETRA uses radio frequency microwave radiation at 380-384 and 390-394 MHz. This radiation penetrates more deeply into the body than some higher frequencies.

2. 17 Hz frequency pulses

TETRA's 17.65 frames per second create a pulsed amplitude modulation at 17.65 Hz. This is close to the 16 Hz resonance frequency of calcium ions, causing calcium flux through the cell membrane, an established cause of ill health from radio frequency radiation ([Pall ML, 2013](#)).

The [Stewart Report](#) (2000) warned [[5.59](#)] against using 16 Hz for this reason. It is also in the spectrum of brainwave frequencies. There are also 70 Hz slots, 0.98 Hz multiframe groups, and 16.66 Hz ground waves from masts.

3. Elliptically polarised

RF polarised radiation has much greater biological effect than natural non-polarised radiation.

4. UK authorities still follow short-term heating limits, not long-term biological limits

The UK still uses the ICNIRP 1998 guidelines which prevent short-term heating, averaged over 6 or 30 minutes, based on Schwan's mistake of 1953, but ICNIRP in 2002 stated that some people need long-term biological guidelines. Biological guidelines include [EUROPAEM 2016](#) and [IGNIR](#).

In 2009 the European Parliament condemned ICNIRP's short-term limits as 'obsolete'.

5. Devices worn on the body

Radiation devices positioned close to the body have a greater effect than those held at a distance. Since health effects from RF radiation are known to be cumulative, wearing devices is not advised.

6. TETRA network masts transmitting in a set line

The general public can experience the established specific symptoms of intolerance to RF radiation when crossing a TETRA 'line' between two TETRA masts. The TETRA masts send out pulsed radiation at full power all the time, 24/7, unlike mobile phone masts. A TETRA 'line' can cause road accidents or ill health in a particular house or work place, as can living close to a TETRA mast.

["A Brief Guide to TETRA masts \(UK\) and their Impact"](#) (2011)

N. Britten: ["Police to sue over 'radio sickness'"](#) (2003)

Burgess AP et al: ["Acute Exposure to TETRA has effects ...consistent with vagal nerve stimulation"](#) (2016).

C. Cashmore: ["Family link new radios to death"](#) (2004)

J Cinnamon: ["Occupat. health effects linked to TETRA"](#) (2017)

N. Farrell: ["UK police sick of Tetra handsets"](#) (2002)

N. Fleming: ["Police blame health crisis on radio mast"](#) (2004)

J. Griffiths: ["TETRA"](#) (2004)

House of Commons, [Public Accounts Committee, April 22 2002](#): paragraphs 235-265 (end): Bacon, Asque et al.

Imperial College London: [TETRA health effects include Vagal Nerve Stimulation and Heart Rate Variability: FAQs](#) (2016)

A. Perry: ["Police radios blamed for PC's cancer death"](#) (2010)

A. Philips: ["TETRA ~ is your health at risk?"](#) (2001)

Police Federation: ["TETRA \(Terrestrial Trunked Radio\)"](#) (2017)

Powerwatch: [TETRA](#) (2002)

[TETRA Watch](#)

B. Trower: ["Report on TETRA"](#) (2001) (2004)

B. Trower: ["TETRA: A Critical Overview into the death of Officer Neil Dring"](#) (2004)

Two studies from Essex University (Nieto-Hernandez R et al 2011, Wallace D et al 2012) claimed no effects but were invalidated by (a) failing to screen for sensitive people, (b) using sham after real exposures, and (c) averaging results instead of recording each subject individually.

Biological Guidelines:

World Health Organisation:

Further information:

[IGNIR](#), [EUROPAEM EMF GUIDELINES 2016](#)

[IARC's 2B human carcinogen classification, 2011](#)

[ES-UK](#)

[Selected Studies](#)