



# POLICE FEDERATION

# NEWS

**Focus  
on  
Airwave**

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*PF News – a regular update on Federation matters*

## AIRWAVE

### Keeping the lines of communication open?

*This Federation News is designed to give an overview of Airwave, the communication system used within the police service, due to complete its national rollout by the end of this year. We outline the actions the Federation have taken in relation to Airwave, examine the scientific debates that continue to rage about health implications for police users and look at the research being carried out to examine possible health effects.*

TETRA (Terrestrial Trunked Radio), otherwise known as Airwave, is the digital communication system for the police service. Notwithstanding continuing controversy, Airwave, with masts located to provide

maximum coverage, is capable of providing better communication for the police service. Whilst there is no conclusive proof that the radio system or associated masts have a detrimental effect on users, expert opinion is divided and concerns

over possible ill-health effects remain.

Airwave continues to be rolled out nationally this year. With the analogue systems being phased out, more than 72,000 police officers are already using the system.

## Federation action on Airwave

Having repeatedly called for effective communications in the police service the Police Federation continues to assess the benefits and risks presented by Airwave.

We understand the huge potential and operational benefits Airwave can provide, however no one can categorically state whether the system is safe or unsafe. Scientific opinion remains divided on the long-term health effects on Airwave users and residents close to the sighting of

masts.

Jan Berry, chairman of the Police Federation has made clear: 'If at any time Airwave is shown to be detrimental to the health of users, the Federation will instantly call for the system to be withdrawn from service. We have in the past, and will continue in the future, to monitor all issues arising from the use of Airwave.'

The Federation have required the Home Office to produce a generic risk assessment on the hazards associated with the use

of Airwave and will develop our website ([www.polfed.org](http://www.polfed.org)) to include advice and up to date information on Airwave.

Scientific knowledge and understanding changes all the time. The Federation will continue to monitor the implementation and effect of Airwave. We will seek to identify independent experts to advise us and continue to encourage and monitor all research into Airwave and keep officers informed.

## Introduction of Airwave into the police service

The Federation has been calling for a better communication system for police officers for a number of years. The moral and business arguments for improved communications go without saying. Accurate, effective communication will improve performance and officers safety.

Having agreed in the late 1980's and early 1990's that such a system was an operational necessity the work of commissioning such a system began. It was planned that the police and fire service should pursue common technologies and standards, and share communications where operational effectiveness would not be compromised.

For greater operability and compatibility it was recommended that the new radio system should be organised on a national basis, with equipment being determined locally. The new system would use mainstream technology and apply European standards, utilising the expertise of the private sector.

It took three years to examine all the technical, regulatory and procurement options. The Home Office researched alternative digital communication methods including the French system called TETRAPOL. They concluded that TETRA suited the UK's needs as it met European agreed standards, whereas TETRAPOL, a single company product, had limitations on coverage and numbers of users.

In 1996 the Public Safety Radio Communications Project (PSRCP) was agreed and endorsed by the Home Office and Treasury. An industry consortium was commissioned to propose designs for the system and its delivery.

For the project to go ahead it needed to:

- Provide everything we needed, both from an operational and technical perspective
- Be affordable and offer value for money, and
- Follow the successful implementation of the pilot system in Lancashire Constabulary.
- Whilst it was originally conceived as a project for joined up emergency services communication, when the government went out to tender the ambulance service dropped out, later to be followed by the fire service. The benefits of joined up communications between all emergency services are clear and work continues today, both at a national and European level to encourage both the fire and ambulance service to join in.

By October 1999 the tests for technical and operational suitability appeared to have been met, the value for money aspect was similarly met. Affordability was considered to be the greatest obstacle to the project going to fruition, but this was overcome when the government committed to fund the entire project. A procurement process was undertaken by PITO before signing a contract with BT in February 2001. The PSRCP Project was renamed "The Airwave Project" and thirteen months later in March 2002 the roll out of Airwave began when the Lancashire pilot went live.

Forces have moved to the airwave service from their existing systems on a staggered basis. The project is due to be completed by the end of 2005.

Concerns about the possible health effects of TETRA only became known to the Police Federation after the agreement had been reached to start the roll out programme in Lancashire. The feature of TETRA that has caused most concern for police officers is the use of a pulsed signal, operating at 17.6Hz. This frequency is close to 16Hz quoted in the Stewart Report (see section – Report on Health Effects)

## Pilot force

In 2001, Lancashire Police were the first force to pilot Airwave and the local federation reported that 176 users of Airwave had reported sick with symptoms such as nausea, headaches and stomach pains which they attributed to the new equipment.

Lancashire Police Federation called in the Health and Safety Executive to risk assess the equipment, and the Executive declared that on current evidence TETRA was not injurious to health. Steve Edwards, chairman of Lancashire Federation, said: 'There have been fears over the potential for cancer and other problems, but there has been no evidence, so far, that establishes a connection to health issues.'

## Report on health effects

A number of reports have been conducted into the possible health effects of TETRA, unfortunately they all largely remain inconclusive.

The Stewart Report (2000) into mobile telephony advised caution in relation to amplitude modulated frequencies around 16Hz. Some suggested frequencies modulated around 16Hz could affect the brain. TETRA/Airwaves operates at 17.6Hz. Whilst the Stewart Report concluded there were no obvious health risks, as a precaution they suggested this frequency level should be avoided.

Following the publication of the report, the Government commissioned the Defence Science and Technology Laboratory to conduct a comprehensive research programme.

At the request of the Home Office, and following publication of the Stewart Report the Advisory Group on Non-Ionising Radiation (AGNIR) on behalf of the National Radiological Protection Board (NRPB) prepared a report on the possible health effects of TETRA, which was published in 2001. The report described the operating characteristics of TETRA systems and studies relevant to any biological effect.

It was recognised that calcium plays an important role in many biological processes, especially nerve cells. Moreover, as the Independent Expert Group on Mobile Phones (Stewart Report) had pointed out, there is evidence that RF fields, modulated at about 16 Hz, may influence the leakage of calcium

ions from tissues.

However, findings have been contradictory; they appeared more uncertain for living than for non-living tissue, and no associated health risk had been identified. It is notable that the signals from TETRA base stations are not pulsed, whereas those from mobile terminals and repeaters are. The conclusion from AGNIR was that:

“Although areas of uncertainty remain about the biological effects of low level RF radiation in general, including modulated signals, current evidence suggests that it is unlikely that the special features of the signals from TETRA mobile terminals and repeaters pose a hazard to health.”

A number of recommendations for further research were suggested by AGNIR. These include proposals for experimental investigations of the possible biological effects of specific TETRA signals or RF radiation amplitude modulated at about 16 Hz as well as other frequencies using human volunteers, animals and cellular systems. Also recommended were physical and theoretical studies to improve the assessment of the amount and pattern of absorbed energy from the use of hand portables or any other transmitting equipment deployed for use. This research is ongoing. To date, despite a number of attempts, it has not been possible to replicate the results of the 1970's studies which indicated the brain might be effected.

European research is also being carried out and shared by the International Commission on Non-Ionising Radiation Protection in partnership with the World Health Organisation.

## The Trower Report

Barrie Trower, a physicist, was initially introduced to the Devon & Cornwall Police Federation in 2001. National Committee members later met with Mr Trower who conveyed to them his professional concerns about the health risks faced by police officers using Airwave. The Police Federation invited him to put his views/concerns in writing and further invited him to suggest some technical questions which the Police Federation might pose in response to the technical report published by NRPB.

The Police Federation did not commission Mr Trower to undertake research on our behalf into the health risks posed by Airwave. Mr Trower was invited to put into writing the concerns he already held.

Mr Trower was asked to keep his report to the Police Federation confidential, as the Police Federation would need to consider the points he made and discuss these further. His report was given to the Federation for no fee and the report was duly considered. However, the report was handed to the Federation and the next day was found on the mastaction.com website.

In the report, Mr Trower examines research already carried out on TETRA, stating in conclusion that there ‘there is a lot of information’ which could suggest long-term low level exposure to such levels of radiation is harmful.

Since the Trower Report was published on the internet, other scientists have claimed the report is unsound. Although the Home Office agreed that some of the questions asked within the report were relevant, they questioned how he came to his conclusion and that there was a correlation between Airwave and health problems.

The Trower report keeps appearing in the press and is mentioned by police

officers as a Federation piece of work. The report was mentioned in the October 2004 edition of ‘Ecologist’ magazine. The article accused the Police Federation of covering up and ignoring the ‘findings’ of the Trower report and since the publication of this article we have received a number of press enquiries and letters from members who are seeking clarification on our position.

At no time has the Police Federation sought to suppress information, we listened to the case put forward by Mr Trower, but equally listened to a range of views expressed by other ‘experts’ who believe that Airwave is no more dangerous than a mobile phone.

Responding to a Select Committee examining Airwave O2, the supplier of TETRA, said: ‘Mr Trower's report contained no new research or evidence about Airwave or the TETRA system. He simply reviewed a number of previous studies that had raised health concerns about the TETRA standard. This material is well known to the experts at NRPB and ICNIRP and it has either proved impossible to replicate in subsequent studies, or the methodology of the studies themselves has been called into question.

In conclusion, we need to respect the fact that people have concerns and it is right that these are openly acknowledged and addressed. But equally, it is important that people are given a fair and balanced view of the issues involved and that they balance this with the very real public safety benefits that the Airwave service brings.

The tragic events of 11 September and—closer to home—the tragedies of recent years at Lockerbie, Hungerford, Hillsborough, Kings Cross all point to the need to ensure our emergency services have the communications services they deserve—fit for meeting the demands of the 21st century.’

## Airwave conference

The Police Federation, faced with differing “expert” opinion and recognising growing health concerns decided to organise an Airwave Conference during the autumn of 2002. We brought together scientific experts to debate the effects of TETRA.

Dr. Gerald Hyland, an expert in microwave communications and contributor to the Stewart Report, shocked delegates by saying that officers were being used as “guinea pigs” to prove that the technology is safe.

In response, Professor Colin Blackemore of Oxford University, and another contributor to the Stewart Report, repeated the claim that the evidence suggests there is ‘no danger to users health from Airwave’.

Prof. Blackemore said at the conference: ‘Life is about balancing risks against benefits. I would say we are being very cautious in our approach to TETRA.’

He did, however, admit that he regretted the paragraph in the Stewart Report cautioning against frequencies above 16Hz as it had led to doubts over the safety of Airwave.

Despite being given the opportunity, not one of the “experts” from either side of the argument recommended the system should be scrapped or that we should call for the project to be stopped.

### Health Research on Airwave

Following considerable pressure from the Police Federation a number of research projects are underway to look at the health effects of TETRA on police officers.

The Government announced in May 2003 plans for a £5 million health monitoring study to help ensure the safety of Airwave. The Imperial College in London will monitor more than 100,000 police officers for any impact on health both short and long term.

The research is divided into two strands:

- A detailed study involving 150 officers to examine Airwave signals and whether they have any effect on users.
- A national 15-year health monitoring programme involving up to 100,000 police Airwave users in England, Wales and Scotland. The study would look for any link between officers’ health and the use of Airwave.

The Federation is also working with the Breast Cancer Research Trust (BCRT) to track the incidence of cancer within the police service over the next five years.

All serving officers who contract cancer within the five-year period, which began in May 2004, will be asked to complete a medical questionnaire. The information will be collated and factors such as working practices, equipment and the environment police officers work in will be looked at.

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*Jan Berry  
Chairman*

*The Police Federation of England and Wales*

### International research

A major EU project, involving several countries, produced the REFLEX report into the effects of low-level electromagnetic radiation, below government safety guidelines, and concluded that the results ‘neither preclude nor confirm a health risk’.

A report from the Health Council of the Netherlands Electromagnetic Fields Committee in 2000 considered the exposure to radiation fields from base stations associated with mobile phones. The report concluded that there is no good scientific reason for the exposure limits in the Netherlands to be lowered.

The French Senate Report, prepared by two members of the

French Senate, M. Jean-Lois Lorraine and M. Daniel Raoul, alongside three scientists and representatives of the mobile phone industry looked at exposure to mobile phones and base stations. It found that no biological effects could be attributed to the radiation fields associated with base stations, but recommended further research and to take a precautionary approach.

Further information on international research into mobile phones and health, few specifically base their research on TETRA, can be found on the National Radiological Protection Board website at [www.nrpb.org](http://www.nrpb.org)