NATS TV TRACKING TRIAL

Standard TV signals could one day be used for tracking aircraft, following a proof of concept trial led by the UK air traffic control company, NATS, in conjunction with Thales ATM UK and Roke Manor. This was reported by NATS in mid-June.

For two years NATS, working with Thales and Roke Manor, has been testing whether the same signals delivered to televisions across the country could simultaneously be used to detect and direct aircraft.

The trial, part funded by Innovate UK, was carried out primarily over London with a Thales concept demonstrator using signals from the Crystal Palace transmitter. The results of the trials were then validated by Roke Manor. Up to thirty aircraft were tracked at any one time at altitudes of up to 10,000 feet, although more would have been possible had additional equipment been used.

The results demonstrate that not only can TV transmissions be used to locate aircraft; they can do it well enough to meet the standard separation requirements for air traffic control of three or five nautical miles. That makes TV signals a potentially viable alternative to radar.

Nick Young, NATS System Engineer, commented: ‘It may sound incredible, but we have been able to prove this really works and could one day be a real alternative or complement to using standard primary radar. The benefits could be enormous, including big reductions in the cost of ground based infrastructure.’

The concept works in exactly the same way as traditional radar, where a beam of radio energy – in this case a TV signal – is sent out and is reflected by an aircraft. Specialist receivers then measure the directions of the signal echoes and the time taken for them to arrive in order to calculate the aircraft’s location.

A second phase of the trial in Liverpool also demonstrated that the signals were seemingly less susceptible to the interference wind turbines cause to traditional radar, an issue that has affected the renewables industry in recent years.

However, despite the excitement, NATS admits a lot of work still needs to be done before, as they put it with a degree of humour: ‘the X Factor is being used to direct the 08.25 from Glasgow to Heathrow.’

Nick added: ‘There are a number of technical and regulatory hurdles to overcome before this could be considered for operational use. Questions
around resilience and service standards need to be answered and we would need to explore formal agreements with the broadcasters, but this is very exciting and we will be looking to further develop the concept over the next five years.’