

## **Directorate of Airspace Policy**

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15 August 2001  
8AP/88/06/13/03

### **INDEPENDENT REVIEW OF RADIO SPECTRUM MANAGEMENT**

As you are aware, I have been asked by Sir Malcolm Field to co-ordinate the CAA response to the consultation paper written by Professor Martin Cave. Consequently, this response encapsulates the views of the Safety and Economic Regulation Groups in addition to those of Airspace Policy.

Detailed comment in relation to specific paragraphs and the "issues for discussion" are contained in the attached pages. However, we also have some general comments to make in relation to the overall document.

The need to establish a policy setting to ensure the most efficient use of spectrum in terms of the UK's objectives is fully agreed. We see spectrum as an input rather than an output and that we should focus on ensuring that the desired outputs are produced, cost-effectively, now and in the future. These outputs might be for the public good e.g. a national transport infrastructure, national security or quasi-private air traffic control. While the desired efficiency can be achieved by pricing, establishing clear property rights to the resource may provide an alternative approach. NATS, for example, in producing its outputs, uses a range of inputs including spectrum. Ensuring that NATS has clear rights to spectrum ensures that it has incentives to economise on spectrum use, particularly as new technological and investment options emerge. As NATS is producing a safety critical service the regulator would have to be assured that evolving/new approaches to producing its outputs are acceptable. Moreover, NATS working with UK spectrum policy agencies would have to ensure that any changed use of spectrum is legal, including the terms of international treaty obligations. Pricing of spectrum would appear to have less an allocative role than a fiscal role in this situation. It is important that such pricing, in a situation of clear property rights, contributes to rather than impedes the over-arching objective of ensuring best use of the resource. The issue, however, is how this is achieved in a way that delivers the increased efficiency within the necessary controls to achieve the social and political aims of the State, within the constraints imposed by international aviation treaty obligations

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that stem from the ITU or ICAO. How much margin for manoeuvre exists within these rules is questionable and, ultimately, such constraints may limit aviation to the administrative pricing model.

Aviation is a unique case in that it embraces safety of life services to create an infrastructure which supports transport policies whilst meeting requirements for defence and recreational activities. It is a heavy user of spectrum and imposes additional constraints because of the need to comply with international obligations and the public expectation of safety. However, the economic value of radio to aviation is considerable and, we would contest, higher than the value attributed in the main body of your report. For the record, aviation contributed £10.2 billion to UK GDP in 1998 which is estimated to rise to £18 billion (2.1% of GDP) by 2015. In addition, aviation accounted for two-thirds of visitors, transported £35 billion of exports and contributed £2.5 billion to the UK Exchequer in 1998.

Against this backdrop, aviation has not had a particularly good record in spectrum usage, but this has been recognised throughout the industry and significant effort is now being expended to ensure greater efficiency is achieved. Nevertheless, there is no doubt that economic incentives would assist in delivering the best utilisation of the spectrum. However, spectrum trading is not considered to be appropriate where there is the need to meet international obligations and guarantee safety of life protection on an impartial basis for all users. Although it could be argued that should a portion of spectrum no longer be required by aviation, it would become a candidate for use by another industry, it is far more likely that this would result in rapid re-allocation on a global basis by ITU. Naturally, if ITU did not take this action, or if it was only national use affected, then trading may be possible but this could be limited where there are constraints by neighbouring states which would reduce its potential economic value. Furthermore, in the aviation case, ICAO Standards and Recommended Practices (SARPS) mandate an equipment capability in order to achieve global standardisation. Invariably, this SARP has been co-ordinated at the highest level to ensure the availability of appropriate spectrum and, in most cases, this also contributes to spectrum efficiency.

Therefore, an appropriate administrative pricing regime would generally appear to be the best way forward to introduce incentives to efficient use. This could be particularly useful in encouraging operators to fit the equipment that would enable aviation to make best use of its allotted frequency bands, or to encourage development of those technologies which are spectrally efficient. However, in introducing any such schemes, it is important that the decisions are based on a full understanding of the impact on the industry taking into account overall government objectives.

Aviation in today's environment could not operate to the level it does without the guarantees of spectrum availability to support communications, navigation and surveillance systems. The loss of spectrum would inevitably result in the loss of capacity, which would be necessary to maintain safety and would have a serious impact on UK plc. While it is vitally important to ensure adequate availability of spectrum to support aviation growth, if retention of that spectrum is not fully justified, then it is entirely appropriate for it to be re-allocated for other purposes.

J R D Arscott  
Director

## ANNEX A

### INDEPENDENT REVIEW OF RADIO SPECTRUM MANAGEMENT

#### 1.1 Comments on Specific Paragraphs

Para No	1.1.1 Comments
2.	Whilst it is accepted that the communications/media industry is one of the significant drivers for spectrum, this para ignores the fact that spectrum actually supports a far wider range of uses and technologies.
6.	The issue of choice is not disputed, but better-informed debate by the public is not simply a case of advising them of the cost. For example, there may be implications in service availability as a result of the tabled options for choice. Any debate must present the full facts.
10.	Whilst technical developments open up new possibilities, one aspect that does not change are the Laws of Physics which ultimately govern how spectrum is used. These are fundamental to certain applications such as radar.
16.	The table depicting the economic impact of radio in selected sectors lists aviation with a value of £16m and licence fees of £1m as taken from the source study published in Feb 01. However, this creates a flawed impression in that the entry does not highlight that commercial aviation is not included (although this is explained in the source document).
17.	The first bullet should refer to commercial aviation not civil.
18.	It should be noted that a significant band for aviation is the VHF band 108-137 MHz which lies outside of the "Prime Spectrum Allocation" Zone.

30.	The issue for aviation is that the performance of apparatus is critical to the integrity necessary to meet safety standards. The risk would be that by regulating usage only, it would not be possible to regulate equipment standards to the same level as at present. Furthermore, concerns with interference, particularly out-of-band interference from non-aviation use, could lead to unacceptable restrictions in aeronautical equipment use to maintain safety.
37.	The comments concerning the flexibility for certain states to plan their own allocations such as Australia, New Zealand and USA ignores the fact that they can achieve this because of their geographical position. If the UK pursued such an approach in isolation, it would cause significant disruption within Europe and attract certain criticism. Furthermore, this would be inconsistent with ICAO and ITU agreements to which the UK is a full signatory.
45.	Whilst delegation by auctioning of assignment may be acceptable in certain bands, it would not be appropriate where safety of life or strategic infrastructures are an issue.
85.	The Terrestrial Flight Telephone System is a commercial service offered by airlines, not an aviation infrastructure element. Whilst radar may account for the bulk of spectrum usage, it must be understood that it is in the context of how radar functions due to the Laws of Physics.
87.	Spectrum is allocated to aviation through the ITU process and its use is determined by ICAO to ensure interoperability and safety on a global basis and in line with the ITU Radio Regulations. The CAA manages the allocations within the bands for the UK. It should also be noted that aeronautical spectrum also supports military aviation due to the need to achieve interoperability to effect airspace sharing requirements.