

## CAA RESPONSE TO THE OFCOM CONSULTATION ON APPLYING SPECTRUM PRICING TO THE MARITIME AND AERONAUTICAL SECTORS

On 30 July 2008, Ofcom published the subject consultation document as a consequence of the Independent Audit of Spectrum Holdings conducted by Professor Martin Cave and the subsequent Government Response and action plan. The CAA welcomes this opportunity to comment on the proposals. General issues are addressed in this covering letter and answers to specific questions are detailed in the attached Annex.

The CAA has been a committed participant with Government and others in taking forward the Cave recommendations where appropriate and is fully supportive of the overarching principle of delivering efficient spectrum management. Whilst recognising the validity of the high level economic principles of encouraging greater efficiency through the application of market mechanisms, the litmus test is whether the perceived benefits will be delivered by the proposals when implemented in the real environment, and that under no circumstances should they be allowed to compromise safety. There is little doubt that certain sectors are well placed to respond positively to these principles and change behaviours accordingly. For clarity, in the context of spectrum pricing in the aviation sector, it would seem appropriate to again describe the environment.

Aviation is a dynamic industry within which safety rightly enjoys primacy in order to sustain the high level of integrity demanded by Government, its citizens and the international community. It is a disparate sector covering commercial operations, defence and recreational (including sporting) activities. However, it is fundamentally a global activity for the majority based on international operations, which have a regulatory basis, similar to that of the International Telecommunications Union (ITU) Radio Regulations, in the International Civil Aviation Organisation (ICAO) framework. ICAO produces the technical and operational Standards and Recommended Practices, which determine the aviation frequency requirements. As a result, the use of aeronautical spectrum is governed by international obligations, which are essential to deliver safety and interoperability. Whilst the UK plays an active role within the ICAO processes, it is but one of 190 Contracting States to ICAO. As such, the ability of the UK to influence the strategic direction of global aviation, including the consequential spectrum requirements, is somewhat limited. In addition, it must be appreciated that the pace of progress on such a global scale is slow due to the need to address the concerns of all regions and States and that the implementation of technical and operational improvements has to be phased in a way which continues to deliver safety and interoperability objectives.

Once aeronautical spectrum requirements have been determined through the ICAO process, these must be represented through national radio regulators within the ITU framework in order to obtain new or modified assignments at the World Radiocommunication Conference (WRC). In the majority of cases a worldwide allocation is required to support global interoperability. Consolidating the differing needs of each region into a common aviation position is a substantial task and relies upon work done at the regional and State level in preparation for the WRC. ICAO plays an active role in the ITU process.

Having sought the formal global allocation of spectrum and determined the international frequency planning criteria to ensure optimum use and equipment performance to deliver safety and efficiency, the frequency assignments are generally managed on a national basis. However, this is then coordinated at a regional level to ensure international harmonisation and avoidance of interference together with compliance with international standards. Within Europe, Eurocontrol and ICAO coordinate this process. Conscious of the need to deliver efficient management of aeronautical spectrum based on accurate information, new IT based systems to enhance international coordination are being introduced and the initial phase is already operational. It should also be noted that these processes are aimed at ensuring that unused spectrum is managed efficiently for the benefit of aviation throughout the region.

In addition to the global context, Ofcom should be aware that the European Commission (EC) has launched the Single European Sky (SES) initiative. This seeks to regulate ATM safety, the provision of air traffic services, system performance and airspace design and management at a European level. It should be noted that many of the regulatory instruments originating from this project impact on spectrum and are directly applicable in UK law. The most recent SES package, the so-called SES II, was launched this summer. It recognises the need to manage scarce resources, of which radio spectrum is one key aspect, in the most efficient manner possible. As such the proposals include a network management function that is likely to have radio spectrum for aviation within its purview. The precise detail has yet to be elaborated.

Aviation is acutely aware of the need to deliver efficient use of spectrum and is actively engaged in pursuing better technology and adoption of best practice to ensure that continuing growth in demand can be met. A good example of this is in the VHF band used for communications where as a result of a European initiative, a reduction in channel spacing from 25kHz to 8.33kHz commenced implementation 9 years ago and is being progressively expanded. The 760 VHF channels are managed across Europe to meet in excess of 11,000 operational assignments but the demand study has demonstrated that the future requirements cannot be met without further use of 8.33kHz spaced channels. The work to deliver this is managed by Eurocontrol and forms an essential element of the EC SES Interoperability Rules.

Turning to the national perspective, the CAA has a number of duties and obligations placed upon it by Government. These can be found in 3 principal sources; the Civil Aviation Act (1982), the Transport Act (2000) and the Air Navigation Directions to the CAA issued by the Secretaries of State for Transport and Defence. As the UK independent aviation regulator, the CAA is responsible for the safety and regularity of flight. Since the provision of communications, navigation and surveillance services are vital to both flight safety and regularity; the CAA must act to ensure that there is adequate spectrum to support these services. That includes providing justification for existing allocations and for any additional spectrum that is required. However, as stated above, aeronautical spectrum requirements are normally global, so the CAA participates in and supports the regional and global process.

In implementing the principles of using market mechanisms to change behaviours to improve efficiency, any potential adverse impact on safety must be addressed. Aviation safety is paramount and the CAA has a duty to regulate the industry accordingly. Were the application of Administered Incentive Pricing (AIP), or any other mechanism such as sharing, to undermine safety through unintended consequences, the CAA would seek to take the necessary action to ensure that safety levels were maintained. Since this could result in an adverse economic impact on aviation as a result of restrictions or possibly cessation of operations, it is essential that all the potential implications of Ofcom's proposals are fully developed so as to minimise the likelihood of any such consequence.

The current VHF proposals could also result in a disproportionate impact in terms of cost on small businesses and recreational activity operating in the general aviation sector. It would be appropriate for Ofcom to ensure this aspect is properly addressed in the comprehensive Impact Assessment that will be necessary to support their proposals.

Where the UK is acting on a unilateral basis, it is possible that there could be a competition impact on the aviation industry. The potential for, and scale of, any such impact will depend on a number of factors, many of which are currently uncertain. These include the nature of the charging mechanism employed, the ability of those bearing the charges to pass them on (which in turn will be affected by market circumstances) and the level of charges imposed. Further work will be needed to examine this issue in more detail. We note the current economic climate the industry is operating within, and that similar considerations apply to other measures affecting the industry, such as the inclusion of aviation in the EU Emissions Trading Scheme.

If the AIP is passed on to direct users of spectrum then NATS will be expected to reflect the additional costs, in full or in part, through its charges to users which form a significant element of the UK en-route charge. NATS' charges in this area are currently regulated by the CAA through the setting of five-year revenue caps. In determining the current cap for the period up to 31 December 2010 the CAA recognised the possibility that NATS could face additional costs from its use of the spectrum during this period. The CAA indicated that any such costs, provided they are efficiently incurred, would be taken into account when it next sets the cap for 2011-2015. The CAA has now begun the process for determining the cap for this period and expects to announce its final decision during the second half of 2010.

The objective of AIP is to incentivise efficient use of spectrum by ensuring that users face the cost of the asset they are using. The possibility of creating *unintended* behavioural consequences (e.g. changes in routings) by those bearing the charge should also be borne in mind when considering the potential impact on the UK, and will be influenced by the factors outlined above.

Given that the EC is currently developing an opinion on how spectrum management can best be delivered throughout the Community, including consideration of market mechanisms, it is also essential that UK aspirations are coordinated with the EC.

In respect of the Ofcom consultation, the CAA recognises that the use of AIP can in principle, act as an incentive to deliver greater efficiency. However, there needs to be a clear and transparent process or methodology that identifies the way in which the application of AIP will bring about increased spectrum efficiency. In his Final report on the International Audit of Spectrum Holdings, Professor Cave recommended that:

"AIP should be extended to military and civil aeronautical use of the spectrum where it has the potential to help increase efficiency of spectrum use now or in the medium to long term."

Therefore, in making proposals for AIP, there is a clear need to determine how the measure will deliver the intended efficiency benefits. In general, aviation stakeholders have little choice in what spectrum they can use or how it is employed from a technical or operational perspective. They must comply with the ITU allocations, the ICAO standards and how the frequencies are assigned on a national or regional basis. Furthermore, timescales to effect change in response to economic pressure are long. It should therefore be recognised that the introduction of pricing on a national level, whilst encouraging the UK to take measures forward into the international arena to pursue change, could come into effect some time in advance of changes being secured at an international level.

A further key aspect is the determination of the Opportunity Cost of aeronautical spectrum and how it will be assessed. The factors detailed above are potential constraints to how the spectrum can be used and the ability of stakeholders to change their behaviours in response to pricing. In addition, even if spectrum were to be relinquished by aviation in the UK, its use for other purposes would be extremely limited due to the need to provide appropriate and adequate protection to aviation in adjacent States or transiting UK airspace. These factors throw into question some of the values quoted and how the opportunity cost has been determined.

Although this consultation is primarily concerned with the introduction of AIP for VHF and Primary radar (2.7-3.1 GHz band), it does propose AIP rates for other bands. However, the case is not made within the consultation as to how the AIP will deliver the intended benefits. There is a need for Ofcom, DfT and CAA to conduct further work in these bands to ensure that the principle of the Cave recommendation can be met both in theory and practical application. An example of immediate concern is contained in Figure 1 – Summary of Proposed Approach on Page 5 which infers that Ofcom would wish to charge AIP for the Secondary Surveillance Radar frequencies of 1030 and 1090 MHz. These two frequencies are used on a global basis to support safety systems and it is difficult to see how pricing within the UK can deliver greater efficiency.

As a principle, the use of pricing differentials to encourage the adoption of spectrally efficient technology as in the case of VHF radios has some merit but must be targeted appropriately. The implementation of 8.33 kHz channel spacing has been harmonised for airspace at or above Flight Level 195 (equates to approximately 19,500 feet) within Europe through the application of EU legislation but further expansion below FL195 awaits completion of a business case and, if agreed, revision to EU legislation to implement it within the SES programme. Air Navigation Service Providers are already implementing 8.33 kHz but one of the constraints on future expansion is the ability to encourage airborne implementation. In this respect, the explicit statement within the consultation that Ofcom does not wish to impose AIP on aircraft does appear to be premature and somewhat inconsistent. Whilst it is acknowledged that there are potential difficulties with this, and indeed may not be desirable, it would seem counter to the principle of using all appropriate means to improve efficiency if the means by which this can be achieved are to be restricted before full consideration has taken place.

The proposal to introduce AIP for VHF during 2009 would impose a significant immediate impact on aviation stakeholders who would not have had an opportunity to address this through the financial planning process, moreover the proposal has not been taken into account in the CAA's regulatory approach for price setting. In addition, the proposal to implement this aspect ahead of AIP for Primary Radar in the 2.7-3.1 GHz band does not appear to be consistent with the priorities and timetable implied in the Cave Report and the subsequent Government action plan. A final general comment in respect of AIP for VHF is that the proposed introduction of flat rates would seem to be unreasonable, as it does not reflect the operational differences in use, which is already reflected in the range of licensing products presently offered by Ofcom. If AIP were to proceed, it would be appropriate for Ofcom to liaise closely with the CAA to determine a more equitable pricing algorithm and develop a phased implementation plan.

Turning to the proposals for AIP within the primary radar Band of 2.7-3.1 GHz, it is recognised that there may be scope to deliver greater efficiency in how this band is used. However, there is still a need to protect international assignments and as Ofcom is aware, there is considerable work needed to develop agreed protection criteria and to conduct the necessary testing before sharing could be considered. In addition, because of the high costs necessary to complete the work, a Cost Benefit Analysis is necessary to ensure that the perceived benefits are capable of delivery. This work is of course not exclusive to aviation but will also require significant involvement from MOD, DfT and MCA.

In summary, the CAA continues to support the high level principles of delivering spectrum efficiency through the application of market mechanisms. However, there are significant concerns as to how the Ofcom proposals will deliver the intended benefits without impacting adversely on the UK aviation industry. In addition, it is important that the Ofcom proposals are directed at those parts of the spectrum where, as Cave recommended, tangible benefits in spectrum efficiency can be achieved. CAA believes that there is such potential and is willing to continue working with Ofcom and DfT to determine the most appropriate way forward.

The key issues can thus be summarised as:

- Safety
- Support for the high level economic principles.
- Recognition of the International context
- Further assessment of the impact on the industry through a comprehensive Impact Assessment, clearly identifying where the Cave principles can be achieved
- A carefully thought out implementation and transition

Specific comments on the consultation are detailed in the attached Annex.

*Yours sincerely,*  
*John Ansell*

Director of Airspace Policy  
30 October 2008

Annex:

A. Detailed Comments on Ofcom Consultation.

## DETAILED COMMENTS ON OFCOM CONSULTATION

### RESPONSES TO CONSULTATION QUESTIONS

**Question 1:** How should Ofcom manage the process of taking advice from users, regulators and government on efficient apportionment of AIP fees in the maritime and aeronautical sectors? Are any new institutional arrangements needed?

At the AIP consultation workshop, representatives of the aeronautical sector expressed some very coherent and justified arguments relating to the application of AIP fees. It was clear that Ofcom requires more in the way of evidence to support the claims being made. This evidence is being provided by experts in the field and must be taken on board by Ofcom.

For the radar bands under consideration, there is a considerable amount of work under way or planned to provide the type of evidence required to answer the question of whether it is possible to use the radar bands more efficiently. This includes the establishment of the Radar Group, studies within the PSSTG and the planned CBA. However, these studies will only provide information for radar bands, and not the communications or navigation bands. It is important that Ofcom continues to communicate with all sectors within aviation so that it has a better understanding of how the industry works.

**Question 2:** If you consider that our proposals for pricing ground station users for any spectrum would be likely to have a detrimental impact on safety, please let us know. In order for us to understand your assessment fully, it would be helpful if you could outline the mechanisms whereby this might happen.

In the UK, NATS is required under the terms of the Transport Act to provide an en-route service. As such, it has no option but to operate and maintain the ground infrastructure to provide that service, using internationally standardised systems. However, some of the systems operated at airports are not mandated, yet they are essential to maintain the levels of service provided by those airports. The application of significant charges for those systems is likely to lead to some service providers deciding to not operate those systems, with the resultant effect of the services supported by those systems being withdrawn. In this case, the proposals for pricing ground stations should not have a detrimental impact on safety, but there would be a detrimental economic impact to the airport.

Where there is a potential detrimental impact to safety is where ground systems are operated in support of one particular service but are used additionally by pilots for other operations. For example, many airport operators provide a DME to enable pilots to determine their precise range from the airport during approach and landing. Yet the very same DME will be used by other aircraft not using that airport to derive their position when passing by the airport and to ensure they remain clear of the associated controlled airspace. So if the airport operator decided to withdraw the landing service, the passing aircraft would lose that navigational input too. Whilst the use of the DME input may not be mandatory to the passing aircraft, removal of the DME could reduce the ability of the pilot to accurately determine his position, with resulting reduction in safety.

In the case of unlicensed airfields, the introduction of AIP for VHF could result in them deciding not to operate any radio communications. This has the potential to adversely impact on general flight safety.

In addition, were CAA to propose changes to mandatory regulations concerning equipment, the introduction of AIP could impact on the CAA's ability to demonstrate reasonableness within the Governments Better Regulation Guidelines due to the potential disproportionate impact on costs.

Naturally the CAA will take whatever action necessary to maintain safety but the measures implemented as a result could subsequently damage the economic viability of certain stakeholder operations.

**Question 3:** Do you have any evidence which indicates that AIP charged to ground stations could have a material detrimental impact on UK competitiveness?

The potential for, and scale of, any such impact will depend on a number of factors, many of which are currently uncertain, such as the level of charges and the ability of those bearing the charges to pass them on. The materiality of these factors will affect whether behavioural change is effected such that it adversely impacts on UK competitiveness.

**Question 4:** Taking into account the information available in this document, including that set out in Annex 5, our initial views on VHF radiocommunications licence fees and on the reference rates for bands in other uses, and any information you have about the organisations to whom we are proposing to charge fees, please provide any evidence that you think is relevant to us in considering the financial impact of the fees we intend to propose for VHF radiocommunications, or for other uses.

The VHF fees need to be reassessed to take into account the actual usage by volume and the operational requirements to reflect the existing scale of charges in Ofcom products which vary from £20 to £250 rather than the flat rates as proposed. The actual calculation of pricing algorithms requires further work so that the potential costs are fully transparent to the end-users. There is already evidence of some misinterpretation that the national rates per MHz quoted in the document for other aeronautical bands are prices for each equipment and this needs to be clarified.

**Question 5:** Do you agree that there is little to be gained, in terms of economic efficiency, from charging AIP to WT Act licences for aircraft?

It would seem to be premature to discount a charging option before the detailed implementation has been determined to identify what is required. It is possible that the application of reasonable fees to WT Act licences for VHF communications could be an effective tool to incentivise operators to move from 25kHz radios to 8.33kHz radios.

**Question 6:** Do you consider that we should discount fees for any particular user or type of user? Specifically, do you consider that there should be a discount for charities whose object is the safety of human life in an emergency?

In general, it should be a public policy issue whether discounts are applied for particular users. However, it is difficult to differentiate between spectrum used to support emergency services and that spectrum used for safety of life functions as in aviation. As part of the Impact Assessment, it may be necessary to review these definitions.

**Question 7:** Do you agree that Ofcom should apply AIP to ground stations' use of maritime and aeronautical VHF radiocommunications channels, to help manage growing congestion in current use and to ensure that the cost of denying access to this spectrum by potential alternative applications is faced by current users?

It is extremely unlikely that the application of AIP to aeronautical VHF ground stations will help to manage the growing congestion in the aeronautical VHF communications band. This is because the number of channels required is dictated by the operational service requirements, which in turn is dictated by demand. A service provider requesting a frequency must provide justification for the request, which is assessed by the CAA and in certain cases EUROCONTROL. The only way in which the application of fees could reduce the number of channels required is if those fees are set so high that the service providers

can no longer afford to provide the service, which would have financial and safety impacts as stated previously. It should be noted that aviation is already embarking on programmes to help meet future demand in VHF by improved technology and in the longer term, developing replacement systems from a global perspective.

**Question 8:** Do you agree with our initial view that it would be appropriate to apply a pricing system similar to that already existing for Business Radio licences to maritime and aeronautical VHF communications? If not, what are your reasons for proposing that we should develop a fee structure for maritime and aeronautical VHF channels which is distinct from that already established for Business Radio?

It is difficult to see how given the completely different aviation (as detailed in the covering letter) and Business Radio environments, this approach is sustainable. This should be reviewed as part of the Impact Assessment as this demonstrates a significant lack of understanding of the nature of the 2 operating environments.

**Question 9:** Are there any short-term reasons specific to the sector(s) why it would be inappropriate to apply fees from April 2009?

This is very short notice for stakeholders and the significant rises in VHF would significantly impact on some stakeholders. By comparison, in normal equipment terms the notice period is considered to be 7 years to change a specification for a piece of airborne navigation or communications equipment and as such, adequate transitional arrangements need to be addressed. As stated previously, there is no realistic chance of the UK being able to take any action that would result in spectrum efficiencies in the VHF communications band within that timeframe. If, however, WT Act licence fees for aircraft were modified to incentivise a transition to 8.33kHz radios, then it may be possible to begin such a change within that timeframe.

In addition, it is important that the timescales do not disadvantage the UK in relation to European programmes and the EC opinion concerning Spectrum Management. There may be value in taking a more coordinated approach across Europe in this respect.

**Question 10:** Ofcom would welcome stakeholders' views on the factors which should be taken into account when apportioning fees between individual users of radars and racons.

It would be reasonable to expect the fee to be related to the coverage of the radar. The details of how they should be related and how it should be calculated will need to be determined but will require the use of a coverage calculation tool such as ICS Telcom. CAA remains prepared to work with Ofcom in developing the pricing algorithms.

**Question 11:** Do you agree with our initial view that a reference rate of £126k per 1 MHz of national spectrum for L band and S band radar spectrum would achieve an appropriate balance between providing incentives to ensure efficient use of spectrum while guarding against the risks of regulatory failure in setting the reference rate too high? If you consider a different rate would be more appropriate, please provide any evidence that you think we should take into account.

We believe the determination of opportunity cost needs to reflect the specific nature of international obligations as described in the covering letter.

**Question 12:** Do you agree with our initial view that a reference rate of £25k per single MHz of national spectrum would be appropriate for deriving fees for licences to use X band radar?

As Question 11



**Question 13:** Do you agree that, generally, spectrum used by aeronautical radionavigation aids is currently uncongested? Do you believe that this may change during the next few years and, if so, approximately when?

The answer to this question is complex and cannot be answered with a 'yes' or 'no'. There are many types of navigation aid. For some, such as NDB, the band is heavily used but would probably not be described as congested, and there is no expected significant growth in the number of NDBs. However, the DME band is becoming congested in some areas, and according to the European Navigation Plan the number of DMEs is expected to grow significantly over the medium term, as it will be used to support GPS operations. In order to get a more complete answer to this question, one should refer to the study into the rationalisation of CNS systems, currently being undertaken by the CAA as recommended by Cave. We believe that Ofcom needs to discuss this issue further with DfT, CAA and other stakeholders to understand how the bands are utilised before reaching any conclusions.

**Question 14:** Do you agree with the basis on which Ofcom has arrived at its initial view on reference rates for aeronautical radionavigation aids?

The basis on which Ofcom has arrived at its initial rates is considered reasonable, since it is difficult to estimate the value of spectrum that has never previously had an associated cost. However, what the process fails to do is take into account the impact to those parties that will have to pay the fees. The consultation does not address charging mechanisms, so it is not possible to identify who will have to pay these fees and therefore what the impact will be. The specifics of the operating environments as described throughout this response need to be reflected in a transparent and accountable manner.