



# Applying spectrum pricing to the maritime sector, and new arrangements for the management of spectrum used with radar and aeronautical navigation aids

A statement

Statement

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# Contents

Section		Page
1	Summary	2
2	Background to this statement	6
3	Summary of responses	8
4	Conclusions and summary of revised fees	36

## Section 1

# Summary

- 1.1 In this statement we set out our conclusions on the proposal to apply Administered Incentive Pricing (“AIP”) to shore stations operating certain maritime VHF communications and Differential GPS channels. We have no plans to apply AIP fees to ships’ radio licences.
- 1.2 The underlying principle on which we have based our decisions is that where a channel type is either in excess demand in its current use or could feasibly be used to address excess demand for spectrum from some alternative use, AIP can help ensure that this scarce resource is assigned to those who value it most highly.
- 1.3 In some instances, however, fees alone may not be sufficient to address problems arising from scarcity of spectrum. For example, there are so few international simplex channels suitable for use by ports communicating with international shipping, and demand is so high, particularly at certain locations, that there will continue to be a pressing need to find new ways to use this spectrum or new capacity. Ofcom will continue to play a leading role with other regulators, internationally and at home, in finding solutions to these problems.

## Fees for the different maritime channel types

- 1.4 Having considered responses to the revised proposals<sup>1</sup> published by Ofcom in August 2009, we have reached the following conclusions;
  - Channels used for maritime search and rescue co-ordinated by the Maritime and Coastguard Agency (“MCA”) will be managed by the MCA. MCA will grant authority to individual search and rescue organisations (“declared facilities”) to use these channels when assisting the coastguard in its work. As MCA is an executive agency of government, government will determine the level of payments to be paid by MCA in respect of these channels. Users other than MCA will pay no fees.
  - Channels used for AIS (Automatic Identification System) will be licensed to shore stations free of charge. (We currently apply a fee of £40 per year for the pair of AIS channels.) We will generally not grant such licences unless the MCA is in agreement. Any payments made by MCA in respect of these channels will be a matter for Government to decide.
  - There is heavy demand across much of the UK for the eight internationally recognised simplex port operations channels (channels 9, 11, 12, 14, 68, 69, 71 and 74). We have concluded, therefore, that these channels will attract AIP fees which will vary according to (i) the coverage of the licensed transmitter and (ii) the demand for such channels in the particular area where the transmitter is sited. We will define three classes of coverage and three classes of demand. Fees, which are currently £100 per year, will in future range from £75 to £500 per year.

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<sup>1</sup> *Applying spectrum pricing to the maritime sector, and new arrangements for the management of spectrum used for radar and aeronautical navigation aids* published by Ofcom on 13 August 2009  
[http://www.ofcom.org.uk/consult/condocs/aip\\_maritime/](http://www.ofcom.org.uk/consult/condocs/aip_maritime/)

The highest value fees will be phased in over 2 years or 3 years, depending on the size of the particular increase.

- There is only limited demand in the UK for the 24 internationally recognised maritime duplex channels available for general use. International agreements mean that, for the foreseeable future, these cannot be used for non maritime applications. In the light of these factors, we have concluded that licensees should only contribute towards the cost of managing the spectrum. Fees will therefore fall from the current £100 per year to £75.
- Channels allocated for maritime use by Ofcom, and not recognised by international authorities, are little used. However, they are a valuable resource which could be used to meet demand from other sectors of the UK economy, such as the haulage, construction and security industries; we will start to licence more varied uses of these channels. We have therefore concluded that these should attract fees similar to those which already apply to Business Radio channels. Fees, currently £180, will in future range from £75 to £740 (up to £1480 for duplex channels). The highest value fees will be phased in over 2 years or 3 years, depending on the size of the increase.
- We will introduce the option of “area defined” licences for all maritime channels, where this is operationally possible given existing assignments. Where a licensee chooses this new option (rather than a conventional “technically assigned” licence relating to a specific transmitter at a specific location), the licence will permit use of a given channel(s) anywhere within the defined geographic area, subject to obligations to prevent interference to users beyond that boundary. This will provide greater flexibility for users with multiple transmitter sites. In some cases it will be possible, with agreement of the parties, for the rights (and fees) to be shared allowing groups of users to determine for themselves how best to co-exist within the defined area.
- We will no longer charge any fees for channels generally used only for inter-ship traffic, or for channels 15 and 17 which are subject to special restrictions needed to protect the international distress and calling channel 16. Licences which permit shore stations to use these channels are only granted in exceptional circumstances.
- Maritime Radio (Suppliers and Demonstration) licences will attract a fee of £75 which is intended to contribute to the cost of managing the spectrum. Licences will be valid for 5 years, rather than 1 year as at present.
- Coastal Station Radio (Training School) licences will become indefinite in duration and will no longer require annual renewal. As agreed in January 2007, the initial, one-off fee will be £20. We plan to introduce an on-line application system for these licences. However, it is not cost effective to do this in isolation from other licence classes and this option will, therefore, be deferred until the wider project to introduce on-line applications has been developed. At that time, training school licences issued in response to on-line applications will be free of charge.
- Temporary maritime licences will be made available for one-twelfth of the cost of an annual licence per month or part month, subject to a minimum fee of £20.

## Charities

- 1.5 As noted above, we have concluded that maritime channels used for co-ordinated search and rescue should be made available free of charge to organisations assisting the coastguard. These account for most of the channels used by search and rescue charities. Where charities, whose sole or main objective has to do with the safety of human life in an emergency, use other types of maritime channel which would generally attract a fee, we have concluded that a 50% discount should continue to apply as at present.
- 1.6 We had proposed to make available, free of charge, one or two additional channels which search and rescue organisations could use as a shared working channel for non-emergency purposes. We continue to hold the view that this could be a useful contribution to training and administration within these groups. So far, few eligible organisations have expressed an interest in using such channels and we will monitor demand before setting aside a channel for this purpose. If such channel(s) were made available, access to them would need to be regulated to avoid the risk of misuse.

## Timing

- 1.7 We have decided to implement these changes in two stages. In Stage 1 we will implement the new option of area defined licences from 31 July 2010. The other maritime fee changes will be implemented in Stage 2, with some fee increases phased in over up to 3 years from the implementation date. Stage 2 will require changes to Ofcom's spectrum management software and we plan to implement those changes as part of a wider package of IS changes. The Stage 2 implementation date will not be before 1 January 2011, and we will update stakeholders on the likely implementation date when we are in a position to do so. We will signal the implementation date when we publish draft fee regulations.
- 1.8 This two stage approach will enable maritime spectrum users with multiple assignments to consider the option of an area defined licence before the revised fees for technically assigned licences (ie those relating to specified transmitters at particular locations) come into force.

## The role of government in managing spectrum used with radar and aeronautical navigation aids

- 1.9 Spectrum used with maritime and aeronautical radar (L band, S band and X band) and aeronautical navigation aids is not generally in excess demand from the existing community of users. We therefore currently see no benefit in applying AIP to those spectrum bands to help manage existing demand from within the aeronautical sector.
- 1.10 However, we consider that some spectrum used with radar and aeronautical navigation aids could potentially be used to meet excess demand for spectrum from other parts of the UK economy. However, before this could happen safely and efficiently, there would need to be a centrally co-ordinated programme of research and, potentially, band replanning involving, amongst others, the relevant sector regulators and the MOD which shares many of these bands. An informed view would need to be taken as to the feasibility and nature of any sharing. While this programme of work remains incomplete, the release of any spectrum by the existing community of users in response to AIP fees would tend to result in spectrum being left unused, which would not benefit UK citizens and consumers. We have, therefore

decided not to apply AIP to licences for the use of radar and aeronautical navigation aids at this time.

- 1.11 We have agreed with government that the benefits to citizens and consumers, which would arise if these spectrum bands could be shared with other applications, are potentially very significant. In response to our proposal that government should take on responsibility for strategic management of this spectrum, the government is working to ensure that all parts of the public sector that hold spectrum face appropriate incentives to ensure its efficient use. In the light of those arrangements, departments will determine how these bands should be managed, including decisions on the resources which should be assigned to research and band replanning. The form of these arrangements, and the roles of the different parties which might be involved, are matters for government to determine. It remains Ofcom's view that the body which is appointed by government to manage these bands should face appropriate incentives to ensure that the interests of all UK citizens and consumers, as well as the operational and safety needs of the transport and defence sectors, are fully considered in any decision making. Ofcom will provide advice to government if this is requested.

## Next steps

- 1.12 The option of an area defined licence, at the relevant fee rates set out in this Statement, will be available from 31 July 2010. In cases such as this where fees have not previously been prescribed, the current fee Regulations provide for Ofcom to specify the sum payable in particular cases without first making new fee Regulations. To ensure clarity for all interested parties, we will include the fees payable for area defined licences when we next make new fee Regulations.
- 1.13 Before the other fee changes set out in this Statement can come into force, we must make new fee Regulations in order for the changes to take effect. The mechanism for making fee Regulations is discussed in paragraph 2.8 below.
- 1.14 As noted above, we will continue to offer guidance to government on the strategic management arrangements which government is devising for spectrum allocated for use with radar and aeronautical navigation aids. It will be for government to make any announcements about this process. It is conceivable that, at some future date, government may wish to pass on to spectrum users the cost of this management process and/or the opportunity cost of this spectrum. It would be for government to determine if and how this should be done. If it was proposed that AIP should be applied to licences granted by or on behalf of Ofcom, this would require public consultation on the proposal and its associated impact assessment.
- 1.15 Ofcom (and, in the case of aeronautical radio licences, CAA under contract to Ofcom) will continue to grant licences for the use of spectrum for radar and aeronautical navigation aids, as well as for maritime VHF communications channels with the exception of the maritime search and rescue channels which will be used under the auspices of the MCA.
- 1.16 We are currently reviewing responses to the proposals<sup>2</sup> published in December 2009 in relation to the pricing of aeronautical VHF communications frequencies, and will publish a concluding statement when we have completed that review.

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<sup>2</sup> *Applying spectrum pricing to the aeronautical sector*, published by Ofcom on 22 December 2009 at [www.ofcom.org.uk/consult/condocs/spectrum\\_pricing/aip2.pdf](http://www.ofcom.org.uk/consult/condocs/spectrum_pricing/aip2.pdf)

## Section 2

# Background to this statement

## The consultation process

- 2.1 In July 2008 Ofcom published a consultation<sup>3</sup> which explored options for extending administered incentive pricing to maritime and aeronautical spectrum (“the July 2008 consultation”). This was an initial consultation intended to raise the issues associated with valuing and pricing this spectrum, and thereby stimulate debate on options for the role of licence fees in achieving optimal spectrum use for citizens and consumers.
- 2.2 After reviewing responses to that consultation exercise and commissioning further external consultancy, we published more detailed proposals, with a full impact assessment, for pricing maritime VHF communications channels. We also set out a revised proposal that spectrum used with radar and aeronautical navigation aids should be managed by government and that no AIP fees should be applied to that spectrum at this time. The more detailed proposals in respect of maritime VHF communications channels and the revised proposals for spectrum used with radar and aeronautical navigation aids were published together in August 2009 (the “August 2009 consultation”)<sup>4</sup>.
- 2.3 More detailed proposals for pricing aeronautical VHF communications frequencies, which had originally been set out in the July 2008 consultation alongside proposals for pricing maritime VHF communications channels, were published separately in December 2009<sup>5</sup>, and we will make a separate statement on those matters when we have reviewed responses to that consultation exercise,

## The rationale for pricing maritime VHF communications channels

- 2.4 We set out in Section 5 of the August 2009 consultation our reasons for proposing fee changes for certain maritime VHF communications channels. We maintain the views set out in that section, and elsewhere in the August 2009 Consultation, and would refer stakeholders to that explanation of how we came to those views.
- 2.5 In sections 6 and 7 of the August 2009 consultation we set out our assessment and proposed conclusions about the different ways to set fees. Here too, we maintain these views, and would refer stakeholders to the explanation set out in the August 2009 consultation.

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<sup>3</sup> *Applying spectrum pricing to the Maritime and Aeronautical sectors*, published by Ofcom on 30 July 2008 at <http://www.ofcom.org.uk/consult/condocs/aip/fullpdf.pdf>

<sup>4</sup> *Applying spectrum pricing to the maritime sector, and new arrangements for the management of spectrum used for radar and aeronautical navigation aids* – published by Ofcom on 13 August 2009 at [http://www.ofcom.org.uk/consult/condocs/aip\\_maritime/aipcondoc.pdf](http://www.ofcom.org.uk/consult/condocs/aip_maritime/aipcondoc.pdf)

<sup>5</sup> *Applying spectrum pricing to the Aeronautical sector* – published by Ofcom on 18 December at [http://www.ofcom.org.uk/consult/condocs/spectrum\\_pricing/aip2.pdf](http://www.ofcom.org.uk/consult/condocs/spectrum_pricing/aip2.pdf)

## Stakeholder views on the proposals set out in the August 2009 consultation

- 2.6 We have summarised in Section 3 below the points made by stakeholders in response to the August 2009 consultation, and our response to those comments.

## Framework review of spectrum pricing

- 2.7 We published on 29 March 2010 a consultation setting out a proposed general framework for spectrum pricing principles and methodologies<sup>6</sup>. No proposals were made for specific fees to apply to particular spectrum bands. Although that consultation process has not yet been concluded, we consider the principles proposed in that review and those underpinning the conclusions of the present statement are fully consistent.

## Implementing these changes

- 2.8 We will publish draft Regulations setting out revised fees to apply to maritime radio licences. These Regulations will be consolidated with a number of other changes to spectrum fees in other bands, on which Ofcom has consulted separately. We will allow a minimum of one month for interested parties to comment on the form of the draft Regulations, before formalising the new Regulations. These will take the form of a Statutory Instrument, which have the force of law. We will publish the draft fee Regulations when the timeframe for completing the necessary IS changes is clear.
- 2.9 Section 6 of the fee Regulations<sup>7</sup> currently in force allows that where a fee has not been prescribed by Regulations, Ofcom may determine on a case by case basis the sum which shall be paid. This is the case with the new option of maritime area defined licences. We have decided, therefore, to make this option available from 31 July 2010 without first making new fee Regulations. This will enable spectrum users with multiple assignments on the same channel to make arrangements to transfer reliance from existing technically assigned licences to new area defined licences before the new AIP based fees are introduced for technically assigned licences. The fee rates which will apply are those set out in Figures 6 and 7 in Section 4 of this Statement.
- 2.10 Any spectrum user wishing to apply for an area defined licence should contact Ofcom's Licensing Centre<sup>8</sup> in the first instance.
- 2.11 When we next make revised fee Regulations we will include these fee rates for area defined licences in the new regulations to ensure full clarity of the range of fees which apply.

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<sup>6</sup> See *SRSP The revised Framework for Spectrum Pricing* - published by Ofcom on 29 March 2010 at [http://www.ofcom.org.uk/consult/condocs/srsp/srsp\\_condoc.pdf](http://www.ofcom.org.uk/consult/condocs/srsp/srsp_condoc.pdf)

<sup>7</sup> See Statutory Instrument 2005 No 1378 *The Wireless Telegraphy (Licence charges) Regulations 2005* at <http://www.opsi.gov.uk/si/si2005/20051378.htm>

<sup>8</sup> See contact details at <https://services.ofcom.org.uk/help>



## Section 3

# Summary of responses

## Overview

- 3.1 Written responses to the consultation exercise were received from 47 stakeholders.
- 3.2 These included responses from organisations representing key groups within the maritime and aeronautical sectors, including the Chamber of Shipping, the UK Major Ports Group and British Ports Association (a joint response), the General Lighthouse Authorities (a joint response), the Airport Operators Association, the General Aviation Alliance, PPL/IR, the Guild of Air Pilots and Air Navigators, Nautilus International, the International Air Transport Association, and the British Business and General Aviation Association.
- 3.3 Individual responses were received from the RNLI, the National Coastwatch Institution, the Maritime and Coastguard Agency, Peel Ports, Jersey Harbours and Coastguard, Lincolnshire County Council (Sutton Swing Bridge), Severn Area Rescue, BAA, NATS, Manchester Airports Group, Big Red Kite Aviation and David Hall Systems Ltd. The rest of the responses were from private individuals, most of whom were concerned with the possible impact of the proposals on amateur pilots.
- 3.4 A response from the Association of Chief Police Officers was the only one from an organisation not specifically associated with the maritime or aviation sectors.

## **The proposal that government should assume a strategic management role in relation to radar and aeronautical navigation aids**

- 3.5 All of the responses which commented on the issue were broadly in favour of the proposal that Ofcom should not bring forward proposals to apply AIP to spectrum used with radar and aeronautical navigation aids and that there would be advantages in government taking a new strategic role in managing these bands. Views on this question from the maritime and aviation sectors were very similar. Indeed, the responses from the Airport Operators Association (“AOA”) and the UK Major Ports Group and British Ports Association (“UKMPG/BPA”), presented a shared view. Many noted, however, that the management proposals lack sufficient detail to enable stakeholders to make detailed comment.
- 3.6 The RNLI and the Chamber of Shipping argued that passing the strategic management of radar spectrum to government will result in better management of this part of the spectrum as the MCA (an executive agency of DfT) has an operational understanding of search and rescue issues to be debated at IMO and other international fora. The National Coastwatch Institution (“NCI”) and the General Lighthouse Authorities (“GLAs”) also agreed with the proposal that government should manage the radar bands and that no AIP proposals should be developed.
- 3.7 The proposal was also supported by responses from the aeronautical sector, including IATA, the AOA, NATS, the Guild of Air Pilots and Navigators (“GAPAN”), Manchester Airports Group, BAA and the British Business and General Aviation Association (“BBGA”).

- 3.8 BBGA and BAA expressed concern about future changes which might result in government departments passing through elements of Ofcom's proposed AIP fees to users, and asked that there should be further public consultation before any such changes are made. BAA argued that any future fees should be based on auction results and that an impact assessment should be carried out before government applied any fees. In BAA's view, no fees should be applied before the impact of SESAR is understood. IATA too expressed concern about future distribution of costs.
- 3.9 David Hall Systems Ltd supported the proposition that Ofcom should not develop AIP proposals for these bands but was concerned that a transfer of management responsibilities to government might make it more difficult to resolve issues such as the impact on S-band radar users of the proposed use of IMT in the 2.6 GHz spectrum band. The General Aviation Alliance, however, stated that it did not see that current management arrangements are in any way inadequate or inefficient.

### Ofcom's response

- 3.10 We note the broad support for the proposal that government should take a strategic role in relation to management of the spectrum bands used with radar and aeronautical navigation aids. As we set out in Section 8 of the August 2009 consultation, we do not consider that AIP-based fees for end users would be the most likely way of securing benefits for citizens and consumers in these spectrum bands. Demand for this spectrum in its current applications does not generally exceed supply, so there appears to be no need to use AIP as a tool to manage that demand. Furthermore, any action that would release spectrum for new applications would require central management and co-ordination.
- 3.11 It will be for government to determine how it manages these bands, and with what support from MCA, CAA or other parties. It will also be for government to consider any associated incentive structures that would be appropriate to inform strategic and management decisions regarding these bands.
- 3.12 We acknowledge that the proposed new arrangements need to be developed more fully by government, and we will provide assistance to that process if requested to. Ofcom, in conjunction with MoD, CAA and MCA has, for several years, been sponsoring research work looking at the feasibility of replanning radars in the S-band to release some spectrum for commercial use. Ultimate decisions about any spectrum release would be a matter for government, informed by the relevant safety regulators.
- 3.13 We maintain the view set out in the August 2009 consultation that, if circumstances change - for example at the end of any co-ordinated and managed transition to new technologies or new assignments – it may in future become appropriate for consideration to be given to incentives for end users, if it is apparent that these could inform individual decisions that would lead to more efficient use of spectrum. How this should be achieved would be a matter for the relevant public authorities at the time. Such incentives could take the form of sector specific legislation or regulation (including perhaps sector specific fees), in which case, it would be implemented by government. If, alternatively, AIP-based fees were adopted these would be set by Ofcom under the current legal framework and would need to be subject to a new public consultation.

## Proposals for applying AIP to maritime VHF communications channels

- 3.14 In general, stakeholders were in favour of the proposal that maritime VHF communications channels used for search and rescue and AIS used on a private commons (shared) basis should attract no end user fees. There was also general agreement with the proposal that the lightly-used duplex international maritime channels should attract fees based only on Ofcom's costs. There was also broad support for the proposal to introduce the option of area defined licences.
- 3.15 The proposal to apply AIP-based fees to the heavily used simplex International channels available for port operations was generally opposed on grounds that AIP would not materially alleviate the shortage of available channels. Several stakeholders, including some from the aeronautical sector, proposed that maritime VHF communications channels should, instead, be managed by government and not made subject to AIP fees.
- 3.16 There was less opposition to the proposal to apply AIP-based fees to UK maritime channels, ie those maritime channels which are not recognised internationally.
- 3.17 However, the basis on which the proposed AIP fees had been derived, for International simplex and for UK channels, was questioned by many, particularly the proposed differentials between fees for transmitters with High, Medium and Low coverage and between locations where congestion was deemed to be High, Medium or Low.

### Responses to specific questions asked in the consultation document

- 3.18 In the following paragraphs we summarise responses to the specific questions asked in the consultation document and provide a summary of Ofcom's view.

*August 2009 Question 1: Do you consider that the fee rates set out in Table 8 for assignments in the eight core international maritime simplex channels are appropriate?*

- 3.19 As noted above, many responses objected to the proposal to apply AIP to these channels. Only the Association of Chief Police Officers ("ACPO") and the NCI supported the proposal.
- 3.20 Responses from the Chamber of Shipping, UKMPG/BPA, the RNLI and the GLAs stated that it was unclear how Ofcom had derived the differentials between fees proposed to be applied in areas of High, Medium and Low congestion and how the boundaries of these areas had been drawn.
- 3.21 The GLAs too questioned the relevance of the proposed fee differentials relating to High, Medium and Low density of assignments. The GLAs asked whether there was an assumption that neighbouring ports would be competing with each other or with other potential users for internationally harmonised port operations channels, and the GLAs asked whether the answer to this question would influence pricing decisions. The GLAs also asked whether there is a plan for increasing prices over time and, if so, on what basis.
- 3.22 The Chamber of Shipping asked to what extent congestion in the UK is attributable to the close proximity of European ports rather than, as the Chamber characterised it,

the “careless” use by current licence holders. The GLAs asked whether account had been taken of allocations in neighbouring countries which can have a serious effect on the usability of some channels.

- 3.23 The RNLI reported that it was not qualified to comment on this question but wished to note that any increase in the cost of port operations must not impact negatively on safety and security.
- 3.24 UKMPG/BPA argued that the proposals to apply AIP to these channels were too modest to have any material impact and proposed that, instead, these channels should be managed by government as per the proposals for radar and aeronautical navigation aids. In UKMPG/BPA’s view there is inadequate management of these bands, and the modest AIP proposals will effectively maintain the status quo. Peel Ports Medway reiterated the concern that fees will tend to perpetuate the status quo.
- 3.25 The International Air Transport Association (“IATA”) lent support to the counter proposal from UKMPG/BPA that maritime international simplex channels should be managed by government, perceiving a read-across to internationally harmonised aeronautical spectrum. However IATA also noted that determining what might be the highest value use of spectrum is a subjective exercise.
- 3.26 The RNLI shared UKMPG/BPA’s view that internationally harmonised maritime spectrum might be better managed by the MCA which has an operational understanding of the international dimensions to search and rescue.
- 3.27 The Chamber of Shipping too called for more emphasis on management of this resource. The Chamber saw little benefit in applying AIP to these channels and argued that AIP is the wrong tool for managing or enhancing spectrum efficiency in internationally allocated channels. In the Chamber’s view, these bands should be managed by maritime transport policy makers with the ability to manage these bands in an international context. In particular, the Chamber proposed that there should be greater emphasis on equipment improvements and changes to international agreements. The Chamber also called for a continuing review of channel assignments, which would perhaps include recommendations to some licensees on alternatives to their current assignments. In the Chamber’s view, where a channel is only lightly used, or not used at all, consideration should be given to revoking the licence or requiring payment of an opportunity cost fee. As the Chamber noted, this might necessitate monitoring of channel loading.
- 3.28 Lincolnshire County Council noted that it uses maritime channels to comply with its statutory duties, and asked that this should be taken into account when setting fees.

### Ofcom’s response

- 3.29 We maintain the view set out in the August 2009 consultation that AIP fees, payable by licensees, which reflect the opportunity cost, can help to manage excess demand for these channels. This is because ports and others who use these channels ultimately have discretion as to whether they use these channels and, if so, how many such channels they require and how geographically extensive transmissions need to be. We recognise that many users may conclude that their operations would suffer commercially if they ceased to use these channels or reduced the number of such channels that they use. Others may conclude that they would be unable to operate safely if they ceased to use some or all of the channels which they currently use.

- 3.30 However, similar concerns also arise in respect of other resources, such as labour and equipment. Those resources, and the implications of not deploying them, have to be taken into account when drawing up business plans. We believe that fees which reflect the opportunity cost of international simplex maritime radio channels will improve the planning process helping to ensure efficient use of this scarce resource.
- 3.31 As we noted in the August 2009 consultation, we do not believe the fee changes which we are introducing will impact negatively on safety and security. We note that port operators usually face specific statutory duties in relation to safety, and all businesses and other users have obligations under general health and safety legislation. We also note that the UKMPG/BPA consider the fees which we intend to implement are modest and that the Chamber of Shipping views the financial impact of fees which might be passed onto shipping as negligible.
- 3.32 We recognise that AIP fees applied to the eight international simplex channels will have no impact on the overall number of channels available for communicating with the international fleet of ships. In this instance, AIP fees can only help to manage demand for the current allocations. We acknowledge that there is an important parallel work stream negotiating changes to international spectrum allocations such as, for example, would enable some of the under-used duplex channels to be used as simplex channels or for narrower bandwidths or digital systems to be deployed. AIP is a complement to, not a substitute for, such work.
- 3.33 If improvements can be made to make the UK more effective in driving international change, for example by improving institutional arrangements for setting objectives and strategies, these should be pursued vigorously in parallel with the application of AIP. Ofcom is establishing a parallel work stream to investigate scope for improvement with DfT, MCA and the maritime community.
- 3.34 Nevertheless, we consider that setting fees under AIP principles is more likely than flat cost-based fees to provide incentives for spectrum users to consider their use of the current allocations of channels subject to excess demand. Some if not all users have a direct and immediate ability to change their behaviour in response to fees, and such changes can alleviate the difficulty in accommodating requests for new assignments.
- 3.35 It is difficult to identify useful incentives which would be created if government faced the opportunity cost of these VHF communications channels. Unlike spectrum used with radar and some aeronautical navigation aids, there is no suggestion that the scarce maritime international simplex VHF communications channels could be shared with other sectors or released for alternative applications in the medium term. On the contrary, as stakeholders have noted, it appears that more such channels may be needed for maritime use. AIP faced by government would tend to present perverse incentives in so far as it would penalise success in achieving allocation of more such channels (for example reallocation from the under-used pool of duplex channels).
- 3.36 There would only be a case for charging AIP to government if to do so would provide it with incentives to promote the more efficient use of international simplex spectrum. This could be by encouraging the sector to use less spectrum per assignment, for example by deploying digital systems or narrower bandwidths, outcomes which would generally be desirable. However, given the current shortage of available channels, these developments are more likely to be needed to increase channel volumes to meet demand rather than reduce spectrum use overall. But unless the overall spectrum allocation were reduced, government would not be able to reduce

the total amount of AIP it paid by promoting such changes and this suggests that making government pay AIP would not give it a strong incentive to do so. By contrast, if AIP is faced directly by users then individual users would benefit from using narrower channels, as and when this becomes a feasible option, because each individual assignment would attract a lower fee.

- 3.37 We note the proposal from the Chamber of Shipping that Ofcom should intervene to revoke licences (or apply AIP only in such cases) where analysis of channel loading indicates that the current licence holder is making only light use of a channel. However, we share the view expressed by IATA that valuing one organisation's use of a channel will tend to be a subjective matter. It would be extremely difficult for Ofcom, or any other external agency, to judge whether a channel was being used to good effect. For example, a lightly used channel might be part of a contingency arrangement considered essential by the user. The price mechanism is particularly suitable in such cases as it allows the user to decide whether the value it places on the contingency is sufficient for it to wish to retain the channel, given the price (which is set at a level which reflects the value of that spectrum to other users).
- 3.38 Ofcom will continue to facilitate co-operation between licensees (and those seeking assignments). In some cases, that may extend to proposing changes where it is clear that a change of assignment would have advantages for the wider community of users. However, intervention is likely to remain rare.
- 3.39 When deriving the underlying opportunity cost of these eight international simplex channels (£371k for a nominal 1MHz of spectrum with full UK-wide coverage), we took into account only the current use by ports and others in the maritime community, because we consider that alternative use by other sectors of the UK economy is not feasible in the medium term. This was explained in paragraphs 6.36 to 6.56 of the August 2009 consultation. Thus, to answer the questions raised by the GLAs, we have not taken into account possible use by other potential users but, had alternative uses been feasible, this would have been relevant to our assessment of the opportunity cost.
- 3.40 In general, we have no specific plans to increase (or decrease) fees over time. The level of any AIP fees may be reviewed in future. Under a proposal in our current consultation on the revised Framework for Spectrum Pricing, we would expect to review fees only in response to evidence that fees are materially out of line with levels that would promote optimal use. We will assess the available evidence and consult formally with stakeholders before taking any decisions. We discuss in Section 5 of the consultation *SRSP: the revised Framework for Spectrum Pricing*<sup>9</sup> the methodology for determining when fees should be reviewed.
- 3.41 In the case of maritime fees addressed by the current statement, we have no plans to conduct a further review of fees for at least 3 years, but might seek views from stakeholders if it appeared that an earlier review would be appropriate. More specifically, we currently believe that a further fee review, before the underlying supply shortage of international simplex channels has been tackled, would be a poor use of stakeholder and Ofcom resources.
- 3.42 We recognise that the availability of channels at particular locations is affected by the need to co-ordinate, under international agreements, with users in other countries. This can tend to exacerbate the difficulty of accommodating all demand from UK users for assignments in these channels and therefore increase the potential

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<sup>9</sup> See footnote 6 above

advantage of AIP-based fees rather than flat per-assignment fees in informing demand. As is the case for all medium or long-range uses of spectrum, some proposed installations (particularly where wide coverage is required) may require careful co-ordination with our neighbours before a channel can be assigned. Although individual users may sometimes suffer interference from transmissions in other countries, in most cases this can be resolved to the satisfaction of all parties. We will continue to work with the maritime sector in this country and users and regulators abroad to facilitate resolution of these issues.

- 3.43 We set out in paragraph 7.20 of the August 2009 consultation the rationale for classifying areas as displaying High, Medium or Low excess demand for international simplex maritime channels.
- 3.44 A fuller explanation of the methodology for deriving fees for international simplex port operations channels, including differentials to reflect varying coverage, is provided in paragraphs 3.127 to 3.140 below.

*Question 2 Do our revised proposals reflect appropriately the distinctions between the different uses of particular internationally allocated maritime channels, as set out in Table 9*

- 3.45 The RNLI, the GLAs and the MCA agreed that Ofcom had correctly identified the key distinctions between the various internationally allocated maritime channels. The proposal was not opposed by UKMPG/BPA, to the extent that it would result in reduced fees for certain channels with particular characteristics. UKMPG/BPA noted, however, that the proposal was to focus AIP fees only on the eight internationally allocated simplex channels and that most international channels would not attract fees. On this basis, UKMPG/BPA believed the proposal would have insufficient impact on the way these channels are used.

### Ofcom's response

- 3.46 We note that no stakeholder has identified further internationally allocated maritime channels, other than those set out in table 9 of the August 2009 consultation, which would warrant an approach to pricing which is distinct from any approach which might be adopted for the core eight port simplex operations channels. This is helpful confirmation. We do not believe that it would serve any purpose to apply AIP to a wider subset of internationally allocated channels as these are either used on a private commons basis or are not subject to excess demand. We will maintain the proposed distinctions in the fee Regulations.

*Question 3: Do you agree with our proposals not to set any fees for use of the calling and distress channels, the search and rescue channels, the AIS channels, or for exceptional shore-based use of the inter-ship channels?*

- 3.47 The RNLI, NCI, the Chamber of Shipping and the GLAs agreed with this proposal. In the view of the Chamber of Shipping and UKMPG/BPA, AIS frequencies are self managed and AIP cannot further enhance efficiency. The MCA reported that, although it has a role in allocating AIS time slots, this approach is increasingly being superseded by self allocation through Random Access arrangements. The MCA also advised that the current system has the capability to handle significantly higher data loads than are required today and, therefore, AIP fees are unlikely to achieve any further efficiency improvements. UKMPG/BPA did not object to the proposal but

noted that it would have no impact on the shortage of internationally recognised simplex port operations channels.

- 3.48 UKMPG/BPA reported that it did not understand why a distinction had been drawn between these channels proposed to attract no fees and the international duplex and the marina channels for which fees based on administrative costs were proposed, given that in their view neither approach would contribute to increased spectrum efficiency.

#### Ofcom's response

- 3.49 We maintain our view, broadly shared by stakeholders, that these channels should attract no fees. This reflects the way in which these channels were proposed to be managed.
- We had proposed that use of the 3 international search and rescue channels (channels 10, 67 and 73) and any search and rescue use of the MCA's three weather reporting channels should be authorised directly by MCA, and that other users would access these channels under the MCA's control. As such, Ofcom would have no involvement with licensing the use of these channels. MCA is an executive agency of the DfT and, as part of the Crown, does not require a licence from Ofcom. For these reasons we proposed that no fees should apply. As noted in paragraph 4.7 below, we maintain that view.
  - Our proposal that the AIS channels should not attract any fees reflected the fact that decisions on making assignments in these channels (where time slots are individually allocated) is a matter for the MCA. As such, we concluded that there would be little merit in levying fees to reflect Ofcom's administrative costs. We recognise that there is an alternative view as, unlike the search and rescue channels, Ofcom does intend to grant individual licences, but only where the MCA has agreed that an applicant should be licensed. If, as stakeholder responses indicated, there is likely to be a diminishing role for the MCA, it may become more logical to apply fees based on Ofcom's administrative costs. However, the merits are finely balanced and we do not propose to make new proposals at this time. We will, therefore, apply zero fees for these channels.
  - The calling and distress channels (and adjacent guard channels) and the inter-ship channels are not generally licensed to shore stations. In those special cases where licences are granted (generally for research purposes or as an aid to search and rescue) they are used on a shared, private commons, basis. In principle, there may be a case for applying fees intended to contribute to our costs, but assignments are rare and almost always made as an adjunct to assignments in other channels. For these reasons we have decided not to apply any fees to licences for these channels.

*Question 4: Do you agree with our proposals to set administrative cost-based fees for licences to use the package of 3 marina channels?*

- 3.50 The RNLI agreed that there should be no change to these fees. UKMPG/BPA had no objections to the proposal.



### Ofcom's response

- 3.51 In the absence of any new information or alternative views, we have concluded that we should make no change to the current fee for the Coastal Station Radio (Marina) licence. As explained in the August 2009 consultation, the three marina channels are licensed as a group for use on an unprotected, private commons basis. As such, applying AIP fees to end users would be unlikely to increase spectrum efficiency as a decision by individual users to cease using these channels would not free up any spectrum (unless and until all users chose to give up their licences). In any event, the number of licensees sharing these three channels is so large that if the opportunity cost of these channels was shared between the licensees, the share per licensee would be less than the £75 minimum that reflects their administrative cost.

*Question 5: Do you agree with our proposal to set administrative cost-based fees for licences to use the internationally-allocated duplex channels?*

- 3.52 The RNLI, NCI, the Chamber of Shipping, the MCA and the GLAs agreed with this proposal, although NCI noted that such channels used for safety of life applications should be excepted. UKMPG/BPA did not object to our proposal but noted that it would have only limited and short term relevance to increased efficiency.

### Ofcom's response

- 3.53 We consider that nothing would be gained from applying AIP fees to these channels. This is because there is no excess demand for them from the maritime community and they cannot feasibly be used for alternative applications without breaching the UK's obligations to ensure non interference with maritime use by UK and foreign registered ships. In these circumstances, assignments released in response to AIP (or not requested as a consequence of AIP) would tend to remain unused, which would offer no benefits to UK citizens and consumers.
- 3.54 Our decision to apply only cost based fees also offers the advantage that, where some maritime users who currently use scarce international simplex channels, or UK channels which could feasibly be used for other applications, but are in a position to use these channels in substitution are encouraged to do so, this will help to free up capacity in those other channels.

*Question 6: Do you consider that the fee rates set out in Tables 10 and 11 for assignments in the UK-allocated working channels (that is, not including the search and rescue or marina channels) are appropriate?*

- 3.55 The UKMPG/BPA noted the low probability of international consensus on the future use of these channels (as internationally recognised channels). The UKMPG/BPA, therefore, broadly accepted that fees may provide an effective incentive to behavioural change in these channels in the context of business radio use. However UKMPG/BPA questioned the basis on which the proposed differential between fees in different parts of the country had been set.
- 3.56 The RNLI agreed that it may be appropriate, in the short term, to make use of these channels for other applications and charge accordingly. However, the RNLI called for a longer term strategic evaluation of the future use of these channels and the future needs of the maritime community, including the search and rescue community. The RNLI said it was concerned that there was insufficient detail in the proposed charging

mechanism in relation to fee differential in areas of High, Medium and Low density of assignments.

- 3.57 The GLAs objected to the proposed use of population density, rather than maritime activity, as a proxy for demand for channels, and the proposed use of antenna height above ground level, rather than above sea level, as one of the factors for determining fee differentials reflecting coverage. In the GLAs' view, this could render the proposed charging system unworkable. The GLAs cited the example of the Dover Straits where population density is low but maritime activity high.
- 3.58 The Chamber of Shipping noted that not all technologies can make use of these bands. The Chamber warned that use of UK maritime channels by non maritime users could potentially cause interference to maritime users, and that this risk should be monitored.
- 3.59 The Chamber proposed that where there is no excess demand from the maritime community, fees based on administrative cost should be applied to those users, whereas where it is non maritime users who generate the excess demand those users alone should pay AIP based fees.
- 3.60 The MCA noted that some of these channels may be used for safety and/or environmentally critical applications. In common with the Chamber of Shipping, the MCA proposed that, notwithstanding that spare capacity could be used to meet demand from other sectors, fees should vary according to the type of use. The MCA proposed that fees for safety critical applications should differ from fees for commercial applications.
- 3.61 Severn Area Rescue objected to the proposed fees, but did not provide a detailed explanation of its objection.

### Ofcom's response

- 3.62 We note the cautious support from some stakeholders for this proposal and maintain our view that these channels should attract AIP fees equivalent to those which apply to Business Radio channels. Although there is no excess demand for these channels from the maritime community, it is feasible to use them to meet excess demand for Business Radio channels from other sectors such as the haulage, construction and security industries, as there are no international constraints on them being used to meet excess demand from these other business sectors. It is this demand from Business Radio applications, added to the limited demand from the maritime community, which is driving the decision to apply AIP.
- 3.63 As the excess demand is from Business Radio, we have concluded that fees should reflect the opportunity cost in this Business Radio use.
- 3.64 For the same reason, we have concluded that fees should vary according to demand from the wider Business Radio community, rather than demand from maritime users. Population density is the measure used as a proxy for demand for Business Radio channels as business activity tends, generally, to be greatest in areas of high population density.
- 3.65 In principle it might have been possible to identify some other measure which would reflect regional variations in *combined* demand from both Business Radio and maritime use. However, we believe this would add a disproportionate level of complexity in the pricing of maritime and business radio channels. Given the heavy

weighting which would apply to demand from Business Radio applications, we do not believe that the population density proxy will materially distort incentives. We also observe that there are material similarities, in many coastal areas, between the demand analysis based on population density and that based on density of assignments in UK allocated maritime channels.

- 3.66 Clearly, in deciding to make these channels available to a wider, non maritime, community, Ofcom will need to take care that licence conditions ensure adequate protection for other users of these channels.
- 3.67 As use of these channels for maritime related activities denies the possibility of the same channel being used within the impacted area for any other type of use, just as does non maritime use, we do not see merit in varying fees according to the application (eg whether used to support the activity of a fishery or a construction company). We believe such distinctions in these circumstances would be inequitable and would not properly reflect opportunity cost.
- 3.68 We recognise that society may place a high value on certain activities, such as safety or environmentally critical operations. However, as we noted in the August 2009 consultation, we do not believe it is generally efficient for Ofcom to try to take into account these wider social benefits through reduced or zero fees. Rather than subsidise specific inputs, such as spectrum, it is usually more efficient for society to subsidise outputs, that is, the service which the spectrum user provides and which society values. Under this scenario, the provider of the socially valuable service can decide what is the most efficient way to deliver the service, instead of being persuaded to use particular inputs (whether spectrum or anything else) which happen to be available at subsidised prices.
- 3.69 We set out in the August 2009 consultation (Figure 4) a map showing which areas we proposed should be classified as High, Medium or Low density for the purposes of determining fees for UK allocated maritime channels. We noted that the proposed map was that which applies to Business Radio fees.<sup>10</sup> To provide further clarity, we have set out in paragraphs 3.127 to 3.140 below a further summary of the methodology used to derive fees for UK allocated maritime channels, as well as international simplex port operations channels.

*Question 7 Do our revised proposals correctly identify all of the UK allocated maritime channels which are assigned to specific applications which require a specific approach to fee setting, as set out in table 12*

- 3.70 The RNLI argued that use of some of these channels in other countries need to be taken into account. We understand, for example, that the RNLI's UK working channel 31 is used in the Netherlands for informal communication between yachts, which can cause interference to the RNLI's own use of this channel in the UK. The GLAs too questioned whether account had been taken of allocations in neighbouring countries, which can have a serious effect on the usability of some channels.
- 3.71 The NCI argued that more channels should be considered, but did not identify any particular channels.

<sup>10</sup> See Ofcom statement *Modifications to spectrum pricing* 10 January 2007 at <http://www.ofcom.org.uk/consult/condocs/pricing06/statement/statement.pdf>

- 3.72 The MCA believed we had made proposals for an additional channel for emergency working, and queried the need for this. MCA was concerned that, had an additional channel been made available, this would increase the burden of monitoring traffic by the MCA.

#### Ofcom's response

- 3.73 In determining fees for UK maritime channels, we have concluded that it is not appropriate to try to set a distinct fee for channels which suffer interference from transmitters in neighbouring countries. This problem potentially arises in all classes of channel (internationally allocated as well as UK allocated). We recognise that the value to the licensee may be lower when a channel suffers such interference, and we work with other administrations to try and resolve these difficulties. However, problems are usually limited to particular locations and so do not generally affect the opportunity cost of the channel concerned for other users in the same region. In the extreme case, where interference causes the channel to be unusable in the UK, there would be no opportunity cost, but in these cases the incumbent UK user is unlikely to choose to retain his licence and liability to pay AIP.
- 3.74 Notwithstanding the view expressed by the MCA, we did not propose to make available an additional emergency search and rescue channel in the UK maritime band. Channel 156/160.6MHz (used on a simplex or duplex basis) and simplex channel 161.225 MHz (often known as the Beach Lifeguard channel) have been used in this way for many years. It would generally be for the MCA to propose increasing or decreasing the number of emergency search and rescue channels, as MCA is the competent authority and co-ordinator of all search and rescue in the UK.

*Question 8: Do you agree with our proposal to set no fees to licensees for use of the two UK-allocated search and rescue channels?*

- 3.75 The RNLI, the Chamber of Shipping and the GLAs agreed with this proposal. The MCA sought to clarify whether it would be required to fund these channels.

#### Ofcom's response

- 3.76 We consider that no fees should apply to the use of these channels. As with the internationally recognised channels that are used for search and rescue, we have concluded that they should be used under the auspices of the MCA who will, determine authority to use these channels. As MCA is an executive agency of the Crown, we will discuss with government any future arrangements for payments to be made in respect of these channels. In principle, we believe it would be appropriate for MCA to face the opportunity cost of these channels as the decision as to how many such channels are required is a matter for the MCA to judge, but since any such payments would be at the discretion of government, this is not for us to decide. The decision how many channels are needed for this use will determine how many of these channels are not available for other users in particular locations.

*Question 9: If you are a maritime organisation with the safety of human life in an emergency as your sole or main objective, would you be interested in accessing spectrum for working purposes (ie other than SAR or other emergency response uses) under a private commons basis, shared with other users with the same objectives and co-ordinated by the MCA, and free of any spectrum fee?*

- 3.77 The RNLI agreed that the proposal would improve communications for administration and training within some search and rescue organisations. However, the RNLI reported that it would prefer to maintain its existing working channel to support its own administration and training activity. The RNLI said it was content with the proposed outcome for charities, which would include a 50% discount for any channels for which fees would be payable. However, the RNLI requested that Ofcom should have a future goal of a 100% discount for charities whose sole purpose is life saving. The NCI and GLAs too agreed with this proposal to make such channels available. The GLAs sought clarification whether they would be permitted to use such a channel.
- 3.78 The MCA, however, expressed concern that such channels might sometimes be used for emergency purposes, thereby increasing the burden on MCA to monitor such channels. MCA also expressed concern about the possible impact on its own budgets if the MCA was required to have a role in determining who should be licensed to use such channels.
- 3.79 UKMPG/BPA had no objections to this proposal.

### Ofcom's response

- 3.80 We maintain our view that this proposal could improve spectrum efficiency if it were feasible to share a routine working channel(s) on a private commons basis instead of search and rescue organisations relying on a variety of exclusive or near exclusive licences. If licences to use this channel(s) were free to end users (because funded by government as proposed) this would also be advantageous to end users.
- 3.81 We note the concerns expressed by the MCA about possible misuse of such a channel, and agree that care would need to be taken when granting permission to use such a channel. Ofcom would envisage taking guidance from MCA on this matter. It had not been our intention that the GLAs would use this channel as they are not generally viewed as search and rescue organisations. If MCA saw merit in this proposition, however, we would be willing to reconsider that view.
- 3.82 However, it would not be an efficient use of spectrum if a channel allocated for this specific purpose was little used. As we received only one response from a search organisation which indicated that it would be interested in using such a channel, we do not propose to allocate a channel for this purpose until a reasonable level of demand has been evidenced. Analysis of our licensing records indicates that about 18 organisations (in addition to RNLI discussed above), whose name or call sign suggests that they are engaged in search and rescue, currently pay for channels other than the co-ordinated search and rescue channels. Whether these would be prepared to switch to a new UK channel is unclear and, in any event, 18 sharers of a UK-wide channel is unlikely to represent an efficient use of spectrum. We would encourage the wider search and rescue community to review the attractions of this option. Those which are included on MCA's list of "declared facilities" may wish to liaise as a group via the MCA.

*Question 10: Do you consider that our proposed fee rates for area-defined licences (where feasible) in the eight core internationally-allocated maritime simplex channels are appropriate?*

- 3.83 The RNLI agreed with this proposal but called for a fuller explanation of the basis on which fees would be calculated. The MCA and the GLAs too called for a clearer explanation of the basis on which fees would be calculated.
- 3.84 The Chamber of Shipping agreed with the proposal to introduce the option of area defined licences, but noted that, as it would make sense mainly in locations where spectrum is easily available, it was unclear how this would improve spectrum efficiency.
- 3.85 UKMPG/BPA supported the proposal in so far as it would reduce the financial liability for users who require licences for multiple transmitter sites on the same frequency. UKMPG/BPA noted that it was difficult to assess the feasibility or benefits for individual ports.

### Ofcom's response

- 3.86 We note the broad acceptance of the proposal to introduce the option of area defined licences. We believe these will enable some licensees to make more efficient use of spectrum as they will be able to plan for themselves how closely transmitter sites may be co-located and make changes without first having to seek a licence variation from Ofcom. We recognise that in areas of high demand for maritime channels it may be difficult to find large areas in which individual users can operate. Nevertheless, we maintain the view that this option will offer benefits to users where this is feasible.
- 3.87 Under the proposals on which we consulted, and which we have decided to adopt, the annual fee payable for an area defined licence to use one of the eight international simplex channels would vary according to the size and location of the territory covered by the licence. The licence would permit the licensee to operate any number of transmitters in the licensed area (for the channel in question) provided that the technical boundary conditions are complied with. To ensure that other licensees in adjacent areas using the same channel (or, in some cases, a closely adjacent channel) do not suffer interference from transmissions from within the defined area, holders of area defined licences would be obliged to ensure that the location and maximum effective radiated power (ERP) of the transmitter is such that the power density does not exceed -116 dBm/12.5 kHz (equal to a field strength of 5 dBuV/m in 12.5 kHz or 8 dBuV/m in 25 kHz) at a receive height of 2 metres at or beyond the defined boundary using the P.1546-3 propagation model for 50% locations and 50% time<sup>11</sup>. This obligation, in the context of the applicant's operating plans, would inform the applicant's decision as to the size and shape of the area to be licensed.
- 3.88 As we noted in the August 2009 consultation, there is heavy demand for these eight international maritime simplex channels and, in many parts of the country, large numbers of licensed transmitters are already being operated under the current licensing arrangements. The existence of licences held by third parties in the same channel would need to be taken into account when determining whether an area defined licence can be granted for the area requested. Except where the explicit agreement of other affected licensees has been obtained, Ofcom would not grant an area defined licence where the standard boundary conditions, applied at the edge of

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<sup>11</sup> The HCM Agreement propagation model (for 50% locations and 10% time) is used to predict when a proposed maritime assignment would breach the 12dBuV/m at 10m trigger level and international co-ordination may be required,

the area proposed to be licensed, would fail to protect other pre-existing licensees from interference.

- 3.89 Licensed areas will be defined by reference to 50km x 50km National Grid Reference ("NGR") squares, as was set out in the August 2009 consultation. While, in principle, a finer (or coarser) granularity could be adopted (for example 5km x 5km grid squares) we currently believe this would add an unnecessary level of complexity and administrative cost. However we will keep under review the possibility that, at some time in the future, a finer grained measurement unit could enable better use of spectrum overall by more closely matching the defined areas to operational need.
- 3.90 The overall fee payable for any given area defined licence will be determined by the number of grid squares which the applicant requires and how many are deemed to be an area of High, Medium or Low density of assignments. We have reiterated at paragraph 3.131 below the basis on which we have defined these areas, which relates to the density of assignments in these eight international simplex port operations channels as a proxy for demand.
- 3.91 When calculating fees for area defined licences, we will take into account the number of grid squares covering land and/or sea areas. The differentials between the unit rates in High, Medium and Low density areas has been determined on a similar basis to the differentials between fees for technically assigned licences in such areas. That approach is set out in paragraphs 3.131 to 3.133 below. In the event that an applicant requires a licence covering the whole of the UK (if that ever become technically possible, given the pre existence of other licensees in these channels) a fee of £9275 would apply.

*Question 11: Do you agree that area-defined licences in the international duplex channels should be based on a minimum cost of £75 for 4 squares, with larger areas priced on a case by case basis?*

- 3.92 The RNLI agreed that a standard minimum cost per designated area should be applied. However, the RNLI questioned the proposed use of 50km x 50km squares as the measurement unit, as did UKMPG/BPA, which expressed some concern that the proposed use of these grid squares as the basic unit for pricing area defined licences could result in a degree of interference between neighbours.
- 3.93 The GLAs opposed the proposed pricing methodology, arguing that it is appropriate for inland use but not for maritime and, in particular, offshore, use where propagation is more likely to be subject to weather anomalies.
- 3.94 The Chamber of Shipping was broadly in favour of introducing the option of area defined licences in these channels, but questioned the rationale for using just 4 grid squares for setting the minimum cost.
- 3.95 In the MCA's view, the basis of the proposed fees was unclear.

### Ofcom's response

- 3.96 For the reasons given in respect of area defined licences in the international port operations channels (see paragraph 3.89 above), we believe that the use of 50km x 50km grid squares as the measurement unit provides a reasonable level of granularity in the context of the coverage of a typical transmission in the international duplex channels. The technical boundary conditions (as noted in paragraph 3.87

above) will be designed to prevent interference between adjacent assignments made to other licensees and, therefore, we see no reason why the use of 50x50km measurement units should pose a greater threat of interference than any other measurement unit. We recognise that meteorological factors can affect transmissions and these are taken into account when planning assignments.

- 3.97 We acknowledge that fees reflective of our administrative costs could be specified in a number of different ways, including via a fully bespoke basis which reflects the administrative resource used to draw up each licence or by applying a uniform predetermined fee which is intended to make a reasonable contribution to administrative costs without over-recovering in individual cases. A disadvantage of the fully bespoke approach is that potential applicants would have little understanding of the likely fee when considering whether they would prefer one or more technically assigned licences, or an area defined licence.
- 3.98 For this reason, and to simplify administration, we proposed that a minimum fee of £75 (this being the proposed cost based fee for a technically assigned licence) should apply to all relatively small scale area defined licences covering up to four 50 x 50 km grid squares. We proposed to set four grid squares as the upper limit as, before granting a technically assigned licence, Ofcom would typically need to check for interference risks in an area equivalent to four adjacent grid squares. Clearly, the size of the potentially affected area will vary according to the location and radiated power of the transmitter, but the four grid squares is not atypical. We consider that this is a reasonable approach which balances simplicity and clarity with the desire to maintain a reasonable level of correlation between actual administrative costs and fees.
- 3.99 As the number of technically assigned licences currently held in these international duplex channels is low, we do not expect requests for area defined licences in these channels to be numerous. Larger scale defined areas are likely to be even less common, as current assignments are mainly very localised. Rather than set out a pricing algorithm including unit rates for larger area defined licences, we have decided to apply a fee of £75 for each increment of up to 4 grid squares, subject to a ceiling of £500, for any area defined licences covering more than four 50km x 50km grid squares. We estimate that, given the complexity of planning larger area defined licences (including the need to check for potential interference to or from existing assignments in a large number of adjacent areas), this fee is likely to be below the average cost of managing an assignment of over 24 grid squares (the point at which the ceiling would apply).
- 3.100 Conversely, we also believe that a fee set at this level will avoid setting inefficient incentives such that existing holders of two or more assignments in a given international duplex channel would seek to replace these assignments with a wide (eg UK-wide) area defined licence, simply in order to reduce their fees liability even though they may have no interest in making use of the additional planning flexibility offered by an area defined licence. The comparable fee for a single technically assignment will be £75. We note that if a large proportion of existing holders of licences to use international duplex channels requested wide area (eg all-UK) licences, demand for these channels could exceed supply. If that happened, there might be a strong case for proposing that fees should be based on opportunity cost. We hope that the fees which we are implementing will help to ensure that an artificial scarcity is not created. For the same reasons, the fees discussed in paragraph 3.99 above will apply per channel, rather than per licence.



- 3.101 For area defined licences in international duplex channels, we have decided, therefore, to apply a fee of £75 per channel for each increment of up to four 50km x 50km grid squares, subject to a £500 ceiling per channel.

*Question 12: Do you consider that our proposed fee rates for area-defined licences in the UK allocated working channels (that is, not including the search and rescue channels or the marina channel) are appropriate?*

- 3.102 The RNLI agreed that these rates are appropriate, and noted that the 50% charity discount should apply. The GLAs sought clarification on the means of arriving at these fees. The Chamber of Shipping and UKMPG/BPA were cautiously supportive but noted that, without substantive details, it was difficult for users to assess the implications.
- 3.103 The MCA reiterated the view which it presented in response to question 6, that safety critical applications should attract different fees to commercial applications.

### Ofcom's response

- 3.104 We confirm that the 50% discount for charities whose sole or main objective is the safety of human life in an emergency will apply to fees for area defined licences.
- 3.105 The fees proposed in the August 2009 consultation, which we have decided to implement, were derived in a similar manner to the fees for technically assigned licences in these UK allocated channels. That is to say, fees will vary according to population density; this being a proxy for demand for Business Radio channels. We have set out in paragraphs 3.62 to 3.65 above our reasons for varying fees to reflect demand for Business Radio channels rather than UK maritime channels.
- 3.106 We set out in paragraph 3.89 above our reasons for concluding that deployment of 50km x 50km grid squares as the measurement unit for area defined International simplex channels is appropriate. We have concluded that the same arguments apply to deployment of a 50km x 50km measurement unit for the purposes of determining fees for area defined licences to use UK allocated channels. The 50km x 50km unit also aligns the pricing algorithm with that which applies to Business Radio channels, which we have concluded is a close substitute for UK allocated maritime channels.
- 3.107 Fees for each 50km x 50km unit are those which currently apply to Medium Popular Business Radio channels<sup>12</sup>.
- 3.108 The overall fee payable for an area defined licence to use a UK allocated maritime channel will be determined by counting the number of 50km x 50km grid squares of each geographic class (High, Medium and Low) which the applicant requires, and applying the relevant unit rates. In determining the area which a licence is required to cover, applicants must take into account the technical boundary conditions with which licensees must comply. As with Business Radio (and International maritime) area defined licenses, the licensee must ensure that when planning the use of transmitters within the licensed area the field strength density does not exceed -116 dBm/12.5 kHz (equal to 5 dBuV/m in 12.5 kHz or 8 dBuV/m in 25 kHz) at a receive height of 2 metres at or beyond the boundary using the P.1546-3 propagation model for 50% locations and 50% time<sup>13</sup>. Where, as is highly likely, applicants for UK

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<sup>12</sup> See footnote 10 above

<sup>13</sup> See footnote 11,

allocated maritime channels require that the licensed area should include both sea and land areas, fees will be payable for each, except where the area is unclassified (coloured white on the map at Figure 4 in the August 2009 consultation and the map at Figure 3 in the present statement).

- 3.109 We responded, at paragraphs 3.67 and 3.68 above, to the MCA's request that fees should also vary according to the nature of the application which the channel is intended to support.

*Question 13: Do you agree with our proposal to set an administrative fee of £75 for maritime radio (suppliers and demonstration) licences?*

- 3.110 The RNLI, the Chamber of Shipping and the GLAs agreed with this proposal. The UKMPG/BPA had no objections.

#### Ofcom's response

- 3.111 As spectrum use under this licence is subject to an obligation not to cause interference to others, and is for non operational, demonstration purposes only, we maintain our view that this licence should attract a fee of £75 intended to reflect our costs. We have also decided that licences should be valid for 5 years, rather than just 1 year as at present.

*Question 14: Do you agree with our proposal to bring the arrangements for temporary maritime licences into line with those in other sectors?*

- 3.112 The RNLI and GLAs agreed that there should be a standard of temporary licences across all sectors. The UKMPG/BPA had no objections.

#### Ofcom's response

- 3.113 We maintain our view that, for reasons of consistency and administrative clarity, the fees structure for temporary maritime licences should be aligned with temporary licences available in other sectors. We will therefore remove the current requirement that temporary maritime licences should be for a minimum of 28 days, and apply a fee of one twelfth of the relevant annual fee for each month or part month, subject to a minimum fee of £20. These temporary licences will be available for all maritime licence types, and will not be restricted (as we had proposed) to those where the annual fee would otherwise be more than £75.

*Question 15 Do our proposals for phasing in some of the proposed fee increases provide sufficient time for you to accommodate the additional costs, without undue disruption to your operations which could reasonably be avoided by a phasing arrangement? We would like to be able to publish all responses to this question. However, if you wish your response to this question to remain confidential, please provide your response on a separate sheet clearly marked to that effect. Your request for confidentiality will be respected*

*Question 16: Do you consider that our phasing proposals for the maritime licences for which we propose to set AIP-based fees are appropriate? If there are particular reasons why you consider that any user or group of users would need longer phasing-in periods, please provide any supporting evidence for us to consider.*

- 3.114 The RNLI noted that it, and certain other charities, would benefit from early introduction, but recognised that business and budget planning considerations of other users would need to be taken into account.
- 3.115 The GLAs noted that any additional costs which they face would be reflected in a charge of the General Lighthouse Fund which, in the GLAs' view, would be difficult to justify in the current climate.
- 3.116 The Chamber of Shipping noted that if fees were passed on to ship owners this would result in an increase of £0.41 per visit per ship. In the Chamber's view, these costs are negligible. Nevertheless, the Chamber argued that if it could not be demonstrated that these fees would lead to enhanced spectrum efficiency, they may be detrimental to safety or service quality. More broadly, the Chamber recommended that the introduction of any costs should have a long phase-in period so that businesses can determine how or whether to absorb them or pass them on. The Chamber noted that new freight rates are usually set at the beginning of the financial year.
- 3.117 UKMPG/BPA noted that fee increases should acknowledge normal budgetary process and generally allow at least 12 months notice. However, UKMPG/BPA accepted that the proposed phasing was probably acceptable.
- 3.118 The MCA believed the proposed arrangements for phasing were acceptable.

#### Ofcom's response

- 3.119 We note the broad acceptance of the proposals to phase in larger fee increases. In the absence of any new information which might suggest that some spectrum users would face undue disruption which could reasonably be avoided by applying a different approach to phasing, we have decided to implement our proposals that fees for internationally recognised simplex channels in areas of high demand, and for UK channels in areas of high demand where the coverage of the transmitter is classed as Medium or High, should be phased in over up to 3 years. Full details are set out in Section 4 below (see Figures 2 and 4).
- 3.120 We also note that the two stage approach to applying fee changes, with fees for new area defined licences being implemented before the other fee changes, will enable maritime spectrum users with multiple assignments to consider the option of an area defined licence before the revised fees for technically assigned licences (ie those relating to specified transmitters at particular locations) come into force.

*Question 17 Do you have any further quantified information to contribute to the analysis of financial impacts of the proposed fees on particular spectrum users, as set out in Annex 7? We would like to publish all responses, but will respect the confidentiality of any material which is clearly marked as such.*

- 3.121 The Chamber of Shipping drew attention to the increases in Light Dues which took effect from 1 July 2009.
- 3.122 Although UKMPG/BPA described the fee proposals as too modest to have a material impact they also warned that fees applied to ports which contribute to navigational

safety in areas that are covered by the state in other European nations will create an uneven playing field.

### Ofcom's response

- 3.123 We note the recent increases in Light Dues payable by shipping, but also note the view of the Chamber of Shipping, in relation to questions 15 and 16, that the impact of the proposed fee changes on shipping spectrum is negligible. We also note the UKMPG/BPA's view that the proposed fee changes are modest.
- 3.124 As no other stakeholders submitted views on this question, we have concluded that the analysis commissioned by us from Helios Technology and Plum Consulting, and published at Annex 8 to the August 2009 consultation, is robust. In relation to the wider impacts of our proposed fees, we maintain the views summarised in paragraphs 7.112 to 7.145 of the August 2009 consultation.
- 3.125 On the point that port operations in some other countries are subsidised, we consider that this divergence between countries in the treatment of ports is a wider matter than simply in relation to spectrum licence fees. Decisions whether or not, and how much, to subsidise a particular port's operation are best taken at the overall operations level, by the relevant transport authorities at the UK, devolved government, and local government levels, within the framework of transport policy for the area in question.

*Question 18 If the Government were to assume the strategic management role for the radar and aeronautical navigation aids spectrum that we propose, do you agree that we should not develop proposals for AIP licence fees?*

- 3.126 We have set out a summary of stakeholder responses, and Ofcom's response, in relation to this question in paragraphs 3.5 to 3.13 above.

## **Other issues**

### **The bases on which the proposed AIP fees were derived**

- 3.127 As noted in the preceding paragraphs of this section, a number of stakeholder argued that Ofcom had not made clear the basis on which the AIP fees proposed in the August 2009 consultation had been derived. We have provided some limited additional explanation above, where we have responded to comments made by stakeholders in response to particular questions asked in the August 2009 consultation. In the interests of clarity, we are setting out our approach in a more structured way in the following paragraphs.

### General approach

- 3.128 In all cases, the proposed AIP fees vary according to the geographic location of the transmitter or the defined area (depending on whether the licence is of the technically assigned or area defined type). Fees further vary according to either the coverage of the transmitter (defined with reference to radiated power and antenna height) or the size of the defined area.
- 3.129 Distinct sets of AIP fees apply to internationally allocated simplex port operations channels and to UK allocated channels (simplex and duplex). The methodology used to set the level of fees differs markedly between these two groups. This is explained in the following paragraphs.

## Geographic location

- 3.130 In all cases, we have divided the UK into 50km x 50km grid squares in line with the division adopted by the Ordnance Survey. Each grid square has been individually classified on two separate bases intended to reflect demand for (a) international simplex port operations channels and (b) UK allocated channels (simplex and duplex combined).
- 3.131 When making this classification in the context of internationally allocated simplex port operations channels, we have used the number of assignments of this type of channel, in each grid square, as a measure of demand. As explained in paragraph 7.20 of the August 2009 consultation, we consider that the existence of more than 8 assignments, in the available 8 international simplex port operations channels, in a single 50km x 50km grid square, indicates a relatively high level of demand, such that in these locations there is a high chance that a new assignment would exclude another user, or even that it could not at present be made. We have defined these areas as having “High” density of demand. At locations where 5 to 8 channels are currently assigned, we consider that there is a medium chance that new assignments would exclude other potential users and, in particular, that a high coverage assignment is likely to exclude other users. We have defined these areas as having “Medium” density of demand. Where 3 or 4 such assignments have been made, we believe there is a material but relatively low chance, and have defined these areas as having “Low” density of demand. Finally, at locations where fewer than 3 channels are currently assigned, we consider that there is no material likelihood of excess demand for assignments. This classification is shown on the colour coded map at Figure 1 in Section 4 below.
- 3.132 We then set out to reflect relative assignment densities in fees. The average number of assignments (of international simplex port operations channels) in the grid squares where assignment densities are considered High (ie where there are more than 8 such assignments) is about 17. In areas where the density of assignments is Medium (ie between 5 and 8 assignments) the average is about 6 and in areas of Low density (but presenting material risk of exclusion ie with 3 or 4 assignments) the average is about 3.5. We have sought to reflect these relativities in fees, subject to broad rounding to avoid unnecessary complexity in fee tables and subject to maintaining a minimum fee of £75 (this being equivalent to the fee set by reference to our costs where AIP is not considered appropriate).
- 3.133 The absolute level of these fees was determined with reference to the proposal that a nominal 25kHz channel with full UK-wide coverage should attract a fee of £9275. We took the view that this UK-wide fee should be divided between all of those grid squares in which there are 3 or more assignments (ie those grid squares in which there is a material risk of exclusion), and should reflect the relativities discussed in the preceding paragraph.
- 3.134 In the case of UK allocated maritime channels, we took a different approach, relying instead on population density as a proxy for demand for channels. Areas with a population of more than 3 million were defined as having a “High” density of demand, those with populations between 300,000 and 3 million were defined as having a “Medium” density of demand, and those with populations of less than 300,000 were defined as having a “Low” density of demand. Population density had been used as a proxy for demand for Business Radio channels as Business Radio applications (typically in the haulage, security and construction industries) tends to be concentrated in areas of high population density. This classification is shown on the colour coded map at Figure 3 in Section 4 below. As noted in paragraphs 3.62 to

3.65 above, we believe it is appropriate to use this classification system as it is demand for channels for Business Radio use which is driving the decision to apply AIP fees. We noted in the August 2009 consultation the advantage that a common fees structure will minimise distortions in use between these two groups of channels which are viewed as highly substitutable.

- 3.135 The fees proposed to apply to UK allocated maritime channels are those which currently apply to Medium popular Business Radio channels. The methodology for determining those fees, including the relativities between fees in areas classified as High, Medium or Low density, was summarised in the Ofcom statement Modifications to Spectrum pricing published in January 2007<sup>14</sup>.

#### Differentiation reflecting transmitter coverage (or size of licensed area)

- 3.136 As noted above, the AIP fees proposed to apply to international simplex port operations channels and to UK allocated maritime channels also vary according to the likely coverage of the transmissions. This is determined either by reference to the maximum effective radiated power (ERP) output and height of the antenna of the defined station (for technically assigned licences) or by reference to the size of the licensed area in multiples of 50km x 50km NGR squares (for area defined licences).
- 3.137 For technically assigned licences, we proposed that transmitters should be grouped into three broad classifications; High coverage, Medium coverage and Low coverage. In the context of UK allocated maritime channels, these terms were proposed to be defined in the same way that they had been defined for Business Radio licences (see footnote 10), including antenna height being measured above ground level. The definitions proposed for international simplex port operations channels were not greatly dissimilar, although antenna height was to be measured above mean sea level (reflecting the operational focus of these channels) and the definitions were more tightly drawn in an attempt to group together stations with different combinations of radiated power and antenna height which afford similar coverage across relatively unimpeded maritime terrain.
- 3.138 Basing analysis, for these purposes, on an extremely conservative assumption, that vessels typically have an antenna 2 metres above sea level, the Low coverage definition proposed to apply to international simplex port operations channels would imply a clear path coverage of up to about 30kms, the Medium coverage definition coverage of up to about 40kms and the High coverage definition coverage of more than 40kms. While we recognise that there is an almost infinite number of different ways in which we could have grouped transmitters according to coverage, the three groups proposed do appear pragmatic when set against the actual distribution of transmitters currently in licensed use.
- 3.139 Differentials between fees for High, Medium and Low coverage transmitters (in the context of international simplex port operations channels) were then established by taking the midpoint in the range of coverage implied by each definition (including the typical upper and lower limits of the complete licence dataset). Fees were then determined by reference to the size of the coverage area implied by each assumed radius set against the assumed valuation of £9275 per nominal 25kHz channel with full UK-wide coverage, further weighted (as described in paragraphs 3.131 to 3.132 above) to reflect varying levels of demand around the country.

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<sup>14</sup> *Modifications to spectrum pricing* published by Ofcom on 10 January 2007 at <http://www.ofcom.org.uk/consult/condocs/pricing06/statement/statement.pdf>

- 3.140 The same principles were applied to proposed unit fees for area defined licences. Those applicable to UK allocated channels were as per Medium popular Business Radio area defined fees, and those applicable to international simplex port operations channels reflected the underlying assumed value of £9275 per nominal 25kHz simplex channel with full UK-wide coverage (weighted as described in paragraphs 3.130 to 3.131 above to reflect varying demand levels).

### **Whether fees can enhance spectrum efficiency**

- 3.141 The Chamber of Shipping reported that it was still unclear how AIP fees applied to internationally harmonised maritime channels would enhance spectrum efficiency, better manage congestion and, ultimately, deliver benefit to citizens and consumers. The Chamber noted that current international constraints on the alternative use of international maritime channels means that any spare spectrum, if it becomes available, cannot be put to any other uses. The Chamber also recognised that Ofcom's objective in applying AIP in this instance is to manage congestion and balance the demand for new international assignments. In the Chamber's view, however, this objective is not achievable in the presence of the acknowledged international constraints.
- 3.142 UKMPG/BPA claimed that the impact of international agreements on the use of these channels had been ignored. UKMPG/BPA and the AOA further expressed the view that Professor Cave had advised that where there are international agreements and the UK has no scope to act unilaterally, there is no merit in applying AIP. In light of this view, UKMPG/BPA believed that Ofcom had failed to provide a convincing explanation of why it had taken a different view.
- 3.143 UKMPG/BPA noted that Ofcom had proposed to apply AIP to only 8 of the Internationally recognised channels, and questioned how this would influence a more efficient use of international maritime channels overall, such as by using reduced channel spacings or advanced processes such as trunked networks. UKMPG/BPA also noted that it was Ofcom's view, reiterated in stakeholder meetings as well as in the December 2009 consultation on aeronautical VHF fees, that if no incentive could be identified then AIP should not apply.
- 3.144 UKMPG/BPA recommended, instead, that management of maritime VHF communications spectrum should be passed to government, with MCA playing a spectrum management role similar to that currently played by CAA. Failing this, UKMPG/BPA recommended that Ofcom should pay any AIP fees.
- 3.145 The RNLI stated that it was concerned that, in its view, some aspects of Professor Cave's recommendations had been ignored or rejected, particularly in relation to international agreements covering the allocation of channels for maritime use. In the RNLI's view, users have no choice but to use the channels allocated for maritime use by the international community.

### **Ofcom's response**

- 3.146 We set out in section 5 of the August 2009 consultation our detailed reasoning as to why we believe AIP fees can help to increase spectrum efficiency. We also set out in the same section our views as to how the recommendations of Professor Martin Cave are fully consistent with the proposals set out in the August 2009 consultation. We maintain the detailed views set out in that document. We reiterate that the key objective of applying AIP to certain scarce maritime channels which are subject to international agreements which, in practice, mean that they cannot be used for other

applications, is to provide incentives for current and potential future users of these channels to review their need for these channels. While many may conclude that the benefits to them of using these channels outweigh the opportunity cost (as reflected in the AIP fees), some will conclude that it would be better for them to make alternative arrangements, including using different types of radio channel (maritime or otherwise) or, potentially, an entirely different means of communications. This will free up scarce channels for those who value their use more highly.

3.147 Our proposal to apply AIP fees only to eight of the international channels reflects our analysis of demand for the various types of international channel. We proposed that the large number of duplex channels should not attract AIP fees because (a) demand for these channels does not exceed supply, and is not expected to do so in the foreseeable future and (b) international agreements mean that it is not feasible to use this spare capacity to meet excess demand for other applications. As such, applying AIP fees to these channels would serve no useful purpose, and could not help to address, for example, the excess demand for simplex port operations channels to which UKMPG/BPA refer. Our decisions to apply AIP based fees to the eight simplex channels available for general port operations use and to apply fees based on administrative costs for duplex channels does however provide incentives for some users to migrate to the cheaper duplex channels where this is consistent with operational need. As a consequence, the decision not to apply AIP based fees to the duplex channels will influence a more efficient use of maritime channels overall.

3.148 We recognise that, in principle, there is an option for the MCA to manage all of the maritime VHF communications channels, and to face the opportunity cost. This option, in relation to aeronautical VHF communications frequencies, was discussed in the consultation "*Applying spectrum pricing to the Aeronautical sector*", published by Ofcom on 22 December.<sup>15</sup> We maintain the view that the arguments presented in relation to aeronautical frequencies apply similarly to international maritime simplex channels.

- First, unlike spectrum used for radar and aeronautical navigation aids, there is excess demand for international simplex maritime VHF communications channels. As noted above, decisions by individual users facing AIP fees, to reduce their use of this spectrum, even if only at the margins, can free up spectrum for others who require spectrum for maritime VHF communications. This is not the case with spectrum used for radar and aeronautical navigation aids, where concerted action by the sector and its regulators is needed before spectrum can be released to meet excess demand (in those cases, from alternative users, potentially in other industry sectors). We recognise that in the longer term there may be a case for AIP fees for these frequencies, but the determination of when there might be such a case remains a matter for Government.
- Second, in cases such as international simplex maritime VHF communications channels, where end users have some scope to review their own longer term use of spectrum within the existing framework of international spectrum management, we believe end users are generally much better informed than regulators or Government and better able to assess and implement options for change. This is not to say that MCA or any other government agency should have no continuing role in influencing change but, rather, that the tool of AIP as a longer term pricing signal is more effectively deployed if applied to end users in this instance.

<sup>15</sup> See paragraphs 1.20 to 1.22 at [http://www.ofcom.org.uk/consult/condocs/spectrum\\_pricing/aip2.pdf](http://www.ofcom.org.uk/consult/condocs/spectrum_pricing/aip2.pdf)



- 3.149 The logic of the option proposed by UKMPG/BPA as an alternative to MCA management of these bands, that Ofcom should face the opportunity cost, is not clear. This approach would imply that Ofcom would decide which organisations should be permitted to use particular channels and which should be denied access. This would be a reversion to an extreme form of command and control management of spectrum under which Ofcom would be deemed to know best how channels should be used. As noted above, it is our view that end users are much better informed than any external agency to judge their spectrum needs in the light of local operational need. In any event, it is unclear what purpose would be served by Ofcom facing the opportunity cost of the spectrum, as Ofcom is the licensing authority and neither a user nor a sector sponsor.

### **Reliance on pricing and market forces alone**

- 3.150 A number of stakeholders, including UKMPG/BPA and the RNLI, characterised Ofcom's position as being that there should be a reliance on pricing and market forces to the exclusion of any spectrum management and international negotiation to secure more efficient use of these resources. It was UKMPG/BPA view that Ofcom had advised in meetings with stakeholders that market forces are all that are needed and that Ofcom does not subscribe to a command and control approach to spectrum management. UKMPG/BPA noted that AIP fees will have little or no impact on the urgent need for more port operations channels.
- 3.151 UKMPG/BPA believed that the August 2009 proposals had been drafted on the basis that the *only* method for achieving greater efficiency was through the application of spectrum pricing. In UKMPG/BPA's view consideration should have been given to alternatives to pricing to achieve the same outcomes. UKMPG/BPA cited the need for the UK to adopt a more coherent strategic approach to management of maritime spectrum at international fora. In UKMPG/BPA's view, negotiations in relation to e-navigation provide an opportunity for a more strategic review of maritime assignments worldwide. UKMPG/BPA advised that such an approach could potentially lead to release of valuable spectrum for alternative applications. In UKMPG/BPA's view, the UK should already be planning how any release of internationally allocated maritime simplex channels should be deployed.
- 3.152 The Chamber of Shipping voiced concern about the risk of international maritime channels simply being sold to the highest bidder.
- 3.153 The nautical trade union, Nautilus International, similarly argued that there is a risk of market failure if fees are relied on to allocate resources,
- 3.154 The RNLI argued that Ofcom's proposals to apply AIP as an incentive for users to give more thought to how they use scarce channels could imply criticism of spectrum users.

### **Ofcom's response**

- 3.155 It is has never been Ofcom's view that pricing should be relied on to the exclusion of all other means of addressing spectrum shortages. Clearly, there will continue to be an important role in influencing changes to international agreements to ensure that international allocations reflect changing demand. We are working closely with the MCA and other interested parties to see how the process of engaging with the international community can be improved.

- 3.156 We do believe, however, that pricing is generally a more efficient means of assigning scarce resources than direct rationing by the regulator. This is the allocation mechanism relied on in respect of other important resources used by the maritime sector, including labour, land, property, ships and the equipment which is reliant on access to spectrum. Nevertheless, Ofcom will continue to assist maritime spectrum users in brokering agreement where changes to current assignments offer scope to meet demand which, otherwise, might not be met.
- 3.157 In proposing that AIP can provide incentives for spectrum users to give more thought to how they use scarce channels we are not implying any specific criticism of current use. We do believe, however, that fees will be helpful in providing a contextual framework within which future decisions can be taken.

### **The concept of “congestion”**

- 3.158 A number of stakeholders noted that the term “congestion” could lead to confusion. UKMPG/BPA advised that congestion was most often apparent where assignments made in neighbouring countries causes interference with assignments made in the UK. In UKMPG/BPA’s opinion, any interference between UK ports is usually resolved between the parties.

#### Ofcom’s response

- 3.159 We recognise that the term “congestion” can be confusing. In the context of maritime channels, we used the term to refer to demand for assignments in the channel type concerned. Thus, high demand for a channel type (for example, one of the eight international simplex port operations channels) may mean that it is not possible to make further assignments in a given area. We have used the term “congestion” to refer to such situations, in so far as the number of people wishing to use a type of channel is so great that the wishes of all cannot be met.
- 3.160 As maritime channels (with the exception of the marina channels and channels used for co-ordinated search and rescue) are not generally used on a commons basis, the possibility of “congestion” causing licensed users to be unable to make effective use of the channel which they have been licensed to use does not generally arise; where there are specific problems of interference, Ofcom will endeavour to resolve these. In these maritime channels, channel occupancy is not generally a factor of concern.

### **Application of the 50% charity discount**

- 3.161 The GLAs noted that, as not for profit organisations, whose primary role is the prevention of accidents, they assumed that reduced fees would also apply to them. MCA too.

#### Ofcom’s response

- 3.162 We will discuss with the GLAs whether they meet the criteria of a charity whose sole or main objective is the safety of human life in an emergency.

### **Consultation process**

- 3.163 The Chamber of Shipping and IATA asked why the proposals for pricing VHF communications frequencies used by the maritime and aeronautical sectors had been published separately as, in their opinion, the spectrum efficiency issues are similar. IATA also asked why the proposals in relation to radar and aeronautical

navigation aids had not also been published in the consultation which proposed fees for aeronautical VHF communications frequencies.

- 3.164 The UKMPG/BPA and MCA argued that confusion had been caused by Ofcom's publication of a corrected map showing the areas proposed to be classified as High, Medium and Low density for the purposes of applying fees for international simplex channels. UKMPG/BPA also argued that this correction had caused confusion in relation to UK allocated maritime channels, even though the map relating to these did not need correcting. UKMPG/BPA further asserted that the initial publication of the map relating to international simplex channels meant that Ofcom's underlying calculations were flawed.
- 3.165 UKMPG/BPA sought assurances that due weight would be given to organisations such as these which represent the views of a very large number of stakeholders and not merely the views of a single organisation. In UKMPG/BPA's view Ofcom had given disproportionate weight to "minority pressure groups" when developing the revised proposals set out in the August 2009 consultation.

### Ofcom's response

- 3.166 We were unable to publish our detailed proposals for pricing aeronautical VHF communications frequencies until December 2009 as it was necessary to hold extended discussions with key stakeholders. In the meantime, we were keen to make a formal public announcement about future pricing of radar and aeronautical navigation aids as soon as possible after we had concluded that AIP should not be applied to those spectrum bands at this time. Had we chosen to wait until we had concluded discussions on aeronautical VHF communications frequencies, users of radar and aeronautical navigations would have faced an additional four months of uncertainty about a future fees liability which had given rise to widespread concern.
- 3.167 Further, in reviewing the fees for maritime uses of VHF spectrum, we had identified the potential for introducing area defined licences, which had the potential to offer savings for some current users, in comparison with the cost-based fees applicable to their technically-assigned licences under the current Regulations. In our view, it would have been unfortunate and unjustified to delay making this licence available for users who could benefit from holding one, while we carried on discussions with stakeholders in a different sector.
- 3.168 As we had decided to make relatively few changes to our July 2008 proposals for pricing maritime VHF communications channels, our revised proposals which took into account stakeholder comments were ready for publication during the summer of 2009. We therefore chose to publish these alongside the revised proposals for radar and aeronautical navigation. In view of the extended delay in publishing the proposals for aeronautical VHF communications frequencies, we extended the closing date for submitting responses to the August 2009 maritime VHF consultation to ensure that stakeholders had a minimum of one month to check consistency between the two sets of proposals.
- 3.169 We apologise again for including in the August 2009 consultation the wrong map purporting to show areas proposed to be classified as High, Medium or Low density for the purpose of applying fees for international simplex channels. A public correction was published as soon as the error became known.
- 3.170 The map originally published and the corrected map were both generated using spreadsheets which contained assumptions about the methodology for determining

which classification should apply to any given grid square. As may be appreciated, Ofcom explored a number of different options for reflecting demand for frequencies in the classification system. Unfortunately, the spreadsheet used to generate the map originally published was not that which set out the preferred approach but, instead, was an option which had been discarded. For example, the grid squares portrayed as “High” density in the original map were not populated with 8 or more port operations assignments as we had intended, and as was stated in the text. The error was compounded when we relied on the same map when making a final check of the fees payable by users cited in the case studies examined by our consultants. The corrected map subsequently published was generated using the spreadsheet which contained the assumptions set out in paragraph 7.20 of the August 2009 consultation.

- 3.171 We fully recognise that some organisations responding to the August 2009 consultation were representing the views of a very large number of member organisations. Indeed, in recognition of this fact, we have held extensive bilateral meetings with such groups to ensure that we fully understand their point of view. We do not consider that we have given disproportionate weight to any groups. We note that, in any event, many fees proposed for the international simplex port operations channels, predominantly used by UKMPG/BPA members, have been reduced very substantially relative to the proposals published in July 2008.

## Section 4

# Conclusions and summary of revised fees

- 4.1 In this section we set out in more detail our conclusions on the revised fee which we have decided to implement.

## The underlying principles

- 4.2 As noted in paragraph 1.2 above, the underlying principle on which we have based our decisions is that where a channel type is either in excess demand in its current use or could feasibly be used to address excess demand for spectrum from some alternative use, AIP can help ensure that the resource is assigned to those who value it most highly. Where there is no excess demand for a given channel type, either for the existing use or for a feasible alternative use, then AIP should not be applied but a contribution should generally be made to our administrative costs.

### Internationally recognised simplex port operations channels

- 4.3 We have concluded that demand from the existing community of users, for the eight internationally recognised simplex port operations channels, exceeds supply and that AIP fees would help to manage that demand making it more likely that scarce channels will be assigned to those who value them most highly. We have decided, therefore, to make regulations applying AIP based fees to these channels.
- 4.4 We recognise that the proposed AIP based fees may not bring demand into line with the current supply, and that there is an important parallel task to address the underlying shortage through international change to expand the available supply.

### Internationally recognised duplex port operations channels.

- 4.5 Demand for these channels, from the existing maritime community of users, does not exceed supply. Furthermore, use of these channels for alternative, non maritime, applications is unlikely to be feasible while maintaining compliance with international agreements to ensure non interference with use by the international maritime community. We are working closely with the international community to see whether some of these channels could be reallocated as simplex channels, but this is unlikely to be achievable in the short term. Applying AIP to the relatively few UK users of these channels would not assist in achieving a useful outcome. We have decided, therefore, that fees for these channels should reflect only our administrative cost.

### UK allocated maritime channels

- 4.6 Ofcom has allocated a number of channels for maritime use within the UK, in addition to those allocated internationally by the ITU. These include both simplex and duplex channels. Demand for these channels from the existing community of maritime users does not exceed supply. However, as these channels are not subject to international obligations, it is feasible for Ofcom to make them available for alternative Business Radio use. Demand for spectrum from Business Radio applications does exceed supply and we have, therefore, concluded that AIP fees should apply to these channels, except where they are used by the maritime community on a private commons basis, such as is the case with channels used for co-ordinated search and rescue and the marina channels.

## **Channels used on a private commons basis**

- 4.7 Where channels, such as those used for co-ordinated search and rescue, the AIS channels, and the marina channels, are used on a private commons (shared) basis there is little merit in applying AIP fees. This is because a decision by some users (in response to the application of AIP fees) to cease using one of these channels would not enable the channel as a whole to be assigned to others (as it continues to be shared). This view might change if occupancy of such a channel was reaching a level at which additional channels might need to be assigned within the UK. We do not have evidence that this is the case with any of the maritime channels which are used on a private commons basis today. We have therefore concluded that AIP fees should not apply to channels used on a private commons basis. Depending on the management arrangements which apply in particular cases, we will either apply fees which reflect our administrative costs or will apply no fees at all.

## **Area defined licences**

- 4.8 Maritime licences currently in force apply in respect of specific transmitters, with defined characteristics at defined locations. If a licensee wishes to alter or move his transmitter he must apply for a licence variation (or a new licence). This type of licence is known as a “technically assigned” licence. Such licences will continue to be available and are likely to continue to meet the needs of most maritime spectrum users.
- 4.9 However, we have decided to introduce the option of “area defined” licences. As outlined in paragraphs 7.47 and 7.48 of the August 2009 consultation, this type of licence can offer greater flexibility and, potentially, greater spectrum efficiency where a spectrum user (or group of users) needs to deploy more than one transmitter. This is because the licence permits the deployment of any number of transmitters of any characteristics provided that the technical conditions applied at the boundary of the defined area are complied with. Those boundary conditions are designed to protect adjacent users from interference.

## **The specific conclusions**

- 4.10 We start by summarising the fees which will apply to assignments in conventional technically assigned licences, where the licence refers to one or more specified transmissions on specified channels at a particular location. We then set out the fees which will apply to the optional new area defined licences, which permit the user to transmit (in the licensed channel) from any number of transmitters in the licensed area provided that technical boundary conditions are complied with.

## **Technically assigned licences**

- 4.11 Changes to technically assigned licence fees will be implemented at some time after 1 January 2011. Some larger fee increases, as summarised below, will be phased in over 2 or 3 years. We will not make adjustment to sums which fall due to be paid before the implementation date; the new rates will be payable in respect of invoices due to be paid on or after that date. Implementation dates will be made explicit in the fee regulations.
- 4.12 Where a licence is varied or revoked, any refund for fees paid in advance will be determined using the rates applicable at the time when the invoice concerned was payable.

## **Technically assigned licences - International simplex port operations channels**

- 4.13 There are eight international simplex channels available for port operations use under the Coastal Station Radio (International) licence. The frequencies (and commonly used channel numbers) are as follows; 156.425 MHz (channel 68), 156.450 MHz (channel 9), 156.475 MHz (channel 69), 156.550 MHz (channel 11), 156.575 MHz (channel 71), 156.600 MHz (channel 12), 156.700 MHz (channel 14) and 156.725 MHz (channel 74). Fees are currently £100 per channel per transmitter.
- 4.14 Fees will vary according to (a) the location of the base station antenna and (b) its maximum effective radiated power (ERP) and the antenna height above mean sea level.

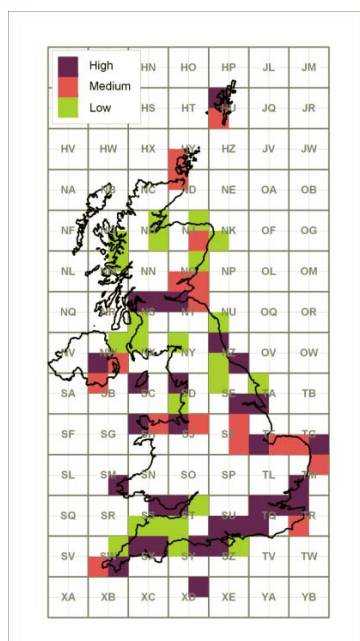
### Location of transmitter

- 4.15 We have divided the UK into 50km x 50km grid squares, using the Ordnance Survey National Grid Reference ("NGR") system<sup>16</sup>. Each square has been classified in one of four ways reflecting the likelihood, in that square, that one assignment would exclude another user from this channel type. We have defined three classes of area where the density of assignments (and, consequently, the likelihood of one assignment excluding another) is respectively High, Medium or Low. These are colour coded on the following map at Figure 1. We have defined a further class of area where the density of assignments is such that the risk of one assignment excluding another is not material; these areas are colour coded white. The numbering of each square on this map follows the NGR system and can be used to determine precisely which density class applies to any given national grid reference. The relevant factor is the location of the base station antenna. Unlike area defined licences (as discussed in paragraphs 4.32 to 4.35 below) the fee does not vary to reflect the density of assignments in surrounding areas which may be impacted by the transmissions.

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<sup>16</sup> Each of the NGR 100km x100km squares, denoted by two alphabetical characters (eg TQ), has been further subdivided into four grid squares each denoted with the suffix a, b, c or d (eg TQa). Suffix "a" refers to the north west quadrant, suffix "b" refers to the north east quadrant, suffix "c" to the south west quadrant and suffix "d" to the south east quadrant.

**Figure 1 Map defining classes of geographic area for Coastal Station Radio (International) simplex licences**



### Transmitter radiated power and antenna height

- 4.16 Fees will also vary according to the maximum effective radiated power (ERP) of the antenna and the height of the antenna above mean sea level. These factors are used as a determinant of the approximate coverage of the station. The following table sets out the relevant factors and fees. "W" is the effective radiated power (ERP) measured in watts and "A" is the height of the antenna above mean sea level measured in metres.
- 4.17 As noted in paragraph 4.14 above, fees also vary according to the location of the antenna, and this factor is included in the table.
- 4.18 As indicated, fees applicable to High density areas will be phased in over two or three years. The first figure stated will apply during the first 12 months period from implementation, the second figure will apply in the second 12 months period, and the third figure thereafter until fee Regulations are changed.
- 4.19 The fees stated will apply to 25kHz channels. Where other channel widths are licensed, the fees would be adjusted pro rata.



**Figure 2 Annual fees for each assignment of a simplex channel in a Coastal Station Radio (International) licence**

	<b>High coverage</b> (Watts erp/Antenna metres)  $W \geq 24$ and $A \geq 10$ $W \geq 10$ and $A \geq 20$ $W \geq 5$ and $A \geq 30$	<b>Medium coverage</b> (Watts erp/Antenna metres)  $W > 10$ and $A < 10$ $7 < W < 24$ and $5 < A < 20$ $3 < W < 10$ and $10 < A < 30$ $1.5 < W < 5$ and $A > 20$ $W < 5$ and $A > 30$	<b>Low coverage</b> (Watts erp/Antenna metres)  $W \leq 10$ and $A \leq 5$ $W \leq 7$ and $A \leq 10$ $W \leq 3$ and $A \leq 20$ $W \leq 1.5$ and $A \leq 30$
Geographic area			
High density area	£200/ £350/ £500 ie phased in over 3 years	£200/ £300/£400 – ie phased in over 3 years	£200/£300/£300 ie phased in over 2 years
Medium density area	£ 200	£ 150	£125
Low density area	£100	£75	£75
Areas with no material excess demand	£75	£75	£75

### Technically assigned licences - International duplex channels

- 4.20 Fees for these duplex channels within a Coastal Station Radio (International) licence are currently £100. We have concluded that each assignment for an international duplex channel should attract a reduced fee of £75 per year, as a contribution to our administrative costs. As channels used for co-ordinated search and rescue will be operated under the auspices of the MCA, other users of those channels will face no fees.

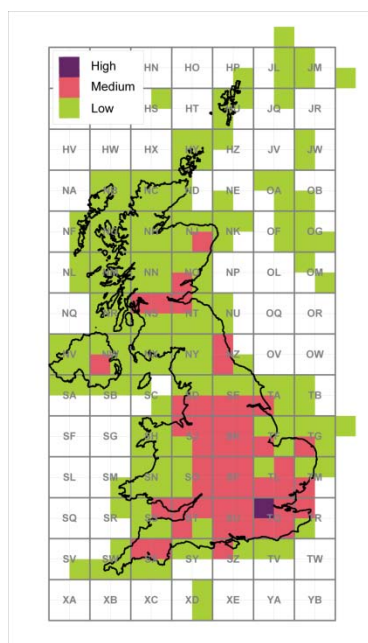
### Technically assigned licences - UK allocated channels (simplex and duplex)

- 4.21 As with International simplex channels, we have decided that fees for these channels (currently £180 per assignment) should vary according to the location of the transmitter/antenna and the approximate coverage of the assignment as determined by the effective radiated power (ERP) and antenna height above ground level. We have also decided that fees for duplex channels should be twice the level of fees for simplex channels, all other factors being equal.

#### Location of transmitter/ antenna

- 4.22 A map defining the relevant class of geographic area (High, Medium or Low) for each assignment is reproduced below at Figure 3. In the event that an offshore assignment is requested in a grid square shown as white in Figure 3 (ie where there is currently no assignment), these too would be priced as a “Low” congestion area. As will be noted classification system is different to the map which applies to international simplex channels. The reasons for this were explained in paragraphs 3.130 to 3.135 above.

**Figure 3 Map defining classes of geographic area for Coastal Station Radio (UK) licences**



### Transmitter radiated power and antenna height

- 4.23 Fees will also vary according to the maximum effective radiated power (ERP) output of the transmitter and height of the antenna above ground level. These factors are used as a measure of the approximate coverage of the device. The following table sets out the relevant factors and fees. "W" is the maximum effective radiated power (ERP) measured in watts. "A" is the height of the antenna, measured in metres above the ground, and not above mean sea level as will apply to international simplex channels. The reasons for the difference, and the reasons why we are deploying only three classes of area, are set out in paragraphs 3.134 and 3.135 above. Figure 4 sets out the relevant fees for UK allocated 25 kHz maritime simplex channels. Fees for UK allocated maritime duplex channels will be double the equivalent simplex rate.
- 4.24 As indicated, fees applicable to High and Medium coverage assignments in High density areas will be phased in over two or three years. The first figure stated will apply during the first 12 months period after implementation, the second figure during the second 12 months period, and the third figure thereafter until fee Regulations are changed.
- 4.25 As with fees for international simplex port operations channels, the fees stated for UK allocated channels will apply to 25kHz channels. Where other channel widths are licensed, for example for Differential Global Positioning Systems (DGPS) use (or even for voice communications if in future it was possible to make assignments with different channel widths), the fees would be adjusted pro rata.

**Figure 4 Annual fees for each assignment of a simplex channel in a Coastal Station Radio (UK) licence**

	<b>High coverage</b> (Watts erp/Antenna metres) W > 5 and A > 10 or W ≤ 5 and A > 30	<b>Medium coverage</b> (Watts erp/Antenna metres) W ≤ 5 and 10 < A ≤ 30 or W > 5 and A ≤ 10	<b>Low coverage</b> (Watts erp/Antenna metres) W ≤ 5 and A ≤ 10
Geographic area			
High density	£280/£510/£740 ie phased in over 3 years	£270/£370/£370 ie phased in over 2 years	£100
Medium density	£250	£170	£85
Low density	£90	£80	£75

### **Coastal Station Radio (Training School) licence**

- 4.26 Fees are currently £50 per year. These will reduce to a single one-off fee of £20 for a lifetime licence payable when the licence is first granted. We expect to introduce the option of free on-line applications in due course when necessary IT systems have been introduced. We may request licence holders to revalidate their licences every 10 years, but a further licence fee will not be payable.

### **Maritime Radio (Suppliers and Demonstration) licences**

- 4.27 Fees are currently £50 per year. These will increase to £75 but we will extend the duration of these licences to 5 years from the date on which the revised fees are payable.

### **Coastal Station Radio (Marina) licences**

- 4.28 Fees for these licences, which authorise the use of the three marina channels, (duplex 157.025/161.625 MHz and simplex 157.850 MHz and 161.425 MHz) will remain unchanged at £75 per year

### **Channels not attracting end user fees**

- 4.29 The following table sets out the channels which will attract no end user fees

**Figure 5 Channels attracting no licence fees**

<b>Application</b>	<b>Frequency MHz</b>
2 calling and distress channels and 4 associated guard bands (not normally licensed to shore stations)	156.525, 156.750, 156.775, 156.800, 156.825, 156.850
5 search and rescue related channels used under the auspices of the MCA	156.375, 156.500, 156.675, 156.000/160.600, 161.225
Maritime weather reporting channels, if used for search and rescue under the auspices of the MCA	157.150/161.750, 157.225/161.825, 157.325/161.925

Package of AIS channels	161.975, 162.025 (plus 156.525)
Primarily intership channels not normally licensed to shore stations	156.300, 156.400, 156.625, 156.650, 156.875,
One or two working channels to be used by organisations whose sole or main objective is the safety of human life in an emergency (if demand for such channels warrants a specific allocation)	Subject to further review of demand

## **Ships Radio licences**

4.30 Fees for these (£20 or free if applied for on-line) are not changing.

## **Temporary licences**

4.31 For reasons of consistency and administrative clarity, the fees structure for temporary maritime licences will be aligned with temporary licences available in other sectors. We will therefore remove the current requirement that temporary maritime licences should be for a minimum of 28 days, and apply a fee of one twelfth of the relevant annual fee for each month or part month, subject to a minimum fee of £20.

## **Area defined licences**

4.32 We are introducing the option to apply for an area defined licence from 31 July 2010. This option is equally available to spectrum users who wish to address a new spectrum need in this way and, where feasible, to those who wish to replace their existing technically assigned licence(s) with a new area defined licence.

4.33 Area defined licences will only be granted where the requested area can be licensed in this way while respecting the rights of existing assignments made to other parties in adjacent areas. In some cases this may not be possible. We set out in paragraphs 4.44 to 4.47 below, options under which more than one party may share rights in a given area.

4.34 Fees for area defined licences will vary according to the type of channel (whether internationally allocated or UK allocated, whether simplex or duplex, and reflecting channel width) and according to the number of 50km x 50km grid squares included in the defined area and their classification. The size and shape of the licensed area will be determined by the applicant in the context of his operational needs and the technical boundary condition set by Ofcom

4.35 The technical boundary condition will require the predicted field strength not to exceed -116 dBm in 12.5 kHz (equal to 5 dBuV/m in 12.5 kHz, or 8 dBuV/m in 25 kHz), at a receive height of 2m at or beyond the defined boundary using the P.1546-3 propagation model for 50% locations and 50% time<sup>17</sup>.

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<sup>17</sup> See footnote 11 above

## Area defined licences - Internationally allocated simplex port operations channels

- 4.36 Unit fee rates for area defined licences to use 25 kHz international simplex port operations channels are listed in Figure 6 below. If channel widths other than 25kHz are licensed, fees will be adjusted pro rata. The classification afforded to each 50kmx 50km grid square is as shown on the map at Figure 1 above. If it were ever possible to grant a UK-wide licence in one of these channels, which are already heavily used, the fee would be £9275 (which, due to rounding in the calculation of unit rates, is slightly lower than the sum of the rates applicable to each of the chargeable grid squares).

**Figure 6 Proposed fees for area-defined licences applicable to simplex internationally allocated maritime channels**

Area	Fee
UK-wide	£9275
50x 50km unit in a High density area	£220
50x 50km unit in a Medium density area	£85
50x 50km unit in a Low density area	£45 (subject to a minimum of £75 per licence)
50km x 50km unit in an area of no material excess demand	£0 (subject to a minimum of £75 per licence)

## Area defined licences - International duplex channels

- 4.37 Area-defined licences for international duplex channels will attract fees to contribute to our administrative costs. Licences covering up to four grid squares (covering land and/or sea areas) will attract a standardised fee of £75 per channel. Area defined licences covering more than four grid squares will attract a £75 fee for each increment of up to 4 grid squares, subject to a ceiling of £500 per channel. So, for example, an area covering between 5 and 8 grid squares would attract a fee of £150, while an area covering between 9 and 12 grid squares would attract a fee of £225 per channel.
- 4.38 As this will be a new type of licence, it is difficult to determine with certainty the administrative costs of granting and maintaining such licences. As noted in the August 2009 consultation, we believe a similar amount of technical planning will be required before granting a small area defined licence covering four grid squares as is required before granting a single technically assigned licence. For this reason we are applying a £75 fee for each area covering up to 4 grid squares. Larger area defined licences will require varying amounts of technical planning and national co-ordination, and perhaps international co-ordination, depending on the complexity of the technical boundary. We estimate that, given the complexity of planning larger area defined licences (including the need to check for potential interference to or from existing assignments in a large number of adjacent areas), this fee is likely to be below the average cost of managing an assignment of over 24 grid squares (the point at which the ceiling would apply).
- 4.39 At present, demand for these international duplex channels does not exceed supply, and this is the reason why we have decided not to apply AIP based fees. However, if a large proportion of current users chose to opt for a UK-wide licence (for opportunistic reasons rather than to meet current or realistic future need), this could

cause demand rapidly to exceed capacity. In principle, the correct response would be for Ofcom to apply AIP fees, but we hope that the agreed administrative fees will be a sufficient disincentive to applications in excess of users' real requirements, and so will not lead to artificial scarcity. Currently all assignments are limited to local areas.

- 4.40 We will review the level of these cost based fees in the light of experience in granting and supporting this type of licence.

### Area defined licences - UK allocated channels

- 4.41 Fee for area defined licences for UK allocated maritime channels will vary, like fees for Internationally allocated simplex channels, according to the number and class of land and/or sea grid squares covered by the licence requested.
- 4.42 Unit fee rates for area defined licences to use 25 kHz UK allocated simplex channels are listed in Figure 7 below. If licences are granted for channels with a bandwidth other than 25kHz, fees will be adjusted pro rata. The classification afforded to each 50kmx 50km grid square is as shown on the map at Figure 3 above. The fee for a UK-wide channel would be £8250 (which, due to rounding in the calculation of unit rates, is slightly lower than the sum of the rates applicable to each of the chargeable grid squares).

**Figure 7 Proposed annual fees for UK maritime simplex channels**

Area	Fee for per simplex channel
UK	£8,250
50x 50km unit in a High congestion area	£990
50x 50km unit in a Medium congestion area	£125
50x 50km unit in a Low congestion area	£12 (subject to a minimum of £75 per licence)

- 4.43 Fees for UK allocated duplex channels will be double the fee for a comparable simplex licence.

### Shared use of rights defined under an area defined licence

- 4.44 We recognise that some communities of spectrum users may wish to share the use of a licensed channel in a defined area. This might be operationally attractive, for example because the different parties need a common communications channel. In these instances, with the agreement of the parties, we would be willing to issue concurrent licences under which more than one party has rights to transmit in the same area. As usual, these licences, which would be issued to both (all) parties, would require the parties to respect the boundary conditions intended to protect the rights of neighbouring spectrum users. However, co-ordination between the holders of the concurrent licences and resolution of interference problems between those concurrent licence holders would be expected to be resolved contractually between the parties. It is important to note that, in these instances, only one set of fees would be payable, and only by one of the parties, although Ofcom would reserve the legal right to pursue all or any of the parties for sums owed, or for breach of other licence conditions, as applies with other types of concurrently held licences.



- 4.45 Spectrum trading potentially offers alternatives to concurrent licences granted by Ofcom, and could provide more flexible mechanisms for sharing of spectrum rights on terms to be determined by the parties. On 22 September 2009, Ofcom published a consultation document which considered a range of ways in which spectrum trading might be simplified<sup>18</sup>. The document also discussed the future introduction of spectrum leasing, which is a new concept recognised by the new EU Framework Directive<sup>19</sup>. We anticipate that spectrum leasing will be permitted in some spectrum bands during 2011. We published an interim statement on spectrum trading and leasing on 15 April<sup>20</sup>.
- 4.46 Maritime Coastal Station Radio licences are not currently tradable, and any change would require consultation. If trading (including leasing) was to be permitted, the regulations would need to ensure that any use of traded rights does not adversely impact other spectrum users and, more specifically, that those acquiring spectrum rights through trading fully respect international obligations in respect of internationally allocated channels.
- 4.47 In principle, there may be a good case for allowing UK allocated maritime channels to be traded. Trading of VHF Business Radio channels has been permitted for several years and has helped provide access to capacity where the volume of unassigned channels is insufficient to meet demand. Whether trading of internationally allocated maritime VHF channels would similarly facilitate sharing or release is less clear and would require careful consideration, and public consultation, before any decision was taken.

## Conclusions on impact assessment

- 4.48 In the August 2009 consultation, we presented a comprehensive impact assessment in support of our pricing proposals.
- 4.49 **First**, we identified the citizen and consumer interest which underpinned our proposal to apply fees reflective of opportunity costs to maritime VHF communications channels for which there is excess demand in the current application (ie internationally allocated simplex port operations channels) or which could be feasibly be used to meet some of the excess for spectrum for other applications (ie UK allocated maritime VHF communications channels, excluding those used on a private commons basis). We consider that licence fees based on opportunity cost will help manage excess demand for this scarce spectrum, making it more likely that it will be assigned to those who value it most highly. This, in turn, will make it more likely that demand for spectrum-dependent services valued by UK citizens and consumers can be met.
- 4.50 Although a number of stakeholders argued (as summarised in paragraphs 3. 24 to 3.27 above) that opportunity cost based fees would have insufficient impact on the shortage of internationally allocated simplex port operations channels, we maintain our view that end user fees are an important complement to continuing longer term

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<sup>18</sup> *Simplifying spectrum trading; Regulatory reform of the spectrum trading process and introduction of spectrum leasing* published by Ofcom on 22 September 2009 at <http://www.ofcom.org.uk/consult/condocs/simplify/simplify.pdf>

<sup>19</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:01:EN:HTML>

<sup>20</sup> *Simplifying spectrum trading* – interim statement published by Ofcom on 15 April 2010 at <http://www.ofcom.org.uk/consult/condocs/simplify/statement/>

international negotiation to ease capacity shortages by, for example, reducing channel widths, deploying digital systems and/or reallocating some of the under-used international duplex channels as simplex. We have summarised in paragraphs 3.146 and 3.149 above our reasons for maintaining the view set out in the August 2009 consultation that, in these communications channels, AIP would be most effective if applied to spectrum users rather than to MCA or, as UKMPG/BPA proposed, to Ofcom itself.

- 4.51 We note the recognition, by some stakeholders, as summarised in paragraphs 3.55 and 3.56 above, that opportunity cost based fees for UK allocated maritime channels may be helpful in the context of future wider use of these channels to meet demand for Business Radio channels
- 4.52 We therefore maintain our view that our proposals will benefit citizens and consumers by helping to manage excess demand, potentially leading to release of spectrum for other users.
- 4.53 **Second**, we considered that the proposal to apply AIP licence fees to the use of spectrum in the maritime sector is consistent with our duties and functions under the Communications Act 2003, since we have a general duty to promote the “efficient use and management of the electro-magnetic spectrum for wireless telegraphy”.
- 4.54 While, as discussed above, some stakeholders have questioned the likely efficacy of AIP applied to maritime VHF communications channels, none have argued that the proposal is inconsistent with our statutory duties. We therefore maintain our view that these proposals are consistent with our statutory duties.
- 4.55 **Third** we set out why we believe opportunity cost based licence fees should be applied to the maritime sector. The case for applying opportunity cost based licence fees for spectrum has previously been set out in our Strategic Pricing Reviews<sup>21</sup>, our July 2008 consultation and by Professor Martin Cave in the Cave Audit 2005<sup>22</sup>.
- 4.56 In the August 2009 consultation, we identified two broad options for setting licence fees: administrative (including zero) based fees and AIP fees based on underlying opportunity costs.
- 4.57 We consider that fees based on opportunity costs are likely to generate higher welfare benefits for consumer and producers overall where there is excess demand in current or alternative uses in line with our pricing objectives as referred to in paragraphs 4.49 to 4.52 above.
- 4.58 In cases where there is no excess demand in either current or feasible alternative use, we proposed administrative fees (e.g. internationally allocated duplex channels).
- 4.59 Where frequencies are used on a private commons basis, often for safety of life purposes, we proposed zero rated fees for end users (e.g. international calling and distress channels and channels used for co-ordinated search and rescue).
- 4.60 In line with these conclusions we proposed detailed opportunity cost based fee structures to apply to individual licensees to recover an appropriate share of the opportunity costs of the relevant national channels. This is to reflect the fact that

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<sup>21</sup> See document at footnote 6

<sup>22</sup> See *Independent audit of spectrum holdings* published at <http://www.spectrumbaudit.org.uk/final.htm>



licensees typically operate at less than national scale and assignments sterilise spectrum in different geographic areas with different assignment or population densities and relative levels of excess demand.

- 4.61 We note that some stakeholders have argued that the basis on which the proposed fees had been derived was unclear, and we have provided further elaboration in paragraphs 3.127 to 3.140 above. Nevertheless, the August 2009 consultation made clear that the proposed AIP fees varied according to the size of the territory impacted by the licensed transmission and according to the probability of encountering congestion in the area where the transmitter is situated. Stakeholders provided no information which led us to change our view that these are key factors which should be taken into account when it is appropriate to set fees based on opportunity cost.
- 4.62 We have set out in paragraph 4.50 above that we continue to believe that AIP based fees are a useful complement to continuing strategic management of these channels.
- 4.63 Our comments in paragraphs 4.49 to 4.52 above, in respect of the citizen and consumer interest, are also relevant to consideration of whether opportunity cost based fees should be applied to maritime VHF communications channels.
- 4.64 We continue to maintain that AIP based fees should be applied to maritime VHF communications channels which either face excess demand for the current application or which can feasibly be used to meet some of the excess demand for spectrum for alternative applications.
- 4.65 **Fourth**, we identified the distribution of financial impacts of these detailed fees structures on different types of licensees. We commissioned independent consultants Helios Technology Ltd to make a detailed assessment of the relevant fees impacts on individual licensees. The analysis concluded that, in aggregate, the impact on the sector is modest – around £96k per year. In light of the proposed licence fees it would be expected that organisations in areas of greatest demand making use of Coastal Station Radio (UK) channel allocations and simplex Coastal Station Radio (International) channels would see the greatest increases in fee costs.
- 4.66 Of the case study organisations examined in more detail by Helios technology, the one facing the highest financial impact under our proposals (ie the Port of London Authority) would experience increases of around £8k per year at the end of the period over which fee increases were proposed to be phased in, while the other licenses examined would see much smaller increases (Aberdeen Harbour Board about £200 and Portsmouth Commercial Port about £1100).
- 4.67 We estimated that 33% of licensees would see overall decreases, 40 % (mainly those using the marina channels) will see no overall change, and 26% will see overall increases. Although some licensees have since surrendered their licences and others have been granted new licences since the dataset used for the analysis set out in August 2009 was compiled, these proportions have not changed materially and are now 30%, 44% and 25% respectively (these figures do not quite add up to 100% as data was rounded to nearest whole number). Of those facing overall increases, we estimated that half will see overall increases of not more than £400 per year, and this remains the case with the current population of licences. As set out in Annex 7 of the August 2009 consultation, overall, the fee increases for specific maritime users are modest in absolute terms, and small relative to comparators including turnover, donations and conservancy, berthing or other charges.

- 4.68 There were no examples observed amongst the case study organisations of a rise due to licence fee changes that would be likely to lead to a significant change in output or profitability (note that at the margin, the charges do however provide incentives upstream for ports and harbours to use spectrum more efficiently).
- 4.69 As noted in Section 3 above, the Chamber of Shipping considered that the impact of the proposed fees, if passed on to shipping, would be negligible, and the UKMPG/BPA described the proposed changes as modest.
- 4.70 Based on this analysis, Ofcom considered specific phasing-in options for detailed fees structures (see paragraphs 7.103 to 7.109 of the August 2009 consultation) aimed at mitigating the transitional financial impacts that specific licensees may experience. Our proposals were aimed at reducing risks of inefficient responses to the new fees, even from the smaller organisations which are proportionately more affected.
- 4.71 We note that UKMPG/BPA and the MCA agree that the phasing proposals were reasonable. We share the view of the Chamber of Shipping that the introduction of any material fee changes should take into account the budgetary cycles of the organisations affected. As our proposals were published in August 2009 and the fee increases will not take effect before 1 January 2011, we consider that licensees have had sufficient notice of possible fee increases (and their likely size) to enable provision to be included within the 2010/2011 budgets if the increased costs were considered material.
- 4.72 As no other stakeholders submitted views on this question, we have concluded that the analysis commissioned by us from Helios Technology and Plum Consulting, and published at Annex 8 to the August 2009 consultation, is robust. In relation to the wider impacts of our proposed fees, we maintain the views summarised in paragraphs 7.112 to 7.145 of the August 2009 consultation.
- 4.73 **Fifth**, in relation to final demand, as, and to the extent that, changes in licence fees are passed on to final consumers, demand will be correspondingly reduced. However we expressed a view, in the August 2009 consultation, that fees of this magnitude would result in a negligible reallocation of maritime activity away from the UK. We considered the level of the fees, relative to other costs, to be modest, at around £129 per vessel on average for the Port of London which can be contrasted with the estimated other port related costs for a single typical 5,500 tonne vessel calling at a UK deep sea container port of £142,600 (including a cost of vessel estimate of £28,000 for one day).
- 4.74 We note the warning from UKMPG/BPA that fees applied to ports which contribute to navigational safety in areas that are covered by the state in other European nations will create an uneven playing field. However, we share UKMPG/BPA's view that these particular fee changes are modest, and we do not believe they will have a material impact on competition with ports elsewhere in Europe. We therefore maintain the view set out in the August 2009 consultation that fees of the magnitude proposed will result in a negligible reallocation of maritime activity away from the UK.
- 4.75 **In summary**, therefore, we are not persuaded that we should modify the impact assessment set out in the August 2009 consultation and we continue to rely on this in deciding to implement fee changes as described in this statement.

## Conclusions on other considerations

### Impacts on health and safety

- 4.76 We noted in the July 2008 consultation, and reiterated in the August 2009 consultation, that providers of safety critical services generally have to acquire inputs on the open market and ports generally have specific legal duties concerning safety. We continue to maintain that such points remain relevant in concluding that we should implement the fee changes set out in this statement. We do not consider there are likely to be any material impacts on health and safety arising from our proposals.
- 4.77 We note the view of the Chamber of Shipping, already referred to in paragraph 3.116 above, that if it could not be demonstrated that these fees would lead to enhanced spectrum efficiency, they may be detrimental to safety (or service quality). However, as we have summarised in paragraphs 4.49 to 4.52 above, we believe these fees will lead to enhanced spectrum efficiency. In any event, given the modest scale of the fees in relation to the other costs and revenues faced by ports, and in the light of the statutory duties in relation to safety to which the ports are subject, we do not accept that fees will be detrimental to safety. We therefore maintain our view that there are unlikely to be any material impacts on health or safety arising from the decision to implement the fee changes set out in this statement.

### Environmental and social impacts

- 4.78 The DfT and its agency the MCA are (amongst others) the UK public bodies responsible for assessing the effects of a range of regulatory policies in the transport sector that may impact the economy, the environment and society. These bodies have specific industry expertise and accordingly we have discussed our proposals with them, as noted in the August 2009 consultation. In the light of those discussions, and absent any further evidence subsequently provided by stakeholders, we do not believe the decision set out in this statement will have any adverse environmental or social impacts.

### Equality impact assessment

- 4.79 As discussed above, the direct financial impacts of applying AIP licence fees to licensees in the maritime sector may vary between groups or classes of UK consumers and citizens, depending on the geographic area in which they consume maritime services (e.g. shipping services) as well as the extent and ways in which fee changes are passed on to citizens and consumers, and the extent to which different citizens and consumers benefit from the more efficient use of spectrum which we believe will result, in aggregate, from these fees in the longer term.
- 4.80 The impact on maritime users is very small relative to relevant comparator values including organisation turnover, charitable donations and/or harbour/port fees (including berthing fees).
- 4.81 In addition, we note that there is no available evidence to suggest that our decision would have a significantly greater direct financial impact on identifiable groups including any groups based on gender, race or disability, or the relevant group of consumers in Northern Ireland relative to consumers in general. Ofcom considers that the small financial impacts (in both absolute and relative terms) would not be expected to suggest significantly different fees for port related services for these

aforementioned groups of consumers and citizens relative to consumers and citizens in general.

- 4.82 Ofcom has therefore not carried out a full Equality Impact Assessment in relation to race equality or equality schemes under the Northern Ireland and disability equality schemes.

## **Overall conclusion on impacts**

- 4.83 In this statement, we have considered the additional evidence made in response to the August 2009 consultation. We have summarised the key relevant issues in paragraphs 4.48 to 4.82. We do not consider that this additional evidence materially alters our assessment of impacts set out in the August 2009 consultation. Accordingly, we therefore intend to implement the fee changes set out in this statement.