



Bespoke licence fees for
aeronautical VHF communications
frequencies
A further consultation

Consultation

Publication date: 10 March 2011

Closing Date for Responses: 21 April 2011

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Section 1

Summary

The purpose of this document

- 1.1 In December last year we announced new fees, to apply from April 2012, for radio licences held by aeronautical ground stations. Fees will broadly reflect the coverage of a typical example of each service type and, as such, we refer to these as generic fees. However we said we would consult further on the possibility of refining some of these fees so that they reflect differences between the coverage of individual licences.
- 1.2 We are now setting out proposals for determining fees for some types of aeronautical ground station licences on a “bespoke” basis, under which individual licences with a relatively small Designated Operational Coverage (DOC) and associated separation zone would attract smaller fees than licences with relatively large DOCs.
- 1.3 This approach would present licensees with incentives to reduce the coverage of their radio service (where this is consistent with operational requirements), making it more feasible for the same frequency also to be used by another licensee elsewhere in the UK. This would help to address the shortage of frequencies available to the aeronautical community.
- 1.4 The financial impact on aeronautical users of these frequencies would be an overall decrease in fees of about £400k per year, compared with generic fees.

Our proposal

- 1.5 We propose to apply bespoke pricing to Air/Ground, Tower, Aerodrome Flight Information Service, Approach and Automated Terminal Information Service (ATIS) assignments.
- 1.6 We propose that bespoke fees should reflect the combined size of (a) the DOC in which the licensee wishes to operate his radio service and (b) the separation zone beyond that service area, which is needed to prevent radio interference between adjacent services. We propose that where this combined area is equivalent to the size of the UK land mass, the fee should be £9900 per 25 kHz channel. Smaller areas would attract smaller fees with, for example, an area equivalent to half of the UK land mass attracting a fee of £4950 and an area equivalent to 10% of the UK land mass attracting a fee of £990.
- 1.7 The fee for licences associated with the commonly used DOC of 10 nautical radius and 3,000 vertical feet would remain £650, irrespective of whether priced on a generic or bespoke basis, as the generic fee was derived on the same basis which we are now proposing to apply more widely.
- 1.8 As with the generic fees announced in December 2010, fees for 8.33 kHz frequencies and 50 kHz frequencies (for example where used with VDL) would be adjusted pro rata to their bandwidth.
- 1.9 We are currently minded to cap bespoke fees at £9900 per 25 kHz assignment, irrespective of how large is the combined area impacted by the assignment. We

explore the rationale for this proposal elsewhere in this document and would be interested to know stakeholders' views on this key point. We also propose that no fee should be less than £75, so that a reasonable contribution is made to administration costs.

- 1.10 In principle, bespoke pricing could also be applied to Area Control, VOLMET, ACARS and VDL assignments. However, these assignments would almost always attract a fee of £9900 and we currently see little practical value in notionally applying bespoke pricing. Here again, we would be interested to know stakeholders' views on this point, as there may be a contrary argument that we should future-proof the decision so that bespoke fees of less than £9900 would be payable in the event that more localised assignments for these service types are ever made in future.
- 1.11 The basis on which Offshore, OPC, Aerodrome Surface (including assignments sometimes known as Departure ATIS) and the Sporting frequency assignments are planned does not lend itself to bespoke pricing. These assignments types are generally used on a Private Commons (shared) basis reliant on the use of agreed protocols to minimise interference. We do not propose to modify the £350 generic fee which will apply to Offshore, OPC and Aerodrome Surface assignments or the £75 fee which will apply per block of Sporting frequencies.

Timing and next steps

- 1.12 We are asking for responses to this consultation exercise by 21 April 2011. This is a shorter period than is usually allowed but, as this is a re-consultation on a narrow issue, we consider this is a reasonable period which will enable the wider consultation to be brought to a swift conclusion.
- 1.13 Subject to stakeholders' views, we plan to implement bespoke pricing for Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS in April 2012, simultaneously with implementing the generic fees announced in December 2010 to apply to other service types. We would not implement the announced generic fees for the service types for which we decide to implement the bespoke fees option.
- 1.14 During the phasing-in period to April 2016, bespoke fees would be capped each year at the level of the equivalent generic fees announced in December 2010. During that period, no one would pay more than these amounts, but those with relatively small DOCs would pay less. The full bespoke fee would be payable by all licensees from April 2016.

Section 2

The detail of our proposal

Background

- 2.1 On 14 December 2010 we published a policy statement (the “December 2010 statement”) concluding that most aeronautical ground station radio licences should attract fees based on the value of the radio frequencies, instead of fees simply contributing to recovery of the cost of the licensing process. We concluded that fees set on this basis would cause licensees, and the wider aeronautical community, to consider whether they could use scarce frequencies more efficiently. We set out the generic fees for each service type calculated on this basis and said we would introduce these new fees from April 2012.
- 2.2 These generic fees vary according to the typical coverage of each service type. For example, fees for Approach services used to communicate with aircraft flying at up to 25,000 ft and as much as 65 nautical miles from the aerodrome are much higher than fees for ground based Aerodrome Surface communications services which have only a localised impact on other potential users. However, these generic fees do not reflect variations between individual assignments of the same service type. For example, all licences to operate frequencies with Approach services will attract the same generic fee, even though some assignments, because they have a larger service area, have a more extensive impact on other potential users than do other Approach assignments.
- 2.3 We said we would consult further on the possibility that, for some service types, fees might be set on a more bespoke basis reflecting the Designated Operational Coverage (“DOC”) and associated separation zone of the particular assignment.
- 2.4 In the following paragraphs we consider first which service types should attract bespoke fees and then we assess the basis on which bespoke fees might be derived.

Which service types should attract bespoke fees?

- 2.5 We propose to apply bespoke fees only if there is scope for this to make a real difference to spectrum use, as bespoke pricing would be more complex and costly to administer than generic fees.
- 2.6 It is our current view that bespoke fees could usefully be applied to the following service types which are associated with a wide variety of DOCs;
 - Air/Ground
 - Aerodrome Flight Information Service
 - Tower
 - Approach
 - Automated Terminal Information Service (“ATIS”)

- 2.7 In principle, bespoke fees could also be applied to Area Control, VHF Data Links (VDL), Aircraft Communications Addressing and Reporting System (ACARS) and VOLMET assignments, all of which have discrete DOCs. However, under our current proposals for deriving fees, all such assignments would attract the same £9900 fee per 25 kHz channel. As such, there may be little benefit in deriving fees for these service types on a bespoke basis, unless the coverage of these assignments can be expected to become more varied in the near future.
- 2.8 We explore the nature of these assignment types and how bespoke pricing might be applied in the following paragraphs.

Air/Ground, Aerodrome Flight Information Service and Tower services

- 2.9 The service coverage of frequency assignments associated with Air/Ground, Aerodrome Flight Information Service and Tower services varies widely between assignments, reflecting the operational needs of individual aerodromes.
- 2.10 We have already announced, in the December 2010 statement, that Air/Ground, Aerodrome Flight Information Service and Tower assignments with a DOC no greater than 10 nautical miles radius and 3000 ft service height (a very common DOC typically assigned to small aerodromes) will attract a lower generic fee (£650) than assignments with larger DOCs (£2600). These two-tier generic fees will provide incentives for some licensees to reduce their coverage so that this falls within the lower, cheaper, tier. We understand, in particular, that this may be feasible for many licensees at smaller aerodromes with historic assignments covering a 25 nautical miles radius and 4000 ft service height as such assignments are more commonly granted today with a DOC of 10 nautical miles and 3000 ft service height. We said fees for these two sub categories of assignments will remain aligned for the first two years of the phasing-in period until April 2014 to give licensees time to consider their options.
- 2.11 A more fully bespoke approach to setting fees for these types of assignments would, however, provide additional flexibility for licensees, particularly those which are unable to reduce their coverage to the threshold of 10 nautical miles radius. Bespoke pricing would also smooth out the large differences between fees for similar assignments on either side of the coverage threshold. We therefore propose that fees for these three licence types should be derived on a bespoke basis reflecting the DOC of the particular assignment concerned. We explore in paragraphs 2.33 to 2.60 below the detail of how this arrangement might be implemented and operated.

Approach assignments

- 2.12 Assignments of frequencies to support Approach services generally prevent reuse across most of the UK. The generic fee of £9900, announced in the December 2010 statement, was derived on this basis. However, as a number of stakeholders pointed out in their responses to the December 2009 consultation¹, a significant proportion of Approach assignments have a less extensive impact on possible reuse of a frequency.
- 2.13 Unlike assignments to support Air/Ground, Aerodrome Flight Information Service and Tower services, many of which share identical DOCs, Approach assignments are

¹ *Applying spectrum pricing to the Aeronautical sector* a consultation published by Ofcom on 18 December 2009 http://stakeholders.ofcom.org.uk/consultations/spectrum_pricing/

associated with a wide variety of different DOCs. As a result, we decided in December 2010 that it would not be appropriate to set different generic fees for sub categories of relatively localised and relatively wide-area Approach assignments as the demarcation would be likely to be fairly arbitrary.

- 2.14 Bespoke fees which reflect the impact of each particular assignment would provide more graduated incentives for users to review their spectrum use and reduce coverage where this is consistent with operational need. The current wide variety of DOCs associated with Approach services may imply that there is significant scope for such review. We are, therefore, proposing that fees should be derived on a bespoke basis.

Automated Terminal Information Services (ATIS)

- 2.15 We noted in the December 2010 statement that the coverage of ground based assignments which are sometimes known as Departure ATIS is more akin to other Aerodrome Surface assignments and the generic fee of £350 reflects this view. We discuss the merits or otherwise of applying bespoke pricing to Aerodrome Surface assignments in paragraph 2.25 below. In this document the term ATIS, where not qualified, is used to refer to Automated Terminal Information Services which are used to assist arriving aircraft. Some of these assignments may also be used to assist departing aircraft.
- 2.16 Frequencies to support ATIS are usually associated with extensive DOCs, and this is reflected in the decision to apply a generic fee of £9900. However, there is a significant variation in the DOCs reflecting local geography and operating practices. As such, we propose that these assignments should attract bespoke prices, with smaller DOCs and associated separation zones attracting lower fees than larger DOCs.

Question 1

We propose to derive fees for Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS assignments on a bespoke approach, under which fees would reflect the geographic impact of each individual assignment. What is your view of the merits of this approach compared with the alternative generic fees approach set out in the December 2010 statement? Do you take the same view about all of these service types?

Area Control assignments

- 2.17 Our December 2010 statement concluded that Area Control assignments should attract an annual fee of £9900 by the end of the phasing-in period, reflecting a conclusion that such assignments generally prevent re-use of the frequency anywhere else in the UK. Coverage of frequencies used to support Area Control services actually varies widely between assignments, but in almost all cases is so extensive that it prevents reuse of the frequency to support any another service within an area at least equivalent to the area of the UK and, in many instances, many times the size of the UK.
- 2.18 In principle, it might be argued that an assignment which prevents reuse of a frequency across an area many times larger than the UK should attract a fee significantly larger than the fee applicable to an otherwise similar assignment which prevents reuse across an area only marginally greater than the UK. At a practical level, given the need to ensure co-ordination with assignments in other European countries, requests for very wide area assignments do present administrative and

planning difficulties for regulatory and planning authorities. However, it is not clear that a very large assignment has greater impact on other potential UK spectrum users than another assignment which prevents reuse across a much smaller area, provided that in both cases no reuse within the UK is possible.

- 2.19 We would welcome stakeholders' views on this point of principle, but we currently propose that all assignments for Area Control services should attract a uniform generic fee, and that we should not seek to apply fees greater than £9900 to assignments which prevent reuse across an area larger than the UK.

Question 2

Where an assignment prevents re-use of a frequency across an area which is larger than the area of the UK land mass, it appears to make little difference to potential alternative UK users whether the affected area is only marginally greater or is several times greater than the area of the UK land mass. Do you take a different view? Are there any reasons why very large service areas and associated separation zones do have greater impact on the availability of frequencies than assignments which impact a smaller area equivalent only to the size of the UK land mass? If so, please provide a full explanation of how this effect operates.

- 2.20 We note that in two instances (a little more than 1% of all Area Control assignments), the location of Area Control transmitters, at the northern most end of the UK, is such that the frequencies are able to be reused to support ATIS at the southern most end of the UK. In principle, a bespoke fees algorithm could perhaps be devised to take account of these rare instances of frequency re-use. In practice, it would be complex to derive and maintain fees in this way as it is likely that existing reuse may be ceased and new reuse initiated from time to time. For this reason, we are not minded to devise a bespoke pricing arrangement to cater for these exceptional instances where re-use of Area Control frequencies is achievable.

VHF Data Links (VDL) and Aircraft Communications Addressing and Reporting System (ACARS)

- 2.21 All assignments of frequencies supporting VDL and ACARS are currently granted on a uniform basis which gives the user(s) the ability to provide UK-wide services. Two service providers currently offer airlines a range of UK-wide data services supported by these frequencies and, as we explained in the policy statement published in December 2010, where a frequency is shared the fee will be divided equally between the licensees.
- 2.22 We currently see little practical value in deriving fees on a bespoke basis as all assignments would, in any event, attract a uniform fee of £9900 per 25 kHz channel width. Nevertheless, we would be interested to know whether any stakeholders take the contrary view, that sub-national assignments might be made at some time in the future and, therefore, a bespoke fee structure should be put in place to accommodate this future scenario.

VOLMET

- 2.23 We concluded in the December 2010 statement that assignments to support the VOLMET service should attract a fee of £9900, reflecting the fact that these assignments prevent any reuse of the frequencies in the UK and, indeed, across an area several times larger than the UK. As with VDL and ACARS assignments, the introduction of bespoke pricing instead of generic fees would have no immediate impact on the fees payable, as all assignments would attract the same £9900 fee

irrespective of whether calculated on a bespoke or generic basis. Furthermore, as we explored in the context of Area Control services, it is our current view that any reduction in the coverage of a wide area assignment would bring no benefits to UK citizens and consumers unless the reduction was so great that it enabled re-use of the frequency elsewhere in the UK. We consider this outcome is unlikely in the context of VOLMET assignments, which are used to support a nationwide service. As such we see no practical value in applying bespoke pricing to these assignments.

- 2.24 We propose to implement the generic fee of £9900 set out in the December 2010 statement. If any stakeholders believe, to the contrary, that there would be practical merit in applying bespoke pricing, we would be interested to review the supporting argument.

Question 3

We currently propose that there is little merit in notionally deriving fees for Area Control, ACARS, VOLMET and VDL assignments on a bespoke basis when fees will rarely, if ever, be other than £9900. However, we recognise that there may be merit in applying a bespoke approach to fee setting so that, if assignments are ever made which impact an area smaller than the area of the UK land mass, fees would be reduced proportionately. In your view, would a bespoke approach to fee setting for these service types have any practical value now or in the near term?

Aerodrome Surface, Operational Planning Control and Offshore assignments

- 2.25 The December 2010 statement concluded that Aerodrome Surface, Operational Planning Control (OPC) and Offshore Fixed assignments should attract a fee of £350 and mobile transceivers associated with Offshore installations a fee of £75 per year. Within each service type, there is little variation in the size of geographic area impacted by each assignment, and assignments to support OPC services do not afford exclusive use of the frequency in the service coverage area. In the light of these factors, we see little value in applying a bespoke approach to setting fees for such assignments which would serve only to complicate arrangements for deriving fees.
- 2.26 We note that in the case of OPCs, as with the Sporting frequencies, the generic fee, when multiplied by the number of OPC assignments on each frequency, generates a figure that is lower than the estimated opportunity cost of these frequencies taken together. Furthermore, there is a wide variation in the number of times each OPC assigned frequency is reused. Bearing in mind the heavy use of other VHF frequencies by other users, in comparison, and the benefits of enabling more assignments of whatever type in the available spectrum, we would urge users of OPCs to consider with the CAA opportunities to rationalise the planning and use of these frequencies.
- 2.27 We propose to implement the generic fees of £350 and £75 set out in the December 2010 statement.
- 2.28 The December 2010 statement may have left room for doubt about the future licensing of Offshore assignments. For the avoidance of doubt, we wish to clarify that the £350 fee will apply to all Offshore base stations, irrespective of whether the station is fixed to the sea bed by a rigid structure or by anchors. Where mobile handheld transceivers are also used on the assigned frequency, an additional fee of £75 will apply, irrespective of the number of such transceivers. A single licence will be granted covering base station and any transceivers.

Sporting frequencies

- 2.29 The frequencies assigned to support sporting activities, such as gliding, parachuting and microlight flights, are used on a shared basis where individual users do not enjoy exclusive use in a given area. For this reason, it is difficult to see how a bespoke pricing arrangement reflecting coverage would operate and what purpose this would serve. We therefore propose to implement the £75 generic fee set out in the December 2010 statement.

Fire and emergency frequencies

- 2.30 We concluded in the December 2010 statement that we should not apply fees to the Fire frequency (121.6 MHz) and other emergency frequencies (121.5 MHz and 123.1 MHz) which are used on a shared basis, so the option to apply a bespoke fee arrangement does not arise.

Question 4

Would there be any merit in fees for other assignment types being derived on a bespoke basis? If so, which other service types should be subject to bespoke fee and how should these fees be derived?

Temporary licences

- 2.31 We concluded in the December 2010 statement that fees for temporary licences should be set pro rata to fees for more permanent licences, subject to a minimum fee of £75. We propose, therefore, that where fees for more permanent licences are set on a bespoke basis, the fees for temporary licences of the same type should be set pro rata to the equivalent bespoke permanent licence, subject to a £75 minimum fee.

In summary

- 2.32 In summary, we propose to apply bespoke pricing to Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS assignments. The generic fees set out in the December 2010 statement would apply to all other service types.

The basis on which bespoke fees would be derived

- 2.33 We propose that bespoke fees, which will apply only to exclusive assignments, should reflect the size of the area in which the licensee's use of the frequency prevents others from reusing that frequency. This is commonly known as the sterilised area. That area is determined by the size of both (a) the area in which the service is intended to operate and (b) the wider separation zone beyond this which is intended to protect against interference.
- 2.34 We propose that where the sterilised area is equivalent to the size of the UK landmass, a fee of £9900 should be payable per 25 kHz bandwidth. £9900 is the generic fee which we concluded should apply to service types which generally sterilise all of the UK. Assignments which sterilise a smaller area would attract a proportionately smaller bespoke fee. For example, assignments which sterilise an area equivalent in size to half of the UK landmass would pay a bespoke fee of £4950 (ie £9900 x 0.5).
- 2.35 We explore these issue in more detail in the paragraphs which follow, focusing initially (paragraphs 2.36 to 2.54) on more precisely how the sterilised area should be determined and then (paragraphs 2.55 to 2.60) considering how to determine fees.

Determining the size of the area sterilised by an assignment

- 2.36 As noted above, we propose to take into account the combined size of (a) the area in which the service is intended to operate, which is defined by the DOC, and (b) the wider separation zone, which is defined by rules set out by the International Civil Aviation Organisation (ICAO).

The Designated Operational Coverage (DOC)

- 2.37 The DOC defines the airspace in which the radio service is intended to operate. This is a three dimensional block described by (a) the maximum height at which aircraft are intended to be able to communicate reliably with the ground station and (b) the area of ground below this defined either by a radius around the transmitter or by geographic co-ordinates. Some blocks are larger than others as some services are designed to communicate with aircraft at higher altitude and/or greater distance from the transmitter(s). No other licensee can use the same frequency within this block or in the extensive buffer zone, or separation distance, around it.
- 2.38 The DOC usually forms part of the Ground Station Approval document granted under the Air Navigation Order by the CAA (distinct from the radio licence) to an aerodrome or provider of air traffic services and it is contained in a letter of assignment issued by the CAA. If bespoke pricing of radio spectrum licences is introduced, we propose to include the DOC in the radio licence (either by direct reference or by cross reference to the CAA's letter of assignment), as it is the DOC and the separation zone derived from this which will determine the fee payable.

Separation (reuse) distances between adjacent assignments – General approach

- 2.39 The International Civil Aviation Organisation (ICAO) has published guidelines on minimum separation distances between services and these can be found in ICAO's EUR Frequency Management Manual².
- 2.40 ICAO separation distances are variously determined by reference to the distance to the radio horizon from any given point at the edge of the service area and/or a multiple of the service range. The minimum recommended separation or reuse distance between any two or more services will depend on the nature of both (or all) of the services concerned. For example, the separation distance between a Circular service (such as Tower) and an adjacent Broadcast service (such as ATIS) will be different from the separation distance between two adjacent Tower services. A bespoke pricing formula which tries to take into account the nature of the existing or potential adjacent services in each case would be highly complex to administer and inherently unstable, as fees payable would need to change as adjacent assignments change. Therefore, we propose, instead, to derive prices on a basis that assumes that the adjacent services are always identical services, in terms of both the service type and the size of the service area.
- 2.41 We propose to take the following approach to calculating the geographic impact of a specific frequency assignment:
- Identify the authorised protected airspace volume for a particular service as defined in the DOC.

² EUR Frequency Management Manual see http://www.paris.icao.int/documents_open/show_file.php?id=275

- Using ICAO guidelines, and defined CAA spectrum planning practices, calculate a reuse distance between service edges based on two identical services.
- Calculate the combined sterilised area of the two services.
- Halve the combined area to identify the sterilised area of one service.

2.42 We propose to make the following underlying assumptions when applying fee setting calculations:

- The ICAO frequency-planning rules as detailed in ICAO EUR Doc 011 - EUR Frequency Management Manual will be applied to calculate the re-use distance.
- We will apply an additional calculation to ensure that the ground station of one circular service will not be subject to interference from an aircraft transmitting from any point within the adjacent DOC. This will affect the calculated separation distance between assignments with relatively localised DOCs, including those with a 10 nautical miles service radius. This factor too will be taken into account when deriving bespoke fees.
- ICAO has also set out minimum separation requirements in respect of adjacent channel use (ie the neighbouring use of different frequencies which are so similar that there is a risk of interference). There is an argument, in principle, that this impact too should be taken into account when setting fees. The effect is relatively small, however, and equates to approximately 1% by area compared with co-channel reuse. We therefore propose not to take adjacent channel separation factors into account when deriving bespoke fees.
- The ICAO frequency-planning rules apply relatively complex separation calculations to proximate 25 kHz and 8.33 kHz channel assignments. This means that the sterilised spectrum of an 8.33 kHz channel is not precisely one-third that of an identical 25 kHz channel. We propose that, for the purpose of calculating fees, no account should be taken of this factor either, as a more precise reflection of the difference would not materially improve the existing incentive to consider using a narrower channel, where that option is operationally available. We concluded in the December 2010 statement that generic fees for 8.33 kHz channels should be 33% of the level of fees for equivalent 25 kHz channels and we propose that the same approach should apply to bespoke fees.
- Some DOCs are defined by reference to specific geographic co-ordinates rather than a radial distance around a single transmitter. In these cases, the area takes the form of an irregular polygon and the ICAO planning rules require that adjacent services of this kind (Area services) are sufficiently far apart that the edge of one DOC is below the radio horizon when seen from any point on the edge of the adjacent service area. As the sterilised area, for pricing purposes, will be based on two identical polygons their relative orientation will affect re-use distance. We propose to overcome this variability by calculating the sterilised area based on a circle of identical area to the polygon. In practice, few Air/Ground, Aerodrome Flight Information Service, Tower, Approach or ATIS services have an Area based DOC but, in these instances, we propose that the polygonal service area should be converted to a circular shape for the purpose of determining the size of the wider separation zone and consequent fee. This would also be the approach which would be adopted if, contrary to our current proposals, we were persuaded that Area Control assignments (almost all of which are polygonal) should attract bespoke fees.

Separation (reuse) distances between adjacent assignments – Specifics

- 2.43 The ICAO frequency planning rules are based on three different classes of frequency assignment – those with circular (radial) DOCs, those with area (polygonal) DOCs and those with DOCs planned to support broadcast services. Circular and Broadcast DOCs both have a single transmitter located at the centre of a cylindrical volume of airspace, whereas Area DOCs have one or more transmitters placed somewhere within the polygonal volume of airspace. Circular and area services transmissions occur from both the ground station and the aircraft. Broadcast services transmissions occur from the ground station only.
- 2.44 The planning rules differ between these DOC types reflecting the different nature of each. In the following paragraphs we summarise those rules and how we propose to apply them for the purpose of deriving bespoke fees.

Circular DOCs:

- 2.45 Circular DOCs are planned to take into account transmissions initiated from the aircraft station as well as from the ground station. Almost all Air/Ground, Aerodrome Flight Information, Tower and Approach assignments have DOCs defined on the basis of a circular (radial) distance from the transmitter. The planning criteria for protecting a circular service from another identical circular service requires that where the same frequency is to be used there must be a separation distance between the edges of the two service areas of at least 5 times the larger range of the respective DOCs or the sum of their radio horizons (RH), whichever is least.
- 2.46 Figure 1 below illustrates, for two identical services with DOCs of x NM, the minimum co-channel separation distance between the edges of the services.

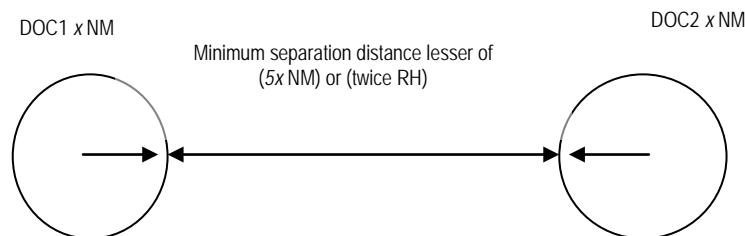


Figure 1 Minimum separation distances between Circular services

- 2.47 For very small DOCs, it is necessary to apply additional precautions to ensure that a signal from an aircraft station does not cause interference to the ground station of the proximate service. As noted above, in the second bullet of paragraph 2.42, the CAA applies a minimum separation distance which ensures that an aircraft within one DOC cannot cause interference to the ground station of the other. This adjustment, which is particularly relevant with small DOCs, will be applied when deriving bespoke fees.
- 2.48 A very small minority of Air/Ground, Aerodrome Flight Information, Tower and Approach assignments have a DOC defined by reference to the co-ordinates of a polygon and will, therefore be treated as Area services. As noted in the fifth bullet of paragraph 2.42 above, we propose to convert polygonal service areas to circles for the purpose of setting fees. We will then apply the separation rules for Area DOCs, as summarised below, for calculating minimum separation distances.

Broadcast DOCs

2.49 Broadcast services are circular services whose transmissions are initiated only from ground station. VOLMET and ATIS are Broadcast services. Planning criteria for protecting a broadcast service from another identical service requires that the separation distance between the edge of one service and the ground station (distinct from the edge of the service) of the other is the lesser of the radio horizon distance (assuming a ground antenna height of 20 m) and 5 times the service range.

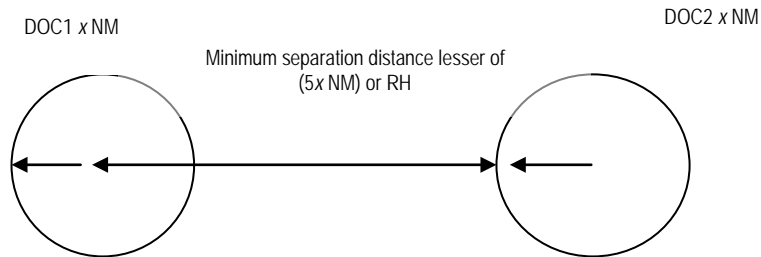


Figure 2 Minimum separation distances between Broadcast services

Area DOCs

2.50 Area services have polygonal service areas and transmissions are initiated both from the aircraft station and from the ground station. DOCs associated with Area Control (and ACARS and VDL) assignments are almost always defined on the basis of polygonal areas. A small minority of Air/Ground, Aerodrome Flight Information and Tower assignments also have polygonal DOCs. For the purpose of deriving fees from separation distances, we propose to convert the polygon to a circle of identical area as described in the fifth bullet of paragraph 2.42 above.

2.51 Planning criteria for protecting an area service from another identical service requires that the separation distance between the service edge of the two services should be the sum of the two radio horizon distances. This is shown in Figure 3.

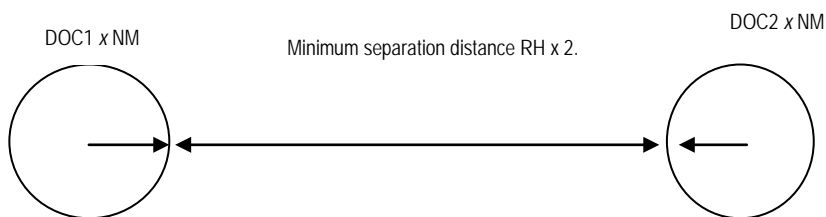


Figure 3 Minimum separation distances between Area services

Calculating Sterilised Area by Re-Use Distance

2.52 As noted in paragraph 2.41 above, we propose that, when deriving bespoke fees, the re-use distances as illustrated in Figures 1 to 3 above are apportioned equally between just two services i.e. a service will be assumed to sterilise a circular service area of radius equal to its own service radius plus 50% of the required total separation distance between the service edges.

- 2.53 As will have been observed, although the DOC service area is generally expressed as a three dimensional block of airspace, the ICAO recommended separation distances are expressed as two dimensional areas mapped onto the ground beneath this. Nevertheless, DOCs which extend to high altitude do attract relatively large separation distances because the radio horizon is more distant at higher altitudes. Thus a fee structure based on separation distances will provide incentives for licensees to seek the minimum DOC height necessary to deliver the required service.
- 2.54 It should also be noted that vertically separated DOCs, where one service operates above or below another, are not feasible and so no separation, or pricing, rules have been established for such scenarios.

Question 5

We are proposing to rely on ICAO's EUR Frequency Planning Manual when determining the size of the area in which one assignment prevents others from using the same frequency. For the purpose of setting fees, we propose not to take into account ICAO separation distance variables relating to adjacent channel use or bandwidth (although bandwidth will be reflected in fees as fees for 8.33 kHz and 50 kHz channels will be derived pro rata to fees for 25 kHz channels). We also propose to take into account the CAA's practice of applying, in the case of smaller DOCs, rules which ensure that an aircraft within one DOC cannot cause interference to the ground station of another. Are there other factors which should be taken into account when determining the size of the geographic area impacted by a particular assignment?

How the absolute level of fees might be determined

- 2.55 The preceding paragraphs 2.36 to 2.54 outlined how we propose to measure the area impacted by a frequency assignment, for the purpose of determining relative levels of bespoke fees. We propose that this area should then be expressed as a proportion of the UK land mass to determine the particular fee.
- 2.56 The generic fee set out in the December 2010 statement to apply to assignment types which generally prevent re-use of a 25 kHz frequency anywhere else in the UK is £9900. We propose to use this as a national reference rate for bespoke fees by assuming that the £9900 reference rate applies to an area of 71,000 nautical square miles, this being the commonly accepted definition of the area of the UK land mass. Areas equal to or greater than the area of the UK land mass would attract a fee of £9900 per 25 kHz channel and smaller areas would attract a proportionately smaller fee.
- 2.57 In many cases, the area impacted by a particular assignment may include an area of sea. We propose that the totality of the sterilised area should be included in the assessment of bespoke fees as, although there may be few transmitters sited at sea (offshore rigs excepted), sea areas often form an important part of a service area, or separation zone, for communication with aircraft transiting or arriving/departing an aerodrome. As such, use of a sea area, as a service area or separation zone, for one user can have a practical impact on other potential spectrum users.
- 2.58 As noted in paragraph 2.18 above, we propose to cap fees for 25 kHz assignments at £9900 even where the assignment prevents reuse of the frequency across an area greater than 71000 nautical square miles. We also propose to apply a floor of £75 to ensure an appropriate contribution to spectrum management costs.

- 2.59 We have set out in Table 1 below some examples of bespoke fees derived in this way.
- 2.60 It will be noted that, in some cases, DOCs with the same radius but different maximum service heights attract the same fee. In part, this is a reflection of our proposal to round bespoke fees down to the nearest £50 (see paragraph 2.70 below). It is also a reflection of the ICAO recommended practice for determining separation distances between circular services, which takes the smaller of (a) the distance defined by reference to the radio horizon and (b) the distance defined by reference to the range of the service (see paragraphs 2.36 to 2.54 above).

DOC type	Radius (nm)	Height (ft)	Total area impacted nm ²	Bespoke fee (rounded down to nearest £50)
Circular	10	3000	4701	£650
Circular	16	3000	9852	£1350
Broadcast	25	10,000	17671	£2450
Circular	25	4,000	24052	£3350
Circular	25	10,000	24052	£3350
Circular	25	15,000	24230	£3350
Circular	30	3,000	29785	£4150
Circular	30	4,000	34636	£4800
Circular	30	10,000	34636	£4800
Circular	40	3,000	36217	£5000
Broadcast	50	20,000	42986	£5950
Circular	50	3,000	43277	£6000
Broadcast	60	20,000	46739	£6500
Area	Polygon	10,000	52034 (assignments will vary widely)	£7250
Circular	40	7,000	61575	£8550
Circular	40	25,000	61575	£8550
Circular	42	15,000	67886	£9450

Table 1 Examples of fees to apply to a variety of DOCs

Consistency between generic fees and bespoke fees

Broad principles

- 2.61 The generic fees set out in the December 2010 statement reflect the typical geographic impact of each service type. Bespoke fees which reflect the same underlying assumptions about the value of these frequencies will generate a much more varied set of fees, some higher and some lower, than the generic fee for the particular service type. For example, the generic fee for Air/Ground, Aerodrome Flight Information Service and Tower assignments was set out in the December 2010 statement as £2600 (or £650 for those with a small DOC), whereas, in principle, bespoke fees for the current set of assignments, based on the same underlying value, could range between about £650 and, in rare cases, nearly £9000 as some assignments sterilise areas almost as large as the UK.
- 2.62 If licensees were given the option to have fees set either on a bespoke basis or on the basis of averaged generic fees, those with larger than average DOCs would opt for generic fees and those with smaller than average DOCs would opt for bespoke fees. In this scenario, those with larger DOCs would face no incentive to reduce their

coverage unless they believed that they could reduce this to below average. We propose that efficient use of spectrum is more likely to be achieved where all licensees have incentives to make modest, as well as large, reductions in the impact of their spectrum use. This is the principle underpinning the proposal to apply bespoke fees to some licence types.

- 2.63 For this reason, we propose that all fees for a particular service type should be derived on a bespoke basis where we consider that bespoke pricing has merit for that service type. Therefore, where we conclude that bespoke fees should be available, the generic fee set out in the December 2010 statement would not be implemented in fee regulations.
- 2.64 In practice, however, if following consultation, we confirm our assessment (see paragraph 2.18 above) that assignments which impact an area significantly larger than the UK land mass have no greater impact on other potential users of a frequency than assignments which impact an area equivalent to or only slightly larger than the UK land mass, the generic fee of £9900 (applicable to service types which generally prevent re-use across all of the UK) would, in any event, be applied as a cap on the level of the bespoke fees which we are proposing to apply to such assignments. Under our current proposals, this would be the situation with Approach and ATIS assignments.
- 2.65 The possibility of bespoke fees being greater than the generic fees set out in the December 2010 statement will, therefore, arise only in the case of Air/Ground, Aerodrome Flight Information Service and Tower assignments which, for the purpose of determining generic fees, were assumed generally to impact an area equivalent to 26% of the UK land mass. Assignments which impact a larger area would, in principle, attract a fee which is larger than the £2600 generic fee. We explore the implications in the following paragraphs.

Transitional arrangements for fees for Tower, Aerodrome Flight Information Service and Air/Ground services

- 2.66 We highlighted in the December 2010 statement that if bespoke fees option were to be introduced for Air/Ground, Aerodrome Flight Information Service and Tower services, licensees with coverage greater than 25 nautical miles radius and/or 15,000 ft service height might be required to pay bespoke fees proportionately larger than the generic fee of £2600.
- 2.67 We maintain the view that the 2% of Air/Ground, Aerodrome Flight Information Service and Tower assignments which currently have DOCs greater than 25 nautical miles radius and/or 15,000 ft service height should eventually attract bespoke fees reflective of their impact and, therefore, greater than the £2600 generic fee set out in the December 2010 statement. This is to ensure that fees present viable incentives to make reductions in coverage where this is feasible. For the reasons given in paragraph 2.18 above, fees for any assignments covering an area greater than the area of the UK would be capped at £9900. Fee increases would be phased-in over the period to April 2016 and the nature of this phasing-in is discussed in paragraph 2.69 below.
- 2.68 A further, much larger, number of Air/Ground, Aerodrome Flight Information Service and Tower assignments have a DOC of 25 nautical miles radius (ie not *in excess of* 25 nautical miles) and 4,000 ft maximum service height. As these prevent reuse of a frequency across an area equivalent to 34% of the UK land mass, the fee derived on a bespoke basis would be £3356 per year (rounded down to £3350). However, as

noted in paragraph 2.10 above, many of these were assignments were made some years ago reflecting planning criteria since superseded, and there may be scope for a significant proportion of these to be reassigned with a DOC of 10 nautical miles radius and 3,000 ft service height, which would then attract a fee of just £650. We propose that, from April 2016, any of these assignments which still have a DOC which would warrant a bespoke fee in excess of £2600 should attract that full fee.

Implementation and phasing-in

2.69 Subject to responses to this consultation exercise, we will implement bespoke pricing for Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS in April 2012, simultaneously with the generic fees announced in December 2010 for other service types. We propose that during the period to April 2016, bespoke fees should be capped at the level of the generic fee announced in December 2010 to apply to the year in question. For example, no licensee with an Air/Ground, Aerodrome Flight Information Service or Tower assignment will pay more than £350 in the year 2012/2013, but any with very small DOCs would pay less. The full bespoke or generic fee (depending on service type) will be payable from April 2016. We will urge licensees to review their needs early during the transitional period as a some licensees may, otherwise, face a step change in fees from the £2600 cap based on the former generic fee for Air/Ground, Aerodrome Flight Information Service and Tower assignments, to £3350, or more in the rare cases discussed in Section 3 below. The maximum bespoke fee payable in each of the years is set out in the following Table;

Service type	Fee today	2012/13	2013/14	2014/15	2015/16	Subsequent
Air/Ground, Aerodrome Flight Information Service and Tower with DOC up to 10nm/3000ft	£150/£100	£350	£500	£650	£650	£650
Other Air/Ground, Aerodrome Flight Information Service and Tower	£150/£100	£350	£500	£1200	£1900	£9900 (rare cases)
Approach and ATIS	£150	£1000	£2000	£3000	£6000	£9900

Table 2 Maximum bespoke fee payable (per 25 kHz) during the period of phased increases

2.70 We propose that bespoke fees should be rounded down to the nearest £50 to avoid disproportionate administrative complexity.

Question 6

We are proposing that, until April 2016, bespoke fees should be capped at the level of the generic fees announced in December 2010. After that date, no bespoke fees will rise beyond £9900 per 25 kHz bandwidth, but some Air/Ground, Aerodrome Flight Information Service and Tower assignments with a relatively large DOC will

attract bespoke fees in excess of the £2600 generic fee set out in December 2010. Does this timetable provide sufficient time for licensees to review their operational needs and, where appropriate, agree changes to their DOC, before fees, for some licensees, increase beyond the level announced in December 2010?

- 2.71 With a few exceptions, we propose to introduce a new class of licence to apply to each service type, including those service types to which generic fees will apply. A single licence class will, however, apply to Air/Ground, Aerodrome Flight Information Service and Tower assignments as, from a spectrum planning point of view, there are very close similarities between these service types. For similar reasons, we will apply a uniform licence to OPC, Aerodrome Surface and Offshore assignments. On this basis, the following licence types will be available;
- Air/Ground, Aerodrome Flight Information Service, Tower
 - Approach
 - ATIS
 - Area Control
 - VOLMET
 - ACARS
 - VDL
 - Aerodrome surface, OPC, Offshore
 - GA Sporting
 - Fire and emergency
- 2.72 As noted in paragraph 2.38 above, we propose to include a legally binding reference to the DOC in each licence. In all other material respects, however, the licence terms and conditions will remain unchanged

Question 7

We propose to introduce a new licence class for each of (a) Air/Ground, Aerodrome Flight Information Service and Tower, (b) Approach, (c) ATIS, (d) Area Control, (e) VOLMET, (f) ACARS, (g) VDL, (h) Aerodrome Surface, OPC and Offshore, (i) GA Sporting frequencies and (j) Fire and Emergency frequencies. Are there reasons why the portfolio of licence types should differ from this proposal?

Section 3

Impact assessment

Introduction

- 3.1 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Communications Act 2003, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf
- 3.2 The analysis presented in this section 3, and in the preceding section 2, represents an impact assessment, as defined in section 7 of the Communications Act 2003.
- 3.3 You should send any comments on this impact assessment to us by the closing date for this consultation. We will consider all comments before deciding whether to implement our proposals.

The citizen and consumer interest and the policy objectives

- 3.4 We conducted a detailed impact assessment before publishing the December 2010 statement. In that statement we set out the rationale for applying AIP based fees, including the citizen and consumer interests and the policy objectives. Those interests and objectives remain unchanged and we continue to rely on that analysis in this further consultation. In particular, as was noted in paragraph 4.18 of the December 2010 statement, we consider that licence fees based on opportunity cost will help manage excess demand for these frequencies, making it more likely that those who provide spectrum dependent services which are highly valued by UK citizens and consumers will have access to the frequencies which they need to deliver those services.

The options being considered

- 3.5 We are assessing in the present consultation the impact of the new proposal, to derive fees for some assignments on a bespoke basis, compared with the decision set out in December 2010 to apply generic fees. If we decide not to introduce bespoke fees, the generic fees will be implemented without modification, subject only to a further consultation on the form of the implementing fee regulations. The two options which we are considering in this impact assessment are, therefore,
- Option (a) to implement bespoke fees as described in this further consultation and
 - Option (b) to do nothing and leave unchanged the policy decision set out in the December 2010 statement, to apply generic fees.

Impact and risk analysis

- 3.6 The objective of applying bespoke pricing, instead of generic pricing, to some types of aeronautical radio licences, is to provide more effective incentives for licensees to use spectrum efficiently. The more closely charges reflect opportunity costs, the larger the gains from more efficient usage are likely to be. This could come not only from inducing some additional reductions in usage, but also by ensuring that some users may decide to continue using spectrum which otherwise, at generic prices, they would have given up, rationally (in response to the price set) but inefficiently (in relation to the value they derive from the use).
- 3.7 We concluded in the December 2010 statement, that generic fees will cause spectrum users to review the volume of each service type that they require, potentially releasing frequencies for other aeronautical users who place a higher value on that resource. As we observed in the December 2010 statement, bespoke fees which vary according to the geographic impact of different assignments can provide additional incentives for licensees to consider using the minimum DOC consistent with their operational and regulatory requirements, thus potentially releasing spectrum for other aeronautical users, and making it easier over time for the CAA to accommodate current and future demand for assignments.
- 3.8 It is difficult to quantify these additional benefits as licensees' sensitivity to price changes is difficult to determine. However, it seems reasonable to conclude that amongst the licensees which cannot operate with a reduced number of frequencies (the outcome promoted through generic pricing) there are many who will decide that they can reduce the coverage of their existing assignments. Thus, bespoke pricing has the potential to have a more widespread impact on spectrum use, albeit effecting less dramatic changes in the behaviour of those whose behaviour it alters. The incentive to reduce fee liability by releasing some assignments in their entirety will remain under the bespoke fees approach and, therefore, the benefits generated by those who reduce coverage may be considered additional.
- 3.9 We recognise that bespoke pricing may be more complex and costly to administer than generic pricing. Most of the additional costs take the form of one-off up-front costs incurred in implementing the IS system needed to calculate bespoke fees. Administration of aeronautical spectrum licensing is carried out by the CAA under contract to Ofcom and any additional administration costs would be passed on to Ofcom by the CAA. The ongoing costs of the two schemes appear similar as licence records will need to be maintained and invoices generated under either arrangement.
- 3.10 The CAA has observed that if bespoke fees cause some licensees to seek reduced DOC this could have resource implications for the CAA itself, as changes to DOC may require aerodrome and air traffic control centre operating licences granted by the CAA to be reviewed. As with the additional IS implementation costs for spectrum licensing, these CAA costs are likely to be front loaded as licensees review their existing assignments. We forecast that these additional resource demands will be spread thinly across the five years to April 2016 as, before that date, the level of bespoke fees will be subject to a cap defined by the level of generic fees set out in December 2010. We also note, however, that costs may be offset by delivery of frequency efficiency benefits.

Stakeholders likely to be affected

The great majority of aeronautical ground station licensees will be unaffected by these proposals

- 3.11 As illustrated in Figure 4 below, about 84% of aeronautical VHF ground station assignments relate to OPC, Sporting, Offshore, Aerodrome Surface, Area Control, ACARS, VDL and VOLMET services, for which we are not proposing to apply bespoke fees. Under our current proposals, these will be subject to the generic fees set out in the December 2010 statement and the current proposals will have no impact on the licensees.
- 3.12 If, alternatively, with a view to future-proofing the new fees structure (see paragraph 2.7 above), we were to decide to derive fees for some or all of service types Area Control, ACARS, VDL and VOLMET on a bespoke basis, no bespoke fee for these service types would be greater than the £9900 generic fee set out in the December 2010 statement. This is because, for the reasons set out in paragraph 2.18 above, we propose to cap fees at £9900 per 25 kHz channel. Indeed, although a very small number of assignments might attract lower bespoke fees, almost all would outturn at the same £9900 level.
- 3.13 Of the 16% of assignments in the remaining service types, Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS, for which we are proposing to apply bespoke fees, we estimate that about a quarter will face a bespoke fee which is the same as the generic fee set out in the December 2010 statement. This is because many Air/Ground, Aerodrome Flight Information Service and Tower services assignments have a DOC of 10 nautical miles radius and 3,000 maximum service height for which we concluded the generic fee should be £650. As that generic fee was derived on the same basis on which we are now proposing to derive bespoke fees more widely, the fee will remain £650. Further, a significant number of Approach assignments have a combined DOC and separation zone which is larger than the area of the UK land mass, and so, as discussed in paragraph 2.19 above, will attract a bespoke fee capped at £9900, which is the same of the generic fee set out in the December 2010 consultation.

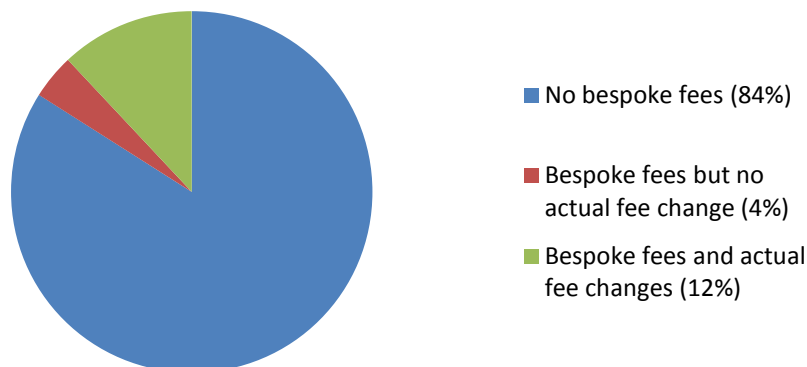


Figure 4 Proportions of current Aerodrome Ground Station assignments for which fees would change if bespoke pricing is introduced

Assignments subject to bespoke fees will be impacted in a variety of ways

- 3.14 Some assignments subject to bespoke fees will attract no actual change of fee because (as noted in paragraph 3.13 above) the bespoke fee is the same as the

generic fee. Others will see a fee reduction and some will see an increase. In assessing the impact of these proposals it is important to look not only at the differences for each assignment (in comparison with generic fees), but the overall impact on each stakeholder. In a significant number of cases, a particular assignment may be subject to a fee increase under the bespoke approach, but the licensee will benefit from a reduced bespoke fee for other assignment types which he holds and, overall, he will see a reduction or no overall change in fees payable. A further group of licensees have discretion to align their DOC with more recent assignment practices and, so, reduce fees payable to less than the fee anticipated in the December 2010 statement. These different outcomes are illustrated in Figures 5 below. The detail is explored in the paragraphs which follow.

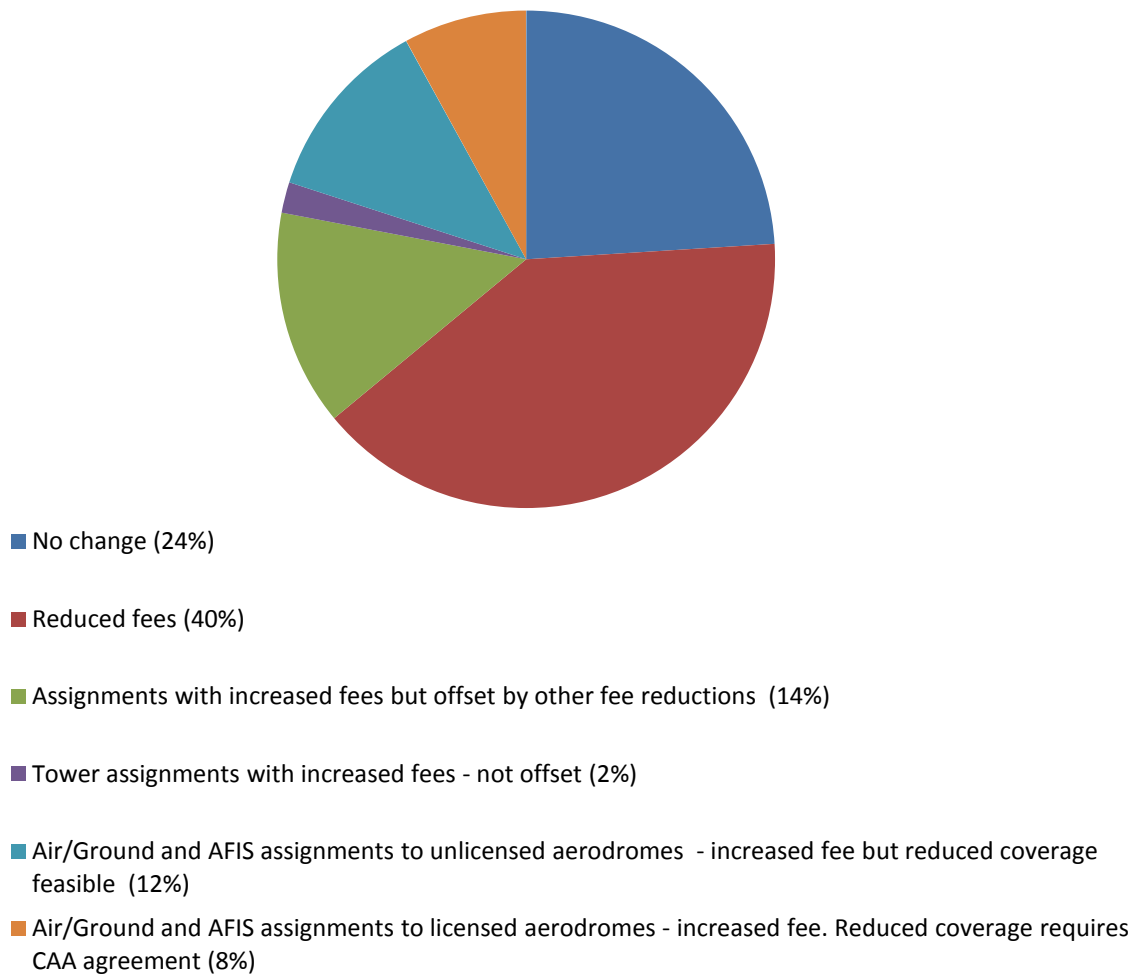


Figure 5 Assignments which would be subject to bespoke pricing

Many assignments which would be affected by these pricing proposals would see fee reductions

3.15 As illustrated in Figure 5 above, of the assignments which would be subject to bespoke fees, 40% will attract smaller fees under the bespoke approach. Most of these are ATIS and Approach assignments, although some Air/Ground (and, less so, Aerodrome Flight Information and Tower) assignments would also attract lower fees under the bespoke approach. In some cases, particularly the more localised Approach assignments, the fee reduction would be very significant. As noted in

paragraph 3.13 above, a further 24% will see no change because the bespoke fees outturn at the same level as the generic fee.

However, a bespoke approach to fee setting will generate higher fees for some assignments from April 2016

- 3.16 36% of assignments which would be subject to bespoke fees would, potentially, attract a larger fee under the bespoke approach to fee derivation than under the generic approach.
- 3.17 As set out in paragraph 2.69 above, we are proposing that, during the period to April 2016, bespoke fees should be capped at the level of the generic fees set out in the December 2010 statement to apply during the four years phasing-in period. Therefore, the proposal to apply bespoke fees, instead of generic fees, will have no financial impact on any licensees before April 2016. Nevertheless, we have reviewed in some detail the identities of the licensees which may face higher fees from April 2016 as a consequence of bespoke pricing, instead of generic fees, being introduced.
- 3.18 Bespoke fees larger than the £2600 generic fee set out in the December 2010 statement will, potentially, be faced by some users of Air/Ground, Aerodrome Flight Information Service and Tower assignments with relatively large DOCs. Most of these (76%) have a DOC of 25 nautical miles and 4,000 vertical feet. This is a very common DOC, which would attract a bespoke fee of £3350. A further 20%, also with DOCs of 25 nautical miles radius but with various operating heights, will also face a fee of £3350. In addition to these groups, two Tower assignments with exceptionally wide area coverage would attract a bespoke fee of £8550 and two very extensive Aerodrome Flight Information Service assignments and a further very extensive Tower assignment would attract a bespoke fee of £4800. We discuss the nature of these various assignments, and the options which the licensees face, in the paragraphs which follow.

Air/Ground, Aerodrome Flight Information Service and Tower assignments with DOC of 25 nautical miles

- 3.19 We understand from the CAA that many of the assignments with DOC of 25 nautical miles radius are long established assignments which, if made today, would have a DOC of 10 nautical miles radius and 3,000 vertical feet, which would attract a bespoke (or generic) fee of £650. About a third of this group are Air/Ground and Aerodrome Flight Information Service assignments made to unlicensed aerodromes which have discretion, subject to their own assessment of operational and safety requirements, to alter the DOC within which they operate. Given our understanding that such users, today, are more commonly afforded a DOC of 10 nautical miles radius and 3,000 vertical feet, we anticipate that many of these licensees will wish to review their operational needs with a view to reducing their fees liability to £650.
- 3.20 However, where an assignment is used at a licensed aerodrome, the current DOC may be a condition of the aerodrome licence (distinct from the radio licence) granted under the Air Navigation Order by the CAA. We understand that each case would be reviewed on its merits, but that a reduced DOC is likely to be acceptable to the CAA in some cases.
- 3.21 Of the assignments which would face a bespoke fee of £3,350 in place of a generic fee of £2600, a little over 40% are Tower assignments at licensed aerodromes. While fees for these Tower assignments would be higher under the bespoke approach to

fee derivation, than under the generic approach, all but three of the licensees which hold these assignments will benefit from lower bespoke fees for their Approach and/or ATIS assignments which will result in either a reduction or no change in the overall fees payable by these licensees. In the cases of the three exceptions, two of the licensees (a General Aviation centre and a small commercial aerodrome) have no other assignments which might otherwise offset the fee increase for their Tower assignment and the third (a large commercial aerodrome) also has two unusually extensive, and therefore expensive, Approach assignments. We consider that the £750 fee increase at the General Aviation site and at the small commercial aerodrome is small in relation to the training activity carried out at the former and passenger numbers seen at the latter. We include a summary of the financial impact of bespoke fees on these licensees in Table 3 below.

- 3.22 Finally, Air/Ground and Aerodrome Flight Information Service assignments to licensed aerodromes, account for a quarter of assignments with DOC of 25 nautical miles radius. These licensees will wish to review their operational needs with CAA during the period to April 2016, after which time fees may exceed the £2600 set out in the December 2010 statement. Informal discussion with stakeholders has indicated to Ofcom that some of these assignments may reflect frequency assignment and/or aerodrome licensing practices since superseded, and that other assignments may reflect earlier uses of the site. In Ofcom's view, there would appear to be scope for some of these DOCs to be reduced if licensees so wish.

Assignments with exceptionally large DOC

- 3.23 As summarised briefly above, just five assignments (about 2% of all Air/Ground, Aerodrome Flight Information Service and Tower assignments) would attract a bespoke fee even larger than £3,350.
- 3.24 Two of these are Tower assignments which would attract a bespoke fee of £8550 as these prevent reuse of the frequency across most of the UK. One is used by a major regulated airport and the other by a small commercial aerodrome. In both cases, the licensee would see an overall increase in fees, consequent on the introduction of bespoke pricing, as the relatively high bespoke fee for the Tower assignment is not offset by a relatively low bespoke fee for the Approach or ATIS assignment. It would be for the licensees to determine their needs, in conjunction with the CAA, but we note that it is unusual for a small commercial aerodrome to deploy two very extensive Approach assignments and to require such extensive coverage for a Tower assignment, and there may be scope to reduce significantly the fees payable at that site. Given the nature of the traffic at the large regulated airport, scope to reduce the DOC of the assignments may be limited or nonexistent but very high traffic and passenger volumes (as set out in the December 2009 consultation) are such that the fee increase is unlikely to have any perceptible impact on the operation of the airport.
- 3.25 A further Tower assignment (at a non reporting aerodrome catering for business jets) and two Aerodrome Flight Information Service assignments (at an air museum and a small peripheral aerodrome) would each attract a bespoke fee of £4800. The aerodrome catering to business jets would see an overall reduction in fees, as bespoke pricing would significantly reduce the fees payable for its Approach and ATIS assignments. The museum and peripheral aerodrome, however, would see an overall increase as neither has any further assignments whose fees might offset the increase for the Aerodrome Flight Information Service assignment. In both of these latter cases there may be scope to review the existing assignments between now and April 2016 when fees would otherwise exceed the £2600 set out in the December 2010 statement.

3.26 The following Table 3 includes a summary of the financial impact of bespoke fees on these five licensees, plus the three licensees referred to in paragraph 3.21. The identities of the licensees have been redacted for publication. The fee totals (Generic and Bespoke) summarised in this table relate only to services types for which we are making proposals to apply bespoke prices. Current fees payable for these assignments, intended only to recover some of the administrative costs, range between £100 and £600 per licensee.

Site ³	Generic fee	Bespoke fee	Difference	Notes
[X] Small commercial aerodrome	£32,300	£35,850	Increase £3,550	Unusually extensive Tower assignment (£8550), plus two Approach (each £9900) and one ATIS (£7500). No offset for increase in Tower fee.
[X] Large regulated airport	£15,100	£18,400	Increase £3,300	Unusually extensive Tower assignment (£8550), plus one other Tower (£3350) and one ATIS (£9900) – no offset for increase in first Tower fee.
[X] Non reporting aerodrome	£22,400	£14,650	£7750 decrease	Increase in Tower fee (£4800) offset by decrease in ATIS fee (£6500) and Approach fee (£3350)
[X] Museum	£2600	£4800	Increase £2200	Unusually extensive Tower (£4800) only – no other assignment to offset increase in Tower fee
[X] Peripheral commercial aerodrome	£2600	£4800	Increase £2200	Unusually extensive Aerodrome Flight Information Service (£4800) only – no other assignment to offset increase in fee
[X] GA club & training centre	£2,600	£3,350	Increase £750	One Tower assignment (£3350) only – no other assignment to offset increase in fee.
[X] Small commercial aerodrome	£2,600	£3,350	Increase £750	One Tower only (£3350) – no other assignment to offset increase in fee.
[X] Large commercial aerodrome	£32,300	£33,050	Increase £750	One Tower assignment (£3350) Two extensive Approach and one ATIS (£9900 each) – no offset for increase in Tower fee.

Table 3 Licensed aerodromes attracting an overall increase in fees and/or an exceptionally high bespoke fee for a Tower assignment

Overall financial impact of bespoke fees on the aeronautical sector

3.27 We estimate that, if licensees make no change to their current assignments, bespoke pricing as proposed in the current consultation will cause the overall level of fees from April 2016 to be about £400k lower per year compared with the fees which

³ Assignments currently held by NATS Services Ltd but deployed on behalf of a particular aerodrome have been notionally apportioned to the aerodrome concerned.

would have been payable if the generic fees set out in the December 2010 statement had been implemented without modification. April 2016 is the relevant date as the period of gradual phasing-in of fee increases is planned to be completed by that date.

- 3.28 We are summarising in Table 4, below, the impact of these fee proposals on different parts of the aeronautical sector using the classification of users adopted by our consultants Helios Technology Ltd in their analysis of impacts published as part of the December 2009 consultation⁴. The fee totals in Table 4, however, relate only to those service types for which we are proposing to apply bespoke pricing ie Air/Ground, Aerodrome Flight Information, Tower, Approach and ATIS. It does not, for example, include the cost of OPC and other service types which would not be subject to bespoke pricing. Current fees for the assignment types included in the summary, which are intended only to recover some of the administrative costs, total about £48k.
- 3.29 As noted in paragraphs 2.10 and 3.19 above, there may be scope for a significant number of Air/Ground, Flight Information Service and Tower assignments with DOC of 25 nautical miles and 4,000 vertical feet to operate with reduced DOC of 10 nautical miles and 3,000 vertical feet (irrespective of whether bespoke or generic pricing is applied to these service types). This would reduce the fee payable to £650. The decision would be for individual licensees to determine, taking into account operational and regulatory requirements. Nevertheless, in the following analysis we have included in column D a hypothetical scenario, based on the reasoning in paragraphs 3.19 and 3.20 above, in which we assume that all Air/Ground and Aerodrome Flight Information Service assignments (but not Tower assignments) with DOC of 25 nautical miles and 4,000 vertical feet are granted a reduced DOC of 10 nautical miles and 3,000 vertical feet.

	Air Ground, Aerodrome Flight Information Service, Tower, Approach, AFIS assignments		
A	B	C	D
User type⁵	Generic fees as per the December 2010 statement	Bespoke fees without any assumed change of DOCs	Fees as per column C, but all Air/Ground and Aerodrome Flight Information Service DOCs at 25nm/ 4000 ft assumed to be reduced to 10nm/ 3000 ft
NATS en Route	£168,300	£143,900	£143,900
Regulated airports	£55,200	£48,150	£48,150
Other BAA airports	£131,800	£103,800	£103,800
Large commercial airports	£375,600	£303,350	£303,350
Large non-commercial	£226,750	£147,600	£147,600
Small commercial (small)	£179,850	£151,550	£151,550
Small non-commercial	£237,800	£166,100	£166,100
Peripheral (H&I and Argyll & Bute)	£101,300	£71,650	£71,650
Non reporting	£329,300	£259,250	£208,350

⁴ See footnote 1 above

⁵ Cost of NSL assignments allocated to relevant aerodrome

aerodromes			
Other, includes	£173,050, of which	£185,750, of which	£96,300, of which
<i>Clubs,</i>	<i>£74,750</i>	<i>£81,100</i>	<i>£47,600</i>
<i>Individuals</i>	<i>£40,950</i>	<i>£41,650</i>	<i>£22,950</i>
<i>Test & development</i>	<i>£7,800</i>	<i>£10,050</i>	<i>£4,650</i>
<i>Police,</i>	<i>£8,450</i>	<i>£8,700</i>	<i>£2,600</i>
<i>Airlines & service companies,</i>	<i>£20,950</i>	<i>£17,400</i>	<i>£9,300</i>
<i>Air museums,</i>	<i>£13,000</i>	<i>£18,200</i>	<i>£5,950</i>
<i>Misc</i>	<i>£7,150</i>	<i>£8,650</i>	<i>£3,250</i>
Total	£1,978,950	£1,581,100	£1,440,750

Table 4 Summary of impacts on different categories of licensee

Conclusions of this impact assessment

- 3.30 As can be seen in the analysis illustrated in Table 4 above, absent a change to the DOC currently held, smaller licensees including clubs and private individuals will tend overall to pay slightly higher fees under the bespoke approach to pricing compared with the generic approach set out in the December 2010 statement if they make no changes to their current assignments. This reflects the widespread existence of historic Air/Ground and Aerodrome Flight Information Service assignments with DOC which is relatively wide-area compared with more recent assignments. However, as illustrated in column D of Table 4, the impact of bespoke fees on this group changes greatly if it is assumed that the DOC of this group is reduced, by consent, to 10 nautical miles and 3,000 vertical feet.
- 3.31 All other user groups will face an overall reduction in fees. This is generally because higher bespoke pricing for many Tower assignments is almost always fully offset by reduced bespoke fees for some Approach and ATIS assignments. A small minority of individual licensees in these groups would face an overall increase, either because they have no Approach or ATIS assignments or because their Approach and/or ATIS assignments also attract relatively high value fees. We conclude, in respect of the seven licensed aerodromes facing an overall increase in fees (as set out in Table 3 above), that the cumulative impact is not significantly more adverse than the impact of introducing generic fee, for the reasons given in paragraphs 3.22, 3.24 and 3.25 above.
- 3.32 Bespoke fees greater than the level of the generic fees announced in December 2010 will not be payable until April 2016 when the period of phasing-in of fee increases comes to an end. We consider that this will give sufficient time for licensees to review their operational needs including, in some cases, the possibility of reducing the DOC so that this is more closely aligned with current assignment practices.
- 3.33 In this impact assessment, we are relying significantly on our assessment that the great majority of licensees holding those Air/Ground and Aerodrome Flight Information Service assignments which will potentially attract bespoke fees of £3350 (instead of a generic fee of £2600) will opt to reduce their DOC and reduce fees to £650. Before April 2016, when fees might otherwise exceed the generic fee of £2600, we will assess with the CAA the extent to which these licensees have, in practice, been able to reduce their DOC. If, contrary to our current expectations, a substantial proportion of these licensees have been unable to reduce their fees liability by

reducing DOC, we may implement further transitional arrangements before bespoke fees exceed £2600. It is conceivable, for example, that the planned programme for more widespread deployment of 8.33 kHz channels, which would attract materially lower fees, could have a bearing on the shape of any revised transitional arrangements. We do not consider that the prospect of a further review will materially reduce incentives to reduce coverage, as these licensees will continue to face a strong incentive to reduce their fees liability below £2600, and perhaps as low as £650.

- 3.34 As set out in paragraph 3.5 above, this further consultation is concerned narrowly with the options of (a) applying bespoke pricing to certain services types or (b) implementing the generic pricing set out in the December 2010 statement. We are not revisiting the underlying decision, announced in the December 2010 statement and supported by a full impact assessment, to apply AIP based fees based on an implied reference rate of £9900 per 25 kHz bandwidth assuming UK-wide impact on alternative users. Nevertheless, we have considered the cumulative impact of fee increases consequent on bespoke pricing falling in addition to the fee increases represented by the decision set out in the December 2010.
- 3.35 On balance, we propose that the benefits of bespoke pricing, both in terms of more efficient use of spectrum and in terms of reduced fees payable by a significant volume of licenses, outweigh the disbenefits to the minority of licensees which are likely to pay fees larger than those set out in the December 2010 statement.

Question 8

Do you have any specific additional information about the likely financial impact on licensees of these proposals to apply bespoke fees, instead of generic fees, for certain service types?

Annex 1

Responding to this consultation

How to respond

- A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made **by 5pm on 21 April 2011**.
- A1.2 Ofcom strongly prefers to receive responses using the online web form at <https://stakeholders.ofcom.org.uk/consultations/bespoke-fees-aeronautical/howtorespond/form>, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.
- A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email Bespokefees@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.
- A1.4 Responses may alternatively be posted to the address below, marked with the title of the consultation.
- Michael Richardson
Ofcom
- Spectrum Policy Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Ofcom will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex X. It would also help if you can explain why you hold your views and how Ofcom's proposals would impact on you.

Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Michael Richardson on 020 7783 4157.

Confidentiality

- A1.8 We believe it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all

responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

- A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.
- A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's approach on intellectual property rights is explained further on its website at <http://www.ofcom.org.uk/about/accoun/disclaimer/>

Next steps

- A1.11 Following the end of the consultation period, Ofcom intends to publish a statement in June 2011.
- A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

- A1.13 Ofcom seeks to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.
- A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW

Tel: 0141 229 7401
Fax: 0141 229 7433

Email vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened Plain English Guide for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will consult for up to 10 weeks depending on the potential impact of our proposals.

A2.6 A person within Ofcom will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. Ofcom's 'Consultation Champion' will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why.

After the consultation

A2.8 We think it is important for everyone interested in an issue to see the views of others during a consultation. We would usually publish all the responses we have received on our website. In our statement, we will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

- A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.
- A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their coversheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.
- A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing

Name/contact details/job title

Whole response

Organisation

Part of the response

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name

Signed (if hard copy)

Annex 4

Consultation questions

Question 1

We propose to derive fees for Air/Ground, Aerodrome Flight Information Service, Tower, Approach and ATIS assignments on a bespoke approach, under which fees would reflect the geographic impact of each individual assignment. What is your view of the merits of this approach compared with the alternative generic fees approach set out in the December 2010 statement?. Do you take the same view about all of these service types?

Question 2

Where an assignment prevents re-use of a frequency across an area which is larger than the area of the UK land mass, it appears to make little difference to potential alternative UK users whether the affected area is only marginally greater or is several times greater than the area of the UK land mass. Do you take a different view? Are there any reasons why very large service areas and associated separation zones do have greater impact on the availability of frequencies than assignments which impact a smaller area equivalent only to the size of the UK land mass? If so, please provide a full explanation of how this effect operates.

Question 3

We currently propose that there is little merit in notionally deriving fees for Area Control, ACARS, VOLMET and VDL assignments on a bespoke basis when fees will rarely, if ever, be other than £9900. However, we recognise that there may be merit in applying a bespoke approach to fee setting so that, if assignments are ever made which impact an area smaller than the area of the UK land mass, fees would be reduced proportionately. In your view, would a bespoke approach to fee setting for these service types have any practical value now or the near term?

Question 4

Would there be any merit in fees for other assignment types being derived on a bespoke basis? If so, which other service types should be subject to bespoke fee and how should these fees be derived?

Question 5

We are proposing to rely on ICAO's EUR Frequency Planning Manual when determining the size of the area in which one assignment prevents others from using the same frequency. For the purpose of setting fees, we propose not to take into account ICAO separation distance variables relating to adjacent channel use or bandwidth (although bandwidth will be reflected in fees as fees for 8.33 kHz and 50 kHz channels will be derived pro rata to fees for 25 kHz channels). We also propose to take into account the CAA's practice of applying, in the case of smaller DOCs, rules which ensure that an aircraft within one DOC cannot cause interference to the ground station of another. Are there other factors which should be taken into account when determining the size of the geographic area impacted by a particular assignment?

Question 6

We are proposing that, until April 2016, bespoke fees should be capped at the level of the generic fees announced in December 2010. After that date, no bespoke fees will rise beyond £9900 per 25 kHz bandwidth, but some Air/Ground, Aerodrome Flight Information Service and Tower assignments with a relatively large DOC will

attract bespoke fees in excess of the £2600 generic fee set out in December 2010. Does this timetable provide sufficient time for licensees to review their operational needs and, where appropriate, agree changes to their DOC, before fees, for some licensees, increase beyond the level announced in December 2010?

Question 7

We propose to introduce a new licence class for each of (a) Air/Ground, Aerodrome Flight Information Service and Tower, (b) Approach, (c) ATIS, (d) Area Control, (e) VOLMET, (f) ACARS, (g) VDL, (h) Aerodrome Surface, OPC and Offshore, (i) GA Sporting frequencies and (j) Fire and Emergency frequencies. Are there reasons why the portfolio of licence types should differ from this proposal?

Question 8

Do you have any specific additional information about the likely financial impact on licensees of these proposals to apply bespoke fees, instead of generic fees, for certain service types?