Maximising the value of spectrum to support
growth and innovation

Response to the Department for Culture, Media and
Sport’s discussion paper

September 2012
Maximising the value of spectrum to support growth and innovation

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Introduction

1.1. Ofcom welcomes the publication by the Department for Culture, Media and Sport (DCMS) of the discussion paper on maximising the value of spectrum to accompany its Communications Review seminar on 12 July 2012. We were also happy to participate in that seminar.

1.2. In this response to the discussion paper, we respond to each of the questions posed in the discussion paper. We then move on to raise some additional points to inform the debate around the future of spectrum regulation. These are born of our experience in managing spectrum, and from suggestions from users, potential users and other stakeholders, as well as from observing approaches taken by spectrum regulators in other countries.

1.3. As DCMS has noted, spectrum use in the UK underpins not only major consumer services like mobile data and broadcasting, but enables the delivery of efficient services across many industry sectors, and vital public services. Ensuring that all of these businesses and services can access the spectrum they need, when they need it and on terms that suit their requirements, is a critical task for Ofcom in promoting the interests of citizens and consumers.

1.4. Our duties in regard to spectrum are set out in the Communications Act 2003[1] (CA), and the Wireless Telegraphy Act 2006[1] (WTA), and include:

- in the CA, our principal duty under section 3(1) to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition;

- a duty under section 3(2) to secure the optimal use for wireless telegraphy of the electromagnetic spectrum;

- requirements under section 3(4) to have regard to the desirability of promoting the fulfilment of the purposes of public service television broadcasting in the UK, of encouraging investment and innovation in relevant markets, and of encouraging the availability and use of high speed data transfer services throughout the United Kingdom, and to have regard to the different needs and interests, so far as the use of the electromagnetic spectrum for wireless telegraphy is concerned, of all persons who may wish to make use of it;

- a requirement under section 154 (1) of the CA and under section 3(1) of the WTA, to have regard to the extent to which the electromagnetic spectrum is available for use, or further use, for wireless telegraphy, to the demand for use of the spectrum for wireless telegraphy, and to the demand that is likely to arise in future fo the use of the spectrum for wireless telegraphy;

- a requirement under section 154(2) of the CA and under section 3(2) of the WTA to have regard to the desirability of promoting the efficient management and use


of the part of the electromagnetic spectrum available for wireless telegraphy, the economic and other benefits that may arise from the use of wireless telegraphy, the development of innovative services, and competition in the provision of electronic communications services.

1.5. Ensuring that Ofcom can continue to give effect to these duties as technological advances increase the value available from spectrum use, and changes the way it can be used, is the key outcome of any changes to our statutory framework.
Response to DCMS questions

First question: Could Ofcom's duties be clarified in relation to spectrum assignment, and if so how?

2.1. Section 3(2) of the Communications Act 2003 requires us, in carrying out our functions, to secure in particular the optimal use for wireless telegraphy of the electromagnetic spectrum.\(^2\) We are required to have regard to a number of specific important factors in doing this, under section 3(4) and section 154 of the Communications Act and section 3 of the Wireless Telegraphy Act 2006.\(^3\)

2.2. We believe these duties provide clear guidance for us. Since the CA came into force, we have been able to resolve, with consultation, the most appropriate way to make spectrum available in the past. We set out which aspects of our duties we believe are particularly relevant to any assignment proposal, and what we consider they imply for our approach, when we consult on proposals for any new assignment.

2.3. We consider that our duty to consult on the likely impact of our proposals under section 7(3) of the Communications Act, and our practice (bearing in mind best regulatory practice, to which we must have regard under section 3(3)) of consulting on impacts even where it might be argued that their effect is smaller than would meet the section 7 criteria, provide a good sense-check for any proposals by allowing all interested parties to raise evidence that we might have missed in our initial consideration.

2.4. As noted below, we think that new explicit powers to conduct specific types of award could be helpful in enabling awards that might be more efficient and effective ways to secure optimal use, for the benefit of citizens and consumers.

> Greater use of administrative assignment may provide scope to address any disadvantage that smaller, innovative players might face in an auction... a specific recognition and consideration of the role of smaller businesses in the provision of economic and socially valuable wireless based services could be justified.

2.5. Under section 405 of the CA, it is explicitly provided that the consumers whose interests we are required to promote include business consumers. We agree that the method by which rights to use spectrum are assigned needs to take into account the circumstances of each specific case – and specifically, the needs and interests of all those who may wish to make use of the spectrum. We recognise the different circumstances of SMEs compared with larger business concerns and endeavour to ensure that we enable businesses of any size, with any size of requirement for spectrum, have accessible means of securing access to that spectrum.

2.6. In considering the best way to make spectrum available for use, we are mindful not only of potential market failure but also of regulatory failure. We cannot know every


detail of the value of potential uses such that we can reliably predict the best use of every assignment. We therefore seek to balance decisions by the regulator – such as UK-wide assignments, how we give effect to international allocations, the means of authorising access, technical and other licence conditions including fees – with decisions that are likely to be more efficiently made by the market, such as what technology and services are deployed, and which users have access in cases where demand exceeds supply. In making these decisions, we often adopt non-auction approaches to assignment specifically in response to the circumstances of the likely most efficient types of use. The assignment of spectrum for Programme-making and Special Events (PMSE), managed by JFMG, is one example, as are our other first-come, first-served assignment approaches.

2.7. We agree that SMEs, as they do in all sectors of the economy, play a vital role in delivering value to society through the communications services they deliver and the innovation they can generate. Bearing in mind that SMEs may often want to use only small (sub-UK) assignments of spectrum for their activities, we think that both licence exemption, and first-come, first-served assignments (such as largely apply for Business Radio, Fixed Links, PMSE and non-operational licences) provide an accessible means of securing spectrum rights. Additionally, where licences are tradable SMEs and other operators have the option of securing the spectrum they need directly from other licensees rather than by applying ot Ofcom. All of these routes remove the need for SMEs to co-operate with other users unless they see direct advantage in doing so, for example by arrangements whereby one user holds an Area-Defined Business Radio licence and employs either trading or leasing to allow for a group of users to use the spectrum rights. We welcome DCMS’s specific mention of “band manager” arrangements and comment on this below.

2.8. We are currently reviewing both licence exemptions, and the management of bands allocated for Fixed Links alongside other uses, and we would welcome suggestions for making these ways to access spectrum easier and more efficient for SMEs and other users to access.

2.9. We would be interested in the views of other stakeholders on other ways we could make access routes more efficient, or develop new ones. However, a specific statutory duty to use or favour one route – whether administrative assignment, award by auction, licence exemption or any other route – more than we would under our over-arching duties could potentially fetter our ability to secure optimal use.

2.10. Specifically, if our research, and evidence from consultation, indicates that the highest value for society from a particular spectrum band would be secured from use by UK-wide networks, it would not be in the interests of citizens and consumers for us to be required to geographically partition any of that band in a manner specifically designed to favour SMEs. Additionally, we are concerned that a new duty to use administrative assignment to favour access for a particular group of users would be incompatible with the EU regulatory framework.

2.11. If the only reason that SMEs would not secure spectrum in an auction is that they cannot (individually or collectively) pay as much as larger operators, that is not on its own evidence of market failure or justification for administrative intervention. We would need to assess and understand whether there was a market failure in the specific case, whereby the actual value to society from SME use of that specific band would be unlikely to be realised from such an auction, absent specific adjustments to that award. A well-designed auction can obviate the genuine difficulties that smaller players may face (such as co-ordination or transaction
barriers). Where this can be done effectively, it can allow for an award by auction rather than administrative assignment, which carries the risk of regulatory failure and hence sub-optimal outcomes for citizens and consumer.

In addition there are categories of non-commercial users, such as the emergency services [...] who may be disadvantaged in an auction in comparison to commercial companies, such as mobile operators. In part this is because there is a greater risk that the wider social value of such services is not reflected effectively in their bids in any auction. In some cases it may be that the Government is best placed to determine the most appropriate approach to making spectrum available for these uses if appropriate, invoking the powers of the Secretary of State under section 5 of the Communications Act 2003.

2.12. Depending on the specific circumstances of the public services and their requirements, there may be options for securing spectrum – or communications services – in the market. Public services can and do buy communications services from commercial providers, and can hold licences in spectrum that is not specifically allocated for the sector by simply seeking an assignment from us in a first-come, first-served band. Additionally, they have the same ability to use licence-exempt equipment as any other user.

2.13. Further to this, a well-designed auction has the potential to obviate any remaining difficulties. This may require a co-ordination role for the Government as well as any steps taken by us in designing the auction.

2.14. However, it remains possible that the operational needs of a particular public service cannot be met by capabilities available in the downstream market for services using spectrum; and in that case, the Government may judge that the uncertainty of participating in an auction is not acceptable compared with the public service’s need. In such cases, Government Direction under the Communications Act or the Wireless Telegraphy Act provides a useful alternative approach that can ensure the value to society of emergency service or other public service uses is taken account of in any new allocation.

Second Question: Does Ofcom have the necessary tools to address SME needs, for example by facilitating through a third party ‘band manager’, who would acquire spectrum and enter into leasing arrangements with companies interested in accessing spectrum?

2.15. We agree that third-party management of spectrum can introduce new means of accessing spectrum, increasing choice for potential end-users and potentially securing more efficient use because of that. We think that the current spectrum trading and leasing arrangements would permit the emergence of a band manager (an entity which holds spectrum licences and provides access to spectrum to contracting customers through the means of partial spectrum transfers), but we would like to hear from potential band managers and their potential customers if there is anything further that could be done to enable this.

2.16. Specifically, we think that if we could award licences for bands that currently have licensees (sometimes referred to as “overlay auctions”), this might facilitate faster emergence of band managers. Such licence awards could be subject to necessary constraints to ensure the interests of existing licensees – and potentially future
transferees – are sufficiently protected (e.g., potentially conditions on charges or even on security of tenure).

2.17. This could increase choice and competition for users in their sources of spectrum access rights. Band managers would have more flexibility to respond quickly to changing demand, using partial transfers and/or leasing, than we might be able to offer in designing and awarding licences. Such an award might also enable us to award licences to new users before the incumbents have relocated their use. We might want or need to specify a “backstop” dates by which time the incumbents’ licences would be revoked, although they could be surrendered before that date, potentially following commercial negotiation with the new licensee(s).

2.18. We have in the past identified a means to do this under the current framework, although we have not had the opportunity to consult on this means nor to test it through implementation. We would be interested to discuss in detail whether certain additional, explicit powers would make such an award more efficient and transparent for all users affected or potentially affected.

Promoting use of spectrum to support economic growth and growing demand might also be achieved if Ofcom were given a power to conduct incentive auctions. An incentive auction is a voluntary, market-based tool to compensate existing spectrum licensees for returning their licences to make spectrum available for innovative new uses like mobile broadband. Ofcom would auction the spectrum that licensees voluntarily return, with licensees retaining a portion of the auction proceeds.

Third Question: Would this bring benefits in the UK?

2.19. We agree that it could be very useful to have this additional way of enabling spectrum to change hands, and to change uses, in future. At present, while we can include spectrum that is licensed to existing users in an award, there is no statutory means for such existing users to receive any of the amount paid for his spectrum. If this were changed, it could reduce the transaction costs, and risk, for a licensee wishing to test the market for his spectrum who would otherwise have to go to market on his own behalf. Reducing the transaction costs of trading spectrum in this way could increase the likelihood of spectrum finding the most efficient use and user. Incentive auctions could also facilitate greater efficiency by providing a mechanism for co-ordination between potential suppliers of spectrum rights (existing licensees) and/or potential purchasers, when this might be otherwise be difficult to achieve.

Fourth question: What views do you have of the following possible measures that could be put in place to encourage trading:

First, a power for Ofcom to review the use of spectrum five years after it has been assigned...[ ] at the same time Ofcom would also review any changes in the level of demand for that spectrum and the Secretary of State could request such a review at other times. Based on their assessment, Ofcom would have the discretion, if they deemed it necessary, to invoke a power of compulsory purchase...
2.20. Subject to the detail of the provision, an explicit power to review use could be useful although we note that, as also noted in the paper, there is a duty on us, as part of the EU Radio Spectrum Policy Programme, to produce an inventory of existing uses of spectrum, which might provide for such review without further provisions.

2.21. If new provisions for review are considered appropriate, we would wish to have the flexibility to conduct light-touch reviews where these would be sufficient, to avoid the risk of an inefficient burden on licensees or inefficient use of Ofcom resources, that could secure more value for citizens and consumers carrying out other activities.

2.22. If Ofcom has the power to do something, it may also be Directed by the Secretary of State to do it. So we could be required to carry out a review on receipt of a Direction to do so. However, an additional power for the Secretary of State to request a review at times of his choosing might have unwelcome effects on investment by reducing regulatory certainty for users. At the extreme, users might perceive the power to request a review as introducing the risk of political intervention in spectrum management, which could have a chilling effect.

2.23. Our comments on the possibility of compulsory purchase, which we agree could be very useful for securing optimal use, are included below.

Secondly, a requirement for Ofcom to set out clearly the process to be adopted if any potential user felt they were being unreasonably denied access to spectrum (by draconian terms and conditions or an outright refusal);

2.24. In the case of band managers and other third-party spectrum access arrangements, such as PMSE access managed by JFMG, there could be important benefits in ensuring that access terms are fair. However, we would note that unless set out in a contract or licence, individual spectrum holders have the power to trade or lease spectrum rights, not a duty to do so. Generally regulating the secondary market in spectrum – other than where we have consulted on specific proposals to do so and made explicit provision to do this in a contract or licence- would be a new form of intervention in the market. On balance, we consider that the power (or duty) to review use, together with our general spectrum management powers including any new ones emerging from this Review, such as powers of compulsory purchase, should be sufficient and proportionate to address the concern identified of unreasonable denial of access. We are happy to consider drawing up proposals for the process we would use in case of complaint if spectrum users believe that would be helpful. We also note that our powers under the Competition Act 1998[4] and the Enterprise Act 2002[5] enable us to take action against anticompetitive behaviour by individual spectrum holders.

Thirdly, a compulsory purchase scheme to free up spectrum that Ofcom and/or the Government decide must be made available for alternative use to deliver the most value for society ...[ ]... Such a scheme could also work on a temporary basis for “renting back” spectrum if there is a very high-value short-term use that could be made of it, outweighing the cost of the temporary reduction in the existing service;


2.25. While we have the power to revoke licences with notice, in circumstances where it might benefit citizens and consumers to revoke at shorter notice we do not have powers to recognise the lost value of the use that we are causing to vacate spectrum. This is out of step with other provisions such as the compulsory purchase of land. Because we cannot do this, it is difficult to take a decision to clear users out at shorter notice, even in circumstances where this would generate significant net benefits for citizens and consumers. If Parliament were to lay down a set of principles under which payments could be made to recognise lost value – subject to Government agreement, given the public expenditure implications – there would be clarity for licensees, and a clear means for us and the Government to assess the full economic costs of shorter-notice revocation, where this seems likely to secure material net benefits. This additional clarity could improve incentives to invest in services, by reducing regulatory uncertainty for licensees.

2.26. It might also be useful to have powers to “buy back” spectrum more generally, for example by refunding fees as appropriate, and in what circumstances (noting that all licences are subject to revocation with notice as notified by us).

2.27. We consider that ‘renting back’ spectrum could also be very useful in specific circumstances. We might never need to do this but in the case of unforeseen events, a statutory and transparent means of addressing these without avoidably disadvantaging the current users could be very useful. Although we can currently revoke licences at short notice under paragraph 7 of Schedule 1 to the Wireless Telegraphy Act, the criteria for doing this are strict and might not apply in all circumstances where it would be beneficial for citizens and consumers to re-purpose spectrum for a short period without full revocation. We would be happy to discuss with DCMS what additional powers, if any, would be required to give us a clear legal basis for doing this.

2.28. We would also welcome any information from users and potential users, including potential spectrum brokers, on barriers to trading. Additionally, and in light of the Government’s stated aim of releasing 500 MHz of spectrum below 5 GHz from public holdings for new uses, we think it would also be useful to understand what barriers there are to trading/leasing public holdings and whether statutory change could mitigate or remove these.

2.29. Under the existing provisions of the Wireless Telegraphy Act, we do have powers to set conditions on receiver characteristics. However the specific circumstances where receiver standards might create a barrier – either an absolute barrier or a cost barrier – to enabling optimal use of spectrum can vary, and this power might not always be effective. We would be interested to understand views from users and potential users.

2.30. Last in relation to this section, we note that DCMS sees drawbacks with a “use it or lose it” solution to secure use of spectrum held under licences. We agree with the points made in the paper and would add that if we were to specify a deadline for spectrum to be brought into use, there would be a risk that we would get this timescale wrong, potentially compelling sub-optimal use and inefficient investment in equipment. We consider that review should enable us to identify whether
spectrum that is held under a licence but not used is resulting in dis-benefits for citizens and consumers.

**Fifth question: What would be the impacts of changing the amount of and approach to licence-exempt spectrum in order to improve innovation and growth, and what evidence is there to support this?**

2.31. We are planning to conduct a review of the current utilisation of licence exempt spectrum and an assessment of the likely future demand for licence exempt spectrum, including an industry ‘Call for Information’ later in the year.

2.32. We intend to provide a preliminary report to the Government on the findings of this review by the end of 2012. This review will also form the basis of full consultation on our current Licence Exemption Framework in the first half of 2013.

2.33. Under the Authorisation Directive, we are required to make equipment licence exempt where its use would not cause harmful interference, and we have done this a number of times since the Communications Act came into force. We agree that licence-exempt uses of spectrum have the potential, especially as technology advances, to realise significant value for citizens and consumers. However, an additional statutory duty to favour licence-exempt use, over and above our duty under the Directive and our principal and other spectrum duties, could lead to sub-optimal uses of spectrum, if the highest value for society would be secured by uses whose technical characteristics meant that licensing would better enable efficient use.

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Additional points for consideration by DCMS

3.1. As well as the specific questions and points raised by the discussion document, we would like to suggest that the debate about future spectrum regulation take into account some additional points. These are born of our experience in managing spectrum over the past 9 years, and from suggestions from users, potential users and other stakeholders, as well as from observing approaches taken by spectrum regulators in other countries.

(a) Fines for breach of licence conditions

3.2. Under section 39 of the Digital Economy Act 2010, we have the power to fine wireless telegraphy licensees for breach of conditions in a licence that were included under Direction from the Government. Additionally, in regulating network and service operators, and regulating the conduct of broadcasters, we may set fines at levels intended to incentivise compliance. By contrast, in carrying out our general spectrum management functions, our only enforcement power against licensees is revocation. While this can be useful and has been used, it is not always an appropriate response taking into account the potential disbenefits for citizens and consumers. Where a licensee provides major, high-value service to society – whether on commercial terms or in supporting the delivery of public services – it is not a plausible incentive for compliance, because we would not act against the interests of citizens and consumers. Powers to fine for any breach of a wireless telegraphy licence would create a means by which we could disincentivise licence breaches. We would be happy to discuss with DCMS officials what powers would be effective and proportionate.

(b) Power to authorise White Space databases, and to enable cognitive radio use in an efficient and transparent way

3.3. We think that there are potential benefits, in terms of securing optimal use of spectrum, from having a clear framework for the provision, management and regulation of databases (and their providers) that perform the function or have the effect of managing (licensed or unlicensed) access to radio frequency spectrum, and the clear ability to recover the costs (whether ours or those of such third party or parties) of so doing.

3.4. The purpose would be to provide a more flexible approach to the dynamic assignment of spectrum. The method of managing access could be automatic (e.g. using the systems and processes envisaged in the operation of White Space Devices – WSDs) or manual (e.g. where some degree of judgment or discretion is used, such as employed by JFMG in assigning spectrum to PMSE users on our behalf). The devices/terminals and their operation could be unlicensed (as envisaged for WSDs) or licensed (most PMSE usage).

3.5. We note that the current provisions of the Wireless Telegraphy Act do not give us clear powers to authorise the use of databases; and we are currently unable to charge to recover the costs of enabling these databases to operate. This does not

7 http://www.legislation.gov.uk/ukpga/2010/24/contents
align with our powers to set fees for licences, which include a power to set fees that recover our costs (or above that level where this is intended to help secure optimal use).

(c) power to charge for satellite filings

3.6. We would like to be able to set cost-recovery service charges for satellite filing work. It has previously been established that we cannot do this under the current statutory framework. Satellite filing places a resource burden on us and the filings we register, on behalf of satellite operators established in Crown Dependencies or Overseas Territories of the UK, do not necessarily benefit UK citizens and consumers. We note that DCMS signalled its intention to legislate for this in the context of reforms that it would pursue under the then-proposed Public Bodies Bill. ⑧

(d) Enabling better strategic co-ordination between the Government and Ofcom to secure optimal use

3.7. Both we and the Government share the objective of securing the maximum benefits for citizens and consumers from all usable parts of the spectrum. We have a programme of spectrum release, and also conduct reviews – such as the review of UHF spectrum use on which we have recently closed our consultation – to determine the best way to make spectrum under our management available for use in future. Alongside this, the Government has declared its intention to release 500 MHz of spectrum below 5 GHz, that is currently in public holdings, for new uses.

3.8. The value available for society from new uses of spectrum is driven by a number of factors, including:

- The capability of technology that can use the spectrum to deliver services, which depends on investment and innovation by operators around the globe as well as in the UK;
- The cost of this technology, which can be significantly affected by the expected size of the market. This factor is why mass-market uses, in particular, such as mobile broadband, are likely to be much more efficiently provided using spectrum that has been internationally harmonised and co-ordinated across sufficiently-sized national markets for this use;
- The way in which the spectrum is made available – either with exclusive licences, licences for shared use or under licence exemption;
- The time at which the spectrum is made available. Too early and potential operators might not have the funds needed to invest in providing the new service; too late, and citizens and consumers lose out on benefits.

3.9. All of these factors apply equally to decisions taken by us to release or re-purpose spectrum, and to decisions by the Government over releasing spectrum. Since the potential benefits of well-planned and well-managed releases accrue similarly to UK citizens and consumers, it is likely that these will be maximised if our and the Government’s release plans are actively co-ordinated, on the basis of the best information available. We would be happy to discuss with officials how best to

leverage both our understanding of market, international and technological developments with the Government’s understanding of its ongoing need for spectrum to deliver essential public services.

(e) Enabling the Secretary of State to hold a wireless telegraphy licence

3.10. The Crown is exempt from the requirement to hold a licence, but may hold Recognised Spectrum Access (RSA). Because of some differences between licences and RSA, not all of the spectrum trading opportunities available to licensees are available to Crown holders of RSA. If the Secretary of State were able to choose to hold a licence (rather than RSA), this would enable Government Departments to carry out concurrent transfers, or enter into leasing arrangements like those under our simplified spectrum trading regulations.

(f) Changes to Section 401

3.11. Section 401 of the Communications Act was intended to allow us to retain spectrum fees receipts up to our spectrum management costs and pass the balance to the Consolidated Fund. However on closer inspection the provision did not achieve Government’s objectives so it was never brought into force. Amending this provision so it achieves the original aim would simplify financial processes between us and the Government.