



Simplifying Spectrum Trading

Spectrum leasing and other market enhancements

Final statement

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Section 1

Summary and introduction

- 1.1 This document explains our conclusions following the consultation of 22 September 2009 (the September consultation)¹ on simplifying spectrum trading, how we intend to modify our proposals and our plans to make available a new, streamlined form of spectrum trading called ‘spectrum leasing’.
- 1.2 Radio spectrum is a limited and valuable resource. One of our main duties is to secure its optimal use². Spectrum trading provides an important mechanism for achieving this as it enables spectrum to migrate into the hands of those that can use it more productively, making it easier and faster to access spectrum for innovation and growth.
- 1.3 It is in citizens’ and consumers’ interests that the spectrum market should function as efficiently and effectively as possible. The changes we intend to simplify the trading process will facilitate this by reducing transaction costs and execution times.

Spectrum trading and leasing

- 1.4 We distinguish in this statement between two types of transaction.
- *Spectrum transfer*, in which a new user is granted a licence by us to use spectrum following a commercial transaction with an existing licensee involving the transfer of the licence rights and obligations.
 - *Spectrum leasing*, in which spectrum may be accessed for a specified period under a contract with an existing licensee without obtaining a further licence from us.

Our proposals to simplify spectrum trading

- 1.5 The existing spectrum transfer process, comprises several steps: advance notification of trades, obtaining our consent, publication of details of proposed and actual transfers and the issue of new licences. We were concerned that these requirements, some of which are embedded in the Wireless Telegraphy Act 2006 (the WT Act) and some in European Union (EU) law, might be holding back market developments and acting as a barrier to trades that would have benefitted citizens and consumers. In the September consultation, we sought evidence on this and views on proposals to simplify the trading process. In particular, we proposed introducing spectrum leasing once changes had been made to EU and UK law to allow this.
- 1.6 We also proposed a variant of spectrum transfer called ‘transfer without licence issue’ (TWLI), in which transfers could take place without the need for us to issue new licence documents. At that time, the EU framework had not yet been revised to allow spectrum leasing and TWLI was envisaged as a stop-gap until that had been done.

¹ The consultation, non-confidential responses and statement on *Simplifying Spectrum Trading* may be found at <http://stakeholders.ofcom.org.uk/consultations/simplify/>.

² Section 3 of the Communications Act 2003

Responses to the September consultation and our conclusions

1.7 Responses strongly supported our initiative to simplify spectrum trading and introduce leasing while commenting on details of our proposals. We published a statement on 15 April 2010 (the April statement)³ announcing our intention in principle to proceed. Now that the applicable legislation has been amended, we are in a position to do so. Having considered the responses to the September consultation, we have decided to modify our original proposals as summarised in the following table. The main changes are to simplify the leasing process further and to allow limited sub-leasing.

Table 1: Developments since the September consultation

Subject	Original proposal	Modification or other development
Spectrum transfer process for currently tradable licence classes ⁴	<ul style="list-style-type: none"> Remove the need to obtain Ofcom's consent for spectrum transfers 	<ul style="list-style-type: none"> As original proposal in preceding column for the generality of licence classes (paragraph 5.11)
Spectrum transfer process for other licence classes, including 2G/3G cellular	<ul style="list-style-type: none"> To be considered on a class-by-class basis when extending trading 	<ul style="list-style-type: none"> Statement published on 20 June 2011 on making 900/1800/2100 MHz tradable (paragraph 5.23)
Time-limited transfer	<ul style="list-style-type: none"> Simplify process for low-volume transactions Consider feasibility of wider application 	<ul style="list-style-type: none"> Specific proposal for selected products involving creating a separate licence covering the transfer period (paragraphs 5.27-5.29)
Spectrum leasing	<ul style="list-style-type: none"> To be introduced in currently tradable licence classes when necessary change has been made to the WT Act In other licence classes, including 2G/3G cellular, to be considered on a class-by-class basis when extending trading 	<ul style="list-style-type: none"> WT Act amended to allow for leasing on 26 May 2011 (paragraph 2.6) Leasing to be implemented by licence variation and phased. We will consult separately in due course on leasing of 2G/3G cellular licences (paragraphs 6.36-6.39)
Notification watershed for leasing and publication of details	<ul style="list-style-type: none"> No need to notify leases up to 24 months Longer leases to be notified in advance and details published 	<ul style="list-style-type: none"> No need to notify leases regardless of length (paragraphs 6.10-6.16)
Sub-leasing	<ul style="list-style-type: none"> Sub-leasing not allowed 	<ul style="list-style-type: none"> One level of sub-leasing allowed Licensees required to keep records of any sub-leases (paragraphs 6.17-6.20)
Responsibilities of lessors (ie those granting leases)	<ul style="list-style-type: none"> To keep records of leases and sub-leases and make these available to Ofcom on demand Leases to be in writing 	<ul style="list-style-type: none"> In addition, lessor required to provide for dispute resolution (paragraphs 6.21-6.25)

³ <http://stakeholders.ofcom.org.uk/consultations/simplify/statement/>

⁴ At the time of the consultation, spectrum at 900, 1800 and 2100 MHz was not tradable but will become so on 4 July 2011 (<http://stakeholders.ofcom.org.uk/consultations/trading-900-1800-2100/>).

Subject	Original proposal	Modification or other development
	<ul style="list-style-type: none"> To draw leaseholders' attention to licence terms and conditions governing their use of the spectrum 	
Interference investigation and resolution	<ul style="list-style-type: none"> Band managers (and other lessors) to be first port of call for complaints of interference from leaseholders We will intervene in line with enforcement guidelines if the lessor cannot resolve the complaint 	<ul style="list-style-type: none"> As original proposal in preceding column (paragraphs 6.26-6.28)
TWLI	<ul style="list-style-type: none"> To introduce TWLI as stop-gap if EU framework had not been revised to allow leasing 	<ul style="list-style-type: none"> No longer necessary as revised EU framework now in place (paragraph 6.46)

- 1.8 Simplifying trading procedures will benefit citizens and consumers by enhancing the ability of the market to make spectrum available for innovation and competition. We recognise that reducing *ex-ante* regulation of spectrum trading is not risk-free and, in making the changes, will ensure that the exercise of our powers in relation to competition and interference investigation is not compromised.

Next steps

- 1.9 For operational and practical enforcement reasons, we intend initially to limit leasing to auctioned and exclusive Area Defined assignments. We expect shortly to be in a position to accept applications for licence variations to allow holders of the varied licences to grant leases. Further details will be published on our website⁵. If there is sufficient market interest, we will consider positively an extension of leasing to higher volume licence products in due course. This would require changes to our assignment processes and business systems and thus take longer to implement and we would need to confirm that the expected benefits outweighed the costs and any risks. In so doing, we would take account of experience of leasing to date.
- 1.10 We will take the earliest convenient opportunity to remove the requirement for the parties to a transfer to obtain our consent in the generality of tradable licence classes.

⁵ <http://stakeholders.ofcom.org.uk/spectrum/spectrum-trading/>

Section 2

Background

Introduction

- 2.1 This section outlines the current spectrum trading process in the UK and the concepts of spectrum trading and leasing.

The radio spectrum

- 2.2 Radio spectrum is a valuable and limited resource worth over £40bn a year to the economy⁶. We have a duty to secure its optimal use in the interests of citizens and consumers⁷. Spectrum trading, by making it easier for spectrum to migrate to those that can generate the greatest value for society, can play a central role in achieving this. To enable the market to work effectively, it is important to keep down transaction costs, including those attributable to complying with regulation, and the time taken to execute transactions. This is the aim of the changes we are making.
- 2.3 Section 2 of the September consultation gives an overview of the radio spectrum and its value, summarises the legal framework for spectrum management in the UK, places spectrum trading in the context of our overall approach to managing radio spectrum and outlines experience of spectrum trading to date.

The current spectrum trading process

- 2.4 The trading process in the UK has so far involved an agreement between the existing holder (the transferor) and another person (the transferee) to transfer the transferor's rights under its licence or grant of recognised spectrum access (RSA). This is put into effect by surrender of the original licence or RSA and the grant by us of a new licence or RSA to the transferee. We refer to this type of trading as 'spectrum transfer'. The process is described in greater detail in the September consultation.
- 2.5 In order to avoid excessive repetition, we do not refer separately to RSA in the rest of this document except where the context requires.

Spectrum transfer and spectrum leasing

- 2.6 Section 30 of the WT Act provides for spectrum trading to take place by the transfer of licence rights and obligations in accordance with the EU Framework Directive⁸. Article 9b of the revised EU Framework Directive⁹, which the UK transposed into national law on 26 May 2011¹⁰, introduces a new type of transaction, called spectrum leasing, which is simpler and faster to execute and which we now intend to allow in the UK.

⁶ *Economic Impact of the Use of Radio Spectrum in the UK* by Europe Economics. See http://stakeholders.ofcom.org.uk/market-data-research/spectrum-research/economic_spectrum_use/.

⁷ Section 3(2)(a), Communications Act 2003

⁸ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0033:EN:PDF>

⁹ A mark-up of the revised text may be seen at <http://www.bis.gov.uk/assets/biscore/business-sectors/docs/i/10-1134-implementing-revised-electronic-communications-framework-revisions.pdf>.

¹⁰ The Electronic Communications and Wireless Telegraphy Regulations 2011 (SI 2011/1210) - http://www.legislation.gov.uk/ukxi/2011/1210/pdfs/ukxi_20111210_en.pdf

The difference between transfer and lease

2.7 We differentiate between spectrum transfer and leasing as follows.

- *Spectrum transfer* proceeds by the transfer of licence rights and obligations and necessarily involves the grant of a new licence to the transferee. Transfer may be for all or part of the licence duration. We refer to the latter as ‘time-limited transfer’. Transfer is regulated by the Wireless Telegraphy (Spectrum Trading) Regulations 2004¹¹ as subsequently amended (the ‘Trading Regulations’). The Trading Regulations set out the classes of licences that are tradable. Any licence that is in a class covered by those regulations may be transferred in accordance with them.
- *Spectrum leasing* proceeds by a contract between the parties without the need for us to issue a new licence. The incoming user (the leaseholder) is not issued with a licence by us but is authorised to use the spectrum for the period of the lease on the basis of a contract with a licensee (the lessor). The lessor will continue to be the registered holder of the licence rights and ultimately responsible for compliance with the licence obligations as discussed in more detail in section 6 of this document although we may, depending on the circumstances, act directly against the leaseholder in the event of non-compliance with licence terms and conditions (see paragraphs 6.26-6.28 of this statement). Leasing will initially be permitted and regulated by licence terms and conditions. A licence-holder will be able to grant leases only if the licence contains the necessary terms and conditions. However, we may in future switch to trading regulations, as mentioned in paragraph 6.39.

2.8 As illustrated in figures 1a and 1b below, the essential difference between transfer and lease is that a leaseholder does not hold a licence directly from us whereas a transferee does. While leases will in practice normally be for a finite period, this will not by itself determine whether a transaction is a transfer or a lease; it will also be possible in some cases to enter into time-limited transfers as discussed in paragraphs 5.27-5.29.

Practical differences between transfer and leasing

- 2.9 Leasing will offer a simpler, faster and less burdensome alternative to transfer as it will not require us to be notified and to issue new licences. As a broad generalisation, leasing may be particularly advantageous for trades of spectrum holdings that are individually of low value for relatively short periods and for which the transfer process is too cumbersome; and transfer may be more suitable for longer term trades of higher value assignments, especially if a substantial investment is needed in order to exploit the spectrum.
- 2.10 However, much will depend on the parties’ circumstances and preferences, for example whether the incoming user wishes to have the security of holding a licence in its own right and whether the incumbent prefers the assurance of retaining the licence in its own hands. We aim to give the parties as much flexibility as possible to structure transactions in the way that suits them best.
- 2.11 Leasing can be expected to facilitate the emergence of commercial band managers although this is not its sole purpose. The September consultation includes a further discussion of band managers at paragraphs 2.10-2.12 and 2.40-2.42.

¹¹ <http://www.legislation.gov.uk/uksi/2004/3154/contents/made>

Figure 1a: Spectrum transfer

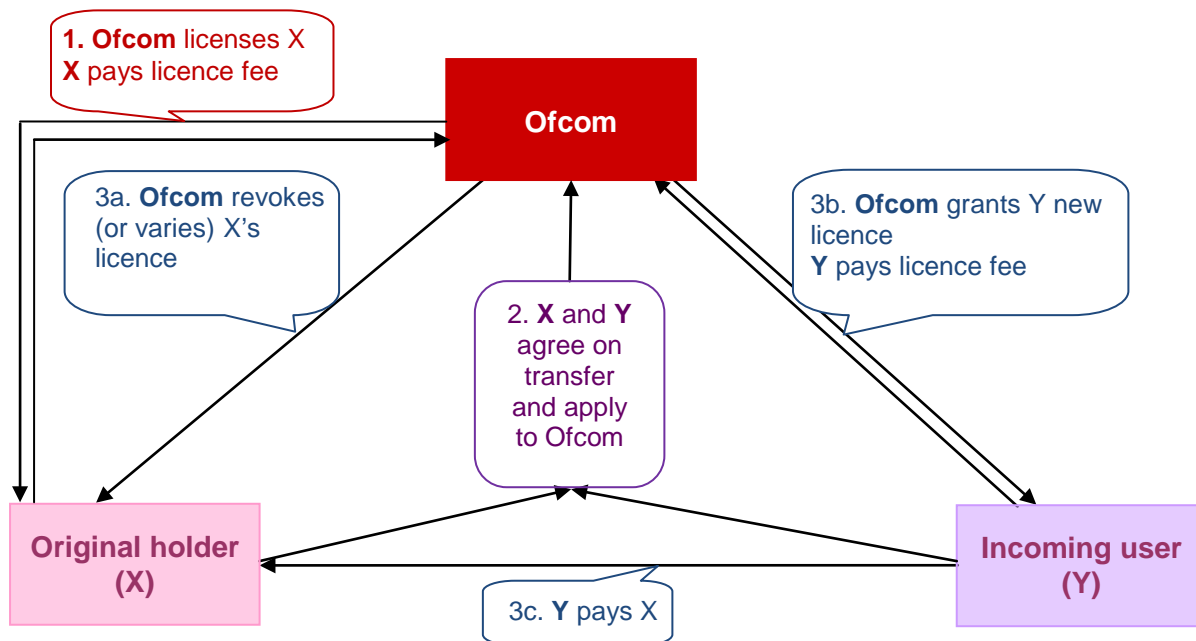
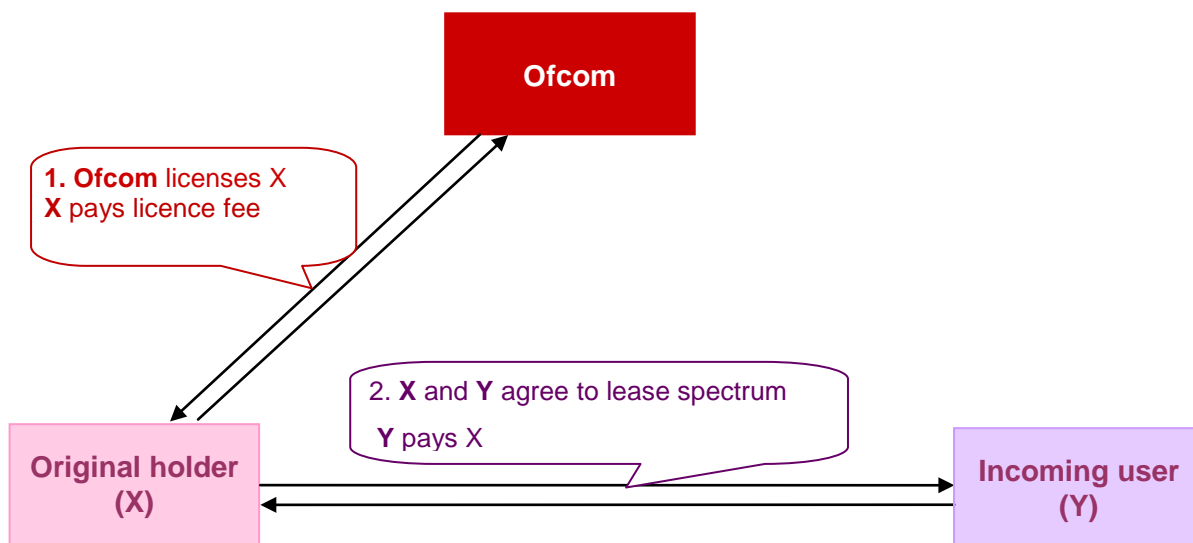


Figure 1b: Spectrum leasing



Spectrum leasing in other countries

2.12 According to report 169 of the Conference of European Postal and Telecommunications Administrations (CEPT)¹², entitled *Description of Practices Relative to Trading of Spectrum Rights of Use*, nine other CEPT states allow leasing, four intend to allow it and eleven do not allow it. Of the administrations allowing leasing, five require leases to be notified and the regulator or government may prevent leases from proceeding on grounds such as adverse impact on competition, inability to fulfil licence conditions or national security. Three of those five administrations publish details of leases entered into.

¹² <http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCREP169.PDF>

- 2.13 However, international comparisons are complicated by lack of a universally accepted definition of leasing and by differences from country to country in terminology and the details of how spectrum use is authorised. For example, the USA has *spectrum manager leases* and *de facto transfer leases* rather than *leases* and *transfers*.
- 2.14 A questionnaire for the above-mentioned CEPT report defines leasing in the following terms.

The leasing of usage rights is the possibility for a second party to exploit the usage rights of a first party for an agreed, usually limited time period. However, usage rights and obligations remain with the original rights holder. In such a case the first party may be able to exercise some control over the second party.

- 2.15 This is consistent with the terminology, described in paragraphs 2.7-2.8 above, that we have adopted.
- 2.16 There is also a shortage of data on the level and types of spectrum trades. The CEPT did not collect statistics of leasing volumes and the USA Federal Communications Commission changed the way in which firms were obliged to report information in 2006, which makes it difficult to construct a clear time-series. However, experience in the USA does seem to support the conclusion that making it easier for spectrum to be traded and leased can promote a diverse market eco-system in which a variety of market players and activities is available; and that this can enhance the efficiency with which spectrum is managed and used, even if it may take some time for the benefits to emerge and the ways in which the market develops can be unpredictable.

Market information

- 2.17 A successful market relies on the availability of information about whatever is being traded to bring buyers and sellers together. The Wireless Telegraphy (Register) Regulations 2004 (the Register Regulations)¹³ provide for us to publish and maintain a register, the WT Register (WTR), containing relevant information about tradable WT licences. The Register Regulations were extended to RSA in January 2009. We publish details of proposed trades in the Transfer Notification Register (TNR)¹⁴.

The Channel Islands and Isle of Man

- 2.18 Spectrum trading has not been introduced in the Channel Islands or Isle of Man and, consequently, the proposals discussed in this document will not apply there either for the present.

The structure of this document

- 2.19 The rest of this document is structured as follows.
- Section 3 sets out our reasons for the review and the options considered.
 - Section 4 contains a high-level overview of our proposals and conclusions following the September consultation.

¹³ SI no.3155/2004 as amended from time to time.

¹⁴ <http://spectruminfo.ofcom.org.uk/spectrumInfo/trades>

- Section 5 provides our conclusions on simplifying the spectrum transfer process.
- Section 6 gives our conclusions on spectrum leasing, TWLI and trading automation.
- Section 7 represents an updated impact assessment to be read in conjunction with the rest of this document.
- Annex 1 lists respondents to the September consultation.
- Annex 2 summarises points made in responses to the September consultation with our observations and conclusions.
- Annex 3 is a glossary of abbreviations.

Section 3

Reasons for reviewing the trading regime and options for change

Introduction

3.1 This section explains our reasons for reviewing the trading process and outlines the options presented in our previous consultation. We discuss those options and the responses to the consultation in greater detail in following sections and give our conclusions.

Enhancing the spectrum market

3.2 There is evidence, discussed in this document and the September consultation, and confirmed by responses to that consultation, that the current trading framework is unnecessarily burdensome, that transaction costs and legal uncertainty are holding back development of a more dynamic and efficient market in spectrum and that emergence of commercial band managers, which could make spectrum more readily available for innovation, is being inhibited.

3.3 Our September consultation proposed simplifying the trading process and introducing a streamlined form of spectrum trading, called spectrum leasing, described in the preceding section, to help the spectrum market work better. Our proposals were aimed at benefitting society by enabling a wider range of market transactions and institutions, including commercial band managers, to secure more productive use of spectrum. This is in line with the shift towards making greater use of market mechanisms such as trading, the policy¹⁵ of facilitating the establishment of intermediaries by creating an open trading regime and our obligation to remove unnecessary regulatory burdens¹⁶.

The current trading process

3.4 As described in greater detail in paragraphs 2.31-2.35 of the September consultation, the current trading process defined in the current Trading Regulations involves six stages with procedural checks to ensure, for example, that the parties have agreed to the transfer of rights, that no fees are outstanding and that we have not given notice of revocation or variation of the assignment in question, and the issue of new licences.

Need for our consent

3.5 One of the requirements is for the parties to obtain our consent to a proposed trade. The grounds on which we may withhold this are deliberately circumscribed so as to minimise regulatory uncertainty. Regulation 9 of the Trading Regulations limits them to:

- breach of the licence terms by the holder or holders;

¹⁵ Paragraph 7.16 of our 2004 spectrum trading statement at http://stakeholders.ofcom.org.uk/binaries/consultations/spec_trad/statement/sts.pdf

¹⁶ Section 6 of the Communications Act 2003

- inability to meet the terms, provisions and limitations of the post-transfer licence;
- inability to meet relevant criteria relating to transferees; or
- in the interests of national security, compliance with EU or other international obligations or compliance with a direction from the Secretary of State.

3.6 In addition, regulation 7 sets out circumstances in which trading is not authorised. These concern non-payment of licence fees or circumstances in which the licence is in the process of being varied or revoked, as well as where we have not given our consent.

Our reasons for reviewing the trading process

3.7 In drawing up the proposals in the September consultation, and as discussed in paragraphs 3.7-3.16 of that document, we took account of our statutory duties, availability and demand for spectrum, efficient management and use of spectrum, competition and innovation, economic and other benefits and compliance with EU obligations.

Matters on which we sought views in the September consultation

3.8 We sought views on whether the present regulation of spectrum trading was impeding desirable market developments or imposing disproportionate transaction costs and, specifically, on proposals for removing unnecessary regulatory burdens by:

- removing the need for the parties to obtain our consent to spectrum transfers for the generality of cases although there may need to be exceptions;
- making it simpler to carry out time-limited transfer;
- introducing a variant of spectrum transfer ('transfer without licence issue' or TWLI) that could proceed without the need for us to grant a new licence document to the transferee; and
- introducing, when permitted under EU and UK law, a spectrum leasing process that would be faster and more efficient than spectrum transfer and offer greater legal certainty.

3.9 We noted that certain licence sectors might have characteristics that justify imposing additional requirements, such as the need to obtain our consent or to notify leases to us.

Options to achieve our objective

3.10 We considered six options.

- **Option 1: status quo**
Buyers and sellers would continue to have to notify us of their intention to trade. We would publish details before the trade takes place, decide whether to consent and publish details of completed trades. Time-limited transfers would require separate transactions to close them out at the end of the transfer period.

- **Option 2: modify the current licence transfer trading process**
For the generality of licence classes or types of trade, we would dispense with the need for us to consent to trades. We would also simplify the process for time-limited trades to involve just a single transaction. This option is described in section 5 below.
- **Option 3: introduce a variant of spectrum transfer without the surrender and re-issue of licences (TWLI)**
The transferor's licence would not be surrendered, nor would the transferee be issued with its own licence document. Instead the transferee would have rights to use the spectrum by virtue of an undocumented licence that would expire at the end of the agreed period. We envisaged that this would be introduced in conjunction with option 2.
- **Option 4: introduce spectrum leasing**
Option 4 would simplify the process further by allowing spectrum leasing on a purely contractual basis without a new licence from us. There would be no need for leases to be notified to us in advance, for us to publish details or for us to issue a new licence or licences. This option is described in section 6. We envisaged that it would be introduced in place of option 3 and in conjunction with option 2.
- **Option 5: automation of the present trading process**
This would involve investing in business systems so that we could receive notifications by email and process and issue licences on-line. This would enable the process to be made faster without the need to introduce spectrum leasing but require investment in new systems. This is covered in section 6.

- 3.11 A sixth option would be to remove all current procedural obligations for trading except the need to notify minimal information to Ofcom to enable a central registry of assignments to be maintained. Without publication of trades, this option would reduce market transparency and be detrimental to the development of the market. It would also be incompatible with recently revised EU requirements. Changes to these are unlikely for several years so we did not consider this option in detail.
- 3.12 The impact assessment (IA) included in the September consultation concluded in favour of a combination of options 2 and 4. The responses supported that conclusion. Section 7 of this document presents an updated IA.

Section 4

Responses to the September consultation and our high-level conclusions

Overview of responses

- 4.1 We received 11 responses from a broad spread of sectors and stakeholders: six commercial spectrum-using organisations, including three from the programme-making and special events (PMSE) sector, two mobile network operators (MNOs), two trade associations and one consultancy. The responses, except for some material provided in confidence, have been published on our website¹⁷. Annex 1 lists the organisations that responded.
- 4.2 The responses generally supported our initiative to simplify spectrum trading. Some (Arqiva, Transfinite, Intellect) urged us to go ahead faster or further in view of the revisions to the EU framework.
- 4.3 In summary, the reactions to the main elements of our proposals were as follows.
- **Removal of the need for consent to a transfer** – there were mixed views on whether to retain the need for our consent for transfers in certain licence sectors. Transfinite argued that the requirement for consent should not be retained. Arqiva and Intellect queried what regulatory concerns would justify retention. Others agreed that there could be cases in which consent should be required.
 - **Time-limited transfers** – there was broad agreement with our proposal for single transaction time-limited transfers although one respondent queried its value if leasing is possible.
 - **TWLI** – respondents generally saw this as an improvement on the current system but did not consider it to be as advantageous as leasing.
 - **Leasing** – there was strong support for introducing leasing and for its early introduction.
 - *Application to specified licence classes* – most respondents wanted leasing to be available for all tradable licences.
 - *Band managers* - responses agreed that the current spectrum trading regime is likely to be holding back the emergence of band managers and that leasing could provide a better basis for them to operate.
 - *Restriction on lease length* – there were mixed views on our proposal to restrict leasing without the need to inform us to 24 months. Transfinite suggested a limit of seven years, Arqiva five years and Intellect four years. JRC suggested a rolling 12 or 24 month term.
 - *Sub-leasing* – responses were divided on whether to allow sub-leasing.

¹⁷ <http://stakeholders.ofcom.org.uk/consultations/simplify/?showResponses=true>

- There was little enthusiasm for *automating the trading process* as an alternative to leasing.

4.4 There were also some sector-specific concerns.

- *MNOs*: 3UK and T-Mobile highlighted mobile-specific issues. They noted that cellular radio licences were not yet tradable and argued that they would need to be treated as a special case in the context of mobile liberalisation. T-Mobile argued that consent should be required for all sub-1 GHz transactions and referred to the spectrum modernisation issues that the Government's Digital Britain report raised. 3UK was concerned about the removal of consent for mobile telecommunications spectrum trades and considered they should automatically be investigated.
- *PMSE*: BEIRG and PLASA did not want to see simplification of the trading process at the expense of PMSE. JFMG thought it was unclear how we would deal with unauthorised use under leasing.
- *Business radio*: the FCS was concerned about the implications for common base stations (CBS) and short-term hire (STH), where customers currently access spectrum under contract with a licensee and sought clarification of how our proposals would affect these.

Responses on the need to revise the trading regime

4.5 We asked stakeholders the following general question on the need to review the trading regime.

Question 1: Are there any features of the present spectrum trading regime that need to be changed in order to encourage or facilitate spectrum market developments? If so, have we correctly identified the features that need changing? What features, in addition to those described in following sections, would be advantageous to change?

4.6 In response, there was general agreement that the present spectrum trading regime needed to be changed in order to facilitate and encourage spectrum market developments.

- Arqiva said there was considerable pent-up demand for spectrum, much of which could be met from licensees releasing under-used spectrum. The absence of a legal means for leasing spectrum prevents this. They therefore strongly supported our core proposals for streamlining the transfer process and introducing leasing and suggested that lack of information on licences and spectrum usage made it difficult for companies to meet their spectrum needs in the secondary market. Our proposals were a step in the right direction and they urged us to go further. Intellect made similar points.
- Transfinite argued that the current trading regime was not designed with band managers in mind and does not facilitate their operation and that, although it is possible in principle to use the transfer process to support a band management operation, this would in practice involve complex and untested contractual arrangements that would present substantial risks.
- The JRC said that the current regime is a severe impediment to efficient exploitation of spectrum for short-term, low-cost use by organisations that

managed spectrum in bulk and that the need for the surrender and re-issue of licences made such activity impractical.

- PLASA considered that the current regime stifles spectrum trading but was concerned that a revised regime should preserve safeguards for the PMSE sector. BEIRG made similar points.
- T-Mobile recognised the case for streamlining the current trading regime provided that we have constant access to up-to-date licence information to allow us to investigate interference complaints.

Our conclusion on the need to revise the trading regime and next steps

- 4.7 The responses support our intention to simplify spectrum trading and, as stated above, we intend to proceed now that the necessary changes have been made to the WT Act.
- 4.8 Since the April statement, we have reflected on certain aspects of our proposals that were raised by stakeholders, including sub-leasing and the 24-month watershed period. The following sections present our conclusions.

Section 5

Simplifying spectrum transfer

Introduction

5.1 This section, together with annex 2, gives our conclusions on simplifying the transfer process by removing the need for our consent.

A targeted approach to spectrum trading rules

5.2 The present Trading Regulations do not differentiate between trades that are likely to have a significant effect on citizens and consumers and those that are not. They impose the same procedural requirements on a trade of a local area private business radio licence, such as might arise from a change of ownership of a taxi firm, as on the sale of a substantial amount of spectrum covering an appreciable area of the UK. However, in practice, the policy, competition and spectrum management implications in these two cases are very different. A risk-based approach, in which regulation is targeted on specific types of trade, can be expected to be more proportionate than applying the same requirements on a blanket basis to all transactions.

5.3 In developing a more targeted regime, it is necessary to consider the factors that need to be taken into account in deciding whether the need for consent may be dispensed with. These include:

- the economic and market significance of the transaction;
- the licence class or type or business sector;
- the risk of harmful interference and technical complexity; and
- the identity of the licensee.

5.4 These are discussed in greater detail in paragraphs 4.5-4.23 of the September consultation.

Overview of the revised transfer process

5.5 The streamlined transfer process would consist of the following steps:

- the parties notify us before they trade;
- we publish details before the trade takes place;
- we put the transfer into effect by processing and issuing licences; and
- we publish information on completed transfers.

5.6 This would be significantly simpler than the existing process, which is summarised in paragraph 3.4 of this statement and described in more detail in paragraphs 2.31-2.35 of the September consultation, and would be suitable for the generality of tradable licences. However, it may be necessary, as noted in this document, to impose

additional requirements on a selective basis for other licence classes where it is necessary and proportionate to do so.

Time-limited transfers

- 5.7 We also discussed making time-limited transfers more straightforward by dispensing with the need for a separate reversing transaction when the agreed period for the transfer of rights expires.
- 5.8 The current Trading Regulations do not allow time-limited transfers to be executed in a single transaction. The need for a separate reversing transaction initiated by the original transferee under the transfer contract makes the process more cumbersome and imports uncertainty. For example, the original holder might need to take legal action to force the other party to fulfill its obligation.

Responses on amending the spectrum transfer rules

- 5.9 We asked the following questions on these proposals.

Question 2: Do you agree with our targeted approach to deciding which trades need to be subject to more rigorous procedures and our specific proposals? Are there other factors that we should take into consideration or particular licence sectors or types of transaction that should be subject to additional procedural requirements?

Question 3a: Do you agree that the requirement for Ofcom's consent to proposed transfers should be dispensed with for the generality of tradable licences subject to justified exceptions?

Question 3b: If the need for prior consent was removed, do you consider that Ofcom should continue to have a power to give ex-post directions?

Question 3c: Do you agree with our proposal to introduce single-transaction time-limited transfers?

- 5.10 There were divided opinions on these questions, apart from on time-limited transfers, which virtually all respondents supported.
- Arqiva and Intellect thought the default position should be for trades to proceed without the need for our consent and that exceptions should be few and well-justified. They queried the need for concerns in relation to policy, competition and spectrum management. They considered that disproportionate constraints on trading would maintain barriers to accessing spectrum, constrain innovation and undermine market confidence in spectrum liberalisation.
 - Transfinite supported a targeted approach while suggesting that most trades would not need consent. It was unclear how partial trades would introduce the risk of interference as the parties would continue to be subject to the technical conditions in licences, which would be unchanged after the trade.
 - 3UK expressed concern about the application of our proposals to the mobile telecommunications sector and considered the requirement to obtain our consent to trades should be retained there in view of the potential impact on interference and competition; that trading of spectrum used by mobile operators – their existing spectrum and possible future bands such as 2.6 GHz – should be

automatically investigated; and that we should make clear the consultation process for such investigations. In a similar vein, T-Mobile expressed the expectation that we would consult on which licence classes should continue to require our consent for trades. It was important for us to clarify this before revising the trading regime. In particular, T-Mobile thought that all trades of sub-1 GHz mobile spectrum should require consent.

- PLASA agreed with a targeted approach to more rigorous procedures and considered that dispensing with the need for consent would generally benefit the spectrum-using community and was an essential step if band managers were to operate efficiently. However, the band manager with obligations to PMSE users should need consent for trading for non-PMSE use and it was important for us to retain the power of *ex-post* direction to ensure protection for PMSE users. BEIRG made similar points.
- David Hall Systems (DHS) queried whether the facility for time-limited transfers would be worthwhile if leasing was possible.

Our conclusions on simplifying transfer

- 5.11 We have concluded that we should simplify the transfer process by removing the need for the parties to obtain our consent for proposed trades in the generality of tradable licence classes while recognising that there may be exceptions for which consent should be required. In doing so, we considered the following reasons why consent might be necessary.

Existence of non-spectrum licence conditions

- 5.12 In granting a WT licence, we are entitled to take into consideration the applicant's ability to comply with licence terms and conditions¹⁸. Certain licences contain conditions (known as 'non-spectrum conditions') that are not directly related to the prevention of harmful interference or promotion of technical spectrum efficiency but are intended to secure wider policy objectives, for example roll-out obligations to ensure that service is provided to a given proportion of the geographical area or population by a given time. It could frustrate the underlying policy intent in such a case if a company could acquire a licence through trading when it would have been ineligible for the initial grant.
- 5.13 Although as a general rule, we do not favour including such conditions in new awards, it might, where they have been imposed, be necessary to continue to require our consent for a transfer in order to guard against a situation in which a person acquiring the licence by trading is incapable of complying.
- 5.14 On the other hand, any non-spectrum conditions in a licence that is traded will continue to apply, either to the transferee or the transferor. This means that we could take *ex-post* enforcement action, including revocation, if there was a breach. This can be expected to give an effective incentive to secure compliance so the existence of a non-spectrum licence condition will not automatically make it proportionate or necessary to require consent for that licence to be traded.

¹⁸ Paragraph 3 of schedule 1 to the WT Act and regulation 4 of the Wireless Telegraphy (Limitation of Number of Licences) Order 2003 SI 2003/1902.

Need to ensure compliance with national security, international obligations and directions from the Secretary of State

- 5.15 It might be necessary to prevent a transfer from taking place on grounds of national security or to comply with an international obligation or direction from the Secretary of State. Few tradable licences contain non-spectrum conditions or raise national security issues and we have not found it necessary to withhold consent to any trades that have so far taken place.
- 5.16 For this reason, we do not consider it would be proportionate to continue to impose a blanket requirement on the parties to obtain our consent for transfers in the generality of tradable licence classes and we intend to rely on our *ex-post* powers of licence revocation or variation in relation to non-spectrum conditions and national security.

Requirement to prevent distortions of competition

- 5.17 The Framework Directive requires us to ensure that transfers do not distort competition. As explained below, we consider that general competition law will be sufficient to achieve this in relation to the generality of tradable licence classes.
- 5.18 Before making the original Trading Regulations, we gave careful consideration to how to ensure effective competition following the introduction of spectrum trading. We consulted on this topic in June 2004¹⁹ and, in particular, on whether it was necessary for the Trading Regulations to empower us to block proposed trades on competition grounds.
- 5.19 Following that consultation, we concluded²⁰ that relying on an *ex-ante* competition check on trading would, in general, be problematic, import a serious risk of regulatory failure and be disproportionately burdensome. We considered that our powers under general competition law, combined with those available under the WT Act, would be sufficient as a general rule to ensure effective competition and that there was no need to consider *ex-ante* the effect of individual trades on competition. We do not consider the situation for leasing in the generality of tradable licence classes will differ significantly in this respect from that for transfer. Accordingly, we propose to continue to rely on our general competition law and WT Act powers in relation to leasing as we do for transfer.

Our conclusions on requiring consent

- 5.20 We acknowledge that dispensing with the requirement to obtain our consent will forego an element of *ex-ante* control. However, we consider that the available *ex-post* remedies will prove sufficiently effective in the generality of tradable licence classes to make the risk acceptable when set against the potential benefits.
- 5.21 Overall, we have concluded that it would be neither proportionate nor necessary for the generality of tradable licence classes to continue to require the parties to a trade to obtain our consent so have decided to dispense with this requirement in line with our duty to remove regulatory burdens that we no longer consider necessary. There may, however, as discussed in paragraphs 5.23 and 5.24, be licence classes in which it is necessary to make an exception and require consent.

¹⁹ http://stakeholders.ofcom.org.uk/binaries/consultations/sec/summary/spectrum_trading.pdf

²⁰ <http://stakeholders.ofcom.org.uk/binaries/consultations/sec/statement/statement.pdf>

- 5.22 In addition, transfers will continue to be forbidden in the circumstances set out in regulation 7 of the Trading Regulations, that is to say in cases of non-payment of fees, licence variation or licence revocation. This is necessary in order to avoid compromising the licensing regime, for example if a licensee could evade pending revocation proceedings for non-payment of licence fees by transferring the licence to an associate.

Exceptions in which consent may be justified

- 5.23 We think that requiring consent in respect of all spectrum below 1 GHz as one respondent suggested would be disproportionate as it would include, for example, private mobile radio assignments typically used by taxi firms and couriers. However, we recognise the sector-specific issues raised by MNO respondents. We consulted on 2 February 2011 on making public wireless network licences at 900, 1800 and 2100 MHz ('mobile spectrum licences') tradable²¹ and on 22 March 2011 on proposals for the award of 800 MHz and 2.6 GHz spectrum²², including making the licences tradable. In both cases, we proposed that a requirement should be imposed on the parties to obtain Ofcom's consent for licence transfers in order to allow us to decide whether to carry out an *ex-ante* competition assessment. We considered this to be necessary to address potential competition concerns that transfers could raise in the particular circumstances of the market for mobile services in those frequency bands. On 20 June, we published a statement²³ setting out our decision to make public wireless network licences at 900, 1800 and 2100 MHz tradable in line with our proposal and to make the necessary regulations. The consultation on proposals for the mobile spectrum award closed on 31 May and we are considering responses to it.
- 5.24 Another possible exception is our proposal that the band manager with PMSE obligations should be required to obtain our consent before allowing any non-PMSE use in the spectrum awarded to it²⁴.

Fallback power of direction to reverse trades

- 5.25 We have considered the possibility of mitigating the risks of dispensing with the consent requirement by taking a power of direction, akin to that in regulation 10 of the Trading Regulations, to require the parties to take *ex-post* steps, which could include reversing the trade, on any of the regulation 9 grounds for withholding consent. This would provide a fallback power of intervention. On the other hand, it would increase regulatory uncertainty. The parties might consider it necessary to seek pre-clearance from us, which would largely defeat the purpose of dispensing with the consent requirement. On balance, we do not believe that it is generally necessary or desirable to take this fallback power.

²¹ <http://stakeholders.ofcom.org.uk/binaries/consultations/trading-900-1800-2100/summary/900-1800-2100.pdf>

²² <http://stakeholders.ofcom.org.uk/binaries/consultations/combined-award/summary/combined-award.pdf>

²³ <http://stakeholders.ofcom.org.uk/binaries/consultations/trading-900-1800-2100/statement/900-1800-2100-statement.pdf>

²⁴ See paragraph 3.67 of our consultation document *Digital dividend: band manager award – second consultation on detailed award design*, published 22 June 2009 at <http://stakeholders.ofcom.org.uk/consultations/bandmanager09/>.

Next steps on removal of the need to obtain consent

- 5.26 Removal of the need for parties to a transfer to obtain our consent for the generality of spectrum transfers will involve amending the Trading Regulations. We will take the earliest convenient opportunity to do this.

Time-limited transfers

- 5.27 Time-limited transfers currently involve the parties in agreeing contractually that the transferee will reverse the transfer at the agreed date.
- 5.28 It would reduce the regulatory burden and legal uncertainty if time-limited transfers were possible without the need for a separate closing transaction. Leasing will provide one way of doing this in future. However, in cases in which leasing is not possible, such as time-limited transfers involving RSA (see paragraphs 6.32-6.34 below), the following procedure provides an alternative way of avoiding the need for a second transaction:
- i) splitting the licence (or RSA grant) into two parts timewise: part A for the fixed term of the transfer period and part B that commences at the end of that period and lasts for the remainder of the original duration of the licence or RSA grant; and
 - ii) transferring part A to the transferee; while
 - iii) leaving part B, which commences at the end of the transfer period, in the hands of the transferor.
- 5.29 Because this process has to be carried out manually under our present trading system, we do not currently have sufficient resource to make it widely available and will offer it selectively, for example where it is cost-effective and leasing does not provide a solution.

Section 6

Leasing, TWLI and automation

Introduction

6.1 The September consultation proposed the introduction of spectrum leasing, a new form of simplified, contract-based spectrum trading. This section presents our conclusions on leasing, as well as on the alternatives of TWLI and automated trading, and our plans for introducing spectrum leasing.

Leasing

6.2 To recap, leasing would enable a licensee to allow others to make use of its licence rights without the need for us to grant them new licences. The licensee would simply enter into contractual agreements that would entitle others to use some or all of the assignment for a specified period within the overall parameters of the licence terms and conditions, including duration and technical limitations. The conditions of the lease within those parameters would be for the parties to negotiate. This would avoid the need for the licensee to surrender its licence and for us to issue new licences to the incoming users.

6.3 We proposed in the September consultation that spectrum leasing would be able to proceed without notifying Ofcom for lease periods of up to 24 months. Longer leases would be allowed but, in view of their potentially greater market significance, would need to be notified to us. This is one of the aspects in respect of which we have decided to modify our original proposals.

6.4 The leasing process would be subject to regulation in order to allow us to manage the spectrum and investigate interference. For example, we would require licensees authorised to undertake leasing to keep records of those to whom they had granted leases and to make these available to authorised Ofcom personnel.

Comparison between transfer and lease

6.5 As explained in section 2 above, the difference between licence transfer and lease derives from the fact that the former involves grant of a licence to the transferee whereas the latter is a purely contractual arrangement between the parties. The introduction of leasing will enhance the parties' flexibility to choose the type of transaction that suits their circumstances, preferences and priorities. This additional flexibility can be expected to benefit citizens and consumers by reducing transaction costs and execution times and so making spectrum available faster for new services.

Responses on spectrum leasing

6.6 We asked the following questions on leasing.

Question 5a: Do you agree with our proposal to create a regime for spectrum leases? What do you see as the advantages and disadvantages?

Question 5c: Do you agree with our proposal to limit the simpler leasing procedure without reference to Ofcom to shorter leases of up to 24 months? Would you suggest a different cut-off or a parameter other than

lease length? If you suggest an alternative, it would be helpful if you could describe how this would work in practice.

Question 5d: Do you agree with our proposal (i) for longer leases to be subject to similar procedural requirements as licence transfers and (ii) to allow partial leasing but not sub-leasing?

Question 5e: Do you agree that spectrum leasing should be available for all tradable licence classes? If not, which should be omitted and why?

- 6.7 All those responding to these questions strongly supported the introduction of spectrum leasing and agreed that it should be available for all tradable licence classes. The perceived advantages of leasing included reduced transaction costs, lower barriers to spectrum access and secure spectrum access. There was a divergence of view on the proposed time limit of 24 months and our proposal not to allow sub-leasing.
- JFMG, PLASA and DHS agreed with the 24-month limit. Transfinite disagreed and thought a seven-year limit would be preferable. Other suggestions were a five-year limit (Arqiva), a four-year limit (Intellect) and a rolling 12- or 24-month term (JRC).
 - Arqiva and Intellect thought that sub-leasing should be allowed. Transfinite, PLASA and DHS thought that there should be no sub-leasing. JFMG suggested that this aspect requires further thought.
 - JFMG was concerned about additional procedural requirements to prevent evasion of the 24-month limit as many PMSE users renew their licences annually.
 - Transfinite thought that leases longer than 24 months should not have additional procedural requirements whereas Arqiva agreed in principle that they should provided that the watershed was appropriately set, especially in relation to helping innovation by small companies.
 - DHS pointed out that leasing would not apply to the public sector unless the grant of RSA was modified and JFMG asked whether TWLI would be available as an alternative in such cases.

Our conclusions on leasing

- 6.8 In the light of the positive views on leasing, and as we indicated at paragraph 1.11 of the April statement, we will proceed to allow leasing to take place now that the necessary amendments have been made to the WT Act but have decided to revise aspects of our original proposals as described in following paragraphs in light of responses to the September consultation.
- 6.9 We will monitor developments carefully in case there are aspects of the regulation of leasing that need to be adjusted.

The notification watershed

- 6.10 Our original proposal was that leases for periods of up to 24 months should be allowed to proceed without a need to notify us. Longer leases would be permitted but would have to be notified and we would publish details in the interests of transparency. We acknowledged that other criteria such as economic significance of

the spectrum being traded could be adopted but could be difficult to assess objectively. We also mentioned the need for an anti-evasion provision to prevent long leases being structured as a succession of shorter leases.

6.11 Responses on the watershed commented that:

- a watershed based on lease length would be arbitrary as lease length is not a good indicator of the impact of a lease on spectrum availability;
- a preferable approach would be to register leases that have a significant effect on spectrum made available to other parties, for example if they involve more than 20% of the frequency or geographic range of the original holding;
- 24 months, while suitable for PMSE, was an arbitrary choice and would impose an additional administrative burden in other sectors, especially on projects involving infrastructure investment that could take 10 or more years to be completed;
- the watershed should be based on the impact on spectrum availability, on a rolling 12 or 24 month period or on a fixed 5 or 7 year term; and
- there could be confidentiality issues if details of longer leases were published.

6.12 On the other hand, it was also argued that longer leases could take on the attributes of a permanent arrangement and that notification and publication would ensure an appropriate degree of transparency.

6.13 We have reconsidered our proposal in the light of the evidence that the ability to enter into longer leases would give licensees greater certainty over the terms on which they make spectrum available; that a requirement to notify details of longer leases for publication could deter beneficial market transactions; and that a 24-month watershed would be excessively rigid.

6.14 We have also taken into account the practical difficulty of devising a watershed that reflects the market impact of a transaction. Lease length is objective and simple to administer but an imperfect proxy. Moreover, anti-evasion provisions to prevent any watershed from being side-stepped, for example by structuring a long lease as a series of shorter ones, could be intrusive and burdensome to administer and enforce.

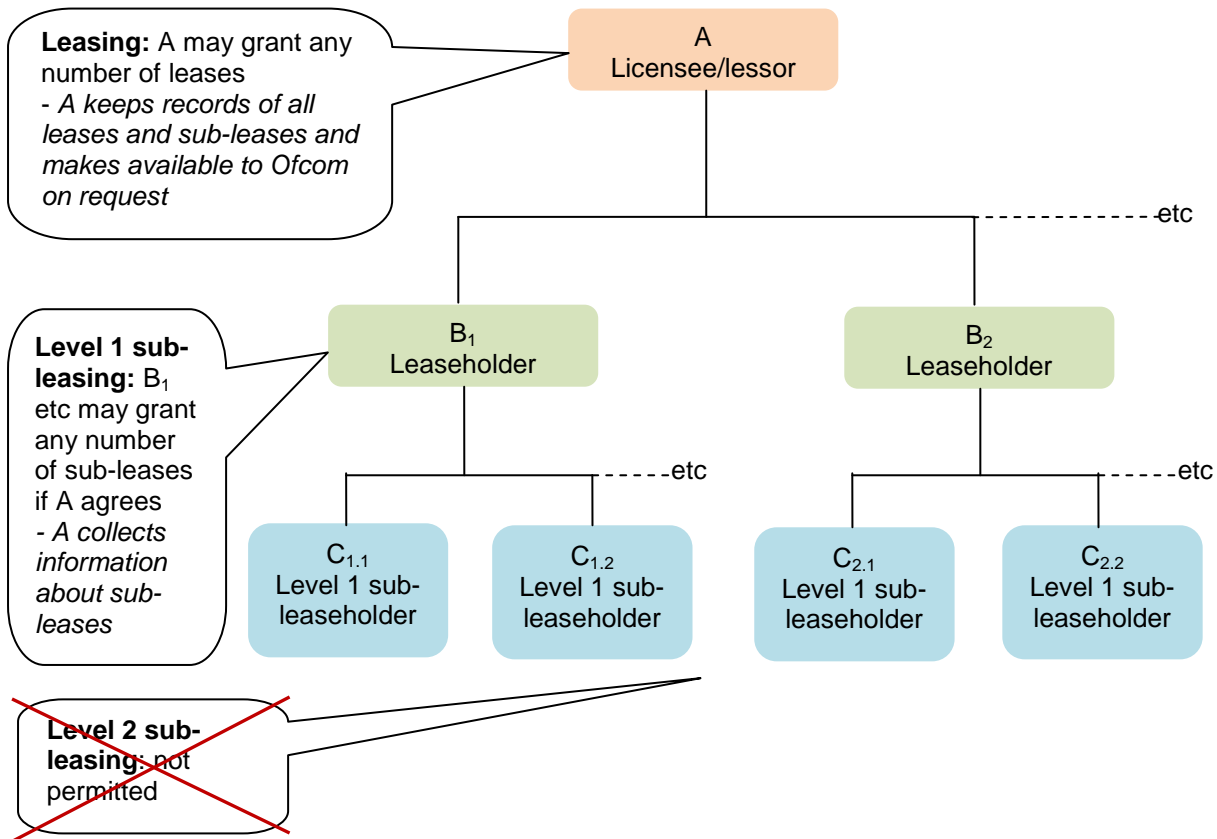
6.15 Accordingly, we have concluded on balance that we should, subject to justified exceptions, allow leases of any length to proceed without *ex-ante* notification to us.

6.16 We have considered the risk that allowing longer leases to proceed without *ex-ante* notification or publication could hinder market supervision and detract from market transparency but concluded that it would, for the generality of licence classes, be adequately mitigated as described below.

- Market transparency should not be unduly affected as the identity of the licensee to whom the spectrum rights are assigned will continue to appear in the WTR.
- Individual leases in the generality of tradable licence classes are not likely to raise competition issues to an extent that would make it proportionate to require pre-notification, even for longer lease periods. As stated in paragraph 5.19 above, we expect general *ex-post* competition law and our existing WT Act powers to be sufficient to ensure effective competition in those licence classes.

Sub-leasing

- 6.17 The September consultation proposed not to allow sub-leasing. In other words, if licensee A leases spectrum to B, B would not be permitted to grant a sub-lease to a third party, C. This was to avoid a situation in which enforcement was made more difficult by the need to track a chain of leases to identify the end-user of a piece of equipment in leased spectrum, bearing in mind that our licensing database will not carry information about leaseholders.
- 6.18 Some respondents agreed with our proposal but others commented that it would create difficulties and be burdensome for PMSE.
- 6.19 We have reviewed our original proposal and concluded that it would be possible, without compromising the effectiveness of our interference investigation, to allow a degree of sub-leasing as illustrated in figure 2 below, provided that the licensee maintains and makes available to authorised Ofcom personnel the information they need to identify both leaseholders and sub-leaseholders. We would expect that the licensee A would need to keep such records for its own business purposes so the additional burden of making them available to Ofcom should not be excessive. There would be no regulatory limit on the number of level 1 sub-leases that B may grant.
- 6.20 Allowing further levels of sub-leasing would increase the risk of uncertainty about who is entitled to use the spectrum and on what terms and could make investigation of interference and enforcement more difficult and time-consuming. We are not aware of any evidence from the responses that further levels of leasing would unlock sufficient additional benefit to offset the risk that has been identified. For these reasons, we propose not to allow C in figure 2 to sub-lease further to D.

Figure 2: Leasing and sub-leasing

The role and responsibilities of lessors

- 6.21 Some responses requested clarification about the responsibilities of lessors, especially in relation to dealing with interference.
- 6.22 Responsibility for planning the use of the leased spectrum will rest with the lessor, so it seems appropriate that lessors should have a role in resolving any complaints of interference from their leaseholders. We recognise that lessors will lack the statutory investigatory powers that Ofcom possesses. However, we feel there are, nonetheless, certain steps that it would be reasonable to expect them to undertake. Several responses emphasised the importance of clarity on such matters and of ensuring that there are effective arrangements to deal with interference involving leaseholders. The following paragraphs aim to provide this although it is difficult to generalise about the way in which we will exercise our enforcement powers as much will depend on the exact circumstances.
- 6.23 Broadly speaking, it would seem reasonable to expect the lessor to have contractual responsibilities to leaseholders on various matters including:
- i) ensuring that the licence, on which leaseholders' rights to use the spectrum depend, are maintained and continue in existence, for example by continuing to pay annual licence fees to Ofcom where these are required to be paid; and
 - ii) planning the leases in a way that meets the needs of leaseholders for spectrum availability and quality taking account of the pattern and intensity of spectrum use under the technical conditions attached to leases; and

- iii) upholding spectrum quality and investigating interference suffered by leaseholders although we recognise that a lessor might need to refer complaints to us if unable to locate the source or if the person responsible is not another leaseholder of the same lessor.

6.24 We intend to require lessors to:

- have written contracts with leaseholders in order to reduce the risk of misunderstanding or dispute;
- provide in lease contracts for prompt and satisfactory resolution of disputes to reduce the need to litigate or involve Ofcom in the event that a dispute arises between the parties concerning the lease;
- inform leaseholders of the terms and conditions of the head licence and give them information about these, possibly by a link to the relevant page on Ofcom's website;
- inform leaseholders that failure to meet the licence terms and conditions may result in closedown of the equipment and incur penalties;
- take all reasonable steps to ensure that leaseholders' use of radio equipment complies with the lessor's licence conditions;
- maintain records of leaseholders and sub-leaseholders where they permit sub-leasing; and
- make that information available in timely manner on request to Ofcom personnel.

6.25 These requirements are largely based on conditions of the existing Business Radio (Suppliers Light) licence²⁵.

Enforcement and interference investigation

6.26 Lessors will have commercial incentives to maximise the use of their spectrum holdings. However, use that is too intensive may give rise to interference or congestion. While we will continue to be involved in resolving interference, we consider it reasonable to expect a lessor to act as first port of call to resolve complaints from its own leaseholders and to involve Ofcom only if it cannot resolve the problem itself, including through its dispute resolution procedure. In particular, we would expect the lessor to resolve interference complaints in which both the source and victim are its leaseholders.

6.27 If we are called in and the problem on investigation proves to have been caused by a decision or action of the lessor, for example because of the way in which the lessor has planned the band, we may charge the lessor for the work involved in identifying the problem. We may also charge if the cause of the interference lies in the complainant's own installation.

6.28 Respondents asked us also to clarify whether enforcement action would be taken against the lessor or the leaseholder if there was a breach of licence conditions by the latter. This will depend on the circumstances. Relevant considerations include the following.

²⁵ <http://ofcom.org.uk/static/businessradio/BusinessRadioSuppliersLight.pdf>

- If, in our view, the lessor has contributed to the breach in some way, for example by imposing contractual technical conditions that are incompatible with the licence, we may proceed against the lessor. Otherwise, we would be more likely act against the leaseholder if that person is knowingly or recklessly acting in breach of the licence conditions and so committing a criminal offence under section 8 of the WT Act; and this may result in a range of consequences up to and including prosecution where justified.
- If necessary and justified, we might also consider it necessary to act directly against the leaseholder to require immediate shutdown, even though we do not have a direct licensing relationship with that person. This might occur, for example, if the leaseholder is causing serious harmful interference, for example to a safety-of-life service.
- We may act against a lessor that fails to keep adequate records of leases or sub-leases or to provide information when required for investigation or enforcement purposes. Our powers to require information for these purposes have been extended by sections 32A to 32D of the WT Act, added by the revised EU framework transposing regulations. These make it an offence to fail to provide information required by us for the purpose of carrying out radio spectrum functions and empower us to impose penalties for contraventions.
- If a lessor's licence is revoked for whatever reason, such as non-payment of fees, or surrendered, leaseholders' authorisation to use radio equipment will cease and we may, depending on circumstances, act to prevent them from continuing to operate. Depending on the provisions of the lease agreement, they might then have a contractual remedy against the lessor. We might license them, possibly on a temporary basis, to continue operating in order to maintain continuity of service or to allow them and their customers to make alternative arrangements but how we proceed in a specific case will depend on the particular situation. Leaseholders should be aware that the continuing lawfulness of their use of the spectrum will depend on the continuity of their lessor's licence so they would be well-advised to undertake due diligence into this themselves.

Guidance on leasing

- 6.29 As spectrum leasing will be an innovation in spectrum trading, it has been suggested that it would be helpful to the market if we were to publish guidance on its operation. We are willing to do so and will give consideration to the type of guidance we could usefully provide, for example by updating our guidance on trading and enforcement to take account of the introduction of leasing and to explain the respective responsibilities of lessors and leaseholders.
- 6.30 It has further been suggested that Ofcom might publish model contract terms. This may be problematic. Contract terms need to be carefully tailored to the circumstances, including commercial, of the parties. It is the responsibility of the parties themselves in their own interests to take such expert advice, including legal, that they consider necessary in their particular situation. We cannot anticipate all the situations that might arise in connection with a particular lease so standard terms might be of limited utility and might even prove dangerous if the parties place undue reliance on them. However, we will consider compiling a non-exhaustive list of issues that might usefully be considered in drawing up a lease agreements, for example:
- lease length and security of tenure;

- technical restrictions on spectrum use, which would have to be compatible with the terms of the head lessor's licence;
- payment terms;
- spectrum quality and availability;
- whether sub-leasing is allowed and the obligation, if it is, to provide details of sub-leaseholders to the licensee;
- maintaining the licence in force;
- liability for interference or if the licence lapses or is revoked;
- the right of the lessor to access the leased spectrum;
- any contractual restrictions on transfer of the licence by the lessor; and
- dispute resolution.

6.31 We intend to include guidance on leasing when we update the Spectrum Trading Guidance Notes on our website²⁶. Suggestions for additional topics to be covered in those Notes may be addressed to our spectrum trading desk (email: spectrum.tradingdesk@ofcom.org.uk).

Leasing in the public sector

6.32 As explained in paragraph 6.28 of the September consultation, leasing of RSA is, for legal reasons, problematic where it is intended to convert RSA into a WT licence, for example if a Crown body intends to release spectrum to a commercial user. Two respondents remarked on the potential advantages of leasing for the public sector.

6.33 We have considered options for allowing leasing by public sector bodies and have reached the following conclusions.

- We remain of the view that a trade of RSA that involved conversion to a licence would not be legally possible without imposing a requirement for the leaseholder to obtain a licence from us, which would largely negate the faster execution time advantage of leasing.
- However, a Crown body holding RSA would be able to achieve a similar outcome by requesting a time-limited *transfer* as outlined at paragraphs 5.27-5.29. An alternative would be for it to set up a company that holds a WT licence instead of RSA and so can grant leases in the same way as any other licensee.

6.34 Many public sector bodies are not part of the Crown and hold licences that could, in principle, be made leasable.

Summary of revised leasing proposals

6.35 We intend to proceed with simplifying spectrum trading, including the introduction of spectrum leasing, as proposed in the September consultation. In the light of

²⁶ <http://stakeholders.ofcom.org.uk/spectrum/spectrum-trading/trading-guidance-notes/>

stakeholders' comments, we have modified our original proposals as described in this section and summarised in the following table.

Table 2: Summary of modifications following consideration of consultation responses

Subject	Original proposal	Revised proposal
Notification watershed for leasing and publication of details	<ul style="list-style-type: none"> Leases up to 24 months not notifiable or published Longer leases to be notified in advance and published 	<ul style="list-style-type: none"> Leases regardless of length not notifiable in advance (paragraphs 6.10-6.16)
Sub-leasing	<ul style="list-style-type: none"> Sub-leasing not allowed 	<ul style="list-style-type: none"> One level of sub-leasing allowed Licensees required to keep records of sub-leases (paragraphs 6.17-6.20)
Responsibilities of lessors	<ul style="list-style-type: none"> To keep records of leases and sub-leases and make these available to Ofcom on demand Leases to be in writing To draw leaseholders' attention to licence terms and conditions governing their use of the spectrum 	<ul style="list-style-type: none"> In addition, lessor required to maintain records of any sub-lease and provide for dispute resolution (paragraphs 6.21-6.25)

Next steps in introducing spectrum leasing

6.36 As mentioned in paragraph 2.7 above, the amendments that have been made to section 30 enable us to introduce leasing in two different ways. We could vary WT licences in a way that will allow those licensees whose licence contains the necessary terms to undertake leasing in accordance with the terms of the licence; or we could make trading regulations that permit and regulate leasing by all members of selected licence classes. We intend to proceed initially by licence variation rather than by trading regulations. Individual licence variation will better enable us to monitor how spectrum leasing develops and assist interference investigation and enforcement as we will know which licensees are permitted to grant leases.

Timing and phasing

6.37 We will publish details on our website²⁷ of the process for applying for licence variations to allow leasing as soon as we are ready to accept applications. We currently expect this to be later this year. Further information will be posted on the website²⁸. Meanwhile, the short-term hire of radio equipment by holders of Suppliers licences may continue without the need for obtaining a variation as those licences already contain the necessary provisions.

6.38 The September consultation proposed as a general rule to allow leasing in all tradable licence classes subject to a minimum of regulation. Although we are predisposed to make leasing widely available in view of the potential benefits, there are some licence classes in which we may not be in a position to do so immediately. The following factors in particular are relevant to this.

²⁷ <http://stakeholders.ofcom.org.uk/spectrum/spectrum-trading/>

²⁸ Interested stakeholders may register for webfeeds at <http://www.ofcom.org.uk/webfeeds/>.

- Tradability: leasing is a form of trading and we would not normally expect to allow leasing in a licence class that is not tradable.
- Licensing issues: the possible presence of leaseholders in an assignment will complicate the situation if we need to take revocation action, especially for non-payment of licence fees²⁹. Allowing leasing in licence classes in which revocations are frequent, such as Technically Assigned Business Radio, could give rise to unacceptable costs and delays in carrying out essential spectrum management functions. Consequently, we are not in a position to offer leasing in those classes at present but will keep the situation under review.
- Resourcing: processing applications for variations requires resources. If we receive requests for variations of large numbers of licences, we may need to prioritise in favour of those involving larger bandwidths and coverage areas, such as Business Radio Area Defined licences. This is because, generally speaking, leasing offers greater scope for spectrum efficiency gains in larger scale assignments. In particular, we would not generally extend leasing to Simple Site and Simple UK licences as these are available direct from us on request for a nominal fee (currently £75 for 5 years) and leasing would be unlikely to deliver significant benefit.
- Risk of creating interference or congestion: assignments in certain licence classes, such as shared BR licences, are subject to a high degree of central planning and coordination. Even though leasing could facilitate significant gains in spectrum efficiency for shared assignments, we are not confident that our licensing system could currently support this without a risk of unacceptable interference or congestion. Consequently, we are not yet in a position to grant leasing variations in those licence classes.
- Spectrum policy considerations: leasing in some licence classes may raise spectrum policy, including competition, issues. For example, in our consultations on making public wireless network licences at 900, 1800 and 2100 MHz tradable³⁰ and on the award of 800 MHz and 2.6 GHz spectrum³¹, we said we would give further consideration to making the licences leasable once the WT Act had been amended to provide for leasing. We will consult in due course on whether leasing should be allowed for these licences.

6.39 Accordingly, we intend initially to limit leasing to exclusive Business Radio Area Defined assignments and auctioned licences³². These sectors tend to be characterised by relatively large assignments (in terms of bandwidth and geographical coverage) that are exclusive. They therefore offer scope to realise the benefits of leasing with less risk from the complicating factors listed in the previous paragraph than sectors that are more fragmented or heavily shared. If there was sufficient market interest, we would be prepared to consider positively an extension to other licence products in due course. However, this would likely require changes to

²⁹ See paragraph 6.30, 4th bullet.

³⁰ <http://stakeholders.ofcom.org.uk/consultations/trading-900-1800-2100/>

³¹ <http://stakeholders.ofcom.org.uk/consultations/combined-award/>

³² Not all auctioned licence classes will necessarily be suitable for leasing. For example, we will be consulting in due course on whether to make auctioned public wireless network mobile spectrum licences, including auctioned licences at 2100 MHz, leasable (paragraphs 3.47-3.48 of our statement at <http://stakeholders.ofcom.org.uk/binaries/consultations/trading-900-1800-2100/statement/900-1800-2100-statement.pdf>); and auctioned licences at 1781.7-1785 MHz paired with 1876.7-1880 MHz are subject to coordination arrangements that could make leasing problematic.

our assignment processes and business systems and we would need to review the evidence of leasing to date at that time in order to satisfy ourselves that the benefits justified the costs and represented value for money. We would also expect to carry out a further impact assessment. If we were to extend leasing, we would do so by trading regulations if this was more efficient than individually varying licences.

Alternatives to leasing: TWLI and automating the trading process

- 6.40 For completeness, the following paragraphs present our conclusions on two alternatives to leasing discussed in the September consultation. These are TWLI and automation of the trading process. As explained below, we have decided not to proceed with either.

TWLI

- 6.41 As the law stood before the EU framework was revised, regulation 8(5) of the Trading Regulations prescribed that transfers had to be executed by the surrender to us of the original licence and grant of a new licence to the transferee.
- 6.42 The proposal for TWLI involved a new way for a licensee to transfer spectrum rights. The original licence would not be surrendered and nor would the transferee be issued with a new licence document. Instead, the transferee would have rights to use the spectrum by virtue of a licence, which was not in the form of a document, arising as a result of the transfer.
- 6.43 TWLI would enable a measure of streamlining. However, it would not go as far as leasing in this respect as transactions would have to be notified to us in advance and we would publish details of them. At the time of the September consultation, the EU framework had not yet been revised to allow spectrum leasing and TWLI was envisaged as a stop-gap until that had been done. However, this is no longer necessary as the revised EU framework has since been adopted and transposed into UK law.
- 6.44 We asked the following questions on TWLI.

Question 4a: Would our proposal for TWLI offer a worthwhile reduction in regulatory burden compared to the status quo? Please provide as much quantitative and qualitative evidence as possible of the benefits and practical seriousness of any drawbacks.

Question 4b: Would TWLI streamline the trading process sufficiently for the band manager with PMSE obligations to operate.

Question 4c: Would TWLI generate worthwhile benefits for other licence classes, frequency bands or types of transaction despite the drawbacks? If so, in which other categories should it be introduced and how might the drawbacks be mitigated in practice?

Question 5b: What advantages would spectrum leasing offer over TWLI? Please provide as much quantitative and qualitative evidence as possible of the benefits and practical seriousness of any drawbacks.

Responses on TWLI

- 6.45 Views on TWLI were mixed. Several responses expressed reservations about TWLI on the grounds that, although it would be better than the present trading process, it was inferior to leasing, seriously flawed or unnecessary given the option of leasing. Others considered that TWLI should, if introduced for PMSE, be available more widely beyond that sector and that it would be advantageous to give parties the additional option of TWLI as well as leasing.

Our conclusion on TWLI

- 6.46 We do not intend to proceed with TWLI now that the EU framework and WT Act have been revised to provide for leasing, which stakeholders viewed as superior to TWLI.

Automating the trading process

- 6.47 As an alternative to leasing, it would be possible to speed up the trading process by automating our business systems, for example by installing a system to handle the process electronically and provide on-line licensing.
- 6.48 We pointed out that, although automation could improve the efficiency of the process, it would incur substantial costs that could be avoided were leasing to be introduced and asked the following question about whether it would be advantageous to automate our business systems, for example by installing a system to handle the process electronically and provide on-line licensing.

Question 6: What capital and operational costs would automated trading impose on band managers and their customers? Do you agree with our assessment that automated trading would be second-best to leasing but would provide a workable alternative?

Responses on automation

- 6.49 All those responding agreed that simplifying the current trading process would be preferable to automating the process although one confidential response suggested that there could be advantages in automation as it would be compatible with the EU framework and could enable us better to monitor trading activity and act against breaches of the Trading Regulations.

Our conclusion on automation

- 6.50 We agree that amending the regulatory regime to simplify the trading process and thereby reduce transaction costs and times would be preferable to automating an intrinsically more cumbersome process. The benefits that have been suggested for automation over leasing are not definite enough in our view to justify incurring the substantial costs and delay that automation would involve. Moreover, the introduction of leasing would be more consistent with our duty to avoid unnecessary regulatory burdens as it would incur lower costs. We therefore prefer the introduction of leasing over automation.

Section 7

Impact assessment

- 7.1 The analysis presented in this section, together with preceding sections and section 6 in particular, represents an updated impact assessment (IA), as defined in section 7 of the Communications Act. We have not reproduced in full the IA from the September consultation on aspects of our proposals that are unchanged but summarise here the effects of the modifications to our proposals for spectrum leasing that are described in greater detail in section 6 of this statement.
- 7.2 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, 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 there is a major change in our activities and, as a matter of policy, we are 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 at: <http://www.ofcom.org.uk/about/policies-and-guidelines/better-policy-making-ofcoms-approach-to-impact-assessment/>.
- 7.3 The September consultation included an IA. We considered the options set out in paragraphs 3.10 and 3.11 above and concluded that our favoured option was a combination of simplifying spectrum transfer and introducing spectrum leasing. We asked:
- Question 7a: Are there other options we should consider?*
- Question 7b: Do you have further evidence on the benefits, costs or risks of the options?*
- Question 7c: Do you agree with the conclusions of this impact assessment, in particular on the preferred options?*
- 7.4 Responses agreed that our choice of options was comprehensive and endorsed our assessment of the preferred option. In particular, there was agreement that the current framework is likely to deter trading. According to one response, the cost of legal and contract advice on transactions under current rules can reach £1000 a day and be prohibitive for any but simple or large-scale trades uneconomic. It follows that simplifying the trading rules is likely to benefit citizens and consumers by facilitating transactions that would otherwise not have taken place.
- 7.5 Some respondents argued that the constraints on leasing proposed in the September consultation would reduce the benefits of our proposals. However, as discussed elsewhere in this statement, we have modified our proposals in response to those representations.

Ofcom's policy objective

- 7.6 The proposals in this document are intended to simplify the procedures for spectrum trading and to reduce transaction costs, execution times and, in particular, regulatory barriers to the emergence of band managers.

The citizen and consumer interest

7.7 Our primary duty is to further the interests of citizens and consumers. In so doing, we are required to secure in particular a number of objectives including optimal use of the spectrum. A reduction in regulatory obligations will be in the interest of citizens and consumers as long as it does not prejudice our ability to perform our duties and its introduction does not in itself impose significant implementation costs on stakeholders or divert our resources from other spectrum management activities that could produce greater benefits.

Analysis of options

7.8 Section 3 sets out the six options we have considered. To recap, the options are:

- option 1: *status quo*;
- option 2: amending the present trading process of transferring WT licences by removing the need to obtain our consent;
- option 3: introduce TWLI, a variant of spectrum transfer that could proceed without the surrender and re-issue of licence documents but would still involve notification of Ofcom and publication of details;
- option 4: as an alternative to option 3, introduce spectrum leasing, which could proceed without any involvement by Ofcom;
- option 5: automation of the trading process; and
- option 6: either remove all current procedural obligations for trading or remove all obligations except the need to notify minimal information to us to maintain a central registry of spectrum assignments.

Stakeholders likely to be affected

7.9 Stakeholders likely to be affected by the various options or proposals include:

- consumers who make use of services relying on spectrum;
- commercial and public sector organisations that use spectrum or wish to gain access to it through the market, either directly or through the medium of a band manager;
- intermediaries and commercial organisations wishing to operate as band managers; and
- citizens through their interest in efficient spectrum management and optimal use of spectrum, including by the public sector.

Equality Impact Assessment

7.10 We are required by statute in carrying out our functions to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations between different groups in relation to characteristics protected under the Equality Act 2010.

- 7.11 The proposals in this document relate to the management and availability of radio spectrum to numerous and diverse organisations for the purpose of providing a wide range of downstream services to the generality of citizens and consumers. Our assessment is that there is no reason to believe that they will in themselves impact differently on, or raise particular issues in relation to, particular equality groups within the meaning of the Equality Act 2010.

Our preferred option

- 7.12 The comments on the IA included in the September consultation confirm our conclusion that the option 4, combined with option 2, is likely to be the most favourable for citizens and consumers. We have accordingly decided to proceed to implement this with the changes described elsewhere in this document.

The effect of the changes to our proposals on their impact

- 7.13 We expect the modifications to our original proposals to enhance the benefits of the changes while reducing costs and risks. For example:
- we are dispensing with the 24 month watershed (paragraphs 6.10-6.16), which will allow longer leases to proceed more simply without the need to notify us and so reduce the regulatory burden;
 - leasing will initially be allowed by individual licence variation (paragraph 6.36), which will enable us to monitor developments and give us better information for interference investigation purposes;
 - we also plan to restrict leasing initially to certain licence classes (paragraphs 6.38 and 6.39), which will allow leasing to commence first in larger, exclusive assignments that provide greater scope for leasing while avoiding potential complications in other tradable licence classes in which frequencies are shared; and
 - sub-leasing will be allowed but limited to a single level (paragraphs 6.17-6.20), which will provide flexibility in certain sectors in which sub-leasing is expected to feature without creating excessively long leasing chains that could complicate interference investigation.

Annex 1

Respondents to the September consultation

3G UK

Arqiva

British Entertainment Industry Radio Group (BEIRG)

David Hall Systems (DHS)

Federation of Communications Services (FCS)

Intellect

Joint Frequency Management Group (JFMG)

Joint Radio Company Ltd (JRC)

Professional Lighting and Sound Association (PLASA)

T-Mobile

Transfinite

Annex 2

Analysis of responses to the September consultation

Comment (and respondent)	Our observation
<p><i>Question 1: Are there any features of the present spectrum trading regime that need to be changed in order to encourage or facilitate spectrum market developments? If so, have we correctly identified the features that need changing? What features, in addition to those described in following sections, would be advantageous to change? It would be helpful if you would explain the reasons for your suggestions with evidence of practical difficulties being caused at present and estimates of the costs that these impose and the savings that your suggestion would gain.</i></p>	
<p>Most spectrum is little used most of the time. Secondary market can help improve this yet few trades concluded to date. Spectrum brokers or agents have yet to establish in the UK and band managers are uncommercial and limited to specific user groups. Paucity of information and obstacles to spectrum leasing are holding back the market. Proposals are welcome and Ofcom should go further, especially to foster innovation. (Arqiva, Intellect)</p>	<p>We agree that intermediaries could play a positive role in developing the spectrum market. Our proposals are aimed in part at facilitating their emergence by creating a more open trading regime. This can be expected to foster innovation by reducing barriers to market entry.</p>
<p>Spectrum trading differs from band management. In trading, the properties of the licence are unlikely to change much. In band management, the client's rights will be in a different form as they will be cast in terms of a spot frequency and geographical locations rather than a frequency band and include geographical area. Band management is more likely to include large numbers of individually low-value transactions and to involve contractual and commercial interactions between the parties. The present trading regime is not designed to support band management and the procedure is complicated involving untried legal measures over and beyond those necessary to provide spectrum access. Now that the new EU framework has been adopted, Ofcom should work with BIS as a matter of urgency to introduce spectrum leasing. (Transfinite)</p>	<p>We agree that the current trading regime has features that may create difficulties for band managers. One of our aims is to provide less burdensome and more flexible forms of spectrum trading that better suit a wide range of stakeholders and types of transaction.</p> <p>The amendments to the WT Act to allow spectrum leasing have been made.</p>
<p>Removing Ofcom consent is welcome but unclear why information about intention to trade should be published. Publication risks providing information that assists a competitor or might anticipate post-trade announcements to the Stock Exchange or other financial authority. Companies might hold spectrum in a non-trading company and transfer licences by selling the company, creating a lack of transparency in the spectrum market as such sales would not be published by Ofcom. (Arqiva, Intellect)</p>	<p>Publication of undertakings' <i>intention</i> to trade enhances transparency and can be expected to enhance market efficiency as it will alert any other party that has a higher value use for the spectrum to the pending transaction so that it has the opportunity to express an interest to the vendor. It is, moreover, required by the EU Framework Directive.</p>
<p>Lack of information to prospective purchasers inhibits trading. It is difficult to identify un- and under- used spectrum held by commercial</p>	<p>It is open to vendors or intermediaries to publish information in addition to that in the WTR if they so wish. Making additional information available</p>

Comment (and respondent)	Our observation
<p>licensees, the public sector or Ofcom (other than spectrum already identified in its award programme). Basic information provided by Ofcom is insufficient as it relates to ownership rather than actual usage. Pending decisions on the spectrum information consultation, Ofcom should publish technical licence conditions and expiry dates on the WTR for each licence to enable prospective purchasers to value them. (Arqiva, Intellect)</p>	<p>about the current or planned future usage would likely raise issues of commercial confidentiality.</p> <p>Standard technical licence terms and conditions are already published on our website and geographical location is already searchable on the WTR. The WTR also includes technical information, such as channel bandwidth, spot transmit and receive frequencies and transmitter national grid reference.</p> <p>It is open to prospective purchasers to search for assignments by frequency and geographical location on the WTR. This also includes contact details for licensees so that interested parties may contact them direct to request further details.</p> <p>Most licences do not have an expiry date but are subject to a rolling 5-year period of notice of revocation for spectrum management reasons. Licences that have been auctioned are generally for an initial fixed term, which is published in the award documentation.</p> <p>Following a wide-ranging consultation on spectrum information and careful consideration of the responses, we decided not to change the information that we publish in the WTR and TNR.</p>
<p>Ofcom should provide more guidance about its role and powers in trading. The proposals may not be appropriate for certain high-value transactions. (DHS)</p>	<p>We already provide considerable information about the trading process, the WTR and the TNR. This includes FAQs and a trading guide³³. We will update this when the changes are introduced.</p>
<p>Existing trading rules are a severe impediment and the present system is not cost-effective, especially for low-value assignments. Contractual and administrative transaction costs can exceed the value of the licences being traded except for significant infrastructure. (JRC)</p>	<p>Simplifying spectrum trading will directly address these concerns.</p>
<p>The present trading regime has a number of features that would make it difficult for a PMSE band manager to operate on the basis of trading. (JFMG)</p> <p>A greatly simplified procedure is required for trading in sectors characterised by large numbers of individually low-value assignments. The system is ripe for revision but this should not be at the expense of PMSE users. PMSE users should be protected as promised. (PLASA)</p>	<p>We will address this issue in due course in the context of future plans for the management of spectrum used for PMSE.</p>
<p><i>Question 2: Do you agree with our targeted approach to deciding which trades need to be subject to more rigorous procedures and our specific proposals? Are there other factors that we should take into consideration or particular licence sectors or types of transaction that should be subject to additional procedural requirements?</i></p>	
<p>Ofcom should clarify how the proposals will apply to mobile communications. It is important that</p>	<p>We accept the need to give careful consideration to whether and how our proposals should apply</p>

³³ <http://stakeholders.ofcom.org.uk/spectrum/spectrum-trading/trading-guidance-notes/>

Comment (and respondent)	Our observation
<p>spectrum trading does not evolve in a way that is detrimental to mobile communications. Exceptions applying to mobile communications should extend to adjacent spectrum and to the 50 MHz in the centre of the 2.6 GHz band. (3UK)</p>	<p>to spectrum that is used for public wireless networks and are doing so in the context of our proposals for introducing spectrum trading in the 900, 1800 and 2100 MHz bands and the award of the 800 and 2600 MHz bands. The justification for an <i>ex-ante</i> competition assessment is central to our proposals for those bands.</p>
<p>Any trade of spectrum below 1 GHz should require Ofcom's consent given that BIS has proposed that Ofcom should be required to carry out a competition assessment if a [cellular] operator increases its holding of sub-1GHz spectrum. The proposal to require consent only where "necessary and proportionate" is inadequate reassurance of due process and commensurate degree of consumer protection. An <i>ex-post</i> competition assessment would take time to conclude and might not be final. Ofcom should clarify this issue before changing the trading rules so there is clarity about which trades will require prior consent. It would be inappropriate to leave this to ad hoc decision on an individual trade. (T-Mobile)</p>	
<p>Default position should be that trades do not require Ofcom's consent with exceptions being few and clearly justified so as to provide market certainty. (Arqiva, Intellect)</p>	<p>We agree that exceptions should be limited to those that are clearly justified.</p>
<p>Technical licence conditions are designed to prevent interference to third parties. Partial trades may increase the risk of interference but the purchaser would still have to comply with the overall technical conditions on the original licence. If those are to be varied, neighbouring users should be consulted. Ofcom seems to suggest that it might withhold consent or make it conditional on neighbours' agreement even if the incoming network complied with the original licence conditions. This might be problematic if the neighbours are competitors with the incoming user. Ofcom should not withhold consent as compliance with the technical conditions should suffice. (Arqiva, Intellect, Transfinite)</p>	<p>Paragraph 4.8 of the September consultation refers to cases in which the parties, in addition to trading, seek a variation of licence terms and conditions. Our policy in such circumstances is that we will normally consult if there is a possibility that third parties might be affected by the variation being sought and might refuse the request for the <i>variation</i> (rather than the <i>trade per se</i>) as a result of the responses.</p>
<p>General competition law may have a role to play where a trade would have a significant impact on citizens and consumers. If some trades are subject to greater scrutiny, this could lead to a two-tier market and the implications of this need to be considered. (DHS)</p>	<p>As discussed in section 3 of this document, the changes we plan do not affect our view on the effectiveness of general competition law for most tradable spectrum licences although there may be exceptions for which special measures are justified.</p>
<p>Deadlines for partial trades or variation of licence terms and conditions should be reduced from 42 days. (PLASA)</p>	<p>The 42 days for partial trades is a target that we endeavour to meet and to surpass if possible. The period for considering requests for variations is specified by the EU Framework and the WT Act but may be extended in certain circumstances³⁴. We endeavour to respond within that period and do so in the majority of</p>

³⁴ Paragraph 2 of schedule 1 to the WT Act

Comment (and respondent)	Our observation
	cases.
Ofcom should be prepared to be firm in using its powers of licence variation or revocation <i>ex-post</i> a trade that did not require consent despite the fact that it would normally act conservatively in this regard given the scope for causing disruption. (T-Mobile)	The way in which we exercise our discretion and powers in a particular case will depend on the circumstances, including the seriousness of the consequences of the breach.
<i>Question 3a: Do you agree that the requirement for Ofcom's consent to proposed transfers should be dispensed with for the generality of tradable licences subject to justified exceptions?</i>	
Most if not all trades should not require Ofcom's consent. If leasing could not be introduced, transfers undertaken by a band manager should not require consent. (Transfinite)	The need for consent will be imposed only where justified and necessary.
Trading of mobile spectrum or of spectrum, the use of which is likely to interfere with mobile spectrum, is likely to trigger a number of exceptions and should be automatically referred to Ofcom. Were controls on spectrum trading to be relaxed, one or two operators might gain a disproportionate share of the spectrum to reduce competition or prevent others from acquiring spectrum for higher bandwidth services. (3UK)	We recognise the need to give particular consideration to the regulation of trading in extending trading to spectrum used by cellular services. We are considering the matters referred to in that context.
Ofcom should clarify how licence conditions on service quality and coverage obligations will be affected if mobile spectrum is to be tradable. (3UK)	
The proposals remove or reduce Ofcom's ability to monitor, avoid and control interference. Licensees will have less experience and incentives to control interference. Trades of spectrum used for, or liable to interfere with, mobile communications should be reviewed by Ofcom. (3UK)	
Ofcom should clarify how the 'objection process' will work in practice in bands set aside for mobile communications. How will companies and individuals be able to respond to TNR publication? Will Ofcom's investigation be triggered by a formal objection or request for information? How will Ofcom determine whether to apply a rigorous approval process? (3UK)	
Removal of the consent requirement is welcome and exceptions should be few and clearly justified. The requirement for consent for non-PMSE trades is disproportionate. Disproportionate restrictions will tend to maintain barriers to entry, constrain innovation and undermine market confidence in liberalisation (Arqiva, Intellect)	
Ofcom should confirm that the proposal would not dilute obligations of the band manager in the PMSE sector and that the band manager would continue to require Ofcom's consent before	See above observation.

Comment (and respondent)	Our observation
trading spectrum for non-PMSE use. (BEIRG, PLASA)	
<i>Question 3b: If the need for prior consent was removed, do you consider that Ofcom should continue to have a power to give ex-post directions?</i>	
<i>Ex-post</i> directions should be unnecessary if the exceptions requiring more rigorous treatment are appropriately targeted. (Arqiva, Intellect)	We agree that, for the generality of cases, a power of direction is unnecessary and may prove undesirable for the reasons set out in paragraph 4.22 of the September consultation; and that exceptions should be objectively justified and proportionate.
The power should be limited in scope with clear guidance about its application. (DHS)	
In theory, Ofcom should have this power but it could be replaced for specific types of trades by maintaining the need for Ofcom's consent. (Transfinite)	
Ofcom should retain the power in order to protect PMSE users. Ofcom has made clear that it would use the power selectively and sparingly. (PLASA)	As indicated above, we agree that trades for non-PMSE use of spectrum used for PMSE may be a justified exception requiring Ofcom's consent.
<i>Question 3c: Do you agree with our proposal to introduce single-transaction time-limited transfers?</i>	
There is little demand for this and leasing would be a better approach (DHS) but JRC sees it as necessary and sensible.	We agree that it would in principle be preferable to give the parties the flexibility to choose between time-limited transfer and leasing although this may not be possible in all cases.
Yes. This would facilitate time-limited trades. (Intellect and others)	
<i>Question 4a: Would our proposal for TWLI offer a worthwhile reduction in regulatory burden compared to the status quo? Please provide as much quantitative and qualitative evidence as possible of the benefits and the practical seriousness of any drawbacks.</i>	
TWLI is sub-optimal as it does not reduce regulatory burdens but weakens Ofcom's control. (3UK)	This and the other questions on TWLI have been overtaken by adoption of revisions to the EU Framework Directive.
TWLI could provide an interim solution but surprised that Ofcom propose restricting it to PMSE. Unsuccessful bidders for the PMSE award should not be disadvantaged if they wish to serve a wider clientele. Limiting TWLI to PMSE could distort competition amongst band managers, discourage market entry and inhibit band manager developments. TWLI should be made available generally before the PMSE award. (Arqiva, Intellect) JFMG also considered that TWLI could offer benefits outside PMSE.	As stated in section 6 of this statement, we do not intend to proceed with TWLI.
In respect of the drawback identified that contracts might not document rights adequately, contract law is available to resolve disputes as is already the case with property leases, which provide a precedent. (Arqiva, Intellect)	
TWLI would provide some benefits but details of transactions would not be published. (DHS)	
TWLI would be workable and worthwhile in absence of leasing (JFMG) and JRC and PLASA	

Comment (and respondent)	Our observation
express a similar view.	
TWLI would not be sufficient. The contract to manage the process would remain complex and this would be a burden for band managers' customers. (Transfinite)	
<i>Question 4b: Would TWLI streamline the trading process sufficiently for the band manager with PMSE obligations to operate?</i>	
Spectrum leasing would be better than TWLI. (DHS)	See observation on question 4a.
TWLI would streamline the process sufficiently for PMSE. The requirement to notify Ofcom in advance could be burdensome if done manually but could be automated fairly simply and at low cost to the band manager. However, Ofcom would need to ensure that its systems were sufficiently robust to handle hundreds of notifications each day. It is not expected to be unduly burdensome to send completed transaction details to Ofcom monthly. (JFMG)	
<p>The drawbacks to TWLI identified are not expected to be of major concern. JFMG is already required to provide sufficient information to support Ofcom's investigation and enforcement and it is not expected that this will present undue difficulty in future.</p> <p>Contractual arrangements are expected to give sufficient clarity and certainty. It will be in the band manager's interest to make these as clear as possible as it will be responsible for interference from clients (JFMG).</p> <p>On the other hand, the certainty might not suffice for substantial investment in a mission-critical system (JRC).</p>	
TWLI is an improvement but might not go far enough. To maximise effectiveness, the band manager should not be required to await confirmation of receipt of notification before proceeding with a proposed trade. (PLASA)	
A band manager for PMSE could operate under TWLI but it would impose significant burden with serious consequences for PMSE users. (Transfinite)	
<i>Question 4c: Would TWLI generate worthwhile benefits for other licence classes, frequency bands or types of transaction despite the drawbacks? If so, in which other categories should it be introduced and how might the drawbacks be mitigated in practice?</i>	

Comment (and respondent)	Our observation
There seems no reason to discriminate by limiting TWLI to just one band manager. TWLI should be available for trades lasting up to 5 (Arqiva) – or at least 4 (Intellect) - years.	See observation on question 4a.
Leasing would be better and TWLI should not be considered further now that the new EU framework has been adopted. (DHS)	
TWLI should be available for non-PMSE customers of the band manager for PMSE subject to the need for Ofcom's consent. (JFMG and PLASA)	
TWLI would provide additional flexibility and it would be useful to give a choice between TWLI and leasing. (JRC)	
TWLI would provide some benefits where leasing was not feasible. (Transfinite)	
How would RSA be traded for short-term access if TWLI and leasing do not apply? (JFMG) Ofcom states that leasing will not be available for RSA but will TWLI apply? Without this, there would be no mechanism for a Crown body to facilitate short-term sharing. (JFMG)	See paragraphs 6.32-6.34 of this statement.
<i>Question 5a: Do you agree with our proposal to create a regime for spectrum leases? What do you see as the advantages and disadvantages?</i>	
Leasing will enable simplification of the basis of agreement and allow contracts to be based on parties' needs rather than the convoluted requirements of spectrum transfer (Arqiva, Intellect, Transfinite and others) but Ofcom should continue to be involved in dealing with interference and compliance (3UK).	We agree that leasing will allow simplification. We accept that we will need to be involved to a degree in dealing with interference and compliance but will look to the band manager or other lessor as first port of call if interference arises. Section 6 of this document discusses this issue.
Leasing offers several advantages but would not apply to the public sector unless RSA could be modified to permit this and infrastructure would have a short operational life if leases are limited to 24 months. (DHS)	See paragraphs 6.32-6.34 of this statement. In relation to the DHS comment, as discussed in paragraphs 6.10-6.16, we have revised our proposal to dispense with the requirement for <i>ex-ante</i> notification of leases longer than 24 months.
Until a regime for leasing is in place, spectrum will not be utilised as fully as it could be. This could be especially beneficial for the public sector although the existence of RSA is a complication and the position will need to be clarified. (Arqiva, Intellect)	
The intention to charge for investigations in certain circumstances is understood but how will Ofcom deal with unauthorised use of spectrum, eg by the band manager? Would Ofcom fine the unauthorised user and charge the band manager or require the user to pay the authorisation fee to the band manager plus an additional levy to Ofcom? This needs to be clarified for both TWLI and leasing. (JFMG)	The enforcement action that we take against any unauthorised use will depend on the circumstances as discussed in paragraphs 6.26-6.28 of this statement.
Band managers will lack statutory investigation	We appreciate that band managers will lack

Comment (and respondent)	Our observation
<p>and enforcement powers but would be held responsible for use of the spectrum they lease. It might appear that Ofcom wishes to transfer responsibility for funding enforcement to the band manager even though the latter lacks powers. PLASA envisages a partnership approach between Ofcom and the band manager as it would be unfair if either were subject to obligations that it could not reasonably fulfil.</p>	<p>statutory powers of investigation and enforcement. However, they will have a contractual relationship with their customers and could impose enforceable requirements on leaseholders to cooperate if interference arises.</p> <p>As discussed in section 6, it would seem reasonable to expect a band manager to conduct an initial investigation before calling us in, especially as they will be responsible for, and benefit commercially from, their leasing arrangements.</p>
<p><i>Question 5b: What advantages would spectrum leasing offer over TWLI? Please provide as much quantitative and qualitative evidence as possible to support your view.</i></p>	
<p>Leasing would offer widely accepted, legally sound and internationally recognised means of accessing spectrum. TWLI would be UK-specific. Leasing would lower transaction costs and barriers to entry. (Arqiva, Intellect)</p>	<p>We agree with these points and, as discussed in sections 6 and 7 of this document, consider leasing to be preferable to TWLI.</p>
<p>Leasing would avoid the need for daily and monthly information transfer to Ofcom and expedite the process to allow PMSE users to access spectrum on demand (JFMG, PLASA)</p>	
<p>TWLI introduces additional complexities in the contract even if the licence is not documented. (Transfinite)</p>	
<p><i>Question 5c: Do you agree with our proposal to limit the simpler leasing procedure without reference to Ofcom to shorter leases of up to 24 months? Would you suggest a different cut-off or a parameter other than lease length? If you suggest an alternative, it would be helpful if you would describe how this would work in practice.</i></p>	
<p>24-month cut-off for short-term leases will give flexibility to roll out new services with less risk but Ofcom should clarify how coverage and service quality obligations will be governed as the user and licensee will be different. Will leaseholders be restricted to users already subject to such obligations in such cases? (3UK)</p>	<p>The principles discussed in paragraphs 5.12-5.14 in relation to transfer would apply although much would depend on the circumstances. Generally, if a licence containing such conditions was made leasable, the licensee would continue to be bound by them and would be responsible for ensuring compliance.</p>
<p>The watershed will be critical in determining value of leasing to innovation by small companies. Longer term leasing could reduce transparency and a watershed defined by lease length would be clear. However, the perceived cost to the market as a whole may differ from the actual cost to individual users that might find it impracticable to acquire spectrum in other ways. It is not clear why 2 years would be appropriate, other than its fit with PMSE requirements. (Arqiva, Intellect)</p>	<p>We did not propose to prohibit leases in excess of 24 months but to require them to be notified. In any case, as discussed in paragraphs 6.10-6.16, we have decided to dispense with the requirement for <i>ex-ante</i> notification of leases of any length for the generality of tradable licences.</p> <p>We will address the issue of whether to allow leasing in other licence classes, and (if so) on what terms, in due course.</p>
<p>A 24-month cut-off would render leasing unviable for users wishing to invest in infrastructure and limits use outside PMSE. Experience at 412 MHz suggests most potential tenants look for at least 3 years' security of tenure with average of 5 years. It will also make leasing less attractive and useful for the public sector. Considerations of</p>	

Comment (and respondent)	Our observation	
<p>proportionality, non-discrimination and Ofcom's duty to secure optimal use suggest 5 years would be a better initial choice (Arqiva) while Transfinite suggests 7 years, the duration of property leases that have to be registered.</p>		
<p>Length of contract is not a good indicator of impact of spectrum usage. A single point-to-point fixed link could involve a 5 or 10 year lease but have minimal impact on spectrum availability in the UK whereas a 23 month lease for significant spectrum could have a major impact, especially if it affected spectrum required for the 2012 Games. A 24-month limitation would be extremely low for blocks of spectrum and impose an administrative burden on band managers. Publication of information about leases of more than 24 months could raise confidentiality issues. It would be more acceptable to base a registration requirement on the impact on spectrum availability, eg leases should be notified if they involve more than 20% of the frequency or geographical coverage of the licence. (Transfinite)</p>		
<p>24 months appears dictated by PMSE considerations and is arbitrary. A 12 or 24 month rolling period would be better. Major projects may take 10 or more years to come to fruition and a long-term lease with a 12 month notice period could be beneficial in such circumstances. (JRC)</p>		
<p>The watershed could be reviewed every 5 years with non-retrospective adjustments made if necessary. As more auctions are concluded and market liquidity grows, the effects of loss of transparency would be expected to diminish over time. (Arqiva)</p>		
<p>Agree with 24 months but details of leases should be published as lack of information could affect other users. (DHS)</p> <p>A 24-month cut-off would be perfectly reasonable for PMSE. (JFMG, PLASA)</p>		
<p>6 months would be a more appropriate watershed for the majority of PMSE uses. A longer period would be more permanent and notification and publication would ensure appropriate transparency and enable any competition issues to be identified. This needs to be considered in the light of any changes to Ofcom's duties made by the Digital Economy Bill. (T-Mobile).</p>		
<p>How will interference investigation and unauthorised use be handled? (JFMG)</p>		<p>See paragraphs 6.26-6.28 of this statement.</p>
<p><i>Question 5d: Do you agree with our proposal (i) for longer lease to be subject to similar procedural</i></p>		

Comment (and respondent)	Our observation
<i>requirements as licence transfers and (ii) to allow partial leasing but not sub-leasing?</i>	
<p>Yes, in principle and subject to appropriate selection of the watershed. The prohibition on sub-leasing might become disproportionate as the band manager would retain licence obligations and so have an incentive to maintain contractual control over its clients, especially if Ofcom charges for investigating complaints of interference (Arqiva, Intellect) but Transfinite agree that sub-leases should not be allowed.</p>	<p>As discussed in paragraphs 6.17-6.20 of this document, we have revised our proposal to allow some sub-leasing.</p>
<p>Agree with additional requirements for longer leases but concern that the anti-evasion provision against successive renewals could prevent successive roll-overs of short-term leases. The anti-evasion proposal to prevent consecutive leasing would affect the band manager's ability to grant access to the same PMSE user for more than 2 years. Year-on-year renewal is common in the PMSE sector. Would the proposed provision apply also to TWLI? (JFMG)</p> <p>On the other hand, PLASA considers that no lease longer than 24 months should be obtainable. Longer leases suggest a degree of permanence at odds with the dynamic nature of leasing and should be subject to the full transfer process, which afford the regulator, band manager and spectrum users fuller information on transactions.</p>	<p>As discussed in paragraphs 6.10-6.16 of this statement, we have modified our original proposals on the watershed.</p> <p>We have carefully considered whether leases should be limited to 24 months. However, in light of the evidence from the responses, we have concluded on balance that it would be unduly inflexible and restrictive.</p>
<p>Trading is different in nature from band management so longer leases should not be subject to the same procedure as transfer. (Transfinite)</p>	
<p>Sub-leasing is common in the PMSE sector. Further consideration needs to be given to the impact of the proposal (JFMG) but PLASA agree that sub-leasing should be prohibited as the leasing framework should be flexible enough to allow a three-way re-assignment by the band manager if one of its customers is approached by a third party that wishes to share that customer's access. Sub-leasing would complicate matters, could lead to disputes and might undermine the band manager's ability to provide access on fair, reasonable and non-discriminatory terms.</p>	
<p>Ofcom should not proceed until the implications for short-term hire (STH) and common base station (CBS) licensees have been clarified. Their activities have not been classified as trading in the past but there is a risk that a 'no sub-leasing' rule could, instead of being deregulatory, impose new constraints on them. (FCS)</p>	<p>Our proposals will not make unlawful any transactions that are currently lawful. STH licensees will not need to apply for a licence variation to allow leasing (paragraph 6.37).</p>
<p>There is little need to subject longer leases to greater scrutiny provided competition authorities</p>	<p>As discussed in paragraphs 5.17-5.19 of this document, we have concluded that general competition law should be as effective for longer</p>

Comment (and respondent)	Our observation
can investigate anti-competitive behaviour. (JRC)	leases as for transfer.
<i>Question 5e: Do you agree that spectrum leasing should be available for all tradable licence classes? If not, which should be omitted and why?</i>	
Yes. (Arqiva and others)	See section 6 of this statement, especially paragraphs 6.36-6.39.
<i>Question 6: What capital and operational costs would automated trading impose on band managers and their customers? Do you agree with our assessment that automated trading would be second-best to leasing but would provide a workable alternative?</i>	
Automation would be second-best to leasing, especially as spectrum users would ultimately bear any cost overrun on Ofcom's system. Automation would not tackle the key issue of complexity and regulatory burden. (Arqiva, Intellect, Transfinite)	We do not intend to proceed with the automation option. We agree that it is preferable to simplify the trading process.
Automation appears a valid option that could offer advantages. However costs are apparently high and would need to be reduced. Band managers would not have to install expensive systems as the notification procedure should form only a part of the overall system. An integrated approach could reduce band managers' costs. (DHS)	
Automation would be difficult and expensive for PMSE so is not second-best. TWLI would be preferred to automation. (JFMG)	
<i>Question 7a: Are there other options we should consider?</i>	
Agree the options are comprehensive and support intent to introduce leasing with TWLI as stopgap if necessary. (Arqiva, Intellect)	We have reflected these comments in our conclusions.
Little more that Ofcom can do without changes to primary legislation or the EU framework. (JRC)	
<i>Question 7b: Do you have further evidence on the benefits, costs or risk of the options?</i>	
The constraints proposed will reduce the benefits of the proposals. (Arqiva, Intellect)	As outlined in section 6, we have modified our proposals in the light of responses to allow greater flexibility.
No firm evidence but costs may be overstated. (DHS)	Estimated costs and benefits are inevitably subject to uncertainty but, overall, the responses reinforce our conclusion on the best option.
The cost of legal and contract advice on radio spectrum can easily amount to £1000 a day, which can overwhelm financial benefits from trade of small assignments or for short periods. (JRC)	We have reflected this comment in the update of the IA
Transfinite offer to discuss with Ofcom in more detail some of the contractual difficulties in using transfer to undertake band management.	We are grateful for the offer. The existence of such difficulties is a main driver for the changes we propose.
<i>Question 7c: Do you agree with the conclusions of this impact assessment, in particular on the preferred option?</i>	

Comment (and respondent)	Our observation
Proposals as a whole are sensible. Agree that complete deregulation would be unrealistic and that automation would be sub-optimal. In addition to reasons given, it could allow inappropriate transfers to be permitted. Also agree that combination of transfer simplification and leasing would be best provided that procedures for adequate Ofcom involvement, oversight and ability to prevent undesirable trades are clearly defined. (3UK)	These comments are reflected in our conclusions.
Agree that options 4 and 2 (leasing plus transfer simplification) would be most effective provided single-transaction time-limited transfers are dropped. Options 2 and 3 (TWLI) are no longer valid. Costs and risks of option 5 (automation) might need re-examination. (DHS)	
Agree that TWLI is necessary for PMSE in the absence of leasing. (JFMG)	
<p>There is no doubt that present trading processes are overly burdensome for band managers.</p> <p>The analysis of costs in relation to the band manager for PMSE does not consider the impact of forcing all users to understand complex contracts for spectrum transfer in the absence of leasing.</p> <p>Options 2 and 3 would impose significant burdens. The benefits of spectrum leasing should also include reduction in complexity of contract and administrative burden.</p> <p>Registering leases longer than 24 months would impose significant costs, especially for services involving significant equipment capital costs requiring operation over 5-10 years.</p> <p>The requirement to register leases in excess of 24 months with Ofcom would represent an unnecessary overhead, especially for business radio and fixed links and is not recommended.</p> <p>The benefits of option 5 (Automation) are not broadly comparable to those of spectrum leasing in view of the complexity of contracts and administrative burden. (Transfinite)</p>	We have modified our original proposals to give greater flexibility on longer leases and to reduce compliance costs.
<i>Other comments</i>	
It is unclear where legal liability for interference will lie and how other spectrum users will be protected against the risk that other entities will be unable to meet claims for damages caused by interference. (3UK)	Civil legal liability will be for the courts to determine in the light of the circumstances of the individual case. Whether the source is a licensee or a leaseholder seems unlikely materially to affect ability to meet any claims for damages.
Ofcom will not hold records of licensed equipment and contact details after a trade. Ofcom proposes that it would be sufficient for a band manager to hold the information and make it available to Ofcom on a "reasonably timely	Our proposals will ensure that information is provided on a timescale compatible with our targets for interference investigation, including to safety-of-life services. We do not rule out an online database if necessary and proportionate,

Comment (and respondent)	Our observation
<p>basis". This needs to be clarified but should in any case be sufficient to ensure that harmful interference to safety-of-life services can be cured within 24 hours. Ofcom should have access to relevant information within the targets set for Ofcom's enforcement activities. The band manager should be required to set up an online database accessible by Ofcom with regular checks to ensure it is kept up to date. (T-Mobile)</p>	<p>taking account of the resource implications for stakeholders and Ofcom.</p>
<p>There needs to be a clear procedure for licensees to apply for extensions of their licence terms from, say, 5 years prior. Licensees should be offered the choice of paying an additional lump sum or switching to AIP with an independent adjudicator to determine appeals. (Arqiva)</p>	<p>The WT Act has been amended by the Digital Economy Act to deal with his situation.</p>
<p>Ofcom's analysis assumes no common interest between parties. For mission-critical applications, there will often be a mutual interest in resolving interference without invoking regulatory powers. (JRC)</p>	<p>We agree that users may have a common interest in some cases in co-operating to resolve interference and would be happy for disputes to be resolved without recourse to us. To facilitate this, we propose to require leases to provide for dispute resolution.</p>

Annex 3

Glossary of abbreviations

3G	Third-generation mobile-phone standards and technology
BIS	Department for Business, Innovation and Skills
CBS	Common base station
CEPT	Conference of European Postal and Telecommunications Administrations
DCMS	Department for Culture, Media and Sport
EU	European Union
GHz	Gigahertz
GSM	Global System for Mobile Communications
IA	Impact assessment
MNO	Mobile network operator
NRA	National regulatory authority
PMSE	Programme-making and special events
RSA	Recognised spectrum access
STH	Short-term hire
TWLI	Transfer without licence issue
WT	Wireless telegraphy