



Spectrum Framework Review for the Public Sector

Statement on regulations and an order for
Recognised Spectrum Access in the 406.1-430 MHz band
and spectrum trading for radio astronomy

Statement

Publication date: 4 February 2009

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Section 1

Summary

- 1.1 This statement confirms that, following consultation¹, Ofcom has made regulations and an order² to introduce tradable recognised spectrum access (RSA) for Crown bodies in the 406.1-430 MHz frequency band (the '406.1 band') and to make radio astronomy RSA tradable in certain other bands. The regulations and order were made on 9 January 2009 and took effect on 23 January.
- 1.2 It also explains how we intend to proceed in determining the technical limits that will apply to grants of RSA in the 406.1 band. This is the first stage of our Spectrum Framework Review for the Public Sector (SFRPS), which will put in place a new framework to enable government departments and other public bodies to manage and use the radio spectrum better.

Background

- 1.3 The radio spectrum is a limited and valuable resource. The public sector holds around half of the frequencies below 15 GHz. It is important that these extensive holdings are managed effectively and used efficiently in order to meet rising demand, including from new commercial services. In March 2006, the government, with Ofcom's support, accepted the recommendations of the *Independent Audit of Spectrum Holdings*³ by Professor Martin Cave to reform public sector spectrum management. A key recommendation was to make public sector spectrum holdings⁴ tradable in order to provide incentives and opportunities to promote greater efficiency in their use.
- 1.4 We subsequently consulted⁵ on proposals to give effect to this policy by formalising the government's spectrum holdings as tradable RSA in a phased manner. Having carefully considered the responses, we decided⁶ to proceed with the policy beginning with the 406.1 band, which has been identified by the Ministry of Defence (MOD)⁷ as an early candidate for release or sharing through the market.

Consultation on the regulations and order

- 1.5 On 20 June 2008, we published a consultation document, referenced at footnote 1, on draft regulations and an order to give effect to the policy. The responses, other than those for which confidentiality was requested, were placed on our website⁸.

¹ <http://www.ofcom.org.uk/consult/condocs/sfrps08/sfrps08.pdf>

² The regulations and order may be found at:

http://www.opsi.gov.uk/si/si2009/uksi_20090014_en_1

http://www.opsi.gov.uk/si/si2009/uksi_20090015_en_1

http://www.opsi.gov.uk/si/si2009/uksi_20090016_en_1

http://www.opsi.gov.uk/si/si2009/uksi_20090017_en_1

³ www.spectrumaudit.org.uk

⁴ These are defined to include spectrum used by the civil aviation and maritime sectors, which were included in the scope of the Independent Audit.

⁵ <http://www.ofcom.org.uk/consult/condocs/sfrps/sfrps.pdf>

⁶ <http://www.ofcom.org.uk/consult/condocs/sfrps/statement/statement.pdf>

⁷ [http://www.mod.uk/NR/rdonlyres/8B9CFFD1-6C36-476A-A6C3-](http://www.mod.uk/NR/rdonlyres/8B9CFFD1-6C36-476A-A6C3-8A3E5635DC55/0/dsm_consultation_report.pdf)

[8A3E5635DC55/0/dsm_consultation_report.pdf](http://www.mod.uk/NR/rdonlyres/8B9CFFD1-6C36-476A-A6C3-8A3E5635DC55/0/dsm_consultation_report.pdf)

⁸ <http://www.ofcom.org.uk/consult/condocs/sfrps08/responses/>

Many respondents commented on more general aspects of our SFRPS, its application to frequencies other than the 406.1 band or the introduction of administered incentive pricing (AIP) in the maritime and aeronautical sectors, on which we have been consulting separately⁹. Most of the remaining comments concerned the technical limits to be applied to grants of RSA rather than the drafting of the regulations and order themselves.

Our decision to make the regulations and order

- 1.6 Having considered the responses, we decided to proceed to make the regulations and order substantially in the form of the drafts on which we consulted. However, we amended the draft trading regulations to allow holders of RSA and licences greater flexibility in how they may divide their spectrum holdings if they wish to trade only part and also made editorial drafting changes.

The rest of this document

- 1.7 Section 2 provides the background to the SFRPS.
- 1.8 Section 3 explains the general effect of the regulations and order and our conclusions on the comments received on the drafts.
- 1.9 Section 4 sets out the position on our consideration of the technical conditions for grants of RSA in the 406.1 band and how we intend to proceed.
- 1.10 The annexes present final drafts of the regulations and order and regulatory impact assessments (RIAs) as follows.
- Annexes 1 and 2: the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009 and RIA
 - Annexes 3 and 4: the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009 and RIA
 - Annex 5 and 6: the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009 and RIA
 - Annexes 7 and 8: the Wireless Telegraphy (Register) (Amendment) Regulations 2009 and RIA

⁹ <http://www.ofcom.org.uk/consult/condocs/aip/>

Section 2

Background

Radio spectrum is a valuable and limited resource

- 2.1 The radio spectrum is a valuable and limited resource that generates substantial value for citizens and consumers. Wireless applications generate large and growing economic benefits worth over £40bn a year, equivalent to about 3% of UK GDP¹⁰, and by a range of essential public sector services. Demand for spectrum is growing. Spectrum shortages are already apparent in the most sought-after frequency bands below 15 GHz and these are expected to worsen¹¹. Unless action is taken, the risk is that spectrum shortages will hold back innovation and competition and impose significant costs on society.
- 2.2 One of our principal duties is to secure the optimal use of the radio spectrum for citizens and consumers. For reasons discussed in various documents, such as our *Spectrum Framework Review*¹², we are making increasing use of market mechanisms such as spectrum trading and incentive pricing, to achieve this.

It is important that the public sector uses spectrum efficiently

- 2.3 The public sector¹³ holds about a half of all spectrum below 15 GHz; the MOD accounts for about 75% of this. It is essential that it manages and uses its extensive spectrum holdings as efficiently as possible to generate the greatest benefits for society.
- 2.4 In 2004, the then Chancellor of the Exchequer commissioned Professor Martin Cave to carry out an audit of major spectrum holdings. Professor Cave recommended¹⁴ far-reaching reforms of public sector spectrum management in order to maximise spectrum efficiency and opportunities for the commercial sector to access spectrum. In particular, he recommended that public bodies should normally acquire spectrum through the market instead of administrative assignment by Ofcom and that they should be enabled to trade spectrum so as to have opportunities and incentives to improve spectrum efficiency. The government accepted these recommendations and committed to a programme, supported by Ofcom, to reform public sector spectrum management while ensuring that national security and public safety remain paramount and that the UK continues to comply with international obligations.

Spectrum trading and liberalisation will help secure best use of the spectrum and benefit citizens and consumers

- 2.5 As stated above, we believe that we can best discharge our statutory duty to secure optimal use of the radio spectrum by applying market mechanisms such as spectrum trading. Combined with our policy of removing unnecessary restrictions on the use of

¹⁰ Source *Economic Impact of the Use of Radio Spectrum in the UK* by Europe Economics, available at http://www.ofcom.org.uk/research/radiocomms/reports/economic_spectrum_use/

¹¹ *Spectrum demand for non-government services 2005-2025* by Analysys and Mason for the Independent Audit at http://www.spectrumbaudit.org.uk/pdf/spectrum_demand.pdf

¹² <http://www.ofcom.org.uk/consult/condocs/sfr/>

¹³ "Public sector" is used here to include civil aviation and maritime use.

¹⁴The *Independent Audit of Spectrum Holdings*, published December 2005. This, together with the government's response and much additional material, is available at www.spectrumbaudit.org.uk.

spectrum, known as 'spectrum liberalisation', trading enables spectrum to be transferred to the uses and users that generate the greatest benefits for society. We have published a number of documents about our approach to spectrum trading and liberalisation¹⁵ and have progressively introduced these policies in the commercial sector. We agree with Professor Cave and the government that it would be beneficial to extend them to the public sector and that this will improve public sector spectrum efficiency over time and benefit citizens and consumers as explained in our statement on the SFRPS, referenced at footnote 5 above.

Crown bodies cannot trade spectrum at present but the regulations allow them to do so in future

- 2.6 The relevant legislation, the Wireless Telegraphy Act 2006 (the WT Act), does not require Crown bodies such as government departments to be authorised by Ofcom to use spectrum. They do not hold spectrum licences and their spectrum holdings currently rest on non-binding administrative arrangements that cannot support trading. This is a barrier to implementing the recommendations of the Independent Audit and to improving public sector spectrum efficiency.
- 2.7 In order to secure the full benefits of spectrum trading and liberalisation it is necessary to formalise the spectrum holdings of government departments as grants of RSA so that they may be traded. Paragraph 2.10 below explains the concept of RSA. Making grants of RSA technology and application neutral will promote spectrum efficiency by facilitating use of the spectrum by different applications or technologies. The regulations and order that we have made implement the first stage of this policy.

Radio astronomy RSA is also tradable

- 2.8 RSA has already been introduced for radio astronomy on a non-tradable basis as a result of regulations we made in 2007¹⁶. As proposed in our consultation, the regulations that we have made allow radio astronomy RSA grants to be traded in frequency bands in which alternative uses are permitted under the Radio Regulations of the International Telecommunication Union.

What is RSA?

- 2.9 RSA is a form of spectrum holding for uses or users that do not require WT licences. It is typically suitable for bodies, such as government departments, that are outside the scope of the licensing provisions of the WT Act or for so-called 'passive' services, such as radio astronomy, that receive radio signals but do not transmit and so are generically exempt from licensing. In planning and managing the radio spectrum, Ofcom has a duty under section 20(2) of the WT Act to recognise the existence of grants of RSA in the same way as it does for licences. RSA may be traded and converted into WT licences (and vice versa) in accordance with regulations made by Ofcom.

Our decision to make the regulations and order

- 2.10 We consulted on drafts of the regulations and order by means of the statutory notice referenced at footnote 1 above. Many of the responses commented on the general

¹⁵ See, for example, http://www.ofcom.org.uk/consult/condocs/spec_trad/ and <http://www.ofcom.org.uk/consult/condocs/liberalisation2/>.

¹⁶ The Wireless Telegraphy (Recognised Spectrum Access) Regulations 2007, SI 2007 No. 393

SFRPS policy or its application to services in frequency bands other than the 406.1 band that was the subject of the consultation. We consulted on the SFRPS on 12 July 2007 and published a statement on 31 January 2008 that gives our reasons for concluding that the policy will benefit citizens and consumers. We accept, however, that the way in which the general policy is applied in specific frequency bands needs to be tailored to the circumstances of those bands.

- 2.11 Having carefully considered the comments that were specific to the 406.1 band, we decided to proceed to make the regulations and order substantially in the form of the drafts attached to the Statutory Notice but with revisions to the trading regulations to allow greater flexibility in the ways in which the spectrum may be traded. The changes are described in the following section of this statement together with our conclusions on other comments we received. We have also made various editorial drafting changes.

Next steps on the technical conditions

- 2.12 The majority of the comments that we received concerned the technical parameters to be included in grants of RSA in order to avoid excessive interference and, in particular, on the use of Spectrum Usage Rights (SURs) and the levels proposed for the associated power flux density (pfd) limits.
- 2.13 The regulations provide the framework for granting and trading RSA. The technical parameters will appear in the individual grants of RSA rather than in the regulations and do not affect the drafting of the regulations. As discussed in section 4 below, we are following up the comments on technical matters with the stakeholders concerned and will resolve them before proceeding to make grants of RSA.

Section 3

General effect of regulations and order

3.1 This section describes the general effect of each of the regulations and order that we have made. It also gives our conclusions on comments made in the consultation on the draft regulations contained in our statutory notice¹⁷.

The Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009

3.2 The regulations were made under section 18(1) of the WT Act. This allows Ofcom to grant RSA where :

- a) a person is proposing to use or to continue to use a station or apparatus for wireless telegraphy;
- b) the circumstances of use are circumstances specified for the purposes of the section in regulations made by Ofcom; and
- c) that use does not require a wireless telegraphy licence but will involve the emission of electromagnetic energy with a view to reception at places in the UK or in the territorial sea.

3.3 Section 18(3) to (7), in summary, provide that Ofcom may make grants by reference to such factors as Ofcom thinks fit, that the grant is made to a person by giving that person notification containing the grant and that the grant may be subject to such restrictions and conditions as Ofcom thinks fit.

3.4 Schedule 2 makes provisions about making, revoking and modifying grants of RSA. The proposed regulations incorporate provisions on these matters.

3.5 Section 20 of the WT Act requires us, in carrying out our functions in relation to granting WT licensing or RSA and some of our other radio spectrum functions, to take account of any existing grant of RSA and its provisions on a comparable basis as we would a licence with equivalent terms, provisions or limitations.

3.6 Section 18(1)(b) of, and paragraph 1 of schedule 2 to, the WT Act provide that Ofcom may specify in regulations the circumstances of the use in respect of which the grant of RSA is made and the procedures for making and determining applications for grants of RSA. These procedures must include (a) time limits for dealing with applications for grants of RSA, (b) requirements which must be met before a grant is made and (c) the restrictions and conditions to which grants may be made subject.

3.7 Accordingly, the regulations contain the following provisions.

- Regulation 1 gives the title and defines the extent to exclude the Channel Islands and Isle of Man. This will be kept under review.
- Regulation 2 and the schedule define the frequencies at which we may grant RSA. As proposed in our consultation, this excludes the segment of the band at 425-429 MHz, which is already intensively shared for private mobile radio and

¹⁷ Referenced in footnote 1

programme-making and special events and spectrum at 412-414 paired with 422-424 MHz that has already been assigned to a commercial operator.

- Regulation 4 specifies that, before making a grant, Ofcom must receive an application by or on behalf of the Crown containing specified information.
- Regulation 5 sets out the particulars of the restrictions and conditions to which a grant may be made subject.

Issues raised in responses and Ofcom's observations

Circumstances in which the Department for Transport (DfT) might hold RSA

3.8 The DfT said it would welcome further discussions with Ofcom about the circumstances in which it might hold RSA for transport-related spectrum use. This is not relevant to the 406.1 band as there are very few assignments for transport-related use in that band and these are geographically limited and narrow bandwidth. We look forward to further discussions with DfT on the possibility that it might hold RSA in other bands.

Time limit for dealing with applications

3.9 The DfT and the Civil Aviation Authority (CAA) commented that the proposed 6-week time limit for Ofcom to deal with applications for grants of RSA might not be long enough to identify and consider concerns about interference and that it might take longer for the safety regulator to carry out a full assessment.

Our observation

3.10 Our consultation stated in paragraph 6.5 that we will, where necessary consult on the technical parameters to be included in grants of RSA. The 6-week period commences only when Ofcom has gathered the information it requires to determine the application, including completion of any consultation that is necessary. On that basis, 6 weeks should be sufficient while ensuring that timely consideration is given to applications and we considered it unnecessary to modify the draft regulations.

Restrictions on power to modify or revoke grants

3.11 The DfT asked about restrictions on Ofcom's power to revoke or modify grants and how this would apply.

Our observation

3.12 Our power to revoke or vary is set out in clause 3 of the specimen RSA template at Annex 7 to our consultation. The clause for RSA is reproduced below for ease of reference.

"Pursuant to Schedule 2 to the Act Ofcom may only revoke this RSA:

- a. at the request of, or with the consent of the grantee;
- b. for reasons related to the management of the radio spectrum, provided that in such case the power to revoke may only be exercised after five (5) years notice served on the grantee;

- c. immediately (subject to the procedures in the Act) if it appears to Ofcom to be necessary or expedient to revoke the RSA for the purposes of complying with a direction by the Secretary of State given to Ofcom under section 5 of the Act, or under sections 5 of the Communications Act 2003;
- d. immediately (subject to the procedures in the Act) in accordance with any international obligations placed on the UK under European Community or other agreement which may affect the spectrum recognised;
- e. if there has been a failure to pay the fee prescribed in accordance with paragraph 8;
- f. if there has been a breach of any of the terms of this RSA by the grantee; or
- g. if, in connection with the transfer or proposed transfer of rights and obligations arising by virtue of this RSA, there has been a breach of any provision of any regulations made by Ofcom under the powers conferred by section 30 of the Act.”

3.13 We will apply this on a case-by-case basis in accordance with the process for variation or revocation as set out in schedule 2 to the WT Act.

Regulation 5

3.14 The DfT queried whether ”and” at the end of regulation 5(d)(iii) should read ”or”.

Our observation

3.15 The conditions in grants of RSA are expected might include all or any combination of the conditions listed in regulation 5(d). They are not intended to be alternatives. The wording of the draft with ”and” at the end of 5(d)(iii) reflects this intention.

Position of non-governmental bodies

3.16 National Air Traffic Services (NATS) asked how RSA would be applicable to it.

Our observation

3.17 As NATS is not a Crown body, RSA is not available to it under the regulations. Its radio equipment will continue to require to be authorised by Ofcom under section 8 of the WT Act.

The Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009

3.18 The Order was made under section 29 of the WT Act. This requires Ofcom, where it considers appropriate for the purpose of securing the efficient use of the electromagnetic spectrum, to make an order imposing limitations on grants of RSA at particular frequencies.

3.19 Article 1 states that the order does not extend to the Channel Islands and Isle of Man.

- 3.20 Article 2 provides that grants of RSA in the 406.1 band will be limited to the Crown and that the number of grants is to be limited to the number that would be most likely to secure optimal use of the spectrum and promote competition in electronic communication services having regard to the matters set out in sections 3(1) and (2) of the WT Act.

Issues raised in responses and Ofcom's observations

- 3.21 The DfT sought clarification of the circumstances in which we might decide to limit the number of grants of RSA in the light of our duties under the WT Act. Article 2(4) of the order sets out the factors we will take into account.

The Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009

- 3.22 The regulations were made under section 30 of the WT Act. This allows Ofcom to make regulations authorising the transfer to another person by the holder of a WT licence or RSA of rights and obligations arising by virtue of the grant or licence.
- 3.23 Regulation 1(2) limits the extent of the regulations. They do not apply in the Channel Islands or Isle of Man although this will be kept under review.
- 3.24 The regulations apply to grants of RSA under the Crown RSA regulations, to grants in certain frequency bands of radio astronomy RSA made under the Wireless Telegraphy (Recognised Spectrum Access) Regulations 2007¹⁸ and to Converted Spectrum Access (CSA) licences issued as a result of trades of RSA grants.
- 3.25 Regulation 2 defines "concurrent holders" and other terms.
- 3.26 Regulations 3 and 4 specify the types of transfer that are authorised. These may be 'total' or 'partial' and 'outright' or 'concurrent'. This provides flexibility for the parties to arrange transfers in ways that meet their requirements.
- Total transfers: a transfer of all rights and obligations in the RSA grant or licence.
 - Partial transfers: a transfer of rights and obligations relating to parts of the range of frequencies or parts of the geographical coverage. The RSA or licence may be subdivided by frequency, by area or by both. For reasons explained below, partial trades in the 406.1 band must be in minimum units of squares of 50 kms.
 - Outright transfers: the rights and obligations of the transferor become rights and obligations of the transferee to the exclusion of the transferor. The transferor ceases to have any rights to recognition or to use the spectrum.
 - Concurrent transfers: the rights and obligations being traded continue concurrently to be rights and obligations of the transferee.
- 3.27 Regulation 5 sets out the circumstances in which transfers are not authorised and so will be invalid.
- 3.28 Regulation 6(1) requires the RSA or licence holder or concurrent holders to notify Ofcom of the proposed trade and provide to Ofcom a document confirming that all parties to the trade have consented to the proposed transfer and the other

¹⁸ Statutory instrument 2007 No. 393

information specified. Parties who give false information or who seek to implement transfers without obtaining the necessary consent will be in breach of the regulations and the transfer could be void. If the trade involves conversion to or from a licence, the parties are required to give Ofcom notice under regulation 6(1)(h).

- 3.29 Once all the information is provided, we will check the documentation in order to ensure that the mandatory information requirements have been met and that the proposed transfer is consistent with the information that we hold. We will then publish a notice stating the names of the transferor and the transferee and setting out basic information about the transferred holding as required by regulation 6(2).
- 3.30 Regulations 6(3) to (5) set out the procedure that we will follow in processing a trade, including deciding whether to consent to the trade or give directions under regulation 9 that certain conditions should be complied with as a condition of the transfer and notifying the parties of our decision.
- 3.31 Regulation 7 sets out the procedure for putting transfers into effect. This involves the surrender of the original grant to Ofcom and the issue of a new one to the transferee. In the case of concurrent or partial transfers, the transferor also receives a new grant that reflects the terms of the transfer
- 3.32 Regulation 8 requires us, in deciding whether or not to consent to a transfer, to take into account the factors specified in the regulations.
- 3.33 Regulation 9 provides that Ofcom may direct the parties to comply with conditions relating to any of the matters mentioned in regulation 8 before the transfer is put into effect.

Issues raised in responses and Ofcom's observations

Suitability of certain applications and frequency bands for spectrum trading

- 3.34 Some respondents support the regulations but others comment that spectrum trading would be problematic for internationally harmonised aeronautical allocations.

Our observation

- 3.35 We note the comment but it is not relevant to the 406.1 band, which does not contain harmonised aeronautical applications.

Spectrum trading is not suitable for bands used for safety obligations or subject to international obligations

- 3.36 The British Ports Association (BPA) and UK Major Ports Group (UKMPG) commented that it might not be appropriate to manage all parts of the spectrum through market mechanisms and that 'command and control' might continue to be necessary for spectrum used for safety applications or subject to international obligations. Non-monetary considerations such as wider government policies should also be taken into account in judging what is optimal.

Our observation

- 3.37 We note this comment. It is not relevant to the 406.1 band. However, we would make the general observation that trading under the regulations will be voluntary. Government departments or agencies that hold RSA will be able to judge whether a

particular transaction is in accordance with the government's policies and priorities and act accordingly. The government has repeatedly stated that it will ensure that safety remains paramount and that the UK's international obligations continue to be complied with.

Will Ofcom take international obligations into consideration?

- 3.38 The DfT asked whether Ofcom could refuse consent for a trade if it had implications for a neighbouring band that was subject to international obligations and said it would welcome discussions to clarify the mechanism whereby departments would advise Ofcom on international obligations, or public safety in relation to trades. It further asked how Ofcom would take account of safety on decisions on trades.

Our observation

- 3.39 We would be happy to discuss these matters further with departments as necessary. The UK Spectrum Strategy Committee (UKSSC) and its sub-committees provide an effective forum for these discussions. In relation to international obligations, regulation 8(e)(ii) requires Ofcom to take into account Community obligations and any international agreement or arrangement to which the UK is a party. In relation to public safety, for the reasons given in paragraphs 7.13 to 7.16 of our SFRPS statement referenced at footnote 6 above, we believe that safety matters are better determined by the responsible safety regulator than by Ofcom under trading regulations, including in the 406.1 band.

Regulatory burden

- 3.40 A few respondents commented that the proposals will increase bureaucracy.

Our observation

- 3.41 We do not agree with this comment. On the contrary, for the reasons given in our previous consultation on the SFRPS¹⁹, we believe that making public sector spectrum holdings tradable will accelerate the release or sharing of spectrum as public sector bodies will be able to interact directly with the market.

Time limit for consent to trade

- 3.42 The DfT asked why no time limit was included for Ofcom's consideration of proposed trades.

Our observation

- 3.43 As explained in paragraph 7.24 of our consultation document, there is no obligation to include a time limit and we consider it desirable to retain flexibility to give proper consideration to notified trades while recognising the importance of making decisions in a timely manner to reduce regulatory uncertainty and delay.

Spectrum trading units

- 3.44 Several respondents asked about the choice of minimum spectrum trading unit (STU) specified in regulation 5(a). They saw this as a potential constraint on flexibility and

¹⁹ See, for example, paragraph 4.4 onwards of our SFRPS statement at <http://www.ofcom.org.uk/consult/condocs/sfrps/statement/>.

we were urged to keep it under review and ideally to eliminate it entirely. It was also suggested by the Maritime and Coastguard Agency that a hexagonal STU would accord more with spectrum planning processes and facilitate international coordination.

Our decision

- 3.45 We reviewed the STU requirement in the light of the comments and have decided to change certain aspects as summarised below to allow greater flexibility in partial trades.
- We omitted the frequency component of the STU so that holders may transfer bandwidth in whatever increments they wish.
 - We removed the restriction on trading radio astronomy RSA to allow complete flexibility in partial trading on both bandwidth and coverage area. This brings the STU into line with WT licences in the 42.5-43.5 GHz band.
 - We decided to retain the geographical dimension of the STU for partial trading in the 406.1 band in line with partial trading of Business Radio licences at similar frequencies. It will still be possible to divide a holding geographically in a different way by varying the RSA before the transfer. This two-stage process will allow us to consider possible compatibility issues. We appreciate that this will take longer than a simple transfer under the regulations and will keep the STU under review.
- 3.46 We also considered the suggestion of hexagonal STUs. Hexagonal cells are used for the specific purpose of modelling frequency reuse in theoretical network planning, although individual cells are unlikely in practice to be hexagonal because of terrain features, and are on a far more granular scale, typically being just a few kms across, than the 50 kms of the STUs.
- 3.47 We do not think that any advantages of hexagonal STUs would outweigh the additional complexity but, as stated above, will keep the specification of the STU under review. Licensees will still be free to use hexagonal cells within areas defined by square STUs in planning their networks.

Coordination with Fylingdales

- 3.48 The MOD asked for clarification of whether the MOD would be responsible for ensuring coordination with military radar at Fylingdales following any trade of RSA.

Our observation

- 3.49 We envisage that the MOD will coordinate use of the band by incoming users with Fylingdales and secure coordination as part of the arrangements it enters into in the course of spectrum release or sharing in the band. The MOD will be able to impose technical requirements needed to secure coordination as a condition of the transaction.

The Wireless Telegraphy (Register) (Amendment) Regulations 2009

- 3.50 The regulations were made under section 31 of the WT Act, which allows Ofcom to make regulations to provide for the establishment and maintenance of a WT Register of “relevant” information. Section 31(3)(b) of the WT Act provides that information is “relevant” for the purposes of the WT Register if it relates to the making, renewal,

transfer, modification or revocation of grants of RSA. Under section 31(2), Ofcom may include in the register only information of a description prescribed by regulations.

- 3.51 Ofcom made the principal Wireless Telegraphy (Register) Regulations 2004 in December 2004. Since then, those regulations have been amended on several occasions to incorporate more classes of licences to be included on the Register and were extended to radio astronomy RSA in March 2007²⁰.
- 3.52 Regulation 2 of the new regulations amends the current WT Register regulations to add to the Register information about grants of RSA in the 406.1 band and CSA licences.

Issues raised in responses and Ofcom's observations

- 3.53 Views on the regulations were mixed. Some respondents supported them. Others expressed concern that sensitive information might be published that could put national security or public safety at risk.

Our observations

- 3.54 Making information available about public sector spectrum holdings is important in order to increase the opportunities and incentives that exist for improving the efficiency of spectrum use over time. We consider that transparency around who holds what spectrum is desirable for broadly similar reasons as in other markets. However, we recognise the need to balance this against concerns about the security implications of publishing potentially sensitive information. The regulations strike an appropriate balance. They specify only basic details of assignments and not precise details about transmitters. Moreover, we would have discretion to withhold details of sensitive information from the register if so advised on safety or security grounds by the responsible public body.

²⁰ The Wireless Telegraphy (Register) (Amendment) Regulations 2007 No.381

Section 4

Technical conditions for grants of RSA in the 406.1-430 MHz band and other issues

4.1 In addition to consulting on draft regulations, our 20 June 2008 consultation also sought views on the technical conditions to be included in grants of RSA in the 406.1 band and on introducing a new licence product and associated Interface Requirement (IR).

Technical conditions

4.2 We proposed casting grants of RSA in the form of technology and application neutral SURs subject to aggregate pfd limits to protect neighbouring bands from excessive interference. We received a large number of comments on this proposal, many expressing concern that the proposed pfd levels were insufficiently stringent and could give rise to a risk of harmful interference, including to Cospas-Sarsat, the international satellite system for search and rescue that operates at 406.0-406.1 MHz.

4.3 Others were concerned that SURs in the form proposed would not provide sufficient protection against harmful interference and that the pfd limits need to be lower or complemented by block-edge masks (BEMs).

Our observations

4.4 These comments raise important matters that we are taking seriously. It is essential to resolve them before RSA is granted. We are discussing them with the stakeholders directly affected.

4.5 SURs have important advantages in controlling interference as they limit the aggregate emissions from a band. BEMs, on the other hand, they relate to individual transmitters and a change in network topology or density, as could well occur following a change from public sector to commercial use, can lead to a rise in unwanted emissions. However, we recognise the concerns and will discuss these further with the relevant stakeholders before finalising the details of grants of RSA in the band. In particular:

- we are discussing with the Cospas-Sarsat Secretariat the appropriate technical limit at 406.1 MHz to protect the Cospas-Sarsat system from harmful interference;
- we are reviewing the pfd limits proposed elsewhere in the band to avoid excessive interference to the assignment at 412-414 paired with 422-424 MHz.

4.6 The technical details are contained in the grants of RSA, not in the regulations or order and discussions on them will be finalised before we make the grants of RSA to which they relate.

New licence product and Interface Requirement

- 4.7 There was support for, and no adverse comment on, the proposal for the new CSA licence product. There were queries about the need for the IR but this is a European Union requirement under directive 98/34/EC as mentioned in the consultation document. The IR for 410-412 paired with 420-422 MHz has now completed the European clearance process and the IR for other blocks is expected to do so in March.

The WT licence and RSA template

- 4.8 The MOD asked Ofcom to clarify through the licence terms and conditions the provisions whereby the government could take back spectrum in national emergency or for national security reasons.

Our observation

- 4.9 Clause 14 of the specimen licence template provides the necessary powers for Ofcom to require equipment to be modified or closed down in the event of a national or local state of emergency. We believe this provides sufficient clarity.
- 4.10 Moreover, paragraph 8(5) of schedule 1 to the WT Act enables Ofcom to revoke or vary any licence in the interests of national security. This includes CSA licences.

Interference investigation and enforcement

- 4.11 The CAA commented that CSA licences should include a term allowing revocation if the licensee causes harmful interference or interference to a safety service.
- 4.12 The Department for Communities and Local Government commented that the proposals place the burden of interference management on those affected, which could put at risk the reliability of emergency services. NATS asked whether interfering spectrum use would be suspended if interference affects a safety-critical service. Airwave considered that such cases could become more common and it might take too long to resolve interference where a network has already been deployed and is operating in accordance with its licence conditions.
- 4.13 The BPA and UKMPG expressed concern that regulation of interference would be separate from responsibility for band management under the proposals.

Our observation

- 4.14 Clause 3(c) of the specimen CSA licence template provides for revocation if a licence term is breached. Clause 10 requires the licensee to operate in accordance with the terms, including technical limits. Clause 13(b) provides for immediate close-down if harmful interference is caused to any other authorised radio equipment. We believe these clauses give us sufficient powers to take effective enforcement action against harmful interference, including to safety services, to which we will continue to give top priority in investigating interference.
- 4.15 Interference will continue to be dealt with on a case-by-case basis as explained in the Statutory Notice. We will continue to play an active role and to act if a user is in breach of a licence condition and, as stated above, the licence template contains standard terms to allow immediate shutdown to be imposed in the event of harmful interference, regardless of whether there has been a breach of the licence. However,

we believe it is reasonable to expect the parties to a trade to take action in the first instance to resolve the situation themselves in line with the terms of the transfer agreement if the interference arises from the terms of that agreement. Ofcom will be able to liaise as necessary through the UKSSC with public bodies responsible for managing particular spectrum holdings.

- 4.16 We believe these arrangements to be appropriate and that they will be effective in dealing with any interference that arises.

Modelling or measurement?

- 4.17 Several respondents expressed a preference for modelling instead of measurement, or a combination, to check compliance.

Our observation

- 4.18 Modelling does not represent the actual radio environment but is quicker and cheaper and more repeatable than measurement. Previous consultations on SURs have revealed a preference for modeling. However, we accept that this might not apply in all bands and it would be possible to adopt either modeling or measurement in the 406.1 band. We will discuss further with the stakeholders concerned but would point out that it would be wrong to assume that interference will invariably be less under a regime based on measurement than under one based on modelling.
- 4.19 We would further point out that it is not possible to adopt both modelling and measurement at the same time and place. There has to be a single definitive mechanism for verifying compliance. It would be possible to adopt measurement in certain sensitive areas and modeling elsewhere but it would be necessary to consider whether the benefits warranted the additional complexity.

Other issues

Application to Channel Islands and Isle of Man

- 4.20 The DfT and CAA suggested that further consideration should be given to extending the regulations to the Channel Islands and Isle of Man.

Our observation

- 4.21 Extension of the reforms to the Channel Islands and Isle of Man will be kept under review but any extension would require the agreement of the Island administrations and an Order in Council, which is a matter for Her Majesty's government.

Spectrum for the Olympic Games and other special events

- 4.22 The CAA referred to the need to ensure the UK could make spectrum available to meet large volume UK needs such as the London 2012 Olympic Games and Paralympic Games.

Our observation

- 4.23 As stated in our response²¹ to the MOD's May 2008 consultation on *UK Defence Spectrum Management*, the MOD has an important role to play in meeting the

²¹ <http://www.ofcom.org.uk/consult/condocs/sfrps/responsetomod.pdf>

government's guarantees concerning spectrum for the London Games and we look forward to its continuing cooperation in making the necessary arrangements. We expect to consult on a draft spectrum plan for the London Games during the spring.

Spectrum release and non-use

- 4.24 One respondent asked how the MOD will release spectrum and whether Ofcom would act against organisations that did not use assignments or restrict the number of frequencies assigned to each licensee.

Our observations

- 4.25 The first question is a matter for the MOD, which has said that it will publish details in due course of its process for releasing or sharing spectrum.
- 4.26 The fact that spectrum is tradable and liberalised gives holders the means and the incentive to transfer it to others who can use it to generate greater value and makes it much less likely that there will be a need for Ofcom to intervene. Restrictions on the amount of spectrum a user may hold run the risk of inhibiting market growth and it is problematic to decide the level at which they should be set. As discussed in our consultation and statement on ensuring effective competition following the introduction of spectrum trading²², Ofcom does, however, have powers to act in relation to inefficient or anti-competitive behaviour in relation to the use of spectrum where it is justified to do so.

²² <http://www.ofcom.org.uk/consult/condocs/sec/>

Annex 1

Final draft Crown RSA Regulations

STATUTORY INSTRUMENTS

2009 No XX

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009

Made - - - - - *9th January 2009*

Coming into force - - - - - *23rd January 2009*

The Office of Communications (“OFCOM”) make the following Regulations in exercise of the powers conferred by section 18(1)(b) and Schedule 2, paragraph 1 of the Wireless Telegraphy Act 2006⁽²³⁾ (“the Act”).

Before making the Regulations OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation, commencement and extent

1.—(1) These Regulations may be cited as the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009 and shall come into force on 23rd January 2009.

(2) These Regulations shall not extend to the Channel Islands or to the Isle of Man.

Circumstances of use

2. The circumstances of the use of a wireless telegraphy station or wireless telegraphy apparatus, specified for the purpose of section 18(1)(b) of the Wireless Telegraphy Act 2006, are circumstances where the station or apparatus is operated within any of the frequency bands listed in the Schedule by or on behalf of the Crown.

Time limit for dealing with grants of recognised spectrum access

3. A decision on an application for a grant of recognised spectrum access which is made to the Office of Communications (“OFCOM”) will be made, notified to the applicant and published not more than six weeks after the day of the receipt of the application by OFCOM.

⁽²³⁾ 2006 c.36

Requirements that must be met for a grant of recognised spectrum access

4.—(1) Before a grant of RSA is made, OFCOM must receive an application by or on behalf of the Crown which contains—

- (a) the name and address of the person applying; and
- (b) the frequency band in the Schedule in respect of which it is proposed that the grant is made.

Restrictions and conditions to which a grant of recognised spectrum access is subject

5. A grant of recognised spectrum access may be subject to—

- (a) a condition providing for the duration of the grant;
- (b) a restriction on the exercise by OFCOM of their power to revoke or modify the grant;
- (c) a condition requiring payment of fees; and
- (d) conditions describing the limits of the use of the electromagnetic spectrum which is recognised by the grant by reference to—
 - (i) the location of the wireless telegraphy station or wireless telegraphy apparatus;
 - (ii) the purpose of use of the electromagnetic spectrum;
 - (iii) the frequencies for that use; and
 - (iv) the strength and type of signal.

9th January 2009

Chief Executive of the Office of Communications
for and by the authority of the Office of Communications

SCHEDULE

Regulation 2

Frequency bands

406.1–410 Megahertz

410–412 Megahertz

414–420 Megahertz

420–422 Megahertz

424–425 Megahertz

429–430 Megahertz

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations provide for the circumstances of use for which grants of recognised spectrum access may be made by the Office of Communications (“OFCOM”) to the Crown.

Regulation 2 sets out the circumstances which are where a wireless telegraphy station or wireless telegraphy apparatus is operated within any of the frequency bands listed in the Schedule by or on behalf of the Crown.

Particulars of restrictions and conditions to which a grant may be subject are set out in regulation 5.

A full regulatory impact assessment of the effect that these Regulations will have on the costs to business is available to the public from the OFCOM Library at Riverside House, 2a Southwark Bridge Road, London SE1 9HA (Tel: 020 7981 3000) or on the OFCOM website at www.ofcom.org.uk. Copies of the report have also been placed in the libraries of both Houses of Parliament.

Annex 2

Regulatory impact assessment for the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009

- A2.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment (“RIA”) must be undertaken.
- A2.2 The analysis presented here represents a RIA as defined by section 7 of the Communications Act 2003 (“the Communications Act”) for the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009. There are complementary RIAs for the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009, the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009, and the Wireless Telegraphy (Register) (Amendment) Regulations 2009 that are being made at the same time.
- A2.3 RIAs 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 and are commonly used by other regulators. This is reflected in section 7 of the Communications Act, which means that we will generally carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities. However, 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. In accordance with section 7 of the Communications Act, in producing this RIA, we have had regard to such general guidance as we consider appropriate including related Cabinet Office guidance. For further information about our approach to impact assessments, see Better policy-making: Ofcom’s approach to impact assessment .

Purpose and effect of the regulations

- A2.4 The regulations that are the subject of this RIA (“the regulations”), together with others that Ofcom has made at the same time, relate to grants to the Crown of recognised spectrum access (RSA) and spectrum trading in the 406.1-430 MHz frequency band.
- A2.5 They constitute the first step in implementing our Spectrum Framework Review for the Public Sector (SFRPS), on which we consulted last year and published a policy statement on 31 January 2008 . We subsequently consulted on the draft regulations and order and the technical conditions to be imposed on grants of RSA in the band. Our SFRPS policy supports the government’s decision to reform public sector spectrum management in line with recommendations of the Independent Audit of Spectrum Holdings by Professor Martin Cave.
- A2.6 The regulations to which this RIA relates provide for Ofcom to make grants of RSA to the Crown in the 406.1-430 MHz band.

Ofcom's policy objective

- A2.7 Our overall policy objective in introducing Crown RSA is to secure optimal use of the radio spectrum by providing public bodies with incentives and opportunities to use spectrum more efficiently. We will achieve this by enabling them to trade their spectrum holdings. The regulations to which this RIA relates implement that policy in the 406.1-430 MHz frequency band in a way that is consistent with:
- our statutory duties, including the requirement to avoid imposing unnecessary regulatory burdens;
 - the government's commitment that, in implementing the reforms, national security and public safety will remain paramount; and
 - compliance with international obligations and any directions from the Secretary of State.
- A2.8 The Wireless Telegraphy Act 2006 does not bind the Crown so it is not possible to grant wireless telegraphy licences to Crown bodies such as government departments. This means that, without RSA, they cannot trade their spectrum holdings. The regulations allow such holdings in the 406.1-430 MHz band to be formalised as RSA so that they may be traded in accordance with other regulations being made by Ofcom at the same time. This is the first phase in a programme to implement the policy set out in our SFRPS statement.
- A2.9 Future developments will depend on decisions by public bodies on spectrum release or sharing and on decisions by commercial organisations on how to use the spectrum that is released or shared. The benefits might take some time to be realised. The MOD currently plans its first spectrum release by November 2010. HM Treasury has undertaken in the government's response to the Independent Audit to commission an independent review to report in 2012 on the effectiveness of the market-based approach to public sector spectrum management, of which the proposals in this document form part.

The citizen and consumer interest

- A2.10 Our SFRPS statement concluded that allowing public bodies to trade their spectrum holdings would benefit citizens and consumers.
- Citizens would benefit as public services would be provided at lower cost to the taxpayer and to the economy, provided that essential defence, emergency and safety-critical services are not unacceptably affected.
 - The phased introduction of spectrum trading and liberalisation enabled by grants of public sector RSA would secure optimal use of the radio spectrum.
 - Consumers would benefit as enhanced access to spectrum for businesses would promote competition, innovation and choice in communications services.
 - Public bodies would benefit from having their spectrum rights defined more clearly.

Options

- A2.11 We have considered two options.

- Option 1: do nothing. Most public sector users, including Crown bodies, already pay administered incentive pricing (AIP), which would continue to provide some incentive to use spectrum efficiently but, without RSA and the ability to trade their spectrum holdings, Crown bodies would have weaker incentives for spectrum efficiency and spectrum release would be slower.
- Option 2: make the regulations to introduce Crown RSA and allow spectrum trading with conversion between licences and RSA.

Cost, benefit and risk analysis

A2.12 A1.11 The main benefits and costs of formalising the Crown's spectrum holdings as RSA in the 406.1-430 MHz and other bands will flow from the fact that those holdings will be tradable. There will also be benefits from more comprehensive and clearer recording of those holdings but these are expected to be small by comparison. The costs, benefits and risks of public sector spectrum trading are analysed in the RIA accompanying the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009. That analysis concludes that the benefits of spectrum trading by the public sector outweigh the costs, including in the band covered by the regulations, and that the risks can be effectively mitigated.

Conclusion

A2.13 We conclude on the basis of the above analysis that we should make the regulations as part of the new framework for public sector spectrum management.

Declaration

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed

Ed Richards

Chief Executive

9 January 2009

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Annex 3

Final draft Limitation Order

STATUTORY INSTRUMENTS

2009 No XX

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009

Made - - - - - *9th January 2009*

Coming into force - - - - - *23rd January 2009*

The Office of Communications (“OFCOM”) in exercise of the powers conferred by sections 29(1) to (3) of the Wireless Telegraphy Act 2006⁽²⁴⁾, make the following Order.

Before making the Order OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation, commencement and extent

1.—(1) This Order may be cited as the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009 and shall come into force on 23rd January 2009.

(2) This Order shall not extend to the Channel Islands or to the Isle of Man.

Limitation of grants

2.—(1) The Office of Communications will make a limited number of grants of recognised spectrum access for use of the frequency bands listed in the Schedule.

(2) The grants shall only be made to the Crown.

(3) Grants shall only be made where a wireless telegraphy station or wireless telegraphy apparatus is operated within any of the frequency bands listed in the Schedule by or on behalf of the Crown.

(4) The number of grants will be the number which is most likely to secure the optimal use of the electromagnetic spectrum and promote competition in electronic communication services having regard to the matters set out in section 3(1) and (2) of the Wireless Telegraphy Act 2006.

9 January 2009

Chief Executive of the Office of Communications
for and by the authority of the Office of Communications

⁽²⁴⁾ 2006 c.36

SCHEDULE

Article 2

Frequency bands

406.1–410 Megahertz

410–412 Megahertz

414–420 Megahertz

420–422 Megahertz

424–425 Megahertz

429–430 Megahertz

EXPLANATORY NOTE

(This note is not part of the Order)

This Order specifies frequencies for which the Office of Communications (“OFCOM”) will grant recognised spectrum access.

Article 2(1) provides that a limited number of grants of recognised spectrum access will be available in the frequency bands listed in the Schedule. The grants shall only be made to the Crown (Article 2(2)). Article 2(3) and (4) set out the criteria OFCOM shall apply in determining the limit on the number of grants.

A full regulatory impact assessment of the effect that these Regulations will have on the costs to business is available to the public from the OFCOM Library at Riverside House, 2a Southwark Bridge Road, London SE1 9HA (Tel: 020 7981 3000) or on the OFCOM website at www.ofcom.org.uk. Copies of the report have also been placed in the libraries of both Houses of Parliament.

Annex 4

Regulatory impact assessment for the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009

- A4.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment (“RIA”) must be undertaken.
- A4.2 The analysis presented here represents a RIA as defined by section 7 of the Communications Act 2003 (“the Communications Act”) for the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009. There are complementary RIAs on the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009, the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009 and the Wireless Telegraphy (Register) (Amendment) Regulations 2009.
- A4.3 RIAs 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 and are commonly used by other regulators. This is reflected in section 7 of the Communications Act, which means that we will generally carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities. However, 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. In accordance with section 7 of the Communications Act, in producing this RIA, we have had regard to such general guidance as we consider appropriate including related Cabinet Office guidance. For further information about our approach to impact assessments, see *Better policy-making: Ofcom’s approach to impact assessment*²⁵.

Purpose and effect of the order

- A4.4 The order that Ofcom has made relates to grants to the Crown of recognised spectrum access (RSA) and spectrum trading in the 406.1-430 MHz frequency band.
- A4.5 Together with other regulations, it is part of the first step in implementing our *Spectrum Framework Review for the Public Sector* (SFRPS), on which we consulted last year²⁶ and published a policy statement on 31 January 2008²⁷. We subsequently consulted²⁸ on the draft regulations and order and the technical conditions to be imposed on grants of RSA in the band. Our SFRPS policy supports the government’s decision²⁹ to reform public sector spectrum management in line

²⁵ http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

²⁶ <http://www.ofcom.org.uk/consult/condocs/sfrps/sfrps.pdf>

²⁷ <http://www.ofcom.org.uk/consult/condocs/sfrps/statement/>

²⁸ <http://www.ofcom.org.uk/consult/condocs/sfrps08/sfrps08.pdf>

²⁹ <http://www.spectrumbauidit.org.uk/pdf/governmentresponse.pdf>

with recommendations of the *Independent Audit of Spectrum Holdings* by Professor Martin Cave³⁰.

- A4.6 The order that is the subject of this RIA limits the persons to whom grants of RSA may be made and the number of grants of RSA that may be made in the 406.1-430 MHz band. It restricts grants of RSA to the Crown and limits the number to that most likely to secure optimal use of the spectrum.

Ofcom's policy objective

- A4.7 Our overall policy objective in introducing tradable RSA is to secure optimal use of the radio spectrum by providing public bodies with incentives and opportunities to use spectrum more efficiently. We will achieve this by enabling them to trade their spectrum holdings. The order to which this RIA relates implements that policy in the 406.1-430 MHz frequency band in a way that is consistent with:
- our statutory duties, including the requirement to avoid imposing unnecessary regulatory burdens;
 - the government's commitment that, in implementing the reforms, national security and public safety will remain paramount; and
 - compliance with international obligations and any directions from the Secretary of State.

The citizen and consumer interest

- A4.8 Our SFRPS statement concluded that allowing public bodies to trade their spectrum holdings would benefit citizens and consumers.
- Citizens would benefit as public services would be provided at lower cost to the taxpayer and to the economy provided that essential defence, emergency and safety-critical services are not unacceptably affected.
 - The phased introduction of spectrum trading and liberalisation enabled by grants of public sector RSA would secure optimal use of the radio spectrum.
 - Consumers would benefit as enhanced access to spectrum for businesses would promote competition, innovation and choice in communications services.
 - Public bodies would benefit from having their spectrum rights defined more clearly.
- A4.9 Future developments will depend on decisions by public bodies on spectrum release or sharing and on decisions by commercial organisations on how to use the spectrum that is released or shared. The benefits might take some time to be realised. The MOD currently plans its first spectrum release by November 2010. HM Treasury has undertaken in the government's response to the Independent Audit to commission an independent review to report in 2012 on the effectiveness of the market-based approach to public sector spectrum management, of which the proposals in this document form part.

³⁰ www.spectrumbaudit.org.uk

Options

A4.10 We have considered two options.

- Option 1: making the order to limit grants of RSA.
- Option 2: imposing no limitations on grants of RSA.

Cost, benefit and risk analysis

A4.11 We have assessed the options against the criterion set out in section 29 of the WT Act that we must make a limitations order if we consider it appropriate for the purpose of securing efficient use of the electromagnetic spectrum.

A4.12 The purpose of granting RSA to the Crown is to formalise the Crown's existing allocations; and grants will therefore be issued to the Crown. In practice, the grants will be issued to specific Secretaries of State. There would be no advantage in granting RSA to persons other than the Crown as RSA does not authorise use of spectrum and, under section 8 of the WT Act 2006, non-Crown users require authorisation in order to transmit radio signals.

A4.13 If the number of grants was too high, this could give rise to excessive fragmentation and make it more difficult to manage the band effectively. If the number was too low, access might be denied to those that could make good use of it. The optimal balance will depend on circumstances and might vary over time. The numerical restriction in regulation 2(5) allows Ofcom flexibility to tailor the number of grants according to its view of what would be most likely to secure optimal spectrum use and promote competition.

A4.14 The order will not impose direct costs on businesses.

Conclusions on the limitations order

A4.15 We conclude that the limitations in the order are necessary to secure efficient use of the spectrum and that we should make the order.

Declaration

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed

Ed Richards

Chief Executive

9 January 2009

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Annex 5

Final draft Trading Regulations

STATUTORY INSTRUMENTS

2009 No. XX

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009

Made - - - - - *9th January 2009*

Coming into force - - - - - *23rd January 2009*

The Office of Communications (“OFCOM”) make the following Regulations in exercise of the powers conferred by section 30(1) to (3) and section 122(7) of the Wireless Telegraphy Act 2006⁽³¹⁾ (“the Act”).

Before making the Regulations OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation, commencement and extent

1.—5 These Regulations may be cited as the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009 and shall come into force on 23rd January 2009.

(2) These regulations shall not extend to the Bailiwick of Guernsey.

Interpretation

2. In these Regulations—

“concurrent holders” means persons who concurrently hold the rights and obligations under a grant of RSA or a licence by virtue of a transfer authorised by these Regulations which has that effect;

“OFCOM” means Office of Communications;

“RSA” means recognised spectrum access;

“licence” means wireless telegraphy licence;

“apparatus” means wireless telegraphy apparatus; and

“station” means wireless telegraphy station.

⁽³¹⁾ 2006 c.36

Transfer of all of the rights and obligations arising by virtue of a grant of RSA or a licence

3.—(1) Subject to regulation 5, a transfer by the holder of a grant of RSA or a licence to which this paragraph applies of all of the rights and obligations arising by virtue of that grant of RSA or that licence is authorised if it satisfies one of the two conditions set out in paragraph (2).

(2) Those conditions are—

(a) that the rights and obligations of the person making the transfer become rights and obligations of the transferee to the exclusion of the person making the transfer;

(b) that the transferred rights and obligations become rights and obligations of the transferee while continuing, concurrently, to be rights and obligations of the person making the transfer.

(3) Paragraph (1) shall apply to grants of RSA and licences of a class specified in Column 1 of each of Parts 1 and 2 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part.

Transfer of part of the rights and obligations arising by virtue of a grant of RSA or a licence

4. Subject to regulation 5, transfers satisfying one of the two conditions set out in regulation 3(2) are also authorised where the transfer is of—

(a) all the rights arising by virtue of a grant of RSA or a licence which relate to—

(i) a part of the range of frequencies in which—

(aa) in the case of a licence, the holder is authorised to establish, install and use transmitting and receiving stations or apparatus under one of the licences of a class specified in Column 1 of Part 1 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part; and

(bb) in the case of RSA, the holder is recognised as using transmitting or receiving stations or apparatus under one of the grants of RSA of a class specified in Column 1 of Part 1 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same part;

(ii) a geographical area being part of the total geographical area in which—

(aa) in the case of a licence, the holder is so authorised; and

(bb) in the case of RSA, the holder is so recognised;

(iii) both of the situations set out in sub-paragraphs (i) and (ii);

(iv) part of the range of frequencies in which—

(aa) in the case of a licence, the holder is authorised to establish, install and use transmitting and receiving stations or apparatus under one of the licences of a class specified in Column 1 of Part 2 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part; and

(bb) in the case of RSA, the holder is recognised as using transmitting or receiving stations or apparatus under one of the grants of RSA of a class specified in Column 1 of Part 2 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part;

(v) a geographical area being a fifty kilometre square part of the total geographical area in which—

(aa) in the case of a licence, the holder is authorised to establish, install and use radio transmitting and receiving stations or apparatus under one of the licences of a class specified in Column 1 of Part 2 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part; and

(bb) in the case of RSA, the holder is recognised as using radio transmitting and receiving stations or apparatus under one of the grants of RSA of a class specified in Column 1 of Part 2 of the Schedule which apply to stations or apparatus operating within any of the frequency bands specified in Column 2 of the same Part; or

(vi) both of the situations set out in sub-paragraphs (iv) and (v); and

(b) the corresponding part of each of the obligations under the grant of RSA or licence.

Circumstances in which a transfer is not authorised

5. A transfer of rights and obligations arising under a grant of RSA or a licence is not authorised where—

(a) any holder of the grant of RSA or the licence, or all of the concurrent holders, and the transferee have not consented to the transfer;

(b) any sum payable to OFCOM in respect of the grant of RSA or the licence has not been paid by the time it became due;

(c) OFCOM has served notice on the holder, or the concurrent holders, of a proposal to revoke or vary the grant of RSA or the licence but that revocation or variation has not yet been made;

(d) the holder of the grant of RSA or the licence has, or all of the concurrent holders have, requested OFCOM to revoke or vary the grant of RSA or the licence or have consented to a revocation or variation proposed by OFCOM but that revocation or variation has not yet been made; or

(e) OFCOM have not given their consent, under regulation 6(3)(a), to the transfer being made.

Transfer procedure

6.—(1) The holder, or concurrent holders, of a grant of RSA or a licence, who wishes, or who wish, to make a transfer authorised by regulations 3(1) or 4 must provide to OFCOM—

(a) the reference number of the grant of RSA or the licence under which rights and obligations are to be transferred;

(b) the name and address of the holder or concurrent holders of the grant of RSA or the licence;

(c) the name and address of the proposed transferee;

(d) a description of which type of transfer authorised by regulation 3(1) or 4 is proposed;

(e) a document signed by or on behalf of the holder, or each concurrent holder, of the grant of RSA or the licence and signed by or on behalf of the transferee, under which each of those persons warrants to OFCOM that he has consented to the proposed transfer;

(f) all information necessary for OFCOM to determine whether or not they shall consent to the transfer;

(g) in the case of a transfer authorised by regulation 4, a description of which rights and obligations under the grant of RSA or the licence are to be transferred; and

(h) notice of whether the transfer will involve a conversion under which the rights and obligations that are acquired by the transferee shall take effect—

(i) if they are rights and obligations under a licence, as rights and obligations under a grant of RSA; and

(ii) if they are rights and obligations under a grant of RSA, as rights and obligations under a licence.

(2) OFCOM shall, after determining that the requirements of paragraph (1) have been met, publish a notice stating—

(a) the name of the holder or concurrent holders of the grant of RSA or the licence and the name of the transferee to whom it is proposed that the rights and obligations arising under the grant of RSA or the licence shall be transferred;

(b) the date when OFCOM determined that the requirements of paragraph (1) were met;

(c) the reference number of the grant of RSA or the licence under which rights and obligations are to be transferred; and

(d) in the case of a transfer authorised by regulation 4, a description of which rights under the grant of RSA or the licence are proposed to be transferred.

(3) After publishing a notice under paragraph (2) OFCOM shall decide—

(a) if they consent to the transfer in accordance with regulation 8; and

(b) if they shall give any directions under regulation 9.

(4) OFCOM shall notify the parties to the proposed transfer of their decisions under paragraph (3).

(5) OFCOM shall publish the information specified in paragraph (2) in relation to transfers that have been effected pursuant to regulation 7.

Putting the transfer into effect

7.—(1) Subject to paragraph (3), a transfer of the rights and obligations under a grant of RSA shall be effected by the holder or concurrent holders of the grant of RSA surrendering that grant to OFCOM and by OFCOM granting a new one to the transferee and—

(a) in the case of a transfer which satisfies the condition set out in regulation 3(2)(b), the holder or concurrent holders who made the transfer; and

(b) in the case of a transfer authorised by regulation 4, to the holder or concurrent holders who made the transfer.

(2) Subject to paragraph (3), a transfer of the rights and obligations under a licence shall be effected by the holder or concurrent holders of the licence surrendering that licence to OFCOM and by OFCOM granting a new one to the transferee and—

Statement on regulations and an order for Recognised Spectrum Access in the 406.1-430 MHz band and spectrum trading for radio astronomy

(a) in the case of a transfer which satisfies the condition set out in regulation 3(2)(b), the holder or concurrent holders who made the transfer; and

(b) in the case of a transfer authorised by regulation 4, to the holder or concurrent holders who made the transfer.

(3) Where a notice has been given to OFCOM under regulation 6(1)(h) that the transfer will involve a conversion, a transfer of the rights and obligations under a grant of RSA or a licence shall be effected by—

(a) the holder or concurrent holders of the grant of RSA or the licence surrendering that grant of RSA or that licence to OFCOM;

(b) OFCOM granting—

(i) where the transfer is of rights and obligations under a licence, a new grant of RSA to the transferee;

(ii) where the transfer is of rights and obligations under a grant of RSA, a new licence to the transferee; and

(c) OFCOM granting a new grant of RSA or a new licence—

(i) in the case of a transfer which satisfies the condition set out in regulation 3(2)(b), to the holder or concurrent holders who made the transfer;

(ii) in the case of a transfer authorised by regulation 4, to the holder or concurrent holders who made the transfer.

Consent by OFCOM

8. In determining whether or not to consent to a proposed transfer OFCOM shall take into account whether—

(a) the holder is, or the concurrent holders are, in breach of the terms of the grant of RSA or the licence under which the rights and obligations are to be transferred;

(b) the transferee is able to meet the terms, provisions and limitations of the grant of RSA or the licence which is to be granted as a result of the transfer;

(c) in the case of a transfer authorised by regulation 4 the transferor is able to meet the terms, provisions and limitations of the grant of RSA or the licence which is to be granted as a result of the transfer;

(d) the transferee is able to meet any criteria relating to the persons to whom a grant of RSA or a licence which rights and obligations are to be transferred may be granted; and

(e) it is requisite or expedient to refuse consent to the transfer—

(i) in the interests of national security;

(ii) for the purposes of complying with a Community obligation of the United Kingdom or with any international agreement or arrangements to which the United Kingdom is party; or

(iii) for the purposes of complying with a direction by the Secretary of State given to OFCOM under section 5 of the Communications Act 2003 or section 5 of the Wireless Telegraphy Act 2006.

Directions by OFCOM

9.—(1) If OFCOM consent to a transfer they may also direct that a transfer shall only be put into effect in accordance with regulation 7 after compliance with conditions which may relate to any matter mentioned in any of the paragraphs of regulation 8.

(2) A transfer may not be put into effect in accordance with regulation 7 until after compliance with the conditions set out in any such direction.

9th January 2009

Chief Executive of the Office of Communications
For and by the authority of the Office of Communications

SCHEDULE

Regulations 3 and 4

PART 1

| Column 1 | Column 2 |
|--------------------------------|------------------------|
| Class of Licence or RSA | Frequency Bands |
| Radio Astronomy | 42.5–43.5 Gigahertz |
| Converted Spectrum Access | 150.05–152 Megahertz |
| | 1660.5–1668 Megahertz |
| | 1668–1670 Megahertz |

PART 2

| Column 1 | Column 2 |
|----------------------------------|------------------------|
| Class of Licence or RSA | Frequency Bands |
| Crown Recognised Spectrum Access | 406.1–410 Megahertz |
| Converted Spectrum Access | 410–412 Megahertz |
| | 414–420 Megahertz |
| | 420–422 Megahertz |
| | 424–425 Megahertz |
| | 429–430 Megahertz |

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations are made under section 30(1) to (3) of the Wireless Telegraphy Act 2006.

Regulation 3(1) (subject to the exception in regulation 5) authorises the transfer of all rights and obligations arising by virtue of the grants of recognised spectrum access or wireless telegraphy licences of the classes listed in Column 1 of the Schedule which apply to wireless telegraphy stations or a wireless telegraphy apparatus operating within any of the frequency bands specified in Column 2 of the Schedule.

Regulation 4 (subject to the exception in regulation 5) authorises the transfer of part of the rights and obligations arising by virtue of certain grants of recognised spectrum access and certain wireless telegraphy licences.

Two types of transfer are authorised by regulation 3(1) and 4. Firstly, a transfer may be one in which the rights and obligations of the person making the transfer become rights and obligations of the transferee to the exclusion of the person making the transfer. Secondly, a transfer may be one in which the transferred rights and obligations become rights and obligations of the transferee while continuing, concurrently, to be rights and obligations of the person making the transfer.

Regulation 5 specifies circumstances in which transfers are not authorised which include where OFCOM have not given their consent.

Regulation 6 sets out the procedure for making transfers including the requirement to provide to OFCOM notice of whether the transfer will involve a conversion under which the rights and obligations acquired by the transferee shall take effect, if they are rights and obligation under a licence, as rights and obligations under a grant of RSA and, conversely, if they are rights and obligations under a grant of RSA, as rights and obligations under a licence.

Regulation 7 sets out how transfers will be effected. Regulation 8 sets out the matters which OFCOM shall take into account in determining whether or not to consent. If OFCOM consent to a transfer they may also direct that a transfer shall only be put into effect after compliance with conditions.

A full regulatory impact assessment of the effect that these Regulations will have on the costs to business is available to the public from the OFCOM Library at Riverside House, 2a Southwark Bridge Road, London SE1 9HA (Tel: 020 7981 3000) or on the OFCOM website at www.ofcom.org.uk. Copies of the report have also been placed in the libraries of both Houses of Parliament.

Annex 6

Regulatory impact assessment for the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009

- A6.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment (“RIA”) must be undertaken.
- A6.2 The analysis presented here represents a RIA as defined by section 7 of the Communications Act 2003 (“the Communications Act”) for the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009. There are complementary RIAs for the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009, the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009 and the Wireless Telegraphy (Register) (Amendment) Regulations 2009, which are being made at the same time.
- A6.3 RIAs 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 and are commonly used by other regulators. This is reflected in section 7 of the Communications Act, which means that we will generally carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities. However, 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. In accordance with section 7 of the Communications Act, in producing this RIA, we have had regard to such general guidance as we consider appropriate including related Cabinet Office guidance. For further information about our approach to impact assessments, see *Better policy-making: Ofcom’s approach to impact assessment*³².

Purpose and effect of the regulations

- A6.4 The regulations that are the subject of this RIA (“the Regulations”), together with others that Ofcom has made at the same time, relate to grants to the Crown of recognised spectrum access (RSA) and spectrum trading in the 406.1-430 MHz frequency band.
- A6.5 They constitute the first step in implementing our *Spectrum Framework Review for the Public Sector* (SFRPS), on which we consulted last year³³ and published a policy statement on 31 January 2008³⁴. We subsequently consulted³⁵ on the draft regulations and order and the technical conditions to be imposed on grants of RSA

³² http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

³³ <http://www.ofcom.org.uk/consult/condocs/sfrps/sfrps.pdf>

³⁴ <http://www.ofcom.org.uk/consult/condocs/sfrps/statement/>

³⁵ <http://www.ofcom.org.uk/consult/condocs/sfrps08/sfrps08.pdf>

in the band. Our SFRPS policy supports the government's decision³⁶ to reform public sector spectrum management in line with recommendations of the *Independent Audit of Spectrum Holdings* by Professor Martin Cave³⁷ ("the Independent Audit").

A6.6 The Regulations provide for RSA and licences at 406.1-430 MHz and in certain frequency bands allocated to radio astronomy to be tradable.

Ofcom's policy objective

A6.7 Our overall policy objective in introducing tradable RSA is to secure optimal use of the radio spectrum by providing public bodies with incentives and opportunities to use spectrum more efficiently. We will achieve this by enabling them to trade their spectrum holdings. The regulations to which this RIA relates implement that policy in a way that is consistent with:

- our statutory duties, including the requirement to avoid imposing unnecessary regulatory burdens;
- the government's commitment that, in implementing the reforms, national security and public safety will remain paramount; and
- compliance with international obligations and any directions from the Secretary of State.

A6.8 The Wireless Telegraphy Act 2006 does not bind the Crown so it is not possible to grant wireless telegraphy licences to Crown bodies such as government departments. The regulations allow RSA granted to them in the 406.1-430 MHz band and grants of radio astronomy RSA in certain frequency bands to be traded. This is the first phase in a programme to implement the policy set out in our SFRPS statement.

A6.9 Future developments will depend on decisions by public bodies on spectrum release or sharing and on decisions by commercial organisations on how to use the spectrum that is released or shared. The benefits might take some time to be realised. The MOD currently plans its first spectrum release by November 2010. HM Treasury has undertaken in the government's response to the Independent Audit to commission an independent review to report in 2012 on the effectiveness of the market-based approach to public sector spectrum management, of which the proposals in this document form part.

The citizen and consumer interest

A6.10 Our SFRPS statement concluded that allowing public bodies to trade their spectrum holdings would benefit citizens and consumers.

- Citizens would benefit as public services would be provided at lower cost to the taxpayer and to the economy provided that essential defence, emergency and safety-critical services are not unacceptably affected.
- The phased introduction of spectrum trading and liberalisation enabled by grants of public sector RSA would secure optimal use of the radio spectrum.

³⁶ <http://www.spectrumbaudit.org.uk/pdf/governmentresponse.pdf>

³⁷ www.spectrumbaudit.org.uk

- Consumers would benefit as enhanced access to spectrum for businesses would promote competition, innovation and choice in communications services.
- Public bodies would benefit from having their spectrum rights defined more clearly.

Options

A6.11 We have considered two options.

- Option 1: do nothing. Most public sector users already pay administered incentive pricing (AIP), which would continue to provide some incentive to use spectrum efficiently but public sector spectrum trading and conversion would not be possible, incentives for spectrum efficiency would be weaker and spectrum release would be slower.
- Option 2: make the regulations to introduce public sector spectrum trading including conversion between licences and RSA.

Cost, benefit and risk analysis

Benefits

A6.12 The benefits and costs flowing from the options will depend on decisions to be taken by public and private sector stakeholders and by the government on applying for RSA and trading their spectrum holdings. It is therefore not possible to provide accurate quantitative estimates. However, it has been estimated³⁸ that the total benefits of greater spectrum efficiency and enhanced opportunities for commercial services to access spectrum could be substantial and might be of the order of £1bn a year. This figure should be regarded as indicative of the order of magnitude and not as a firm projection.

A6.13 Moreover, the methodology used in the European study to assess costs and benefits is based on a variety of applications (fixed links, public and private mobile networks, terrestrial broadcasting) that operate over a range of frequencies from hundreds to thousands of MHz. The regulations, on the other hand, apply to a single band used typically for mobile communications. The benefits of trading under the regulations will therefore be only a small proportion of the figure quoted in the preceding paragraph. But this nonetheless indicates that the policy of which the regulations are the first stage could lead to substantial benefits over time for UK citizens and consumers.

A6.14 The European study does not disaggregate estimates of benefits, although it does disaggregate costs by application. So it is not possible to infer what specific proportion of the benefits is attributable to the 406.1-430 MHz band. However, the characteristics of the 406.1-430 MHz band make it particularly suitable for mobile communications. It seems reasonable to conclude that it would likely be used for private or public mobile systems if released or shared as these are likely to offer

³⁸ Derived from *Study on conditions and options for introducing secondary trading of radio spectrum in the European Community* by Analysys Consulting Ltd and others for the European Commission, published May 2004 at http://ec.europa.eu/information_society/policy/radio_spectrum/docs/ref_docs/secontrad_study/secontrad_final.pdf. The estimate assumes that the benefits to the UK equate to approximately 1/6th of the benefits to all Europe based on relative GDP. See exhibit 15.22 on page 223 of the study.

higher value than the alternatives. Innovations in mobile applications, such as cellular telephony and advanced mobile data transmission, are widely considered to have delivered very substantial economic benefits for consumers and gains in dynamic efficiency. This adds confidence that the regulations will enable potentially significant benefits to be realised in the band as it is well-suited to mobile applications and equipment is widely available to operate in the band.

- A6.15 The Independent Audit estimated that the total current market value for public sector spectrum holdings could be between £3bn and over £20bn depending on methodology and subject to the caveat that calculating spectrum value is difficult because of the early stage of development of the spectrum market and because the value of spectrum will depend on the physical characteristics of the frequency in question and on past regulatory decisions. Again, this is an aggregate figure for frequencies below 15 GHz and the value of the band in question will be only a small proportion of the total. Nonetheless, for the reasons given above, we expect spectrum release and sharing in the band to generate real benefits for citizens and consumers.
- A6.16 We conclude that the potential benefits from spectrum trading and liberalisation in the public sector generally and in the 406.1-430 MHz band in particular are real and significant even if they cannot be precisely quantified.
- A6.17 In addition to the benefits of trading, the RSA regulations will, by formalising spectrum rights in the band, provide public bodies and others with greater certainty and security and increased transparency about how their spectrum holdings are utilised and so contribute to enhancing the efficiency of public services.

Costs

- A6.18 Costs relating to spectrum trading by the public sector generally may be considered under four headings.
- i) The *costs to the public sector* of managing their spectrum holdings. It will be necessary for public sector bodies to carry out detailed audits of their spectrum needs and actively to manage their spectrum holdings. This may require investment in systems and specialist staff or procurement of spectrum management services from outside contractors. It is for the government to allocate the necessary resources to implement the policies it adopted in its response to the Independent Audit. Ofcom has estimated, for the purposes of carrying out an impact assessment for spectrum trading³⁹ that the costs to business of trading in the commercial sector would be about 5% of the total benefits. If, as seems likely, the costs to the public sector are comparable, the costs to public bodies can reasonably be expected to be exceeded by the gains to society.
 - ii) The *costs to Ofcom* are unlikely to be significant relative to the potential benefits. For the impact assessment for spectrum trading referred to above, Ofcom estimated that the set-up costs associated with the introduction of spectrum trading across all licence classes would amount to about £2.8m with ongoing administrative costs of around £300,000 a year at 2004 prices. Those incurred in connection with trading public sector spectrum holdings are likely to be lower because of the smaller number of holdings involved and because Ofcom already

³⁹ http://www.ofcom.org.uk/consult/condocs/spt_wtr/statement/stwtr.pdf

has systems and processes in place that could be used for spectrum trading by the public sector.

- iii) *Transaction costs* associated with trading and sharing where such transactions are entered into. The transaction costs incurred will be voluntary in that there will be no compulsion to trade and the parties would not enter into such arrangements unless it was to their mutual advantage to do so. For the impact assessment produced for the consultation on spectrum trading⁴⁰, Ofcom estimated that the costs of spectrum trading in the private sector would be likely to be far outweighed by the benefits, even on a relatively conservative basis. There is no reason to assume that this conclusion would be fundamentally different in the public sector although there might be some small additional expense associated with producing safety cases for sharing with safety-critical applications.

The regulations require public bodies to notify Ofcom before a transfer is made and on completion of the trade. Use of low-cost methods of notification, such as electronic means, can reasonably be expected to minimise the costs of the process.

- iv) *Costs of interference management* incurred by consumers, spectrum users and band managers, including Ofcom. The European study referenced at footnote 38 estimated these costs to amount to under 1% of the expected benefits overall⁴¹. There is no reason to suppose that the ratio between benefits and costs will be differ in the UK compared to the rest of the EU. Making the same assumption as for the benefits that the costs would amount to around 1/6th of the total EU figure, the additional interference management costs attributed to liberalised trading of private mobile applications such as might share the 406.1-430 MHz band would be about £4m a year⁴². This figure applies to all private mobile radio applications. Only a small proportion would be attributable to the 406.1-430 MHz band.

Balance between benefits and costs

A6.19 Although it is not possible to quantify the benefits and costs expected from these regulations precisely, estimates from the EU study cited above suggest that the potential benefits of trading are likely to be around 100 times greater than the potential costs. There is evidence that interference management costs would be somewhat higher for mobile than for other services but the benefits from trading and change of use are also likely to be greater as mobile services are generally higher value.

A6.20 These are overall figures for a range of frequencies and applications but the estimated benefits are so much higher than the estimated costs that it seems very unlikely that the balance would be reversed in the 406.1-430 MHz band.

Costs to businesses

A6.21 Trading and change of use are voluntary. As the regulations do not compel spectrum users to act, businesses will not need to incur additional costs as a result of them. Spectrum will not change hands unless the parties consider the transaction

⁴⁰ http://www.ofcom.org.uk/consult/condocs/spec_trad/

⁴¹ See exhibit 15.23 on page 223.

⁴² See exhibit 15.21 on page 221.

to be mutually advantageous so the expected benefits will always outweigh the costs of the trade.

A6.22 We conclude that the benefits from the regulations are likely to be substantially greater, and most unlikely to be lower, than the costs.

Risks

A6.23 It has been suggested that the extension of spectrum trading to the public sector is a significant change in the way in which public bodies manage spectrum and carries a risk of unforeseen consequences.

A6.24 We are mitigating this risk by proceeding on a phased basis. The RSA and trading regulations, which are the first stage in this process, are limited to the 406.1-430 MHz band. We intend over time to extend the new framework across the public sector but a phased approach will enable all concerned to learn from experience.

A6.25 We discussed in our statement mentioned above how the risks that we have identified could be managed or mitigated and this is summarised in the following table.

Benefits, costs and risks of public sector spectrum trading

| Benefits | Costs / risks | Management / mitigation |
|--|---|--|
| Option 1 Do nothing - no spectrum trading or conversion of public sector holdings | | |
| Stability: no change to management of spectrum – absence of costs or risks associated with change | No positive incentives from potential gains from trading Spectrum not transferred to uses and users of greatest value Competition, innovation and consumer benefits foregone or delayed Shortages of spectrum for public and commercial services | Can increase incentives for spectrum efficiency through applying AIP or spectrum release targets (although this is likely to be less effective than if reinforced by trading on a basis that allows change of use). Released spectrum could be returned to and awarded by Ofcom but the process would be slower. Spectrum shortages could in principle be partially mitigated by more dynamic regulatory assignment but scope for this is limited in practice. |
| Option 2 Introduce spectrum trading and conversion of public sector holdings | | |
| Trading and conversion enable spectrum to migrate to uses and users that value it most. Enhanced spectrum efficiency. Innovation and competition promoted as new services gain access to spectrum more quickly than by regulation. | Trades might take place in environment of limited information and not lead to most efficient outcome. Spectrum is traded without consideration of international obligations, national security or public safety. | Ofcom will provide information to the market in the WT Register and Transfer Notification Register (TNR). The regulations require Ofcom to be notified of proposed trades and to consider whether to withhold consent in the interests of national security or compliance with international obligations. |

| Benefits | Costs / risks | Management / mitigation |
|---|---|--|
| <p>Allows direct engagement with market by public sector bodies to release and acquire spectrum more speedily.</p> <p>Enhanced public sector efficiency and potential gains from spectrum trading proceeds.</p> <p>Greater security, certainty and transparency as spectrum holdings of public bodies are formalised.</p> | <p>Interference from band sharing services compromises public safety or national security.</p> | <p>Decision on whether to trade and technical restrictions that apply will be decided by public sector body concerned.</p> |
| | <p>Interference from band sharing services affects adjacent assignments.</p> | <p>The technical conditions imposed on RSA or a licence issued as a result of a transfer will be designed to avoid causing unacceptable interference to neighbouring assignments.</p> <p>We will continue to be involved in investigating interference and enforcement.</p> |
| | <p>Release of spectrum compromises operational effectiveness, public safety or national security.</p> | <p>Decision on whether to trade and technical restrictions that apply will be taken by public sector body concerned.</p> |
| | <p>Disclosure of sensitive information prejudices public safety or national security or prejudices public bodies' commercial interest.</p> | <p>The trading regulations do not provide for any commercially sensitive information to be included in the TNR.</p> |
| | <p>Public sector users have insufficient resource to manage their holdings.</p> | <p>Public sector bodies can bid for resource they require in the usual way through the budgetary process. Scope for public-private partnership.</p> |
| | <p>Public sector bodies have insufficient spectrum.</p> | <p>Bodies can assess their needs and choose not to trade. They will also be able to acquire more spectrum through the market. If necessary, Ofcom could be directed to assign spectrum administratively.</p> |
| | <p>Market mechanisms provide insufficient incentives for spectrum efficiency in public sector.</p> | <p>Trading will complement and reinforce the incentive effect of AIP. There is evidence, cited in the preceding consultation and statement that AIP is effective in the public sector and trading and conversion will reinforce this effect. The effectiveness of the policy will be reviewed in 2012.</p> |
| | <p>Excessive transaction costs or burdensome or cumbersome procedures.</p> | <p>The regulations have been designed to minimise transaction costs and administrative burdens. We will aim to determine applications to trade within 42 days.</p> |
| <p>Release of spectrum conflicts with broader policy considerations or international developments.</p> <p>Market failure leads to undesirable outcome.</p> | <p>The UK Spectrum Strategy Committee will consider wider policy issues.</p> <p>Regulatory intervention to correct market failure if necessary.</p> | |

| Benefits | Costs / risks | Management / mitigation |
|----------|---|---|
| | Trading leads to anti-competitive outcome. | General competition law available to deal with anti-competitive behaviour ⁴³ . |
| | Unforeseen consequences of change. | The phased introduction will mitigate this risk. We will consult with stakeholders and be ready to revise procedures if necessary in the light of experience. |
| | Excessive restrictions on spectrum access inhibit beneficial change of use. | Restrictions in RSA will be kept to the minimum necessary to provide maximum scope for change of use without the need to seek variations of licences or RSA. Public bodies will have incentives not to impose unnecessary restrictions when they trade. |

- A6.26 Option 1 represents the *status quo*. Where AIP is applied to public sector spectrum holdings, public sector users will have an incentive to return surplus spectrum to Ofcom or to allow Ofcom to award licences that share the spectrum as they will then pay a reduced fee. However, AIP may not always be an accurate reflection of the value which spectrum could realise if traded and, because it is generally set conservatively, it is likely that public sector users will have less of an incentive than if they could enter into arrangements direct with commercial sharers and receive income from this. Also, spectrum release or sharing could take place only by returning spectrum to Ofcom to award, which would be more cumbersome and could delay or prevent beneficial transactions from taking place.
- A6.27 There is good evidence⁴⁴ that market mechanisms are effective in the public sector in promoting spectrum release. We believe it is far more likely than not that public sector spectrum trading and conversion will be beneficial provided that effective measures are in place to avoid unacceptable effects on public safety and national security. The government has undertaken that public safety and national security will remain paramount. The regulations support this by placing decisions on spectrum release or sharing in the hands of the public bodies that have been entrusted with responsibility for safety regulation, provision of public safety services or national security.
- A6.28 We have no reason to believe that market mechanisms will be markedly less effective in the 406.1-430 MHz band than in other parts of the spectrum. The band is potentially suitable for high-value mobile applications and it has been selected by the MOD as a pilot for early release and sharing.
- A6.29 It seems likely that there would be less spectrum release or sharing under option 1 ('do nothing') than under option 2 ('trading including conversion'). Public sector users would forego the income from spectrum trading; commercial bodies would gain less access to spectrum and have reduced opportunities to launch new wireless services; consumers would gain less from innovation and competition; and citizens would forego the benefits from public sector efficiency gains. Moreover, the

⁴³ See our 2004 consultation and statement on *Ensuring effective competition following the introduction of spectrum trading* at <http://www.ofcom.org.uk/consult/condocs/sec/>.

⁴⁴ See our *SFRPS* statement.

regulations are drafted in a way that avoids imposing unnecessary burdens and effectively mitigates the risks that have been identified.

A6.30 The only reason not to proceed would be if the regulations were considered to give rise to costs or risks in the band that exceeded the expected benefits of public sector spectrum trading. This seems unlikely given the evidence on the scale of those benefits relative to the expected costs and the steps that are being taken to mitigate the risks.

Conclusion

A6.31 We therefore conclude that we should make the regulations as part of the new framework for public sector spectrum management.

Declaration

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed

Ed Richards

Chief Executive

9 January 2009

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Annex 7

Final draft WT Register Regulations

STATUTORY INSTRUMENTS

2009 No XX

ELECTRONIC COMMUNICATIONS

The Wireless Telegraphy (Register) (Amendment) Regulations 2009

Made - - - - *9th January 2009*

Coming into force - - *23rd January 2009*

The Office of Communications (“OFCOM”) make the following Regulations in exercise of the powers conferred by section 31(1) and (2) and section 122(7) of the Wireless Telegraphy Act 2006⁽⁴⁵⁾ (“the Act”).

Before making the Regulations OFCOM have given notice of their proposal to do so in accordance with section 122(4)(a) of the Act, published notice of their proposal in accordance with section 122(4)(b) of the Act and have considered the representations made to them before the time specified in the notice in accordance with section 122(4)(c) of the Act.

Citation and commencement

1. These Regulations may be cited as the Wireless Telegraphy (Register) (Amendment) Regulations 2009 and shall come into force on 23rd January 2009.

Amendment of the Wireless Telegraphy (Register) Regulations 2004

2. Part 8 of the Schedule to the Wireless Telegraphy (Register) Regulations 2004⁽⁴⁶⁾ is amended by inserting—

(a) in Column 1, after “Radio Astronomy”—

“Crown Recognised Spectrum Access
Converted Spectrum Access”;

(b) in Column 2, after “48.94–49.04 GHz”—

“406.1–410 MHz
410–412 MHz
414–420 MHz

⁽⁴⁵⁾ 2006 c.36

⁽⁴⁶⁾ S.I. 2004/3155 as amended by S.I. 2006/340, S.I. 2006/1808, S.I. 2007/381, S.I. 2007/3389, S.I. 2008/689, S.I. 2008/2104 and 2008/3193.

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420–422 MHz
424–425 MHz
429–430 MHz
150.05–152 MHz
1660.5–1668 MHz
1668–1670 MHz
42.5–43.5 GHz”.

9th January 2009

Chief Executive of the Office of Communications
For and by the authority of the Office of Communications

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations amend the Wireless Telegraphy (Register) Regulations 2004 (S.I. 2004/3155 as amended by S.I. 2006/340, S.I. 2006/1808, S.I. 2007/381, S.I. 2007/3389, S.I. 2008/689, S.I. 2008/2104 and S.I. 2008/3193) (“the Principal Regulations”).

The Principal Regulations require OFCOM to establish and maintain a public register of relevant information relating to wireless telegraphy licences of certain classes which apply to a station or apparatus operating within the frequency bands specified in the Schedule to the Principal Regulations.

Regulation 2 of these Regulations amends the Schedule of the Principal Regulations.

A full regulatory impact assessment of the effect that these Regulations will have on the costs to business is available to the public from the OFCOM Library at Riverside House, 2a Southwark Bridge Road, London SE1 9HA (Tel: 020 7981 3000) or on the OFCOM website at www.ofcom.org.uk. Copies of the report have also been placed in the libraries of both Houses of Parliament.

Annex 8

Regulatory impact assessment for the Wireless Telegraphy (Register) (Amendment) Regulations 2009

- A8.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment (“RIA”) must be undertaken.
- A8.2 The analysis presented here represents a RIA as defined by section 7 of the Communications Act 2003 (“the Communications Act”) for the Wireless Telegraphy (Register) (Amendment) Regulations 2009. There are complementary RIAs for the Wireless Telegraphy (Crown Recognised Spectrum Access) Regulations 2009, the Wireless Telegraphy (Limitation of Number of Grants of Crown Recognised Spectrum Access) Order 2009 and the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009 that are being made at the same time.
- A8.3 RIAs 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 and are commonly used by other regulators. This is reflected in section 7 of the Communications Act, which means that we will generally carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in our activities. However, 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. In accordance with section 7 of the Communications Act, in producing this RIA, we have had regard to such general guidance as we consider appropriate including related Cabinet Office guidance. For further information about our approach to impact assessments, see *Better policy-making: Ofcom’s approach to impact assessment*⁴⁷.

Purpose and effect of the regulations

- A8.4 The regulations that are the subject of this RIA (“the regulations”), together with others that Ofcom has made at the same time, relate to grants to the Crown of recognised spectrum access (RSA) and spectrum trading in the 406.1-430 MHz frequency band.
- A8.5 They constitute the first step in implementing our *Spectrum Framework Review for the Public Sector* (SFRPS), on which we consulted last year⁴⁸ and published a policy statement on 31 January 2008⁴⁹. We subsequently consulted⁵⁰ on the draft regulations and order and the technical conditions to be imposed on grants of RSA in the band. Our SFRPS policy supports the government’s decision⁵¹ to reform

⁴⁷ http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

⁴⁸ <http://www.ofcom.org.uk/consult/condocs/sfrps/sfrps.pdf>

⁴⁹ <http://www.ofcom.org.uk/consult/condocs/sfrps/statement/>

⁵⁰ <http://www.ofcom.org.uk/consult/condocs/sfrps08/sfrps08.pdf>

⁵¹ <http://www.spectrumbaudit.org.uk/pdf/governmentresponse.pdf>

public sector spectrum management in line with recommendations of the *Independent Audit of Spectrum Holdings* by Professor Martin Cave⁵².

- A8.6 In order to enhance the general development of a secondary spectrum market, Ofcom establishes and maintains a register of spectrum licences and RSA – the Wireless Telegraphy Register (“the Register”).
- A8.7 The regulations support and facilitate spectrum trading by making available to the market information about Crown RSA and Converted Spectrum Access (CSA) licences resulting from transfers of RSA so that prospective buyers can find out which spectrum is potentially available, the constraints on its use and the identity of the holder, whom they may approach for further details or to express an interest in trading. The regulations amend the Wireless Telegraphy (Register) Regulations 2004⁵³ and require Ofcom to include specified information about tradable RSA and licences in the frequency bands in which RSA may be traded. This information will be published in the Register that Ofcom currently establishes and maintains.
- A8.8 Information about proposed and completed transfers will complement this information and will be made available in the Transfer Notification Register in accordance with the trading regulations discussed in a separate RIA.
- A8.9 The information that shall be included in the Register following the proposed amendment comprises the RSA or licence reference number, name of the holder, contact details, RSA or licence terms, provisions and limitations which concern frequency range and geographical area of reception or transmission. This is similar to information that is currently included in the Register. Subject to concerns in specific cases about inclusion of sensitive information, for example on grounds of national security, there seems no need at this time to publish different information about grants of RSA and CSA licences than about other licences.

Ofcom’s policy objective

- A8.10 Our overall policy objective in introducing tradable RSA is to secure optimal use of the radio spectrum by providing public bodies with incentives and opportunities to use spectrum more efficiently. We will achieve this by enabling them to trade their spectrum holdings. The regulations to which this RIA relates implement that policy in the 406.1-430 MHz frequency band in a way that is consistent with:
- our statutory duties, including the requirement to avoid imposing unnecessary regulatory burdens;
 - the government’s commitment that, in implementing the reforms, national security and public safety will remain paramount; and
 - compliance with international obligations and any directions from the Secretary of State.
- A8.11 Future developments will depend on decisions by public bodies on spectrum release or sharing and on decisions by commercial organisations on how to use the spectrum that is released or shared. The benefits might take some time to be realised. The MOD currently plans its first spectrum release by November 2010. HM Treasury has undertaken in the government’s response to the Independent Audit to

⁵² www.spectrumbaudit.org.uk

⁵³ http://www.opsi.gov.uk/si/si2004/uksi_20043155_en.pdf

commission an independent review to report in 2012 on the effectiveness of the market-based approach to public sector spectrum management, of which the proposals in this document form part.

The citizen and consumer interest

A8.12 Our SFRPS statement concluded that allowing public bodies to trade their spectrum holdings would benefit citizens and consumers.

- Citizens would benefit as public services would be provided at lower cost to the taxpayer and to the economy provided that essential defence, emergency and safety-critical services are not unacceptably affected.
- The phased introduction of spectrum trading and liberalisation enabled by grants of public sector RSA would secure optimal use of the radio spectrum.
- Consumers would benefit as enhanced access to spectrum for businesses would promote competition, innovation and choice in communications services.
- Public bodies would benefit from having their spectrum rights defined more clearly.

Options

A8.13 We have considered two options.

- Option 1: amending the existing regulations to provide for addition of information about Crown RSA and CSA licences to the Register on a similar basis as for other WT licences.
- Option 2: not including the information in the Register.

Cost, benefit and risk analysis

A8.14 Ofcom carried out a regulatory impact assessment for the Wireless Telegraphy (Register) Regulations 2004⁵⁴ that established the Register. The proposed amendment to those regulations has the effect of adding to the Register information about grants of Crown RSA and CSA licences. Ofcom considers that the original RIA is also relevant to the impact assessment for the present regulations.

A8.15 The RIA for the Wireless Telegraphy (Register) Regulations 2004 concluded that the benefits of a having a register exceeded the costs that would be incurred by Ofcom and business in establishing and maintaining the register, and in publishing information.

Benefits

A8.16 The main benefits of adding information about Crown RSA and the licences resulting from transfers from RSA to the Register are:

- transaction costs of spectrum trades are lower since the relevant information on the rights and obligations of holdings that can be traded is readily available;

⁵⁴ Annex 4 to the Statement, published December 2004, on the spectrum trading and WT Register regulations at http://www.ofcom.org.uk/consult/condocs/spt_wtr/statement/stwtr.pdf.

- potential users of spectrum are fully aware of the opportunities for trading and gaps in spectrum usage are more transparent, facilitating access to spectrum for innovative uses;
- equipment manufacturers can evaluate and monitor the size of their markets more accurately.

A8.17 There is no empirical evidence on which a reliable evaluation of the impact of the Register on the market for spectrum can be based and the benefits of the Register are difficult to quantify. However, it is relevant to note that the benefits from public sector spectrum trading, to which publication of relevant information in the Register will contribute, are potentially substantial as discussed in the separate RIA on the trading regulations.

Costs

A8.18 Given that we have already established and are already operating the Register, we anticipate that the marginal cost of adding information about Crown RSA and CSA licences in the band to the Register, which will continue to need to be maintained regardless of the present regulations, will be minimal and negligible compared with the overall benefits of public sector spectrum trading.

Risks

A8.19 The risks of establishing a register of licences and trades are two-fold. Firstly, there is a risk of compromising the security of wireless telegraphy systems if too much is disclosed about their operation. We have mitigated this risk in relation to WT licences by publishing only basic information about licensees and by specifically not publishing precise details about transmitters. We would, moreover, discuss with the public bodies concerned whether publication of the information would compromise national security or public safety and withhold sensitive details if necessary.

A8.20 The second risk is that publishing commercially sensitive information about planned and actual trades could create disincentives to trading. We mitigate this risk by publishing only basic details about licences that are traded and the identity of the parties to the trade. Ofcom is keeping under review the general issue of how much information to make available to support spectrum trading.

A8.21 This risk may be mitigated to the extent that commercial organisations compile and offer for sale information relating to spectrum trading. However, commercial organisations are unlikely to be able to gather information as comprehensively or at as low a cost as Ofcom, and it would take time for them to establish themselves.

A8.22 Without publication of information about Crown RSA and CSA licences, the effectiveness of spectrum trading would be likely to be impaired by the lack of availability of information on the availability of the spectrum holdings that might be acquired. The lack of information and the increased cost of searching for it could prevent some beneficial trades from going ahead, either because the lack of information means that potential purchasers are unaware of the opportunity or because of the increased transaction costs of obtaining the information.

A8.23 Though they are difficult to quantify, Ofcom believes that these benefits are likely to exceed the small costs involved. If we were not to include the information in the WT Register, the effectiveness of trading would likely be impaired with resulting loss of benefits for citizens and consumers.

Conclusion

A8.24 The above risk analysis shows that the risks associated with including information in the Register about public sector RSA can safely be mitigated. On the other hand, if the information is not included, there is a real risk that the effectiveness of spectrum trading will be damaged and this lack of information is unlikely to be wholly made good by commercial information providers. We therefore conclude that we should make the regulations.

Declaration

I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed

Ed Richards

Chief Executive

9 January 2009

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