Providing spectrum information

Implementing the Environmental Information Regulations, 2004

Consultation

Publication date: 10 August 2009

Closing Date for Responses: 2 November 2009

Contents

Section 1

Executive summary

1.1 This consultation document outlines our proposals for the provision of information relating to the radio spectrum and discusses issues surrounding data disclosure. We are proposing to release identified spectrum information in order to comply with legal requirements placed on us under the Environmental Information Regulations 2004 ("EIR") to progressively make environmental information available to the public by electronic means. In addition, we are also seeking views on proposals to make available additional information to further the interests of citizens and consumers.

1.2 There are a range of statutory obligations placed on us to publish information about the authorisation and regulatory arrangements for spectrum in the UK, for example the requirement to publish a UK Plan for Frequency Authorisation under Section 2 of the Wireless Telegraphy Act 2006 (the "WT Act").

1.3 As a public authority, we are also subject to a number of other pieces of legislation such as the Freedom of Information Act 2000 and EIR. These require us to make available specific information to the general public except where the information is covered by an exemption or exception to disclosure, and it is in the public interest not to disclose. After reviewing the information contained in the WT Act licences issued by us, it has become apparent that certain information that we hold is classified as environmental and we are therefore required to make it progressively available.

1.4 As radio waves cannot be seen or touched, the availability of published information is one of the few ways to understand what the radio spectrum is currently used for, who holds the rights to use it and where it is being used. Information plays an important role for many stakeholders when they are making decisions relating to network planning, interference management and possible trades of usage rights. Such disclosure is in the wider public interest as it is also an important aspect in the future development of spectrum policy.

1.5 We already publish a range of spectrum related information covering a variety of areas. In this consultation we are seeking views on the information that we already provide and additional spectrum information that would be useful to stakeholders. For example, for new awards of spectrum, we currently publish the names of the winning bidders and the prices that they paid. We are seeking views on whether information relating to the price paid for spectrum in secondary trading would help the market. Our approach to disclosure also takes into account requirements to protect sensitive information and comply with legal obligations on information disclosure.

Next steps

1.6 Following the publication of this consultation document, stakeholders are invited to provide their feedback. The consultation will be open for twelve weeks and close at **5pm 2 November 2009**. We expect to release a statement on the issues raised in this consultation and the steps we will take later this year, having taken into account the stakeholder responses to our proposals.

Section 2

Introduction

Changing world of spectrum

2.1 In the United Kingdom, spectrum has been managed by the public sector for around 100 years. The general approach during this period has been for the spectrum authority to decide on both the use of a particular band and who is allowed to transmit in the band. This way of managing spectrum we refer to as "command & control". It was appropriate while there were relatively few uses for the spectrum, when users and the spectrum authority could sensibly control all aspects of spectrum usage.

2.2 As new technologies have come along we have embarked on a policy of moving towards a "market-based" approach to spectrum management. In this system the spectrum authority sets the minimum necessary restrictions to prevent interference to others and then allows licence holders to decide how spectrum should be used by letting it flow to those who value it most. We believe this is generally in the best interests of citizens and consumers.

2.3 This approach was strongly recommended in the *Review of Radio Spectrum Management* that the Government commissioned in 2001.[1] We adopted it in the light of our Spectrum Framework Review (SFR).[2] To implement this approach we are making licen*ces for currently assigned* spectrum more flexible, enabling users to adopt and rollout new technologies quicker, and allowing more users to trade their "rights of use".

2.4 With an increasing number of wireless devices used in the UK and the move towards a converged digital world, spectrum is now supporting a wide range of services from telephony and broadband to traffic management and safety of life services. More devices are using the same spectrum and to do so are becoming more intelligent by using mitigation techniques such as "detect and avoid" or "listen before talk" in order not to interfere with one another. In this fast changing complex environment the importance of information relating to the radio spectrum becomes greater.

2.5 Access to spectrum information is an important aspect in the future development of spectrum regulation; whether it is a move towards negotiable spectrum usage rights, the development of self-coordination and spectrum planning or measures to support secondary trading. As more decisions on how spectrum is to be used will made by licensees and less by us as the spectrum authority it is important that we provide stakeholders with the necessary information to enable them to make informed choices.

What is spectrum information?

2.6 Spectrum information is a broad term we use to describe any and all information that we hold about the radio spectrum. This includes information on the regulatory framework in which spectrum users operate, individual rights of use, technical criteria and spectrum quality. This information is an important resource as spectrum is

[1] http://www.ofcom.org.uk/static/archive/ra/spectrum-review/2002review/1_whole_job.pdf
[2] http://www.ofcom.org.uk/consult/condocs/sfr/sfr/sfr_statementhttp://www.ofcom.org.uk/consult/condocs/sfr/sfr/sfr_statement

intangible in nature and the rights and potential opportunities it provides are largely defined by reference to available information.

Spectrum information we already make available

2.7 We publish a range of information on our website (www.ofcom.org.uk) relating to spectrum. Figure 2.1 below highlights a selection of the information which we currently provide. A description of the information can be found in Annex 5.

2.8 General information relating to WT Act licences is already available via our website.[3] We also provide the technical criteria that equipment and users must adhere to in our Interface Requirements (IRs).[4] Information on licence fees and how are calculated, and template licences outlining the general terms and conditions that apply, are all available to stakeholders before applying for a licence. We also provide information on spectrum subject to past, present and future awards and on equipment that is exempt from the need to hold a licence.

2.9 In order to help stakeholders find information in an easy and accessible format we developed the Spectrum Information System (SIS).[5] It is an internet based searchable resource to help stakeholders find information on spectrum use and rights of use in the UK. It is split into three areas: the UK Plan for Frequency Authorisation (UKPFA), the Wireless Telegraphy Act Register (WTR), and the Transfer Notification Register (TNR).

2.10 The Sitefinder website,[6] set up as a result of recommendations of the Stewart Report,[7] provides information on mobile phone base stations and masts. It is a voluntary scheme under which mobile network operators make information available on the location and operating characteristics of individual base stations, so that people who wish to inform themselves about this can do so. We host the Sitefinder database on behalf of the Government, which is responsible for planning and health issues relating to mobile phone base stations and masts, and for policy on the scope of the Sitefinder scheme.

2.11 Technical frequency assignment criteria (TFAC) documents outline the principles that we will employ when making assignments for WT Act licences. These set out the technical process that we go through in order to assign spectrum and how we evaluate interference levels. This includes power limits, co-ordination with users in adjacent channels and any additional clearance checks that need to be undertaken.

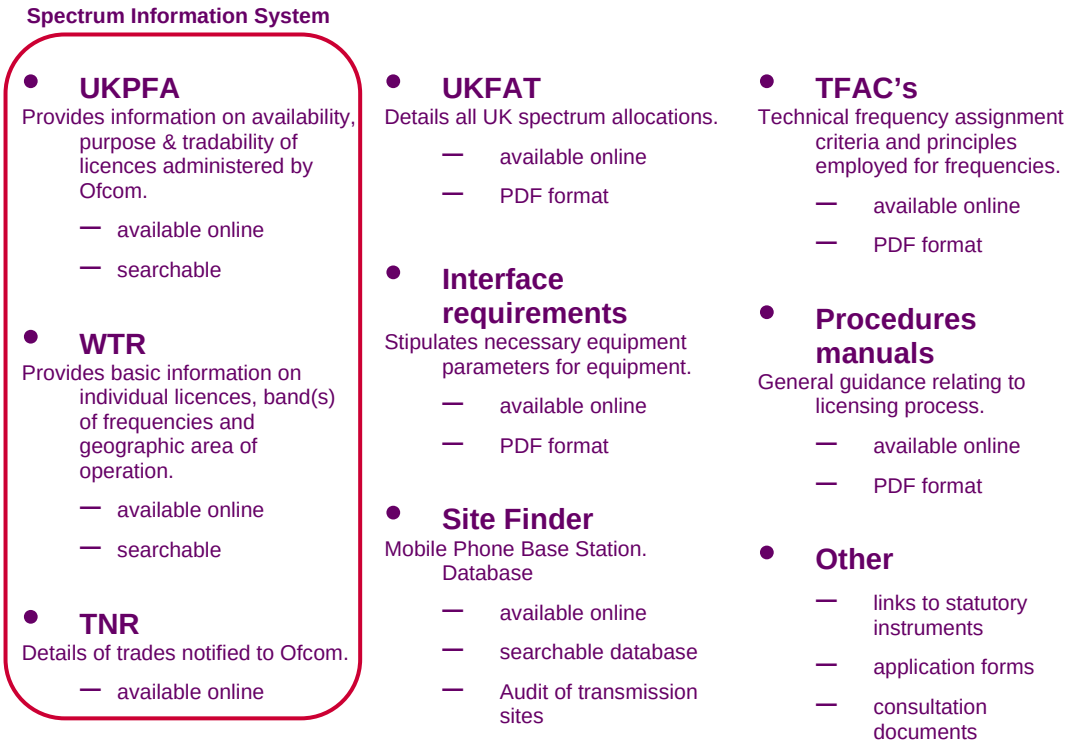
2.12 We also provide information to some third parties for them to release. We provide the details of amateur radio callsigns, with licence holders' address details for those who consent to publications. Information relating to maritime, ship, aircraft and other licences is also provided to the International Telecommunication Union Radiocommunications Bureau (ITU-R) under our international obligations.

2.13 The Radio Regulations set out requirements on us to provide information to the ITU-R in order to notify other administrations of assignments. The information contains all the technical parameters of a licence but excludes licensee information. This is then stored in the Master International frequency Register (MIFR) and from this the ITU-R

[3] http://www.ofcom.org.uk/radiocomms/ifi/
[4] http://www.ofcom.org.uk/radiocomms/ifi/tech/interface_req/
[5] http://spectruminfo.ofcom.org.uk/spectrumInfo/
[6] http://www.sitefinder.ofcom.org.uk/
[7] http://www.iegmp.org.uk/

publish the International Frequency List. This information is then made available, to anyone who subscribes, via the bi-weekly Radiocommunications Bureau (BR) International Frequency Information Circular (BR IFIC).

Figure 2.1: Selection of information currently published by Ofcom



Source: Ofcom

Legal provisions concerning spectrum information

2.14 There are a range of statutory obligations placed on us to make information available about the authorisation and regulatory arrangements for spectrum in the UK. For example, we have general and specific obligations under the following:

- Communications Act 2003;[8]
- WT Act;[9]
- European Framework and Authorisation Directives;[10]
- Commission Decision 2007/344/EC on harmonised availability of information;[11] and
- ITU-R Radio Regulations.[12]

[8] http://www.opsi.gov.uk/acts/acts2003/pdf/ukpga_20030021_en.pdf
[9] http://www.opsi.gov.uk/acts/acts2006/pdf/ukpga_20060036_en.pdf
[10] http://ec.europa.eu/information_society/policy/ecomm/current/index_en.htm
[11] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:129:0067:0070:EN:PDF

2.15 As a public body we are also subject to other pieces of legislation that require us to provide certain information. These include:

- Data Protection Act 1998;[13]
- Freedom of Information Act 2000 (the "FOIA");[14]
- Environmental Information Regulations 2004 (the "EIR");[15] and
- Re-use of Public sector Information Regulations 2005.[16]

2.16 Of these, the EIR are particularly relevant to this document and are discussed later. More information relating to all of these obligations can be found in Annex 6.

2.17 Under section 1(1) (a) of the WT Act, we have a function: "to give such advice in relation to the use of the electromagnetic spectrum for wireless telegraphy as [… we] consider appropriate for the purpose of facilitating or managing the use of the spectrum for wireless telegraphy." We also have a general duty under section 3 (2) (a) of the WT Act in carrying out our functions to among other things have particular regard to the desirability of promoting: "the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy."

Current demand for and supply of spectrum information

2.18 The benefits that can be gained from providing spectrum information will only be realised if the information provided is of use to participants i.e. there needs to be demand for this information and that the information supplied meets this demand. In February 2005, the European Commission published the findings of a study they commissioned into current levels of spectrum information provision in the European Community and the potential benefits of extending current availability.[17] The work concluded among other things:

> "Information relating to radio spectrum is a key requirement for many players in the electronic communications market, including network operators, equipment manufacturers, broadcasters and regulators."

2.19 The study identified a wide range of areas where industry valued access to spectrum information. Figure 2.2 below summarises an assessment of the value attached by operators and manufacturers to certain facets of spectrum information. It demonstrates the breadth of information to which a high importance is attached.

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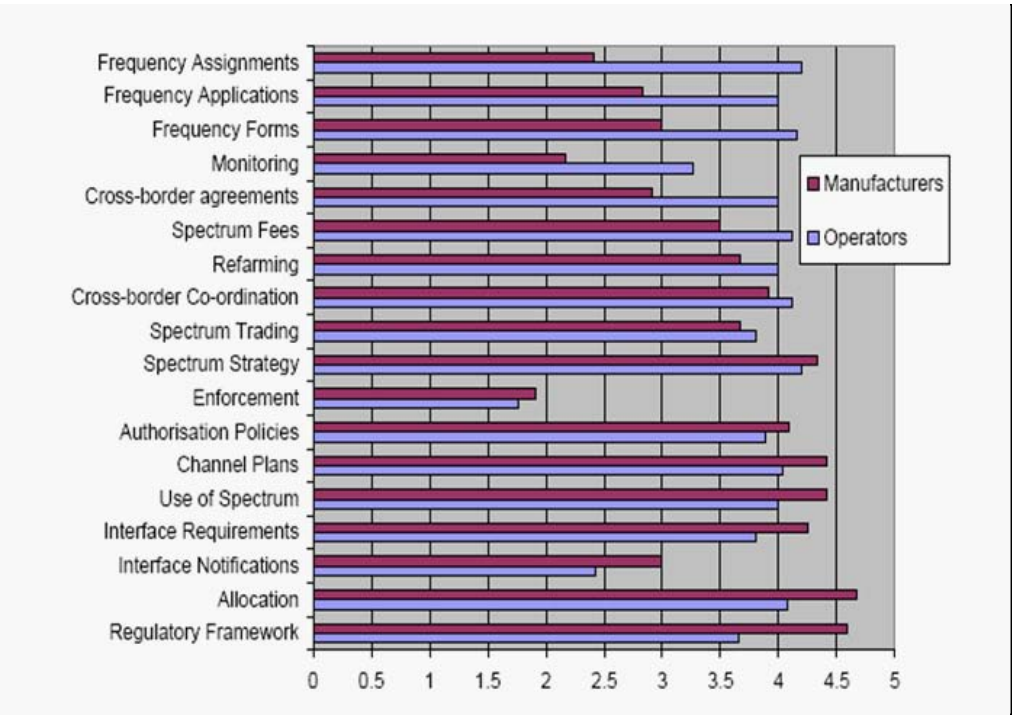
[12] http://www.itu.int/opb/sector.aspx?lang=en&sector=1
[13] http://www.opsi.gov.uk/acts/acts1998/ukpga_19980029_en_1
[14] http://www.opsi.gov.uk/acts/acts2000/pdf/ukpga_20000036_en.pdf
[15] http://www.opsi.gov.uk/si/si2004/20043391.htm
[16] http://www.opsi.gov.uk/si/si2005/20051515.htm
[17] IDATE, AEGIS and Bird & Bird "Study on information on the allocation, availability and use of radio spectrum in the Community" February 2005. http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/_document_storage/studies/allocation/spectrum_info_fin_rep.pdf

Figure 2.2: Value Attached to Elements of Spectrum Information[18]



Source: IDATE, AEGIS and Bird & Bird

2.20 As Figure 2.2 shows there are a number of elements of information that users of spectrum say that they find, or would find, useful. It is also worth noting that although, in section 5, we consider the benefits that greater information may provide for facilitating efficient spectrum trading and co-ordination, it is also the case that this information could be used by manufacturers for example, to help them innovate and become more efficient.

2.21 A number of spectrum authorities already provide extensive information relating to these elements of spectrum information. As the UK regulator, it is important that we look at best practice from other administrations. Consistent information across administrations enables stakeholders to easily compare the regulatory environment and spectrum allocations in a number of countries. This enables stakeholders operating on a pan-European or even global basis to plan more effectively and reduce costs; potentially these savings could be then passed on to citizens and consumers in the form of cheaper products and services.

2.22 Figure 2.3 below shows a summary of the information available on other spectrum authorities' websites. A more detailed breakdown of the information available can be found in Annex 7.

[18] Note: Respondents were asked to grade the importance of the information category on a scale of 0 to 5. These elements have been divided into three broad areas: how to gain access to radio spectrum; current usage of radio spectrum; and policy and strategy for spectrum management. Regarding the category of spectrum strategy this refers to information on what additional spectrum may become available in an NRA's future plan. For the spectrum trading refers to the information necessary to support trading such as a register of rights of use.

Figure 2.3: Information available from spectrum authorities

Country	System	Information available
UK – Ofcom	Spectrum Information System (SIS)	Licensee (name, address, contact), licence type, licence number, transmitter frequency and transmitter location.
USA- Federal Communications Commission (FCC)	Universal Licensing System (ULS)	Licensee (name, address, contact), application receipt date, licence history, special conditions, transmitter address/area of operation, frequency, station class, emission type, operational altitude, time of operation.
Australia – Australian Communications and Media Authority (ACMA)	Radiocommunications Record of Licensing (RRL) database	Licensee name & address, Assigned Frequency, Bandwidth, Transmitter Power, EIRP, Antenna height & size, Antenna Type, Azimuth, Polarity, Tilt, gain, Spectrum Access Special Conditions,
New Zealand– Ministry of Economic Development	Spectrum Online	Licensee name, contact details, fee, frequency, channel, power, emission, polarisations, transmitter locations, licence conditions, horizontal radiation pattern and unwanted emission limits.
Denmark - Danish National IT and Telecom Agency	Frequency register	Licensee name, address, licence number, transmitter location, type of frequency use, type of equipment, call sign, plant description (industrial use), antenna height, power and height above sea level.
Estonia - Estonian Technical Surveillance Authority	Register of Economic Activities and Purpose of Its Maintenance (MTR)	Licensee name, address, licence number, transmitter location, frequency, bandwidth, EIRP, antenna type,
Switzerland- Ofcom	Locations of broadcasting and mobile phone transmitters database	ERP, frequency, station name, transmitter location and radiated power level

Source: Administrations websites

2.23 The above table highlights both the differences and extent of information provision across regulators, including Ofcom. However, the table does not indicate whether this type of information is of use to or used by spectrum users. For example, despite the quantity of information that is available in the USA, the Radio Spectrum Inventory Act[19] that was introduced to Congress on 19 March 2009 calls on the FCC and the National Telecommunications and Information Administration to improve the information that they provide and undertake a full inventory of spectrum resources between the 300 MHz and 3.5 GHz bands.

2.24 Thus while there appears to be both demand for information and a supply of information available, it is crucial for us to understand from users of spectrum whether this demand and supply coincide. Once we have a better understanding of this then we will be in a position to be able to weigh up the specific costs and benefits of providing and publishing additional information.

[19] Radio Spectrum Inventory Act http://thomas.loc.gov/cgi-bin/query/z?c111:S.649:

2.25 As such this consultation, in section 5, is particularly interested in finding out from spectrum users what type of information they would find useful and in what format. Responses to this consultation will allow us if appropriate to carry out a more detailed cost/benefit analysis of releasing certain types of information.

Document structure

2.26 Section 3 advises stakeholders of the information that, subject to potential exceptions on which we consult in Section 4, we are proposing to release under the EIR. We also outline the legal framework that we must comply with in regards to the proposed release of this information. This is an evolving area with UK and European legislation placing increasing demands on public bodies to make available more information e.g. under the FOIA and the EIR.

2.27 We understand that some stakeholders may be concerned regarding the disclosure of information relating to their WT Act licence. In section 4, we consider any exceptions to and the public interest in disclosure of the identified information.

2.28 Section 5 seeks views on the release of non-EIR information that may be useful for industry, citizens and consumers.

2.29 Annexes 1, 2 and 3 provide information on how to respond to the consultation and our consultation principles.

2.30 Annex 4 provides a summary of the consultation questions.

2.31 Annex 5 provides further detail on the information we currently provide. It describes what the information is and why we provide it.

2.32 Annex 6 sets out a general summary of the statutory obligations placed on us relating to information provision.

2.33 Annex 7 summaries the approaches that other countries have taken to provide spectrum information.

2.34 Annex 8 outlines the information we consider as being environmental information under EIR and the WT Act licences that are affected.

2.35 Annex 9 provides a general background to the Sitefinder EIR case.

2.36 Annex 10 is a glossary of abbreviations.

Section 3

Requirements to provide environmental information

Introduction

3.1 This section sets out our proposal to release spectrum information that relates to emissions in order to comply with legal requirements placed on us under the EIR to progressively make environmental information available to the public by electronic means.[20]

Information release relating to radio transmitters

Freedom of Information Act 2000

3.2 FOIA[21] establishes a general right of access to all types of recorded information held by public authorities. It also sets out exemptions from that right and places a number of obligations on public authorities. FOIA applies to us as we are a public authority. Individuals already have the right to access information about themselves under the Data Protection Act. From January 2005, the FOIA extended this right of access to all the types of information we hold.

3.3 In accordance with the Lord Chancellor's Code of Practice on the Management of Records issued under section 46 of the FOIA, we have a duty to ensure that reliable records are created, that they can be accessed when requested and that they are archived and disposed of in accordance with a well organised and documented life cycle management process.

3.4 Under Section 19 of the FOIA, we have published the Ofcom publication scheme.[22] The scheme makes it clear what information is easily accessible without the need for individuals to make a specific request. The FOIA is enforced by the Information Commissioner who closely scrutinises disclosure decisions and can rule on disputes concerning the release of information.

Environmental Information Regulations 2004

3.5 The EIR came into force on 1 January 2005 and give certain rights of access to environmental information to the general public. EIR applies where there is a request for environmental information that a public authority holds.

3.6 Under Regulation 2 (1) of the EIR, the definition of "environmental information" refers to *any* information in written, visual, aural, electronic or any other material form on:

> (a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms, and the interaction among these elements;

[20] Regulation 4 (10 (a) EIR.
[21] http://www.opsi.gov.uk/acts/acts2000/pdf/ukpga_20000036_en.pdf
[22] http://www.ofcom.org.uk/about/cad/foiindex/foi_act_pub_scheme/Foiascheme.pdf

(b) factors, such as substances, energy, noise, radiation or waste, including radioactive waste, emissions, discharges and other releases into the environment, affecting or likely to affect the elements of the environment referred to in (a);

(c) measures (including administrative measures), such as policies, legislation, plans, programmes, environmental agreements, and activities affecting or likely to affect the elements and factors referred to in (a) and (b) as well as measures or activities designed to protect those elements;

(d) reports on the implementation of environmental legislation;

(e) cost-benefit and other economic analyses and assumptions used within the framework of the measures and activities referred to in (c); and

(f) the state of human health and safety, including the contamination of the food chain, where relevant, conditions of human life, cultural sites and built structures inasmuch as they are or may be affected by the state of the elements of the environment referred to in (a) or, through those elements, by any of the matters referred to in (b) and (c).

3.7 The EIR tells us that we have to progressively release information that we hold that is currently not publicly available. Our obligation to publish this information is set out at Regulation 4 of EIR which states that:

Dissemination of environmental information

4. - (1) Subject to paragraph (3), a public authority shall in respect of environmental information that it holds -

(a) progressively make the information available to the public by electronic means which are easily accessible; and

(b) take reasonable steps to organise the information relevant to its functions with a view to the active and systematic dissemination to the public of the information.

(2) For the purposes of paragraph (1) the use of electronic means to make information available or to organise information shall not be required in relation to information collected before 1st January 2005 in non-electronic form.

(3) Paragraph (1) shall not extend to making available or disseminating information which a public authority would be entitled to refuse to disclose under regulation 12.

(4) The information under paragraph (1) shall include at least -

(a) the information referred to in Article 7(2) of the Directive; and

(b) facts and analyses of facts which the public authority considers relevant and important in framing major environmental policy proposals.

3.8 The Information Commissioner in his guidance on this[23] states that:

> "Authorities covered by the EIRs must organise their records and routinely publish certain information on an ongoing basis. In most cases this should be done through easily accessible electronic means. This is separate from the duty to make information available in response to individual requests".

The Wireless Telegraphy Act information we hold

3.9 Figure 3.1 shows a summary of the information that we intend to progressively release under EIR. This relates to the following built structures: fixed links, mobile masts, satellite masts and business radio transmitters. Although the related information and terminology may be slightly different in relation to the different built structures, the type of information is of a similar nature.

3.10 We consider that this information *is e*nvironmental information relating to emissions (paragraph 3.6 (b) of the definition above). It is information about built structures that emit in various ways either or both non-ionising radiation and energy (e.g. heat) that are likely to affect the elements identified in paragraph 3.6 (a) of the definition above (at least the air and atmosphere).

3.11 In this respect, the Information Tribunal in its Sitefinder decision[24] stated that:

> "The definition [of environmental information relating to emissions] is not intended to set out a scientific test and *its words should be given their plain and natural meaning*. On that basis […] radio wave emissions that pass through the atmosphere from a base station to any solid component of the natural world are likely to affect one or more of the elements listed in subparagraph (a) [of the definition of environmental information] or the interaction between some of them. Accordingly […] the radiation from a base station falls within the meaning of the expression "environmental information"."[25]
> (Emphasis added.)

3.12 Therefore, what is environmental information relating to emissions is a broad test and would include information about emissions in to the air and atmosphere which merely affect the elements by passing through them.[26] This also includes the more general information about built structures, such as maximum power, operating hours, and who controls them, as this type of information has the necessary proximity to the nature of the emissions.[27] We have reviewed the spectrum information that we hold and identified information classified as environmental relating to emissions.

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23 http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/eirwhatisenvironmentalinformation.pdf

24 For a discussion of the Sitefinder case, please see Annex 9.

25 Paragraph 27 of the Information Tribunal's decision - http://www.informationtribunal.gov.uk/Documents/decisions/OFCOMvinfoComm_TMobile_4Aug07.pdf

26 There is a comprehensive discussion of this issue by the Information Tribunal and a summary of the arguments put forward in this respect at paragraphs 21 to 30 of its decision.

27 In this regard, we note the decision of the Information Tribunal that the names of the operators who own the mobile masts is environmental information relating to emissions. Not to consider otherwise would (para 31): "create unacceptable artificiality to interpret those words as referring to the nature and effect of radiation, but not to its producer."

3.13 In any event, the information identified would be more broadly environmental information as such built structures are part of the general landscape, as understood by Regulation 2(1) (a).

Figure 3.1: Information intended to be released under EIR

Licence class	Frequency	Antenna type
Licence number	Transmit area / station location(s)	Antenna angle of tilt
Licensee name	Class of emission	Antenna direction
Company number	Maximum / mean / minimum power	Antenna elevation angle
Licensee contact details / trade contact	Channel bandwidth	Antenna azimuth
Licence start date	Link end locations	Antenna gain
Licence expiry date	Length of radio path	Aerial height
Callsign	Station height above sea level	Antenna polarisation
Wind farm contact	Height of highest point above mean sea level	Antenna suppression
Station name / operator reference	Horizon elevation	Antenna reference code
Commencement date	Equipment code	Antenna feeder loss
Termination date	Transponder centre frequency	Antenna beamwidth
Timeslot base & mobile	Associated space station	Antenna radiation pattern
Service availability level	Satellite orbital location	Antenna system noise temperature, degK
Operating hours	Occupied bandwidth	Efficiency, %

Information not classified as emissions under EIR

Information already provided for most tradable Wireless Telegraphy licences

Information classified as emissions under EIR

How we intend to release this information

3.14 Under Regulation 4 of the EIR, we have a duty "to progressively make environmental information available to the public by electronic means which are easily accessible;

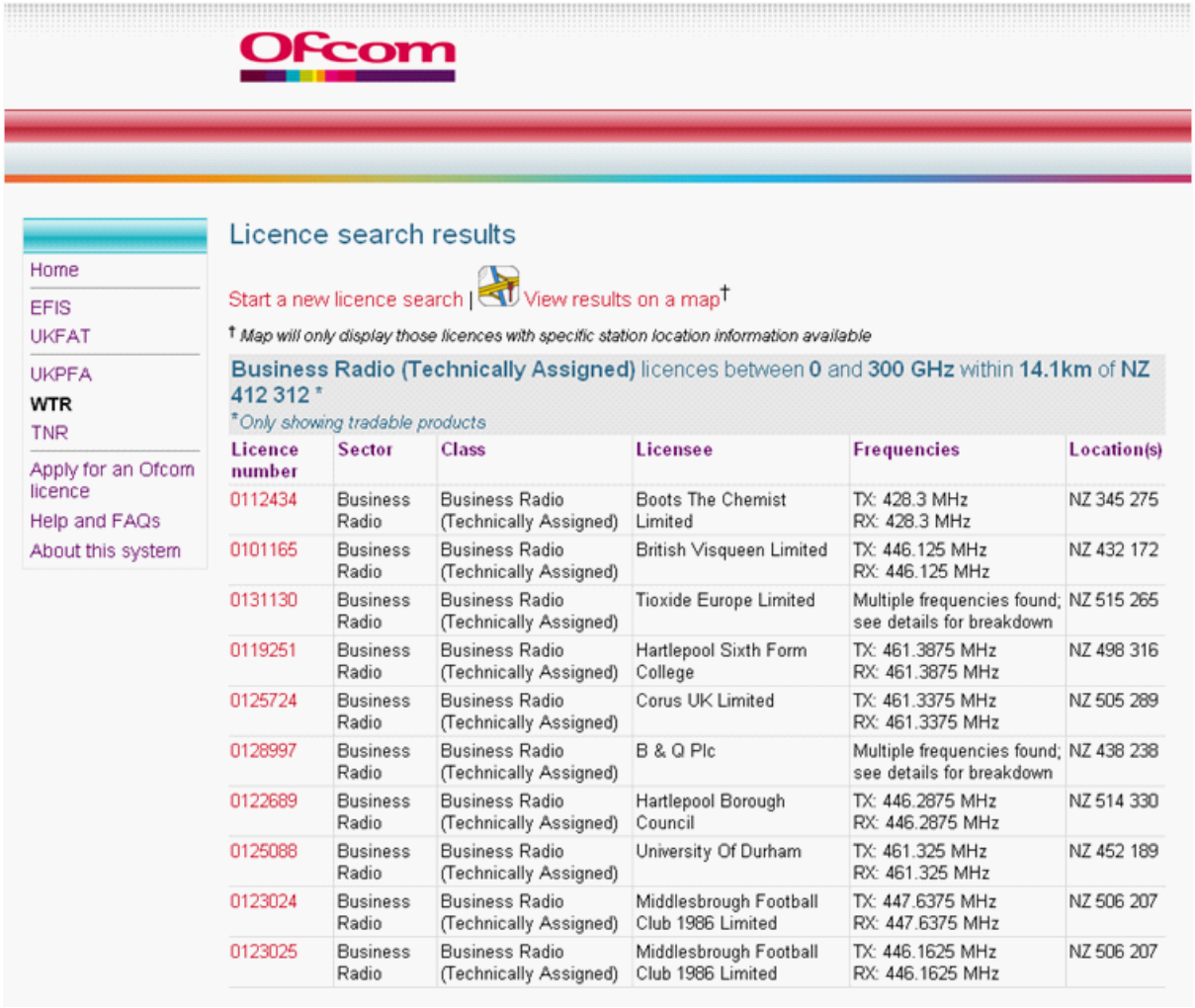
and to take reasonable steps to organise the information relevant to our functions with a view to the active and systematic dissemination to the public of the information".

How the information could be made available

3.15 We will look towards using the existing functionality of the WTR or a similar public register to provide this information. An approach based on the WTR would enable the public to access easily the information as required by EIR. Users would be able to define the search criteria in order to limit the information returned to the geographical area they wish to know about. This would not return a national database.

3.16 Any search would bring back a high level summary of the licence and could include licence holder name, licence class, frequency, power and transmitter location. Figure 3.2 provides an example of how the information may be presented.

Figure 3.2: Example of high-level information search return



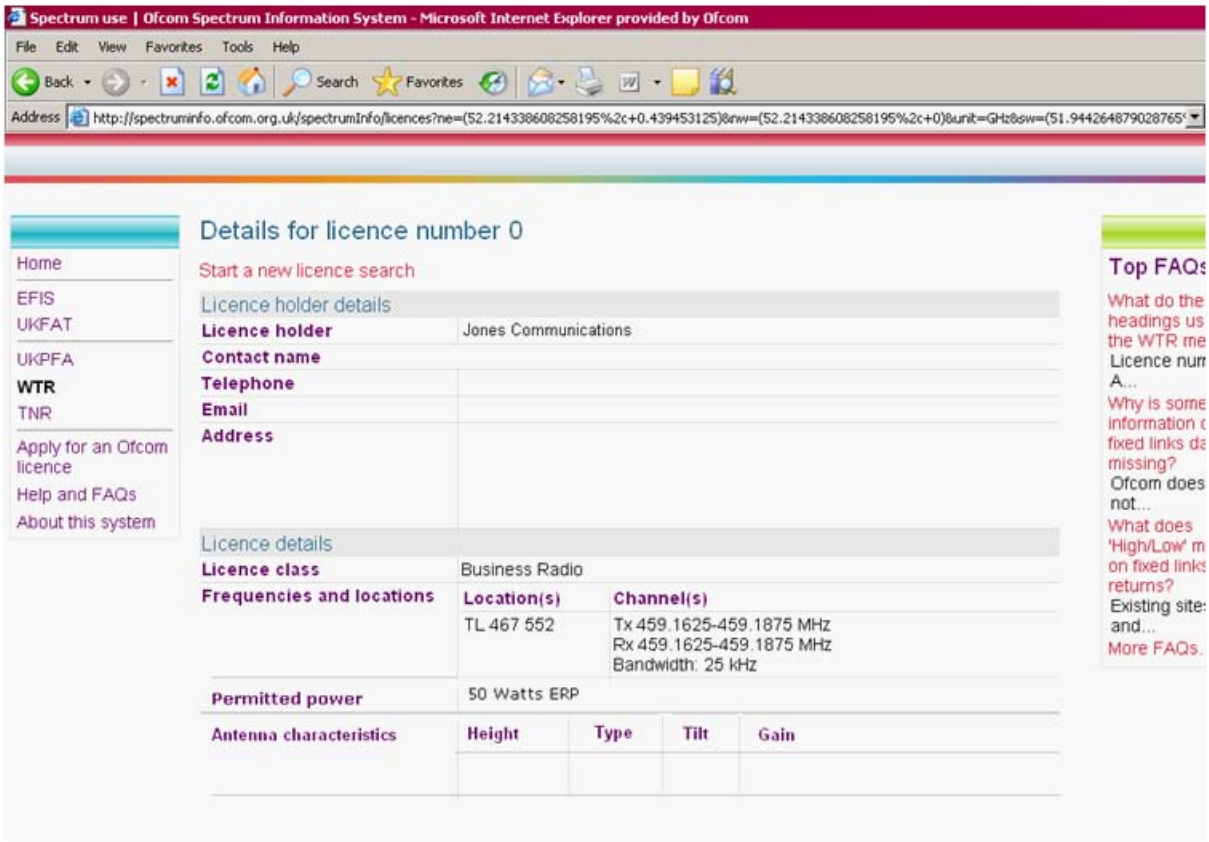
Licence number	Sector	Class	Licensee	Frequencies	Location(s)
0112434	Business Radio	Business Radio (Technically Assigned)	Boots The Chemist Limited	TX: 428.3 MHz RX: 428.3 MHz	NZ 345 275
0101165	Business Radio	Business Radio (Technically Assigned)	British Visqueen Limited	TX: 446.125 MHz RX: 446.125 MHz	NZ 432 172
0131130	Business Radio	Business Radio (Technically Assigned)	Tioxide Europe Limited	Multiple frequencies found; see details for breakdown	NZ 515 265
0119251	Business Radio	Business Radio (Technically Assigned)	Hartlepool Sixth Form College	TX: 461.3875 MHz RX: 461.3875 MHz	NZ 498 316
0125724	Business Radio	Business Radio (Technically Assigned)	Corus UK Limited	TX: 461.3375 MHz RX: 461.3375 MHz	NZ 505 289
0128997	Business Radio	Business Radio (Technically Assigned)	B & Q Plc	Multiple frequencies found; see details for breakdown	NZ 438 238
0122689	Business Radio	Business Radio (Technically Assigned)	Hartlepool Borough Council	TX: 446.2875 MHz RX: 446.2875 MHz	NZ 514 330
0125088	Business Radio	Business Radio (Technically Assigned)	University Of Durham	TX: 461.325 MHz RX: 461.325 MHz	NZ 452 189
0123024	Business Radio	Business Radio (Technically Assigned)	Middlesbrough Football Club 1986 Limited	TX: 447.6375 MHz RX: 447.6375 MHz	NZ 506 207
0123025	Business Radio	Business Radio (Technically Assigned)	Middlesbrough Football Club 1986 Limited	TX: 446.1625 MHz RX: 446.1625 MHz	NZ 506 207

Source: Ofcom

3.17 Further detailed environmental information (as outlined in Figure 3.3) on individual licences could be accessed via a summary link. For non-tradable licences we do not intend to publish personal contact information. This we consider will balance the

requirements of the EIR with any concerns raised by stakeholders on data protection issues and more generally (see Section 4 below for further discussion).

Figure 3.3: Example of detailed information search return



Source: Ofcom

Section 4

Exemptions from disclosure

Introduction

4.1 In complying with our statutory obligations to progressively make environmental information available, we appreciate that some stakeholders may have concerns about the release of this information. This section goes into greater detail relating to some of the issues that stakeholders may have and the limited options available for us not to disclose information.

4.2 We are aware that some stakeholders have expressed concerns about the publication of information relating to their spectrum assignments. We understand that it is necessary to strike a careful balance between making information available and protecting stakeholders within our statutory remit. As outlined in section 3, we are subject to a number of statutory obligations which we are required to comply with. For the information listed in section 3 there are exceptions that potentially apply to the release of this information.

EIR exceptions

4.3 In the same way as FOIA, the EIR allow exceptions to publication if certain criteria are met. Under Regulation 12 of the EIR, the exceptions to disclosing environmental information are:

(5) For the purposes of paragraph (1)(a), a public authority may refuse to disclose information to the extent that its disclosure would adversely affect –

(a) international relations, defence, national security or public safety;

(b) the course of justice, the ability of a person to receive a fair trial or the ability of a public authority to conduct an inquiry of a criminal or disciplinary nature;

(c) intellectual property rights;

(d) the confidentiality of the proceedings of that or any other public authority where such confidentiality is provided by law;

(e) the confidentiality of commercial or industrial information where such confidentiality is provided by law to protect a legitimate economic interest;

(f) the interests of the person who provided the information where that person –

(i) was not under, and could not have been put under, any legal obligation to supply it to that or any other public authority;

(ii) did not supply it in circumstances such that that or any other public authority is entitled apart from these Regulations to disclose it; and

(iii) has not consented to its disclosure; or

(g) the protection of the environment to which the information relates.

4.4 Where the environmental information relates to emissions, the exceptions are limited to only those set out at paragraphs a – c.[28] We consider the applicability of all of the exceptions below.

4.5 Also, we do not consider that any of the more general exceptions in Regulation12 (4) EIR apply. This is because we hold the information, it is not manifestly unreasonable to disclose, it is neither incomplete, unfinished nor relates to internal communications.

a) International relations, defence, national security, public safety

International relations

4.6 We do not consider that there will be any adverse affect on international relations from publishing all of the information set out in Table 3.1. Indeed, we note as set out at paragraphs 2.12 and 2.21 to 2.24 that much of this information is already available through the ITU-R and disclosed in other countries.

Defence and national security

4.7 We understand that a number of our stakeholders' radio systems play an important role in ensuring that national communication infrastructure is safeguarded and maintained. Radio is also used in many industries that provide key critical services in the UK. It has been stated by the Federation of Communication Services in relation to information concerning Business Radio users involved in national infrastructure that publishing data relating to transmitter locations could be a potential security risk at a time of heightened public awareness of terrorist and other attacks.[29]

4.8 Due to the sensitive nature of this information we take this matter very seriously and have been, and will continue to be, in dialogue with the Government on this issue. We do not propose disclosing information that is formally classified in accordance with Government security arrangements, as long as such security markings are objectively justified on grounds of national security. This said we do not currently consider that the disclosure of the information indicated in Table 3.1, in the form suggested, would adversely affect defence or national security.

4.9 We have no evidence that there is such a threat. Also, some of the information is already made freely available internationally and is provided in other countries, and this information provision has not adversely affected those countries' defence/national security. However, we acknowledge that information relating to certain sites may be excluded by this exception and we will evaluate any formal requests for such exception by Government.

Public safety

4.10 With the rising cost of raw materials it has been highlighted that the publication of transmitter information may lead to these sites being targeted by criminals for such things as their copper wire and equipment. In the Sitefinder case, evidence provided by T-Mobile showed that there are justified concerns about the activities of criminals

[28] Regulation 12(9) EIR.

[29] Response to Ofcom's proposals to make Wireless Telegraphy Regulations – Business Radio http://www.ofcom.org.uk/consult/condocs/busrad/responses/fcs.pdf

stealing materials from base station sites[30] which was accepted by the Information Tribunal.[31]

4.11 The Information Tribunal also accepted that there was a level of vandalism to such base stations and some instances of base stations being used to facilitate the transmission of pirate radio content.[32] Also, it was noted that the removal of, or damage to, materials forming part of a base station might make it a danger to the public and to the personnel of the companies, and that public safety may also be undermined if part of the mobile phone network fails as a result of criminal activity, so that either the Police and Emergency Services radio network or the UK Critical National Infrastructure were compromised.[33]

4.12 We note there is some merit to these arguments and (in the context of question 2 below) ask for evidence from stakeholders on this issue. However, we note that these arguments by T-Mobile were based on proposals to provide the *national* 2G/3G database, which could potentially make it easier to identify particular networks and target particular masts in a locality. We are not currently proposing to disclose any national datasets of the information identified and thus consider that any adverse affects would be lessened as a consequence.

b) The course of justice

4.13 We do not consider that the information that we are proposing to release will have an impact on the course of justice as it does not concern the course of justice or the ability of a person to receive a fair trial or the ability of a public authority to conduct an inquiry of a criminal or disciplinary nature.[34] The exemption exists to ensure that there should be no disruption to the administration of justice and no prejudice to the rights of individuals or organisations to a fair trial.

c) Intellectual property rights

4.14 In the Sitefinder case, it was accepted by the Information Tribunal that the Mobile Network Operators ("MNOs") own Database Rights in the database they send to us to populate the Sitefinder search engine and website.[35] The Information Tribunal found that to disclose information over and above what is already disclosed under the Sitefinder search engine would adversely affect their intellectual property rights i.e. their Database Rights.[36]

4.15 However, in relation to information set out in Figure 3.1, those who provide such information do not have Database Rights in the information as they do not provide a

[30] Paragraph 39 of Information Tribunal Decision http://www.informationtribunal.gov.uk/Documents/decisions/OFCOMvinfoComm_TMobile_4Aug07.pdf
[31] Paragraph 37 of Information Tribunal Decision
[32] Paragraph 37 of Information Tribunal Decision
[33] Paragraph 37 of Information Tribunal Decision
[34] http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/introduction_to_eir_exceptions.pdf
[35] Paragraphs 43 *et seq* of Information Tribunal Decision.
[36] Paragraphs 43 to 63 of Information Tribunal Decision.

database but single bits of information in a licence format required by us which are arranged in neither a systematic nor a methodical way.[37]

4.16 In any event, even if a database were generated by the provision of the information, there has been no "substantial investment" in obtaining, verifying or presenting the contents of the database. Among other things, those providing the information do not require investment independent of the resources required for their creation, nor is additional investment needed in the organisation and arrangement of the information.[38] Thus, no rights in the database have been created.

4.17 We also do not consider that the information provided to us is capable of attracting copyright protection or any other type of Intellectual Property Rights in that the information provided is not original (as required for such protection).[39] As mentioned above, the information provided to us is of a type and nature that is required by us to populate a spectrum licence. There is no independent creative effort in the way the information is chosen and entered. Indeed, it has been copied from the original licence format that we generated.

4.18 Even if the information were considered to be original, there has been insufficient skill and labour expended in its creation, as well as limited investment in generating the information, to provide that such 'originality' was a material consideration.

4.19 Finally, it is worth noting that this exception does not cover protecting confidential information, which was confirmed by the Information Commissioner in the Sitefinder case.[40/41] Therefore, only where the environmental information does not relate to emissions, can confidential information be excepted (and only then if it is not in the public interest to disclose).

4.20 We consider that the information set out at Annex 8, as indicated, concerns environmental information relating to emissions. In that any of the information does not relate to emissions, we set out below our consideration of the remaining exceptions.

d) & e) Commercial confidentiality

4.21 Some stakeholders have indicated to us that making available the details of transmitter locations and other technical information would show how networks are set up and may provide their competitors with a commercial advantage. They would be able to identify areas where coverage is limited or where expansion will be likely and focus their activities in those areas.

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[37] See further, Regulation 6 of the Database Rights Regulation 1997 (S.I. 3032) - http://www.opsi.gov.uk/si/si1997/19973032.htm

[38] For further reference, see *British Horse Racing Board v William Hill* Case C-203/02 [2005] RPC 260 and the subsequent Court of Appeal judgment [2005] EWCA (Civ) 863 - http://www.hmcourts-service.gov.uk/judgmentsfiles/j3280/bhb_v_williamhill.htm

[39] See section 1(1) (a) of the Copyright, Designs and Patents Act 1988, as amended.

[40] http://www.ico.gov.uk/upload/documents/decisionnotices/2006/decision_notice_fer0072933.pdf - at paragraphs 57 *et seq*.

[41] See also the Information Commissioner's guidance in this area at: An introduction to the EIR exemptions - http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/introduction_to_eir_exceptions.pdf

4.22 Another issue that has been raised is that providing the location of transmitters would enable competitors to identify another company's customers. This could enable a competitor to try to persuade them to change their supplier.

4.23 It is not clear that either of these points meets the test for the exceptions given that we do not intend to disclose the national dataset. In any event we are not aware of any evidence to suggest that this has happened in other countries when such information has been provided.

4.24 Regarding the second point, we would not publish details of a company's customers (unless they were also licensees). We propose only to publish the details of the licences of the transmitting company.

f) The interests of the supplier of information

4.25 This exemption was envisaged to apply where information was provided on a voluntary nature in the expectation that it would not be disclosed to a third party. As the information is a requirement of a WT Act licence application we do not consider that this exception applies for the information in Figure 3.1.

g) The protection of the environment to which the information relates

4.26 The aim of EIR is to increase the protection of the environment by ensuring access to information. An example of this exemption to disclose might be information relating to the nesting sites of rare birds whose publication could result in harm. We do not consider that this exception applies in that disclosure of the information will not adversely affect the environment.

Summary of EIR exceptions

4.27 In light of the points above, we do not consider that any of the criteria for refusing to disclose the information outlined in Table 3.1.have been met.

Question1: Is there information that we are planning to release that would be covered under one of these exceptions and if so what is the supporting evidence?

Public interest

4.28 Even where exceptions apply under EIR, any consideration of non-disclosure would also need to justify why it is not in the public interest to release this information. For example, we would need to assess the public benefits and costs that publishing this information may provide to inform our decision on whether non-disclosure was appropriate for each exception and in aggregate.[42]

4.29 We believe that there are a number of factors that need to be considered in relation to each exception and in aggregate when making any such decision. These include:

- General environmental interests;
- Supporting non-spectrum related planning processes; and
- Spectrum policy benefits.

[42] Paragraphs 42 and 42 - http://www.bailii.org/ew/cases/EWCA/Civ/2009/90.html

4.30 Our view, subject to this consultation and as discussed below, is that it is in the public interest when considered individually in respect of each exception or in aggregate to disclose the information.

General environmental interests

4.31 The public interest factors that are referred to in Council Directive 2003/4/EC on public access to environmental information,[43] which the EIR implements, include disclosing such information to provide for the greater awareness of environmental matters, a free exchange of views, more effective participation in environmental decision-making and a better environment, all of which we support in relation to spectrum information. Any proposal not to disclosure the information we have identified would need to be assessed generally against these factors.

Supporting non-spectrum related planning processes

4.32 In addition to radio planning considerations, a discussion of which is at paragraphs 4.43 to 4.45 below, the information in Annex 8 can also assist in other areas, In general, allowing access to site information may be beneficial to operators. As access to new transmission sites can sometimes be problematic, information on existing sites may be useful to identify sharing opportunities and expedite network rollout.

4.33 One example of the way in which the release of this information can be beneficial is in wind farm planning.[44] Although no specific statutory duty is placed on us in this area, we understand that the information we hold plays an important role in the procedures and processes concerning planning in these areas.

4.34 Fixed links operators' transmissions are affected by the rotating blades of a wind turbine. The release of this information would help developers to coordinate the siting of the turbines with fixed link operators to try to strike a balance between the benefits of the farms and the operation of fixed links. Enabling access to the information in Annex 8 could speed up the process of wind farm developers being able to contact the potentially affected operator(s) as they would not need to submit a formal request to us. In addition it would reduce the administrative burden on enquirers, operators and us in processing such requests as they may be able to avoid areas where there are high concentrations of fixed links. The public benefit of this could be a reduction in the time taken for wind farms to go through the planning process, which could reduce costs to many affected parties. This may enable consumers and citizens to benefit from the introduction of new sources of renewable energy and the associated environmental and economic benefits this may bring where these warrant any identified impacts on existing or prospective communications networks.

Spectrum policy benefits

4.35 Radio spectrum is an important asset to the UK economy. As mentioned, under the WT Act, we have a general duty to promote the "efficient use and management of the electro-magnetic spectrum for wireless telegraphy; and for connected purposes". In exercising our functions in relation to spectrum management (including our power to set licence fees), we are also required (under Section 3 (1) and (2)) to have regard to, among other things:

[43] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF
[44] http://www.ofcom.org.uk/radiocomms/ifi/licensing/classes/fixed/Windfarms/

(a) the extent to which the electromagnetic spectrum is available for use, or further use, for wireless telegraphy;

(b) the demand for use of the spectrum for wireless telegraphy; and

(c) the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy.

and the desirability of promoting:

(a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;

(b) the economic and other benefits that may arise from the use of wireless telegraphy;

(c) the development of innovative services; and

(d) competition in the provision of electronic communications services.

4.36 In order to encourage the efficient use of spectrum, we are increasingly relying on mechanisms such as auctions and trading. To maximise the value created by the use of radio spectrum we are extending opportunities to trade within a more liberalised spectrum environment while at the same time protecting existing users from harmful interference. We consider that value will be maximised by encouraging innovation, by removing barriers to entry for new technologies and by minimising the time that spectrum lies unused. In addition, we consider that efficiency can be promoted by setting spectrum fees with desirable incentive properties.

4.37 We consider that there are spectrum policy benefits from releasing the information in Figure 3.1. These include benefits from:

- Supporting the spectrum market; and
- Facilitating spectrum planning and co-ordination.

Supporting the spectrum market

4.38 The Spectrum Framework Review (SFR) concluded that spectrum is managed most effectively if the market is allowed greater influence over how spectrum is used. Trading allows licences to be transferred to users who can make better use of them. This lowers barriers to accessing spectrum, promoting competition and innovation. Consumers benefit through lower prices and increased choice with new services and technologies being introduced more quickly. Businesses benefit from being able to take advantage of the resulting opportunities to provide radio-based services and from the greater competitiveness that new technologies can enable.

4.39 In December 2004 we introduced spectrum trading for a limited number of licences. This has enabled stakeholders to buy or sell “rights of use” of that spectrum with the price for such rights of use being determined by the market. Since then we have progressively increased the number of licences which can be traded. From December 2008 with the introduction of spectrum trading to most Business Radio licence classes over 90,000 licences are now tradable. Current tradable WT Act licences are listed in Figure 4.1.

Figure 4.1: List of tradable Wireless Telegraphy Act licences

Business Radio	Fixed Links	Spectrum Access
Area Defined	Point to Point Links	412–414 and 422-424 MHz
Technically assigned	Scanning Telemetry	542-550 MHz (Cardiff)
Simple Site	70-80 GHz Self Coordinated Links	758-766 MHz (Manchester)
Simple UK		1452-1492 MHz (L Band)
Suppliers light		1781.7-1805 MHz and 1876.7-1880 MHz (GSM/DECT guard bands)
		10, 28,32 and 40 GHz

Source: Ofcom

4.40 We currently limit the publication of information on frequency and site location for some Fixed Links licences displayed on the WTR. In our 2004 consultation on spectrum trading[45] we stated that information on the geographic location of Fixed Links would not be published on the WTR, at least during the first year of trading. This decision was intended to take into account issues raised by stakeholders in that consultation. As this information falls under EIR we do not consider that the current policy of non-disclosure is in line with the legal requirements placed on us. We therefore propose stopping this practice of non-disclosure and treating these licences the same as all other tradable licences.

4.41 The establishment of a successful market for spectrum, as for any other market, depends crucially on the provision of information so that prospective purchasers are aware of assignments that are potentially available. Up to now we have provided information via the WTR, which provides some information relating to the "rights of use" owner, contact details, licence type, frequency allocation and transmitter location.

4.42 However, this information is limited. Thus further publication will help to enhance the information available to prospective purchasers enabling more efficient and effective trading and enhancing the prospect of innovative services. Section 5 sets out the general benefits of information provision in more detail.

Facilitating spectrum planning and co-ordination

Spectrum planning

4.43 For some licence classes we carry out a limited co-ordination and planning role. Typically, for these licence classes, we receive applications for assignments and then co-ordinate them to ensure that they do not cause interference to other licensees. Thus, without co-ordination, spectrum users may find that their use of spectrum is limited creating a detrimental impact on the services they provide to consumers.

[45] http://www.ofcom.org.uk/consult/condocs/spt_wtr/2spt_wtr/statutory_consult_on_regs.pdf

4.44 The application process for a licence can sometimes be problematic as an applicant may not be aware of other users and therefore the request may cause interference to another user. For example, when considering an application for a Fixed Link we need to ensure that the path of the link does not intersect the path of another Fixed Link or a Satellite Uplink. In cases where this happens the applicant would have to resubmit their request or we would negotiate with them to find the best solution.

4.45 We consider that this problem could be significantly reduced by publishing more technical information, especially concerning transmission site locations. By making this information on all transmission sites available this would help spectrum planners to identify other spectrum users and modify their proposals before approaching us. We consider that giving stakeholders the opportunity to accurately pre-plan their assignments with greater certainty. This could speed up the time taken to process licence requests and reduce administration costs for both the applicant and us. The benefits to citizens and consumers of streamlining this procedure are likely to come from reduced prices for services as costs incurred by spectrum users are reduced.

Self co-ordination

4.46 As we continue to develop our approach to spectrum licensing we have introduced a number of light-licensed classes (e.g. 5.8 GHz and Self co-ordinating Fixed Links). One of the requirements for these classes of licence is that they register the location of their transmitters. This is mainly to protect the primary user of those spectrum bands so they can locate any potential causes of interference. These are a step towards licence exempt usage as they do not offer any protection from other legitimate users of the spectrum.

4.47 Whereas for most types of licences we carry out technical co-ordination to ensure that the licensee does not suffer from interference, holders of light-licences must liaise with other users to resolve any issues of interference. This we call self co-ordination. Without access to information relating to their surrounding neighbours, they are unable to do this. This costs stakeholders in loss of services for themselves or their customers and time needed to try to locate the problem and ascertain whether the interference is from a legitimate user. We also incur a cost as, to try to identify the source of interference without the availability of information, the licensee must come to us to try to locate the surrounding licensed terminals which we are unable to currently disclose. This has required in some circumstances a visit from one of our engineers in order to try to resolve the problem. As the number of licences and registered terminals increases then so does the likelihood of this problem getting worse.

4.48 The transmitter location information is only available for some of these licence classes. At present stakeholders do not have access to information on 5.8 GHz terminals registered by others in their surrounding area. This leaves them unable to identify potential sources of interference and resolve the issue. We intend as part of this exercise to make available a list of all registered terminals in order to assist users to coordinate with each other. As the use of these services increases then the need for greater co-ordination with other spectrum users become more important. In order to do this the information needs to be made freely available to users.

4.49 To help reduce the risk of interference we provide for some licence classes a limited amount of information on the technical specification of the site. An example of this is the ‘colour code’ allocation for Business Radio users displayed in the WTR. By providing this information upfront, stakeholders are able to ensure that they do not

choose the same channel access code as one of their neighbours. This mitigation technique prevents interference and ensures efficient use of the radio spectrum.

4.50 Enabling greater self co-ordination between radiocommunications providers should provide benefits to industry, citizens and consumers. Many of these services are used for the provision of communication networks that provide broadband services, especially in rural areas where copper-based broadband services are limited. By reducing the risk of interference this should help operators to offer more reliable services to their customers. Industry, consumers and citizens benefit from being able to take advantage of the resulting opportunities to access services and from the greater competitiveness that new technologies can enable. *Supporting Spectrum Usage Rights*

4.51 In April 2006 we published a consultation looking at introducing a new way of defining spectrum users' transmission rights.[46] This is based on interference limits and is called Spectrum Usage Rights (SURs). SURs place only those restrictions on licence holders that are needed to protect neighbours and no more while at the same time they provide certainty to neighbours as to the maximum levels of interference that they can expect. An SUR-based licence would specify the maximum level of interference that can be caused, rather than the power that can be transmitted sinc*e this directly controls the prob*lem rather than indirectly and inaccurately.

4.52 SURs provide much greater certainty for operators that the network they have paid to deploy will not suffer reduced capacity or need expensive reengineering as a result of neighbours changing their usage, while at the same time ensuring their investment in a licence will not become stranded due to licence restrictions as technology evolves. This could help ensure that operators are able to limit costs and deploy new services to citizens and consumers more quickly.

4.53 For this type of licence users would then be able to negotiate with their neighbours to change these limits. The main benefits of allowing neighbouring SUR holders to negotiate between themselves any changes of their use of spectrum come from the ability to use spectrum for new innovative applications more widely and more rapidly than would otherwise be possible.

4.54 To enable users to negotiate and agree new terms of their SUR licence, licensees would need to identify their neighbours by both geography and frequency. This raises a number of issues as the information provided through the current WTR may not be sufficient to enable them do this. The WTR only provides frequency and location information for tradable licences. It does not provide any information on non-tradable licences and information that would enable the enquirer to understand the transmission boundary limits of its neighbours.

4.55 This process could be made much easier if information on affected parties was to be made available along with some indication of their current 'rights' of operation. By providing information on all neighbours and technical conditions, enquirers would have a better understanding of who they need to contact and the impact of their proposal on the affected parties. This would aid negotiations, as all parties would have access to the same information.

4.56 Citizens and consumers could benefit through lower prices and increased choice with new services and technologies being introduced more quickly. Businesses benefit from being able to take advantage of the resulting opportunities to provide radio-

[46] http://www.ofcom.org.uk/consult/condocs/sur/spur.pdf

based services and from the greater competitiveness that new technologies can enable. Again, we consider that this would be in the public interest.

4.57 For the reasons set out above when considered for each exception or in aggregate we consider that publication of the data in Figure 3.1 would be in the public interest.

Question 2: Is there information that we are planning to release that would not be in the public interest to do so looking at each exception individually and then in aggregate and if so what is the supporting evidence?

Section 5

Non-EIR information

Introduction

5.1 In the previous sections of this document we have focused on information that we are required to disclose under EIR. In this section we are seeking views on the more general issues relating to our provision of spectrum information and where it could be improved. This section discusses the legal means by which information can be published and how requests for additional information are currently evaluated; considers the benefits and costs of providing additional spectrum information relating particularly to promoting the optimal use of spectrum, encouraging innovation and research and supporting the spectrum market through trading; and asks stakeholders whether such information is both useful and cost-effective to provide.

5.2 We should be clear that we are not making any proposals at this stage. We are simply seeking views in order to help to develop our thinking. Having considered these views, if appropriate we would consult on any specific proposals in the future.

Legal instruments for collecting and publishing information

5.3 Under the WT Act we have powers to collect and publish information. In relation to the collection of information, under Section 32 of the WT Act ("Section 32"), we have powers to require the provision of all such information that relates to the establishment, installation or use of a station or apparatus and any related matters that we need for statistical purposes. For any such demand for information, we must set out the reasons for requiring the information and the statistical purposes it is required for. It must also be proportionate to the use to which we will put the information.

5.4 Section 111 of the WT Act places a general restriction on the publication of information concerning a particular business without its consent. EIR overrules this in relation to environmental information,[47] and Section 31 of the WT Act ("Section 31") enables us to make regulations to establish and maintain a register of relevant information. Information that is relevant is described in Section 31 as information that relates to the grant, renewal, transfer, variation or revocation of a wireless telegraphy licence or grants of recognised spectrum access.

5.5 Any additional information relating to spectrum that stakeholders consider would be of benefit if it were to be provided would need to satisfy the statutory obligations placed on us prior to being released. It is in this context that the following questions should be viewed.

Improving our current provision

5.6 As discussed previously, we already make a wide variety of spectrum information available through our website (see Figure 2.1). However we are keen to ensure that this information is provided in a useful format and is easy to access for stakeholders, citizens and consumers. We would welcome comments regarding the way in which we provide information or whether any information that we provide is no longer needed.

[47] See Regulation 5 (6) EIR.

5.7 We are also interested in comments concerning whether the information that we provide on a particular market/sector/band is relevant and meets users' requirements, in particular relating to the following areas:

- Promoting the optimal use of spectrum;
- Encouraging innovation and research; and
- Supporting the spectrum market through trading.

Question 3: We would welcome comments and views on the information we already make available, in particular areas where stakeholders believe this could be improved.

Evaluation of additional information

5.8 We consider that the majority of requests for the supply of additional information on spectrum are likely fall into two main categories:

- information we hold but do not currently publish; or
- information we do not hold.

Spectrum information that we already hold but do not currently publish

5.9 Our default position on spectrum related information that we hold is to publish information wherever possible, consistent with our functions and duties, including our obligations under EIR/FOIA (where relevant) or Section 31.

Spectrum information that we do not hold

5.10 In this context, we are seeking views as to whether there is any additional spectrum related information we should publish but currently do not hold (e.g. information not contained in Figure 2.1 or Annex 8). For the purposes of this consultation, we first aim to raise this issue in general terms. We would then need to consult on any specific proposals in this area to require the provision of certain information. We need to ensure that any requirement to collect information is consistent with our functions and duties, including Section 32.

5.11 We propose that the information gathered under Section 32 would likely be of a general nature or aggregated. If we considered that the publication of any information under section 31 that concerned a particular business would be of benefit, we would likely approach the licensee to ask permission in the first instance to release the information.

5.12 As well as information that we can collect from licensees we are also conscious that information can be obtained from other sources. As advised previously, we also carry out and commission research in technical, market and consumer areas. We could consider extending our work in these areas in order to provide further information relating to spectrum. We would need to justify the benefits before making any such commitment. As well as our providing information, by highlighting the communications sector's information needs, this may provide third parties with an opportunity to supply this to the market.

Benefits and costs of providing additional information

5.13 There could be some information that industry, citizens and consumers may want access to but that is not currently available. This could be due to the information that we hold not being published or that we do not currently hold or collect it. As such we would welcome views on what additional spectrum information would be useful for us to provide and why.

Promoting the optimal use of spectrum

5.14 As discussed in section 4 (paragraphs 4.43 to 4.45), information released under EIR may help operators to co-ordinate their networks with others in order to operate more efficiently, which would also help to reduce costs for both stakeholders and ourselves.

5.15 For example, we are required to carry out a co-ordination and planning role for some licence classes. This is needed to prevent undue interference to other licensed users. If an application would cause undue interference it is declined and would need to be amended. Providing information to enable stakeholders to pre-check applications should reduce the number of failed applications, speed up the process and reduce the associated processing costs, both to the applicant and us.

5.16 In addition, as discussed in paragraphs 4.46 to 4.50, self co-ordination is becoming increasingly important with the increase in the number of 'light-licensed'[48] products available, for example the 5.8 GHz range and the licensing of spectrum usage rights (SURs). In order for these to be as effective as possible stakeholders need access to information about other registered users in the surrounding area. Without access to this information problems – including loss of services for themselves or their customers, time needed to try and locate where the problem lies and trying to ascertain whether the interference is from a legitimate user – can occur.

5.17 It appears that there are a number of potential cost savings and efficiency benefits in allowing stakeholders access to information to co-ordinate more effectively.

Question 4: We are interested in the views of stakeholders on what information in addition to that contained in Annex 8 they think would help to ensure optimal use of the electro-magnetic spectrum, and on the impact the disclosure of this information might have on licence holders.

Innovation and research

5.18 One of the duties that we have been given under Section 3 (2) (c) of the WT Act is to promote the development of innovative services. As stated in paragraph 2.7 we publish a wide variety of information on the current regulatory framework and technical conditions that equipment must comply with. We continue to look at ways to improve our information provision to support this duty.

5.19 For example we are currently looking at new ways in which we can license innovative commercial uses of non-liberalised and non-tradable spectrum. Our proposals were outlined in our consultation *Innovative uses of spectrum* that closed on 18 December 2008.[49] The consultation proposed a new type of licence that would enable new innovative services access to public managed spectrum (e.g. Ministry of Defence).

[48] The holders of these licences are offered no protection from interference from other licensed users.
[49] http://www.ofcom.org.uk/consult/condocs/ius/main.pdf

The licence would provide a streamlined and efficient approach that would allow operators to deploy their services in areas they would not have otherwise been able to access. We published an interim statement on this issue on 25 June 2009.[50]

5.20 To help industry and our decision making process, in accordance with our statutory functions, we commission a variety of studies[51] looking at ways in which we can encourage and develop innovative use of spectrum.

5.21 More open access to information could encourage a wider range of studies to be carried out and may enable third-party providers to develop innovative services and use the information in different ways. Research plays a key role in helping us formulate our decisions as they need to be evidence-based and transparent. It also opens up the opportunity for specialist providers to offer spectrum users assistance in areas such as network planning, software tools and technology development. By encouraging research and innovation we hope to expand the opportunities for industry, citizens and consumers through better use of the radio spectrum.

5.22 We regularly publish market reports for a number of sectors that we regulate. These reports provide industry, citizens and consumers with information relating to the key trends and information on what is happening in the sector.[52] By using our powers under Section 32, it could be possible for us to provide more information in this way relating to the spectrum market.

Question 5: We are interested in views regarding the areas where we should look towards focusing future research and studies on, and the benefits this will bring to industry, citizens and consumer? What information could we provide to encourage innovation and research?

Spectrum Trading

5.23 In the SFR we concluded that spectrum is managed most effectively if the market is allowed greater influence over how spectrum is used and that this would be achieved through spectrum trading and liberalisation.

5.24 For example, trading allows licences to be transferred to users who can make better use of them. This lowers barriers to accessing spectrum and promotes competition and innovation. Consumers benefit through lower prices and increased choice with new services and technologies being introduced more quickly. Businesses benefit from being able to take advantage of the resulting opportunities to provide radio-based services and from the greater competitiveness that new technologies can enable. As such, any impediments to trading such as those found through information asymmetry or transaction costs can have a negative impact and may lead to market failure.

5.25 Markets work best when participants are fully informed about what they are buying. If this is not the case, then incorrect or inefficient decisions/trades can be made.[53] For

[50] Innovative uses of spectrum – Summary of consultation responses and next steps. http://www.ofcom.org.uk/consult/condocs/ius/statement/statement.pdf
[51] http://www.ofcom.org.uk/research/technology/research/
[52] http://www.ofcom.org.uk/research/
[53] An efficient decision is where a consumer who values the good or service equal to or at more than its price consumes the good or uses the service. Thus an inefficient decision is where this does not occur. One cause of this is incorrect information about the actual price.

example, in its *Principles for Promoting the Efficient Use of Spectrum by Encouraging the Development of Secondary Markets,* the FCC noted that:

> *"Certain essential elements need to be present for a market system to operate most effectively these include: 1) clearly defined economic rights; 2) full information on prices and products available to all participants; 3) mechanisms for bringing buyers and sellers together to make transactions with a minimum of administrative cost and delay; 4) easy entry and exit to the market by both buyers and sellers; and 5) effective competition, with many buyers and sellers." (FCC, 2000, para 17)*[54]

5.26 There are a number of reasons why market failure may occur. The ones that appear particularly relevant to the provision of information for spectrum trading include:

- information asymmetry; and
- transaction costs.

Information Asymmetry

5.27 When participants in the market do not have full (including understandable) information about goods or services, it is likely that incorrect decisions will be made, which in turn leads to inefficient outcomes. This lack of information is often caused by the asymmetric nature of the market, i.e. that one party (e.g. the holder of the spectrum) has access to better information than another.

5.28 For example, lack of information could act as a particularly strong impediment to trade in markets where trading has just been introduced. This is because market participants may have very uncertain information as to the value or use of that spectrum. Allowing buyers and sellers access to information on previous transaction details would provide the market with an idea of the market price for spectrum as well as how best the spectrum could be used.

5.29 There may be many sources of information, some of which will be unavoidably imperfect. However, it is likely that some sources of information could, at least in part, be improved and so, in turn improve the markets' efficiency. This is especially important if markets are naturally "thin" – i.e. there are very few transactions and, hence, available (especially price) information may be limited and not particularly precise. This can create a vicious circle in which the lack of information prevents trades and the lack of trades prevents information to the market.

5.30 In the absence of sufficient information two types of harm could emerge:

- Efficient trades may not occur; and
- Incumbents may be favoured because they are likely to enjoy an asymmetric information advantage when facing new entrants. In other words, the unavailability of information may deter trade, leading to reduced entry and less competitive retail markets for services that make use of spectrum.

[54] The Senate is now considering (via the Radio Spectrum Inventory Act) whether the FCC's own current approach contains these essential elements.

Transaction costs

5.31 Transaction costs are the costs of organising and transacting exchanges, i.e. trading with others. If these costs are very high it may result in the market failing to produce the goods or services required, i.e. that they can create a barrier to entry (or switching). These costs can take a variety of forms, including search and information costs (particularly relevant here), bargaining costs, policing and enforcement costs and the costs of writing contracts.

Determining the impact of information provision

5.32 The SFR Statement set out an approach to determine the costs and benefits of our market-based approach based on a study produced for the European Commission.[55]

5.33 The study for the Commission concluded that there are powerful synergies between trading and liberalisation and estimated that benefits from both are over 9 times the benefits from trading alone. The study also estimated that the costs, mainly from additional interference management, amount to less than 1% of the benefits relative to the status quo. Overall benefits for the EU as a whole were estimated at €9bn a year. Thus any barriers that distort trade will have a significant impact.

5.34 As a result secondary trading of spectrum is an important mechanism for parties to optimise their spectrum holding and realise these potential benefits. However, as discussed the emergence of efficient spectrum trading depends on the extent to which both current and prospective spectrum owners have the information they need about spectrum in the market and the uses to which it is being or can be put. A lack of this information can result in market failure which impacts on spectrum efficiency.

5.35 The benefits described in paragraph 5.33 relate to those derived from synergies between trading and liberalisation. As such it is not possible to evaluate the extent of benefits that will come specifically from improved spectrum information provision. However, if providing additional information helps to facilitate trading, increasing efficiency in the market, then some incremental benefits will accrue.

5.36 As such, we are interested to find out from stakeholders the type of information they consider to be needed in order to be able to trade efficiently and effectively and any possible issues this may raise. Some initial thoughts are discussed below.

Price Information

5.37 In many markets, information about prices, volumes and other terms of previous trades supplies the buyer and seller with an indication of the appropriate price to pay. However, although since 2005 we have progressively made it possible for licensees to trade spectrum licences in the secondary market, because of the limited number of trades, as well as lack of published information on previous trade prices, it is less likely that buyers and sellers are able to estimate the value of spectrum appropriately. The limited number of trades has been partly due to few licences being in areas where access to free spectrum is limited and where trading is the best way for companies to access spectrum.

[55] Report by Analysys, DotEcon and Hogan & Hartson, 'Study on conditions and options for introducing secondary trading of radio spectrum in the European Community', published by the EC on 25 May 2004. Available at http://www.dotecon.com/publications/secontrad_final.pdf

5.38 As such, one way of correcting these issues would be to publish pricing data, by requiring licensees, who have obtained their licences through trading, to state what they paid for them. In order to do this we would need to amend the Wireless Telegraphy (Spectrum Trading) Regulations 2004[56] adding in a new provision into the transfer procedure regulations. This information could potentially be useful to both us and spectrum users. However, we note that we need to consider the potential impact on competition of this proposal.

5.39 We periodically review spectrum pricing for particular bands or uses and knowing how much a particular sort of licence has changed hands for could inform our assessment of the opportunity cost of a band, in a similar way to the outcomes of spectrum auctions. It could therefore help us in considering whether the AIP-based licence fee we charge is set at the right level. Knowing whether licence fees are at the right level is particularly important in situations where we have trading and AIP together as AIP set too high could deter trading.

5.40 We are currently conducting a Strategic Review of Spectrum Pricing (SRSP),[57] which is considering our current pricing policy and methodology along with an assessment of the priorities for fee rate review. The SRSP will consider both fees based on AIP and administrative fees based on cost recovery. Relevant issues and responses to this consultation will be taken into account in framing of the SRSP consultation proposals.

5.41 For stakeholders, as discussed above, understanding the “market price” for the spectrum they are interested in is likely to result in more efficient trading, particularly reducing the information asymmetry they face as well as the transaction costs of negotiation between buyer and seller, including the time taken. However, it needs to be recognised that the benefits these will only be realised if there is demand for greater information and a willingness of users of spectrum to use the information.

5.42 The above discussion has focused on why information provision is important in creating an environment for efficient trading i.e. to reduce the risk and impact of market failures. However, there are also issues associated with the provision of information both for companies required to provide this information and for the regulator in collecting, monitoring and publishing such information. As such, we would be interested to hear views on how easy it would be for businesses to provide this information, how much would it cost and whether there are any commercial confidentiality issues in providing such information.

5.43 For example if a licence changes hands as part of the sale of a business, and the licence itself is not a key element of the value of the business, then it may not have been valued and priced for itself, within the agreed sale price. In the case of small and medium-sized enterprises, or where a licence is a relatively small part of the business’ assets, it might involve disproportionate effort and cost for the purchaser to value the licence, so this information may not exist.

5.44 This might even be the case when the licence is essential to running the business, for example, a private hire car firm using a business radio licence. If it was open to the new business owner to apply to us for a new licence with the same characteristics and at the same location, the choice to buy the licence may simply reflect the purchaser’s administrative preference to enact a trade, rather than make a new application. In such a case, the value of the traded licence is likely to indicate

[56] http://www.opsi.gov.uk/si/si2004/20043154.htm
[57] http://www.ofcom.org.uk/radiocomms/ifi/srsp/

only the purchaser's relative administrative saving. Thus it may be the case that the same "price" is paid depending on whether it is purchased in a primary or secondary market. As for licences with a low value relative to the business, this may be so small in the scale of the purchase that it was not separately valued as part of the agreed price.

5.45 In both of these examples the cost of providing the specific value to us may be disproportionately high. One way to try and mitigate costs would be if businesses could provide an estimate based on a range of values, similar to that set out in a consultation by the Australian Communications and Media Authority on spectrum trading and how it could be improved.[58] This used a check-box for price information where the price of the trade fell into different categories. For example less than £100, £100-£1,000 etc. We note that the usefulness of such a system will depend on the size of the bandwidths and there is likely to be a trade off between the narrowness of the bands versus the accuracy of the data.

5.46 A further issue regarding publishing price information is that it could, under certain conditions, make collusion[59] easier, i.e. increase the ease by which firms can co-ordinate their behaviour. In order to assess whether publication of prices is likely to encourage such collusion, how the market operates is important.

5.47 For example we would need to assess the nature of how trades are placed. In this market, trades tend to be placed on an occasional basis and at different points in time, with possibly large time lags between trades. In addition, such trades are heterogeneous where each allocation of spectrum is different, in that no two allocations can occupy the same frequency at the same location and different types of services can be offered on the spectrum.[60]

5.48 Thus, although price publication could increase transparency in the market enabling competitors to monitor each other's behaviour, because of the nature of trading it is unlikely that collusive behaviour would be able to be sustained in practice. This is because of the limited number of trades and the time lags between them, making punishment to those that deviate from the agreement difficult. Further, due to the heterogeneity of the spectrum, new entry is more likely to be able to occur, particularly where new technology is available, undermining a collusive agreement.

Question 6: Would stakeholders find information on the price paid for a traded spectrum licence useful and believe that we should make the provision of this mandatory?

Question 7: If yes, what would be the most appropriate way for us to collect these data, for example asking for the specific value, using a check-box system? In what format should information be provided, for example displayed in aggregate format?

[58] Spectrum Trading: Consultation on trading and third party authorisations of spectrum and apparatus licences' Australian Communications and Media Authority, published 18 March 2009. Available at http://www.acma.gov.au/webwr/_assets/main/lib310771/spectrum_trading.doc.

[59] Collusion is an agreement between parties to refrain in participating in an activity that they normally would in order to reduce competition and gain higher profits. Collusion is prohibited under competition law – Chapter 1 of the Competition Act 1998 and Article 81(1) EC Treaty.

[60] For protected licensed spectrum, licence exempt and light-licensed products could operate but would be suffer from interference.

Question 8: Do you have any views about the regulatory burden that this would place on the parties involved in a trade, for example would the cost of providing information be prohibitive? Do you have any concerns about the confidentiality of this data?

Other Information

5.49 Information relating to how spectrum is used and its quality also plays a part in decisions relating to whether to purchase or trade spectrum. The degree to which the spectrum is being "polluted" by interference from sources such as unwanted emitters will impact on decisions to trade. We have been conducting studies in this area.[61]

5.50 One study undertaken by CRFS on behalf of Ofcom looked into the value of capturing spectrum utilisation information using vehicles.[62] The study lasted five months and covered frequency ranges from 10 MHz to 5 GHz. The study provided a wide range of information and enabled us to see the general level of spectrum usage throughout the UK and was one of the first opportunities that citizens and consumers had access to such information. The report concluded that access to this information would provide an accurate indication of average spectrum usage across the UK and would help us in the formulation of policy, enforcement and assist spectrum trading. The cost of deploying such a system was estimated at a capital/start-up cost of £2.26m and annual running costs of £2.11m.[63] Providing information on spectrum utilisation could help licensees estimate the value of their spectrum based on its scarcity.

5.51 We also hold a limited amount of information on how spectrum is used, gathered from thirty-five unmanned monitoring stations (UMS) operated by our Field Operations team. Public access to this information is not currently available. Usage information allows us to understand how intensively the spectrum is being used, helping us to judge, for example, whether spectrum is becoming congested or whether the basis on which we have made assignments is not in line with actual usage.

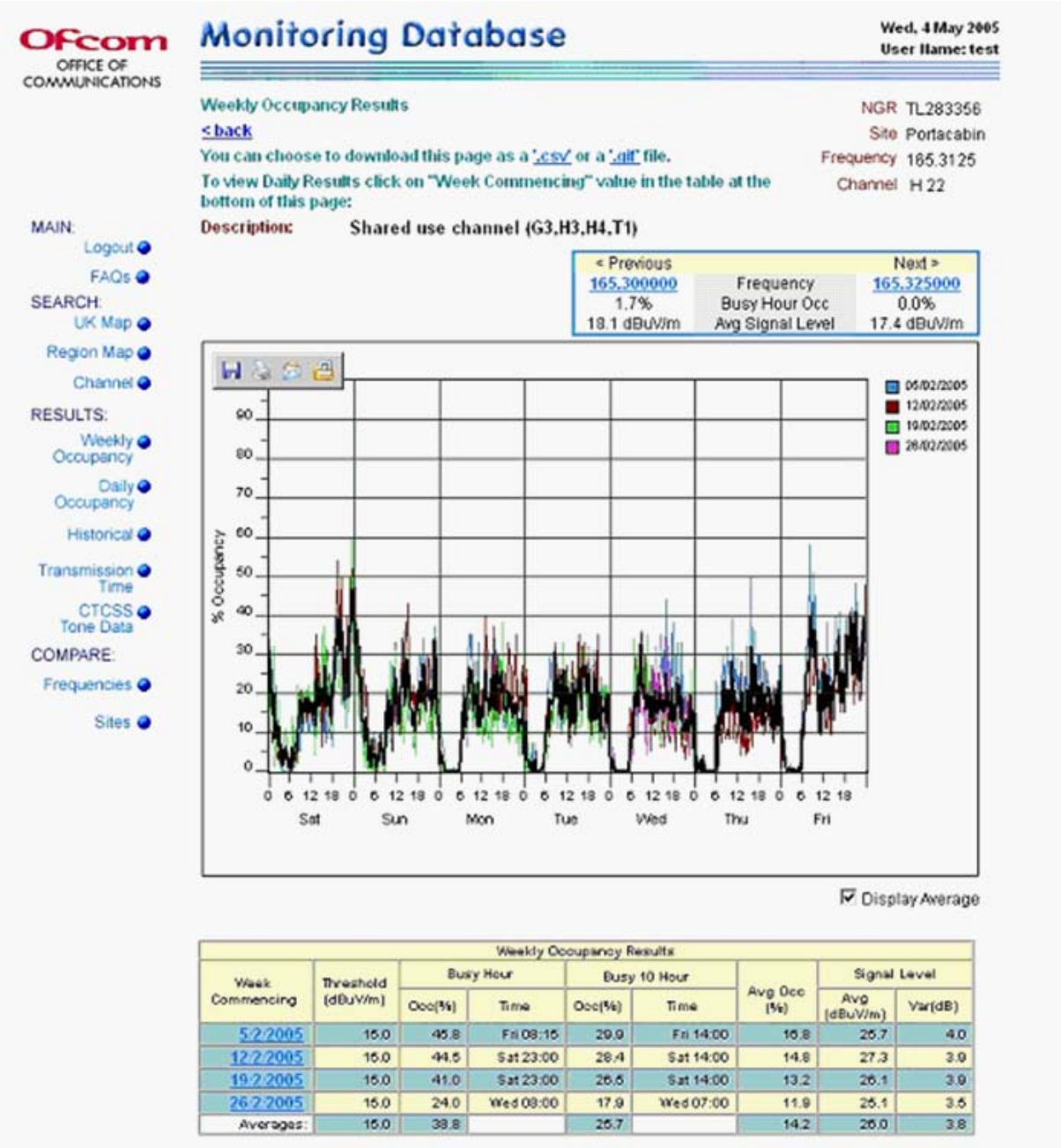
5.52 The UMS's are remotely configured by our monitoring unit at Baldock to collect data primarily on the base station transmit frequencies in the Business Radio bands. Typically frequencies in the 81-84, 85-87.5, 163-171, 177.2-184.5, 201.2-207.5, 440-443.5, 445.5-450 and 453-457 MHz bands are monitored. The data collected by each unit is downloaded overnight and automatically entered into a central database. This information can then be accessed and shows the occupancy of the radio spectrum surrounding the station. Figure 5.1 shows an example of the information provided by the UMS.

[61] http://www.ofcom.org.uk/research/technology/research/state_use/

[62] Capture of Spectrum Utilisation Information Using Moving Vehicles http://www.ofcom.org.uk/research/technology/research/state_use/vehicles/vehicles.pdf

[63] £2.11m from Section 4 on the business case for continued deployment.

Figure 5.1: Example of occupancy data



Weekly Occupancy Results

Week Commencing	Threshold (dBuV/m)	Busy Hour		Busy 10 Hour		Avg Occ (%)	Signal Level	
		Occ(%)	Time	Occ(%)	Time		Avg (dBuV/m)	Var(dB)
5/2/2005	15.0	45.8	Fri 08:15	29.9	Fri 14:00	16.8	25.7	4.0
12/2/2005	15.0	44.5	Sat 23:00	28.4	Sat 14:00	14.8	27.3	3.9
19/2/2005	15.0	41.0	Sat 23:00	26.5	Sat 14:00	13.2	26.1	3.9
26/2/2005	15.0	24.0	Wed 09:00	17.9	Wed 07:00	11.9	25.1	3.5
Averages:	15.0	38.8		25.7		14.2	26.0	3.8

Source: Ofcom

5.53 We consider that there may be potential benefits to stakeholders from the release of this information. Identifying underused or under-valued spectrum will become more important as more and more devices are using wireless technologies that require access to spectrum. By making available information on use it could allow stakeholders to be able to identify if they are using congested spectrum and potentially move to a less congested frequency. However, we are aware of the limitations of the information that we collect as it does not provide a full picture of spectrum usage across the country and all frequencies.

Question 9: We are interested in comments on whether the publication of spectrum usage data would be beneficial to stakeholders, what should be included and what format this should take.

Question 10: We would welcome any further views on whether there are other areas of non-price information that could be published to the benefit of citizens and/or consumers.

Question 11: We would also be interested to understand from stakeholders the impact of disclosure of any of the information discussed.

Annex 1

Responding to this consultation

How to respond

A1.1 We invite written views and comments on the issues raised in this document, to be made **by 5pm on 2 November 2009**.

A1.2 We strongly prefer to receive responses using the online web form at http://www.ofcom.org.uk/consult/condocs/providing_spectrum_information/ , as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), to indicate whether or not there are confidentiality issues. This response coversheet is incorporated into the online web form questionnaire.

A1.3 For larger consultation responses - particularly those with supporting charts, tables or other data - please email paul.chapman@ofcom.org.uk attaching your response in Microsoft Word format, together with a consultation response coversheet.

A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Paul Chapman
Floor 3
Spectrum Policy Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7981 3921

A1.5 Note that we do not need a hard copy in addition to an electronic version. We will acknowledge receipt of responses if they are submitted using the online web form but not otherwise.

A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views and how our proposals would impact on you.

Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Paul Chapman on 020 7981 3069.

Confidentiality

A1.8 We consider it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt. If you think your response should be kept confidential, can you please specify what part or whether

all of your response should be kept confidential, and specify why. Please also place such parts in a separate annex.

A1.9 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Our approach on intellectual property rights is explained further on our website at http://www.ofcom.org.uk/about/accoun/disclaimer/

Next steps

A1.11 Following the end of the consultation period, we intend to publish a statement in early 2010.

A1.12 Please note that you can register to receive free mail Updates alerting you to the publications of relevant Ofcom documents. For more details please see: http://www.ofcom.org.uk/static/subscribe/select_list.htm

Ofcom's consultation processes

A1.13 We seek to ensure that responding to a consultation is easy as possible. For more information please see our consultation principles in Annex 2.

A1.14 If you have any comments or suggestions on how we conduct our consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk . We would particularly welcome thoughts on how we could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, who are less likely to give their opinions through a formal consultation.

A1.15 If you would like to discuss these issues or Ofcom's consultation processes more generally you can alternatively contact Vicki Nash, Director Scotland, who is Ofcom’s consultation champion:

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

Tel: 0141 229 7401
Fax: 0141 229 7433

Email vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

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

Before the consultation

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

During the consultation

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

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

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

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

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

After the consultation

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

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency and good regulatory practice, we will publish all consultation responses in full on our website, www.ofcom.org.uk.

A3.2 We have produced a coversheet for responses (see below) and would be very grateful if you could send one with your response (this is incorporated into the online web form if you respond in this way). This will speed up our processing of responses, and help to maintain confidentiality where appropriate.

A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore we would encourage respondents to complete their coversheet in a way that allows us to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4 We strongly prefer to receive responses via the online web form which incorporates the coversheet. If you are responding via email, post or fax you can download an electronic copy of this coversheet in Word or RTF format from the 'Consultations' section of our website at www.ofcom.org.uk/consult/.

A3.5 Please put any parts of your response you consider should be kept confidential in a separate annex to your response and include your reasons why this part of your response should not be published. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only, so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

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

Nothing ☐

Whole response ☐

Part of the response ☐

Name/contact details/job title ☐

Organisation ☐

If there is no separate annex, which parts?

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

DECLARATION

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

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

Name

Signed (if hard copy)

Annex 4

Consultation question

Sub heading

Question1: Is there information that we are planning to release that would be covered under one of these exceptions and if so what is the supporting evidence?

Question 2: Is there information that we are planning to release that would not be in the public interest to do so looking at each exception individually and then in aggregate and if so what is the supporting evidence?

Question 3: We would welcome comments and views on the information we already make available, in particular areas where stakeholders believe this could be improved.

Question 4: We are interested in the views of stakeholders on what information in addition to that contained in Annex 8 they think would help to ensure optimal use of the electro-magnetic spectrum, and on the impact the disclosure of this information might have on licence holders.

Question 5: We are interested in views regarding the areas where we should look towards focusing future research and studies on, and the benefits this will bring to industry, citizens and consumer? What information could we provide to encourage innovation and research?

Question 6: Would stakeholders find information on the price paid for a traded spectrum licence useful and believe that we should make the provision of this mandatory?

Question 7: If yes, what would be the most appropriate way for us to collect these data, for example asking for the specific value, using a check-box system? In what format should information be provided, for example displayed in aggregate format?

Question 8: Do you have any views about the regulatory burden that this would place on the parties involved in a trade, for example would the cost of providing information be prohibitive? Do you have any concerns about the confidentiality of this data?

Question 9: We are interested in comments on whether the publication of spectrum usage data would be beneficial to stakeholders, what should be included and what format this should take.

Question 10: We would welcome any further views on whether there are other areas of non-price information that could be published to the benefit of citizens or consumers.

Question 11: We would also be interested to understand from stakeholders the impact of disclosure of any of the information discussed.

Annex 5

Information we provide

Spectrum Information System

A5.1 As discussed in section 2.9, the Spectrum Information System (SIS) is an internet based searchable resource to help stakeholders find information on spectrum use and rights of use in the UK. It is split into three areas the UK Plan for Frequency Authorisation (UKPFA), the Wireless Telegraphy Act Register (WTR), and the Transfer Notification Register (TNR).

UK Plan for Frequency Authorisation

A5.2 The UK Plan for Frequency Authorisation (UKPFA) provides information about which frequencies are available for assignment, for what purposes the different frequencies have been allocated and whether these can be traded. It allows stakeholders to access information in an easy and searchable way. We are required by the WT Act to make this information available.

A5.3 The UKPFA can be searched by frequency, licence sector/class, by transferable licence or available products. Users may search on any combination of these terms and results can be filtered by frequency, sector or class of licence. The information can be downloaded into a spreadsheet.

Wireless Telegraphy Register

A5.4 The Wireless Telegraphy Register (WTR) provides information about tradable licences. It provides information such as contact name and address details, class of licence, band(s) of frequencies and geographic areas of operation. This can be searched on its own or users are able access this via UKPFA.

A5.5 The WTR is searchable by frequency, licence product/sector and geographic area. Users may search on any combination of these terms or by entering a specific licence number. Geographical searches are available either through entering a National Grid Reference (NGR) and a search radius or by using an interactive map.

Transfer Notification Register

A5.6 The Transfer Notification Register (TNR) provides information on licences which have been traded or are the process of being traded. The publication of trading information enables interested parties to find out about the number of transactions that have taken place and the spectrum that is currently being traded.

A5.7 The TNR can be searched according to the date the proposed transaction was instigated or the trade took place, the buyers name, sellers name or type of licence. The TNR provides information on the spectrum being traded and who the buyer and seller are. It does not provide any details on the value of the transaction as this is a voluntary arrangement between the parties that we have no involvement in.

Other information

UK Frequency Allocation Table

A5.8 The UK Frequency Allocation Table (UKFAT) covers the radio spectrum from 9 kHz to 275 GHz. It is published by us on behalf of the National Frequency Planning Group, a sub-committee of the Cabinet Official Committee on UK Spectrum Strategy. The table identifies responsibilities for the management of frequency bands or services showing whether they are managed by Ofcom, the Ministry of Defence, or another Government department or Agency. It also includes The International Telecommunication Union Table (ITU) of Frequency Allocations contained in the current Radio Regulations.

A5.9 The document can be downloaded from our website and provides an extensive overview of all spectrum allocation in the UK. The UKFAT indicates additional provisions for UK frequency arrangements outside of our international obligations and provides the framework within which frequency assignments are made for all services. The UKFAT identifies the primary and secondary users of the frequencies and any additional restrictions that may apply in the form of footnotes. The International Table is amended with any changes to the Radio Regulations made by the World Radio Conference of the ITU.

Interface Requirements

A5.10 Interface Requirements ("IRs") contain the requirements for the licensing and use of radio equipment in specified frequency bands typically included in a Wireless Telegraphy Act licence or exemption regulation. This is a requirement of the Radio and Telecommunications Terminal Equipment Directive (R&TTE Directive). These contain fifteen sections of information as set out by the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM). They set out the frequency, power and other technical criteria that equipment must meet in order for it to be deployed in the UK.

A5.11 In order to be installed or used in the UK, the equipment must meet the minimum requirements specified in the IR for the stated equipment types and/or the stated frequency bands. If equipment does not meet these minimum requirements then it cannot be lawfully used in the UK.

Sitefinder

A5.12 Sitefinder was set up as a result of recommendations of the Stewart Report[64] to the Government in 2000. It is a voluntary scheme under which mobile network operators make information available on the location and operating characteristics of individual base stations, so that people who wish to inform themselves about this can do so.

A5.13 We host the Sitefinder database on behalf of the Government, which is responsible for planning and health issues relating to mobile phone base stations and masts, and for policy on the scope of the Sitefinder scheme. However, not all mobile network operators now provide information to populate the site.

A5.14 As a result of a recommendation from the Stewart Report we agreed to establish an independent audit of base stations and implement a national measurement

[64] http://www.iegmp.org.uk/

programme, to ensure that emissions from mobile phone base stations do not exceed the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guideline levels. The first audit was carried out in 2001 and the results of this and subsequent audits can be found on our website.[65] The emphasis of the audit is focused sites situated close to schools and hospitals although we also carry out audits where there is unrestricted public access and concern about signal levels.

Technical Frequency Assignment Criteria (TFAC)

A5.15 The Technical Frequency Assignment Criteria (TFAC) outlines the assignment criteria and principles that we will employ in selecting frequencies for use by compliant equipment operating in a specified band or frequency range. TFAC's can be viewed or downloaded from our website. They are used as the basis for our assessment criteria for new applications and for amending existing assignments.

General Licence Conditions Booklet

A5.16 We are required by European legislation and Schedule 1 of the WT Act to clearly state any limitations that we place on the allocation of spectrum and our reasons for doing so. This information is contained in our Wireless Telegraphy General Licence Conditions Booklet.[66] This can be viewed via our website and the details the terms, provisions and limitations which apply to each class of licence. The booklet outlines the general licence conditions for licence duration, variations and revocations. It also provides information on the licence fee, equipment that can be used, the access and inspection rights that we have.

Links to statutory instruments

A5.17 In order to make or change regulations we often have to make a Statutory Instrument (SI). SIs are a form of legislation which allow the provisions of an Act of Parliament to be subsequently brought into force or altered without Parliament having to pass a new Act. They are also referred to as secondary, delegated or subordinate legislation. Through the WT Ac we have powers to make such instruments. The Office of Public Sector Information (OPSI) holds information relating all legislation passed in the UK. On our website we provide links to the relevant SI that relates to the regulation(s) that we have made.

Wireless Telegraphy Licensing Application forms and guidance

A5.18 As we issue a variety of Wireless Telegraphy Act licences we provide various pieces of information relating to this process. These include application forms, information on fees, guidance documents on how to complete applications and frequently asked questions. All of these are designed to help stakeholders with their applications and can be viewed or downloaded from our website.

Consultation documents, responses and statements

A5.19 The actions taken by us have a significant effect on our stakeholders and to the whole of the UK. It is therefore important that before making decisions we obtain, gather together the relevant evidence and consultation plays an important part in achieving this. It allows those who could be affected by or concerned about a

[65] http://www.ofcom.org.uk/sitefinder/audits/
[66] http://www.ofcom.org.uk/radiocomms/ifi/wtf/

particular issue to give us their views before we decide on a particular policy. We publish all of our consultation documents on our website.[67] Along with the consultation document we also publish all non-confidential responses we receive. After considering the responses we issue a final statement which is published alongside the original consultation document.

Strategic Reviews

A5.20 To enable current and future users of the radio spectrum to have enough information and certainty about our future plans we carry out strategic reviews. These reviews provide a framework that we apply to specific spectrum issues and this gives stakeholders a clear indication of our long term approach to regulation. To date we have carried out three reviews relating to spectrum policy, these are:

- Spectrum Framework review;[68]
- Licence Exemption Framework review;[69] and
- Spectrum Framework Review: the public sector.[70]

A5.21 As noted in section 5, we are currently undertaking a review of spectrum pricing.[71]

Reports and research

A5.22 We commission and carry out a variety of reports and research, concerning spectrum issues. These can include sharing studies, economic reports, impact of new pricing approaches and the potential of spectrum to be used in a variety of new ways. These are used as evidence in the forming of our policies and some are published in conjunction with consultation documents. These reports can be obtained via our website. [72]

Broadcasting transmitter details

A5.23 We provide information on broadcasting (both TV and Radio) transmission sites. We have television transmission location maps,[73] UHF TV transmitter data for ITV, Channel 4 and Five.[74] Coverage maps for most UK commercial radio stations[75] and details of the technical parameters of all independent analogue VHF, MF, and DAB transmitters[76] can also be downloaded from our website. This information can be accessed and downloaded from our website. Information relating to BBC radio transmission sites can be obtained from the BBC.[77]

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[67] http://www.ofcom.org.uk/consult/find
[68] http://www.ofcom.org.uk/consult/condocs/sfr/sfr2/
[69] http://www.ofcom.org.uk/consult/condocs/lefr/lefr_statement/lefr_statement.pdf
[70] http://www.ofcom.org.uk/consult/condocs/sfrps08/sfrps08.pdf
[71] http://www.ofcom.org.uk/radiocomms/ifi/srsp/
[72] http://www.ofcom.org.uk/research/radiocomms/reports/
[73] http://www.ofcom.org.uk/tv/ifi/tech/dsodetails/
[74] http://www.ofcom.org.uk/static/reception_advice/index.asp.html
[75] http://www.ofcom.org.uk/static/radiolicensing/mcamaps/MCAs.htm
[76] http://www.ofcom.org.uk/radio/ifi/rbl/engineering/tech_parameters/
[77] http://www.bbc.co.uk/reception/transmitters/radio/index.shtml

Annex 6

Statutory obligations

Information requirements we must comply with

Communications Act 2003

A6.1 The Communications Act 2003 (the "Communications Act") came into force on 25 July 2003;[78] however, the transfer of functions to Ofcom did not occur until December that year. It implemented the European Commission's 2003 regulatory framework for electronic communications which included the Authorisation and Framework Directives. The Communications Act set up our functions, general powers and set out a number of requirements on us to publish information. Most of the requirements relating to wireless telegraphy are now covered by the WT Act.

Wireless Telegraphy Act 2006

A6.2 The Wireless Telegraphy Act (the "WT Act") came into force on 8 February 2007.[79] It consolidated and replaced four previous acts[80] and amended parts of other legislation.[81] The WT Act set out a number of requirements on us to publish information. Many of the requirements in the WT Act are transposed directly from the Communications Act.

A6.3 Regulation 2 requires us to publish a UK Plan for Frequency Authorisation (UKPFA) which must set out:

> "(a) the frequencies that, in relation to the United Kingdom, have been allocated for particular purposes for wireless telegraphy and are available for assignment; and (b) the purposes for which the different frequencies have been allocated."

A6.4 Section 31 enables us to publish information in a Wireless Telegraphy Register. This can only be done if the relevant information is described by regulations. Information is classed as relevant if it relates to the: issue, renewal, transfer, variation or revocation of wireless telegraphy licences or grants of recognised spectrum access.

A6.5 Section 32 outlines our powers to require providing we set out our reasons for requiring the information:

> "a person who is using or has established, installed or used a wireless telegraphy station or apparatus to provide us with all such information relating to the establishment, installation or use and any related matters as Ofcom may require for statistical purposes."

A6.6 Section 33 states it is an offence if information requested under Section 32 is not provided. A person who commits an offence under this section is liable to be fined.

[78] http://www.opsi.gov.uk/acts/acts2003/pdf/ukpga_20030021_en.pdf
[79] http://www.opsi.gov.uk/acts/acts2006/pdf/ukpga_20060036_en.pdf
[80] Wireless Telegraphy Acts 1949, 1967 and 1998, the Marine etc Broadcasting (Offences) Act 1967
[81] Part 6 of the Telecommunications Act 1984 and certain provisions of the Communications Act 2003

A6.7 General restrictions on the disclosure of information are outlined in Section 111. We can not disclose information with respect to a particular business that has been obtained in exercise of our powers without consent. However, this does not apply if the information is disclosed along for the purpose of facilitating the carrying out by Ofcom of any of their functions.

Other UK statutory drivers and transparency obligations.

A6.8 We also have obligations, as a public body, such as those prescribed in the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, to provide access to the information we keep where appropriate. Beyond specific statutory obligations, we have a general commitment to be an open and transparent regulator.

Data Protection Act 1998

A6.9 The Data Protection Act 1998[82] gives individuals the right to know what information is held about them, and it provides a framework to ensure that personal information is handled properly. As part of our duties, it is necessary that we collect a certain amount of personal information. On our website we outline the reasons why we need to collect personal information and what information we collect.[83]

A6.10 We are a data controller for the purposes of the Data Protection Act 1998 and are committed to protecting the rights and privacy of individuals and to process their personal data in a manner which meets the requirements of the Act. We have implemented appropriate technical and organisational measures in place to prevent the unauthorised or unlawful processing of personal information, and accidental loss or destruction of, or damage to, personal information.

Freedom of Information Act 2000

A6.11 The Freedom of Information Act 2000[84] (the "FOIA") establishes a general right of access to all types of recorded information held by public authorities. It sets out exemptions from that right and places a number of obligations on public authorities. The FOIA applies to us as we are a public authority. Individuals already have the right to access information about themselves under the Data Protection Act. From January 2005, the FOIA extended this right of access to all types of information.

A6.12 Under Section 19 of the FOIA we have published the Ofcom publication scheme.[85] The scheme makes it clear what information is easily accessible without the need for individuals to make a specific request.

Environmental Information Regulations 2004

A6.13 The Environment Information Regulations (EIR),[86] which seek to implement Council Directive 2003/4/EC on public access to environmental information,[87] apply where there is a request for environmental information that a public authority holds.

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[82] http://www.opsi.gov.uk/acts/acts1998/ukpga_19980029_en_1
[83] http://www.ofcom.org.uk/about/cad/dps/dps/
[84] http://www.opsi.gov.uk/acts/acts2000/pdf/ukpga_20000036_en.pdf
[85] http://www.ofcom.org.uk/about/cad/foiindex/foi_act_pub_scheme/Foiascheme.pdf
[86] http://www.opsi.gov.uk/si/si2004/20043391.htm
[87] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF

A6.14 The definition of environmental information can be summarised as applying to: any information held on the state of the 'elements' of the environment (for example the state of the landscape, air quality or quality of the atmosphere and soil).

A6.15 It also covers information on factors such as substances, energy, noise, radiation or waste (including radioactive waste), emissions, discharges and other releases into the environment affecting or likely to affect the elements listed above and any administrative measures such as policies or legislation affecting or likely to affect those elements.

Re-use of Public Sector Information Regulations 2005

A6.16 The Re-use of Public Sector Information Regulations 2005 came into force on 1 July 2005.[88] These regulations implement a European Commission Directive that encourages the re-use of information supplied by a public body for purposes other than that for which they were originally intended. Whilst access legislation (such as Freedom of Information and the Environmental Information Regulations) seeks to promote transparency and accountability in public authorities, these regulations recognise that public information has a value and encourages the commercial exploitation of this. The regulations apply to any recorded information in which the public authority holds the copyright.

A6.17 The regulations do not require that public bodies re-use information or allow others to re-use information. However, where the public body does re-use, it must allow other third parties to do so in a fair and proportionate manner and in accordance with the Regulations.

A6.18 Where information has been released under access legislation such as the Freedom of Information Act 2000, applicants may ask to re-use that information. If an authority does allow re-use, the regulations impose certain obligations on that authority.

- The authority should respond to a request for re-use within a 20 working day time-frame.
- The authority must not grant licences that restrict competition
- Conditions for re-use and any standard charges should be made available to the public
- Information for re-use should be available electronically where it is possible and appropriate.
- Applicants should not be discriminated against who make requests for re-use for comparable purposes.
- An authority can charge for a licence if they do not wish the re-use to be free.

A6.19 A public authority is not required to create new documents or amend documents, nor are they obliged to continue to produce documents so that other can re-use them.

[88] http://www.opsi.gov.uk/si/si2005/20051515.htm

To meet European Union and international requirements

A6.20 We are subject to a range of European requirements which require us to publish information. Arising out of the Authorisation and Framework Directives are requirements that relate to the transparency of UK authorisation arrangements. We are also mandated to provide information to the European Frequency Information System (EFIS).

European Framework and Authorisation Directives

A6.21 In 2002 the European Commission adopted a new regulatory framework for electronic communications networks and services. The framework is based on seven Directives[89] that were designed to co-ordinate policy and, where appropriate, promote harmonisation across the European Union (EU). These apply to broadcasting, data transmission, fixed and wireless telecoms. The framework aims to ensure that there is free and fair competition and that regulation in all countries is based on a similar set of principles.

A6.22 The Directives were adopted in the EU Journal on 24 April 2002 and were introduced into the UK on 25 July 2003, through the Communications Act 2003. They also established the Communications Committee and the Radio Spectrum Committee of Members (RSC).

Commission Decision 2007/344/EC on harmonised availability of information regarding spectrum use within the Community

A6.23 The Commission Decision on harmonised availability of information regarding spectrum use within the Community[90] (the "EFIS Decision") places a requirement on all Member States to provide information to the European Frequency Information System (EFIS).[91] The UK is mandated to provide information on spectrum allocations, applications, radio interface specifications and information on rights of use to EFIS.

A6.24 Annex II of the EFIS Decision sets minimum requirements that information on rights of use be provided for tradable or awarded spectrum (either by competitive or comparative selection). This information must:

- Identify the radio frequency right holder
- The expiry date of the right
- The geographical validity of the right
- An indication of whether the right is tradable

Technical Standards and Regulations Directive 1999/5/EC

A6.25 The Technical Standards and Regulation Directive[92] came into force in 2000 and seeks to prevent the creation of new technical barriers to trade. It lays down a procedure for the provision of information for technical standards and regulations.

[89] http://ec.europa.eu/information_society/policy/ecomm/current/index_en.htm
[90] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:129:0067:0070:EN:PDF
[91] Available at http://efis.dk
[92] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999L0005:EN:HTML

Member States are obliged to notify to the Commission, in draft, proposed technical regulations and to observe a three month standstill period before the regulation is made or brought into force. These draft regulations are available to be viewed via the Technical Regulation Information System (TRIS).[93]

ITU-R Radio Regulations

A6.26 The ITU-R is in charge of determining the technical characteristics and operational procedures for use of the radio-frequency spectrum. The ITU-R develops and adopts the Radio Regulations, a set of rules, which serve as a binding international treaty governing the use of the radio spectrum around the world.

A6.27 The Radio Regulations set out requirements on us to provide information to the ITU-R in order to notify other administrations of assignments. This information is stored in the Master International Frequency Register (MIFR) and from this they publish the International Frequency List. Notification of new assignments is made via the bi-weekly Radiocommunications Bureau (BR) International Frequency Information Circular (BR IFIC). It is available to anyone who subscribes to the service.

The UK notifies frequency assignments under the provisions and procedures laid out in the articles.

[93] http://ec.europa.eu/enterprise/tris/index_en.htm

Annex 7

Information provision outside UK

What other countries provide

A7.1 Different countries have approached the provision of technical spectrum information in a variety of ways. This section aims to provide a brief overview of what other comparative regulators are providing.

Australia

A7.2 The Australian Communications and Media Authority (ACMA) has set up the Radiocommunications Record of Licensing (RRL) database.[94] This is accessible free of charge via a search facility on the ACMA web site, enabling up to 5,000 records to be accessed per search. Alternatively, the entire database can be purchased on CD-ROM with daily updates available for an annual subscription.

A7.3 The data included in the database includes:

- *Client Information* - Licensee name, address and company number, Industry Code
- *Licence Information* - Licence Number, Status of licence, Call sign, date of commencement and expiry, licence type and any special conditions.
- *Assignment Information* - Assigned Frequency, Bandwidth, Operating Mode, Emission Designator as per the ITU standard format, Transmitter Power, EIRP, Antenna height and size, Antenna Type, Azimuth, Polarity, Tilt, gain, Level of Protection from interference, Station Class based on International Frequency Registration Board codes, Spectrum Access Special Conditions, Date Approved, Licensed Area, Site identification, location (latitude and longitude), Effective Radius of a mobile site.

Belgium

A7.4 The Belgian Institute for Postal Services and Telecommunications provides access to their antenna website.[95] Users are able to select a geographical zone which brings back all GSM/UMTS base stations in that area. By selecting an individual base station users are able to access a copy of licence for the transmission site including all technical parameters, location photographs and emission readings.

Czech Republic

A7.5 The Czech Telecommunication Office provides a searchable database of frequency allocations.[96] Technical parameters for TV and Radio transmitters are made available including the name of transmitter, frequency, polarisation, program name, Lon-Lat, height above sea level, radiated power level and transmission type AM/FM. The site also provides access to information on Amateur, Aeronautical and

[94] Australia http://web.acma.gov.au/pls/radcom/register_search.main_page
[95] Belgium http://www.sites.bipt.be/antfr/framesetup.asp
[96] Czech republic http://www.ctu.cz/ctu-online/vyhledavaci-databaze/prehled-vyhledavacich-databazi.html

Maritime mobile services. Users are able to search for individual authorisations by frequency band and find the decision number and its expiry date.

Denmark

A7.6 The Danish National IT and Telecom Agency provides a frequency register that includes extensive details of individual holders of spectrum rights. This is a requirement of the Radiocommunications Act 1997.

A7.7 It enables users to search for information and provides the name, address, customer number, licence number, transmitter location, type of frequency use, type of equipment, call sign, ship's name and identification number, category (amateur use), plant description (industrial use), antenna height, power and height above sea level of spectrum allocations.

Estonia

A7.8 The Estonian Technical Surveillance Authority provides information on transmission sites through its Register of Economic Activities and Purpose of Its Maintenance (MTR).[97] The MTR enables users to select the type of licence and/or frequency range they wish to search for. The register will then return the owner of the frequency license, transmitter locations, technical parameters including transmission power and antenna parameters.

France

A7.9 The position of transmitters with a transmission power greater than 5 Watts which are authorised by Agence Nationale des Frequencies are made publicly available.[98] The website shows the type of service (i.e. broadcasting, GSM, Fixed) with their associated electromagnetic fields measurements made by approved laboratories.

Luxembourg

A7.10 The Institut Luxembourgeois de Regulation provides access to a database for GSM/UMTS base stations.[99] The website enables users to find out the operator name, system installed (GSM/UMTS), site reference name and location.

New Zealand

A7.11 The Ministry of Economic Development provides information via their Spectrum Online system.[100] This provides an extract from the Register of Radio Frequencies database of radio frequencies for licensed of the radio spectrum in New Zealand. It provides basic information on rights of use and frequency allocations. Users are also able to download additional software (Spectrum Search Lite) which contains the full technical data associated with each licence.

A7.12 Users of the basic system are able to search via frequency, channel, Call sign, licensee name, geographical area, transmitter location, licence type, licence category or management right number. The site then uses this information to return name, contact details, fee, frequency, channel, power, emission, polarisations,

[97] Estonia https://mtr.mkm.ee/default.aspx?s=avaleht
[98] France http://www.cartoradio.fr/netenmap.php?cmd=zoomfull
[99] Luxembourg http://basestations.ilr.lu/gsmviewer
[100] New Zealand http://spectrumonline.med.govt.nz/

transmitter from and to locations, licence conditions, horizontal radiation pattern and unwanted emission limits.

Poland

A7.13 The Office of Electronic Communications has a website showing NMT 450, GSM 900 (+ EGSM), GSM 1800, UMTS, CDMA 420, CDMA 450, (CDMA 850 - planned) transmission sites and a register of spectrum occupation in particular locations.

Slovakia

A7.14 The Telecommunications Office of the Slovak Republic provides a list of TV and Radio Broadcasting transmitters on its web site.[101] This provides information relating to the location of transmission sites, transmit power, polarisation and station name.

Slovenia

A7.15 The Post and Electronic Communications Agency of the Republic of Slovenia provides access to their Radio Frequencies Register through their website.102 It is a searchable frequency register that lists all allocations and provides information on all technical parameters of the licence.

A7.16 It returns the licence type, frequency, channel modulation, frequency type, channel bandwidth, station location, antenna height, transmission power, antenna type and gain, polarisation, licence holder and contact details.

Switzerland

A7.17 The Federal Office of Communications provides a searchable FAT and the locations of all broadcasting and mobile phone transmitters via a searchable map based web tool.[103] Users are able to locate transmitters by zip code, site name, city or lat/long. The system then returns for the broadcasting sites station name, ERP and frequency. For UMTS and GSM sites the system provides information on the station name, transmitter location and radiated power level (very low, low, medium or high).

USA

A7.18 The Federal Communications Commission (FCC) has set up the Universal Licensing System (ULS).[104] This provides e-licensing along with the ability to search for applications and licences. The ULS allows users to download this information as well as the ability to use mapping software to visually display the specific location or overall geographic area of a licence.

A7.19 The ULS enables users to search by file number, applicant ID, FRN, licensee name, application status, application purpose, radio service, auction ID, Call Sign, frequency and market areas.

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[101] Slovakia http://www.teleoff.gov.sk/

[102] Slovenia http://www.apek.si/en/radio_frequencies_register

[103] Switzerland http://www.funksender.ch/webgis/bakom.php?lang=en

[104] USA http://wireless.fcc.gov/uls/index.htm?job=about

A7.20 It returns data on callsign, radio service, dates (grant, effective, expiry and cancellation), Licensee (name, address, contact), application receipt date, letters sent, licence history, special conditions, transmitter address/area of operation, frequency, station class, emission type, operational altitude, time of operation and other sector specific information.

A7.21 The Radio Spectrum Inventory Act[105] was introduced to Congress on 19 March 2009. It calls on the FCC and the National Telecommunications and Information Administration (NTIA) to improve the information that they provide and undertake a full inventory of spectrum resources between the 300 MHz and 3.5 GHz bands. This information would then be published on a publicly accessible portal on the internet.

[105] Radio Spectrum Inventory Act http://thomas.loc.gov/cgi-bin/query/z?c111:S.649:

Annex 8

Information held by Ofcom

Table 8.1: Wireless Telegraphy licence EIR information

Licence class	Frequency	Antenna type
Licence number	Transmit area / station location(s)	Antenna angle of tilt
Licensee name	Class of emission	Antenna direction
Company number	Maximum / mean / minimum power	Antenna elevation angle
Licensee contact details / trade contact	Channel bandwidth	Antenna azimuth
Licence start date	Link end locations	Antenna gain
Licence expiry date	Length of radio path	Aerial height
Callsign	Station height above sea level	Antenna polarisation
Wind farm contact	Height of highest point above mean sea level	Antenna suppression
Station name / operator reference	Horizon elevation	Antenna reference code
Commencement date	Equipment code	Antenna feeder loss
Termination date	Transponder centre frequency	Antenna beamwidth
Timeslot base & mobile	Associated space station	Antenna radiation pattern
Service availability level	Satellite orbital location	Antenna system noise temperature, degK
Operating hours	Occupied bandwidth	Efficiency, %

Information not classified as emissions under EIR

Information already provided for most tradable Wireless Telegraphy licences

Information classified as emissions under EIR

Table 8.2: Wireless Telegraphy licences affected by EIR

Aeronautical Navigation Aid Stations	Business Radio (Area Defined)	Differential Global Positioning System
Aeronautical Ground Station (Air Traffic/Ground Movement Control)	Business Radio (Simple Site)	Coastal Station Radio
Aeronautical Ground Station (Airfield Flight Information Service)	Business Radio (Simple UK)	Public Wireless Networks (2G & 3G Cellular Operator)
Aeronautical Ground Station (High Frequency)	Business Radio (Suppliers Light)	Satellite (Earth Station)
Aeronautical Ground Station (Operations Control)	Business Radio (Technically Assigned)	Satellite (Permanent Earth Station)
Aircraft	Business Radio (Public Safety (Emergency Services))	Satellite (Transportable Earth Station)
Aeronautical Ground Station (Air/Ground Communications Services)	Business Radio (Digital TETRA PAMR)	Spectrum Access (1785-1805 MHz Northern Ireland Award)
Aeronautical Ground Station (Fire)	Business Radio (GSM-R Railway Use)	Spectrum Access (412-414 and 422-424 MHz)
Aeronautical Ground Station (General Aviation)	Scanning Telemetry	Crown Recognised Spectrum Access
Aeronautical Radar	Point-to-Point Fixed Links	Spectrum Access L Band (1452-1492 MHz)
Amateur Radio	Point-to-Point Security CCTV Services	Spectrum Access (10 - 40 GHz Band)
Transmission of National and Local Radio Broadcasting Services	Self co-ordinated links	Non-operational Development
Restricted Radio Services Transmission	Fixed Wireless Access	Ground Probing Radar
Terrestrial TV Broadcast Transmission (UHF Analogue and Digital)	Maritime Navigational Aids and Radar	Radar Level Gauges

Information on individual transmission sites not held by Ofcom

Information not held by Ofcom

Information on individual transmission sites held by Ofcom

Annex 9

Sitefinder

Background

5.54 The Sitefinder website, which provides information on mobile phone base stations and masts, was set up as a result of recommendations of the Stewart Report.[106] The mobile phone companies provide information for this website on a voluntary basis.

5.55 In January 2005, we received a request under the FOIA and subsequently under the EIR for a copy of the *national* database which Sitefinder uses to populate its search engine (Sitefinder currently allows a user to search an area of 500m² only for each click search.) We declined the request to provide the entire database. Our decision was then appealed to the Information Commissioner.

5.56 On 11 September 2006, a decision was made by the Information Commissioner,[107] which was subsequently upheld by the Information Tribunal[108] on 4 September 2007, that we must disclose the Sitefinder national database to parties who request it. The Information Commissioner among other things decided that the requested information related to radio transmissions, and was thus environmental information relating to emissions. This part of the decision was upheld by the Information Tribunal.

5.57 We appealed against certain parts of that decision to the High Court; namely the Information Tribunal's interpretation of, and application of, the public interest test. In April 2008, the High Court decided that the Information Tribunal was correct in its legal approach.[109]

5.58 We appealed this decision at the Court of Appeal on 18 December 2008, and on 20 February 2009 the Court of Appeal gave its judgement[110] which upheld in part our appeal. The key issue relating to the appeal was that the Information Commissioner and the Information Tribunal had adopted an approach (upheld in the High Court) which involved considering separately issues relating to public interest instead of also looking at them in the whole. This narrow approach was more likely to lead to a decision that it was in the public interest to disclose.

5.59 The Court of Appeal ruled that the correct approach was to also consider the public interest in aggregate, quashed the Information Tribunal's decision in this respect and remitted the matter back to them to re-decide on the public interest. The Information Commissioner has been granted leave to appeal on to the House of Lords.

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106 http://www.iegmp.org.uk/

107 http://www.ico.gov.uk/upload/documents/decisionnotices/2006/decision_notice_fer0072933.pdf

108 http://www.informationtribunal.gov.uk/Documents/decisions/OFCOMvinfoComm_TMobile_4Aug07.pdf

109 http://www.bailii.org/cgi-bin/markup.cgi?doc=/ew/cases/EWHC/Admin/2008/1445.html&query=ofcom&method=boolean

110 http://www.bailii.org/ew/cases/EWCA/Civ/2009/90.html

Annex 10

Glossary of abbreviations

ACMA	Australian Communications and Media Authority
BR IFC	Radiocommunications Bureau International Frequency Information Circular
CAA	Civil Aviation Authority
DDR	Digital Dividend Review
DSO	Digital Switchover
EFIS	European Frequency Information System
EIR	Environmental Information Regulations 2004
EIRP	Equivalent Isotropically Radiated Power
EU	European Union
FCC	Federal Communications Commission
FOIA	Freedom of Information Act 2000
GSM	Global System for Mobile Communications
IR	Interface Requirement
ITU-R	International Telecommunications Union Radiocommunications
LEFR	Licence Exemption Framework Review
MIFR	Master International Frequency Register
NGR	National Grid Reference
PMSE	Programme Making and Special Events
RIA	Regulatory Impact Assessment
Rx	Receive frequency
SFR	Spectrum Framework Review
SIS	Spectrum Information System
SRSP	Strategic Review of Spectrum Pricing
SUR	Spectrum User Rights
TCAM	Telecommunication Conformity Assessment and Market Surveillance Committee
TFAC	Technical Frequency Assignment Criteria
TNR	Transfer Notification Register
Tx	Transmission frequency
UKFAT	UK Frequency Allocation Table
UKPFA	UK Plan for Frequency Allocation
ULS	Universal Licensing System
UMS	Unmanned Monitoring Stations
WTR	Wireless Telegraphy Register