



Providing spectrum information

Implementing the Environmental Information
Regulations 2004

Statement

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Section 1

Executive summary

1.1 This statement sets out our policy on the progressive disclosure of Wireless Telegraphy Act 2006 (the “WT Act”) licence information we hold, under the Environmental Information Regulations 2004 (EIR)¹. It follows the consultation that we published on 10 August 2009² and which closed on 2 November 2009 (the “Consultation”). We received fourteen non-confidential and eleven confidential responses. The consultation was broadly split into two areas:

- Information that is classified as environmental and falls under EIR; and
- Non-EIR spectrum related information.

Information that falls under EIR

1.2 As a public authority, we are subject to the requirements of the Freedom of Information Act 2000 (FOIA) and EIR among others. In summary, these require us to make available requested information we hold to the general public except where the information is covered by an exemption or exception to disclosure, and in some cases, it is in the public interest not to disclose. Under EIR we are also required to progressively make environmental information available to the public by electronic means. After reviewing the information contained in WT Act licences issued by us, it became apparent that certain information that we hold is classified as environmental information and thus covered by the EIR.

1.3 In the Consultation we outlined this and advised that there were certain exceptions under the EIR, such as disclosure would adversely affect national security and public safety, that may prevent certain of this information from being disclosed. We asked for those stakeholders who consider that their information concerning a specific site falls under one of these exceptions to contact us with supporting evidence. For those requesting an exception of more than one site, we require the justification and evidence for each site. We will not accept a blanket statement covering entire networks. We received seven non-confidential and twelve confidential responses from stakeholders advising us of their need for particular licence information to be excepted.

1.4 We recognise the role that radiocommunications services play in safeguarding critical national infrastructure (CNI) and some of these responses related to such issues. We are working with the Centre for the Protection of National Infrastructure (CPNI) and other Government departments to evaluate these responses and a formal process has been agreed with Government to allow stakeholders the opportunity to submit specific evidence on this and on public safety issues. This process is outlined in Section 5 of this document with the associated pro formas contained in Annex 2. The submission period for requests for exception under EIR will be open until **5pm 12 November 2010**.

1

http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/detailed_specialist_guides/environmental_information_regulations_statutory_instrument_2004.pdf

2

http://stakeholders.ofcom.org.uk/binaries/consultations/providing_spectrum_information/summary/main.pdf

- 1.5 If we do not receive any submissions in relation to the Information, we will publish that Information after this date. For those who do make submissions, we plan to begin publishing licensing information not covered by an exception, or if it is covered by an exception it is in the public interest to as from **1 February 2011**.
- 1.6 We will not publish certain details concerning the assignments for those sites which, following the evaluation process, have the necessary evidence and support that the release of spectrum information would adversely affect defence/national security and/or public safety, and where non-disclosure satisfies the public interest test. As the impact of our policy in disclosing information will vary on stakeholders, the evaluation and assessment of this decision is considered as part of this process.
- 1.7 This statement relates only to the progressive publication of environmental information under Regulation 4 EIR. It does not apply where Ofcom has been asked for specific environmental information it holds (under Regulation 5 EIR). Ofcom will deal with such requests by following its general information request procedure outlined at its website.

Non-EIR related information

- 1.8 In the Consultation we also consulted on our current and future provision of non-EIR related spectrum information. This included the price paid for spectrum in a trade and spectrum usage information. We also sought comments on the general level and ease of access to the information we currently provide and where this could be improved. We received a number of useful comments and suggestions from stakeholders where we could improve our provision of spectrum related information and these are discussed later in this statement.
- 1.9 With regard to specific questions we raised concerning the requirement to provide price paid for spectrum in a trade and the release of usage information gathered by us, given the limited desire that was expressed by respondents we have decided not to take these measures forward at this time.

Section 2

Consultation background

Introduction

2.1 On 10 August 2009, we published a consultation document on the progressive disclosure by Ofcom of the spectrum Wireless Telegraphy Act 2006 (the “WT Act”) licence information we hold, as well as a more general series of questions concerning the current and future provision of spectrum information (the “consultation”)³. The Consultation was broadly split into two areas:

- Information that is classified as environmental and falls under EIR; and
- Non-EIR spectrum related information.

EIR information

2.2 The EIR gives 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. Regulation 4 of the EIR tells us that we have to progressively make environmental information we hold available to the public unless there are exceptions to its disclosure, and it is in the public interest not to.

2.3 The consultation outlined our proposed policy to progressively make identified spectrum information relating to emissions (the “Information”), as defined in Figure 1 on page 24, that we hold available to the public pursuant to Regulation 4 of the EIR.

2.4 For the Information, and for the reasons set out at paragraphs 4.6 to 4.26 of the Consultation, those exceptions are where such disclosure would adversely affect:

- Defence;
- National security; and/or
- Public safety.

2.5 We asked for those stakeholders who believed that they were covered by one of the above exceptions to respond with their supporting evidence.

Non-EIR spectrum information

2.6 As well as the information that we hold that is classified as environmental under EIR we were interested in comments concerning whether the information we currently provide on the spectrum environment is relevant and meets our stakeholders requirements, in following areas:

- Promoting the optimal use of spectrum;
- Encouraging innovation and research; and

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http://stakeholders.ofcom.org.uk/binaries/consultations/providing_spectrum_information/summary/main.pdf

- Supporting the spectrum market through trading.
- 2.7 For promoting the optimal use of spectrum we highlighted that environmental information may assist this and asked for general comments on whether there was additional information we could provide to support this. We also outlined the fact that we currently collect a limited amount of information on spectrum usage, gathered from thirty-five Unmanned Monitoring Stations (UMS) and whether the release of this would be of benefit to stakeholders.
- 2.8 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 part of this, we have commissioned a variety of studies⁴ looking at ways in which we can encourage and develop innovative uses of spectrum. We asked for views on areas where we should focus future research and studies, and the benefits this would bring to industry, citizens and consumers.
- 2.9 We believe that 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 made⁵. It was on this basis that we asked if stakeholders would find information on the price paid for a traded spectrum licence useful and if they believe that we should make the provision of this mandatory.
- 2.10 Finally, we asked if there were other pieces of information that we could look to publish for the benefit of citizens and/or consumers.

Purpose and structure of this document

- 2.11 In light of the responses received to the consultation, this document sets out:
- In Section 3 the responses we received on information that falls within EIR and our comments;
 - In Section 4 the responses we received on non-EIR information and our comments;
 - Section 5 outlines how we intend to meet our obligations under EIR and our decisions on non-EIR information;
 - Annex 1 contains a list of non-confidential respondents; and
 - Annex 2 provides a copy of the national security and public safety pro forma
 - Annex 3 provides a glossary of abbreviations.

⁴ <http://www.ofcom.org.uk/research/technology/research/>

⁵ 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.

Section 3

Implementation of EIR responses

EIR Information

- 3.1 In the Consultation we outlined our proposals for the release of certain spectrum information contained in a WT Act Licence (information as defined in section 5). We proposed to release this information in order to meet our legal requirement under the EIR to progressively make environmental information available we hold to the public by electronic means. The consultation document outlined the provisions in the EIR that were applicable, the exceptions to such disclosure and the relevant public interest considerations whether taken singularly or together.
- 3.2 The EIR came into force on 1 January 2005 and gave 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. It was brought into force in order to comply with Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information (the 'Directive')⁶.
- 3.3 Responses from British Telecom (BT) and the Federation of Communications Services, both questioned the legal basis that information relating to radio transmissions is covered by EIR. In their responses they questioned our interpretation of Regulation 2 of EIR. They disputed the claim that radio emissions from licensed transmitters are currently affecting or likely to affect the elements of the environment as referred to in Regulation 2 (1) (a) of EIR.
- 3.4 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;
 - (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

⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF>

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).

- 3.5 This wording in the EIR reflects the same wording as in Article 2(1) of the Directive.
- 3.6 In reply, following the Sitefinder case (as outlined in Annex 5 of our consultation), it is now understood that information about masts falls under EIR. This was the conclusion of the Information Commissioner and Information Tribunal, as part of their consideration of whether Ofcom was able under the EIR to refuse to disclose the national Sitefinder dataset and this finding was not appealed by either Ofcom or T-Mobile.
- 3.7 As part of the case, not only did the Information Tribunal consider that such information was environmental information for the purposes of EIR, but also that it was environmental information which relates to emissions and thus only limited exceptions applied if Ofcom chose not to disclose such information.
- 3.8 Specifically, the Information Tribunal concluded that:
- “emissions” in both subparagraph (b) of the definition of environmental information and regulation 12(9) should be given its plain and natural meaning and not the artificially narrow one set out in the Integrated Pollution Prevention and Control Directive. As we have indicated it is accepted, on that basis, that radio wave radiation emanating from a base station is an emission.”⁷
- “we believe that 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) [Regulation 2 (1)(a)] or the interaction between some of them. Accordingly we conclude that the radiation from a base station falls within the meaning of the expression “environmental information”. ”⁸
- 3.9 We also note in this respect that masts affect the landscape merely by the fact that they are a built structure and thus would also be considered as environmental information under Regulation 2 (1) (a) definition of environmental information.
- 3.10 As set out in our Consultation at paragraphs 3.10 to 3.13, based on the determinations by the Information Commissioner and Information Tribunal described above, and our own consideration of this issue, we consider that the Information *is* environmental information, which relates to emissions (paragraph 3.4 – Regulation 2 (1) (b) of the definition above).
- 3.11 Namely, 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 Regulation 2 (1) (a) EIR (at least the air and atmosphere).

⁷ Paragraph 25

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

⁸ Paragraph 27

- 3.12 One response questioned whether the name of the operator fell under the definition of EIR. They advised that the risk associated with disclosure could be mitigated if the licensee name was not displayed.
- 3.13 The consideration whether the name of the operator falls under EIR was raised in both the Information Commissioner and Information Tribunal hearings. It was argued that this particular piece of information did not constitute information about either the state of the elements of the environment or the factors that may affect those elements.
- 3.14 The Information Tribunal rejected this argument and ruled that:
- “The name of a person or organisation responsible for an installation that emits electromagnetic waves falls comfortably within the meaning of the words "any information... on... radiation". In our view it would create unacceptable artificiality to interpret those words as referring to the nature and effect of radiation, but not to its producer. Such an interpretation would also be inconsistent with the purpose of the Directive, as expressed in its first recital, to achieve "... a greater awareness of environmental matters, a free exchange of views [and] more effective participation by the public in environmental decision making..."⁹
- 3.15 It was argued before the Court of Appeal that even if this particular piece of information was environmental by definition, it was not on in the public interest to disclose. However, the Court of Appeal was not persuaded by this argument¹⁰. Therefore, we consider that this particular piece of information is environmental information relating to emissions.
- 3.16 A number of responses highlighted the sensitivities surrounding the publication of information and advised that we should work closely with government on these issues.
- 3.17 We agree that the government should be involved in this process and we have been working with them prior to the publication of our consultation and will continue to do so. In particular we had a number of discussions with various government departments and agencies. We continue to work closely with government both directly and through various forums including CPNI, Electronic Communications Resilience and Response Group (EC-RRG) and Cabinet Official Committee on UK spectrum strategy (UKSSC).

EIR exceptions

Question 1: 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?

- 3.18 In section 4 of the Consultation we outlined that the EIR allows exceptions to disclosure if certain criteria are met under Regulation 12. Where the environmental information relates to emissions, the exceptions are limited to:
- 3.18.1 International relations, defence, national security or public safety;

⁹ Paragraph 31

¹⁰ Paragraphs 61 – 66 - http://www.informationtribunal.gov.uk/DBFiles/Appeal/i104/ofcom%20-v-%20ico_20090220112452.pdf.

- 3.18.2 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; and
- 3.18.3 Intellectual property rights.
- 3.19 None of the responses that we received raised an objection to the release of information on intellectual property grounds. Given that the information is provided in a format requested by Ofcom as part of our statutory obligations we do not believe that this exception would apply to WT Act licensing information held by us. We also do not consider that the course of justice exception applies to the Information.
- 3.20 We received one response that stated that the information provided in the consultation was insufficient to determine what additional information we may seek to collect and then disclose under EIR. They stated that if this information was requested that this would require significant effort to collect. They also advised that the list of terms in Figure 3.1 were unclear and required clarification as they did not recognise some of the terms.
- 3.21 For clarification, the release of information under Regulation 4 of the EIR is restricted to the Information held by us. The list of terms in Figure 3.1 of the Consultation was an indication of the types of information that we hold as part of a WT Act licence although they do not all apply to every licence class. The terms are the same ones that are used in the licences that we issue.
- 3.22 Transfinite Systems, David Hall Systems and another organisation were fully supportive of our proposals on how we proposed to meet our requirements under Regulation 4 of the EIR. Transfinite Systems stated that they believed that the majority of assignments managed by us can be released and are not covered by an exception. They argued that the general public would benefit from having access to information about assignment use and noted the lack of evidence of harm from releasing such information in countries such as Australia.
- 3.23 Two respondents did not consider it appropriate for us to use examples of other countries as a reason why we should look at releasing spectrum information. They advised that just because this information was available in other countries does not mean that it is right to make it available in the UK. T-Mobile stated that the threat to the UK is higher than in most other countries we identified in our consultation.
- 3.24 The purpose of showing international comparisons was to highlight the fact that other comparable countries already provide an extensive level of information on spectrum assignments. Many of the countries listed in the consultation would have encountered similar issues of site/network security that they would need to have assessed before making the information publicly available. We also believe it to be part of good regulatory practice to look at the work of other regulators (both internationally and in other sectors) to ensure that we can learn from best practice. For these reasons we provided information on what was made available by other administration.
- 3.25 In BT's response they stated that the EIR implemented the Directive¹¹, and that if radio transmissions were covered by the Directive why was it that the level of information varies across Member States, with some countries not providing any information. They pointed out that in some countries the information provided is

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:041:0026:0032:EN:PDF>

tailored to users to enable them to determine the safe distance/field strength of a transmitter. These countries have shown that it is possible to give sufficient information to reassure the public regarding the transmitter emission levels, without giving unnecessary details about the network of radio links. They state that we should follow the lead set by these other Member States and focus on providing only sufficient information to enable the maximum field strength to be determined in the vicinity of the transmitter station, without providing information on either the licence holder, or any indication from which the receiver site can be deduced.

- 3.26 We also recognise that the information provided in other Member States varies and although the EIR is a result of the Directive, each Member State implements the Directive according to their own national legislation. In this case, regardless of the genesis of the EIR, we are bound by the UK legislation.
- 3.27 However, we would also like to note that separate to the Directive, the European Commission (EC) has also raised concerns over the discrepancies in the availability of spectrum related information across Member States and as a result published the Commission Decision of 16 May 2007 on harmonised availability of information regarding spectrum use within the Community (2007/344/EC)¹² (the “EFIS Decision”). The EFIS Decision requires Member States to provide certain information to the European Frequency Information System (EFIS)¹³.
- 3.28 Annex 2 of the EFIS Decision requires Member States to provide, as a minimum, for tradable licences or licences granted through a selection process the following information:
- identity of the radio frequency right holder;
 - the expiry date of the right or, in the case where there is none, the expected duration;
 - the geographic validity of the right by at least providing the information whether the right is local (i.e. one station), regional or nation-wide; and
 - an indication of whether or not the right is tradable.
- 3.29 The implementation date for countries to provide Annex 2 information to EFIS was January 2010. We are aware that a number of Member States that do not provide any or a limited amount of information are currently working on proposals to make information available that meets the requirements of the EFIS Decision. The Commission is now looking towards infracting those countries that have yet to implement the EFIS Decision.
- 3.30 The Federation of Communications Services raised concerns that not all information concerning assignments would be made available as information for some larger public operators would not be displayed and this information asymmetry is unfortunate.
- 3.31 We acknowledge that the information available will vary as some WT Act licences that are issued are technically assigned whilst others are not. To be clear, the information that we publish for each licence product will not vary depending on the size of the licensee. For national allocations, as no co-ordination with other users in

¹² http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_129/l_12920070517en00670070.pdf

¹³ <http://EFIS.dk>

the frequency band is required, we do not need to hold individual transmission site locations. However, not all of these licences are for large organisations and would point to Business Radio (Simple UK) licence as a type that is used by small and large operators. In these cases, we cannot publish any transmitter location information as we do not hold it. However, other information for these licences, such as maximum transmit power, would be provided.

- 3.32 BT asked us to clarify further information concerning the Licence Class field as information beyond simple "consumer" and "business" classes could provide further information regarding national infrastructure.
- 3.33 The Licence Class relates to the type of licence issued by us e.g. Business Radio (Area Defined) or Fixed Link and not the commercial nature of its use. Information on Licence Class is already via the UK Plan for Frequency Authorisation (UKPFA)¹⁴ that we are required to publish. These are set out in Regulation 2 of the WT Act.
- 3.34 We received a number of responses from stakeholders stating that they believed that the information that we hold about them is covered by one or more of the EIR exceptions. The responses fell into the following:
- national security; and
 - Public safety.

National security

- 3.35 A number of responses were received from stakeholders who are involved with Critical National Infrastructure (CNI) covering the areas of communications, energy services and water. All of these stakeholders stated that disclosure would disrupt this infrastructure and that such disruption to their services could have a major impact on the security of the country. They stated that publication of this information could increase the risk of sites being targeted and would help potential terrorists. Other responses claimed exemption for their entire network and that disclosing any information would have significant national security and public safety implications.
- 3.36 We are keen to ensure that our requirement to release information under the EIR does not jeopardise defence/national security. Whilst we acknowledge that some radio systems play an important part in controlling business processes whose interruption would have serious security and safety of life implications, they also support a number of non-critical activities. In addition, any exception could not be applied in a 'blanket fashion' as different exception/public interest considerations would apply depending on what information is being considered.
- 3.37 We are keen to ensure that our requirement to release information under the EIR does not jeopardise national security or indeed defence issues. Whilst we acknowledge that some radio systems play an important part in controlling business processes whose interruption would have serious security and safety of life implications, they also support a number of non-critical activities. In addition, any exception could not be applied in a 'blanket fashion' as different exception/public interest considerations would apply depending on what information is being considered.

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

- 3.38 BT's response is in line with our current approach (this is discussed further in Section 5). Under EIR, there is already an exception from the publication of information if the information has defence or national security implications. In the US Inventory Act, for an exception to be applied, the following is required from those wishing to be exempt from publication.

“The licensee or government user seeking an exemption under this subsection bears the burden of justifying the exemption and shall provide clear and convincing evidence to support such an exemption.”

- 3.39 As we stated in our consultation at paragraph 4.8, we will not proactively release any information that is formally classified in accordance with government security arrangements, as long as such security markings are objectively justified on grounds of defence/national security. Under guidance issued by the Information Commissioner, any organisation using national security as an exemption under FOIA or EIR must provide evidence that disclosure of the information in question would *pose a real and specific threat to the interests of national security*¹⁵. For defence, the exception applies to information whose disclosure would or would be likely to prejudice defence matters¹⁶ e.g. its disclosure would assist an enemy.
- 3.40 Regarding the information not provided through the US Inventory Act, the Federal Communications Commission (FCC) already makes much of this information available via their Universal Licensing System¹⁷. Information on base-station locations, transmitter ERP and, antenna height is provided by this system.
- 3.41 JFMG believed that the majority of Programme Making and Special Events (PMSE) use would be covered by an EIR exception but they stated that they may therefore need to be omitted if the EIR requirement applied to PMSE licences after the band manager award in cases where PMSE use supports policing and security applications. This is discussed further in paragraph 4.76.
- 3.42 Federation of Communication Services and other responses raised the issue of the ability of protestors/terrorists to easily discover the radio channels used for security at CNI sites and the opportunity to jam the channels prior to an assault being a real possibility. Transfinite Systems stated that use of radio systems could currently be identified without access to the Wireless Telegraphy Register (WTR)¹⁸, as antennas are often visible and the emissions could be detected with suitable hardware such as spectrum analysers.
- 3.43 We agree that there is already a lot of this information that can be freely obtained from other sources as indicated by Transfinite Systems but also from e.g. local planning departments. In these cases it would be for anyone seeking an exception to explain why Ofcom releasing information that was already in the public domain and/or available elsewhere would adversely affect defence/national security issues.

¹⁵

http://www.ico.gov.uk/upload/documents/library/freedom_of_information/detailed_specialist_guides/s2_4_national_security_v1_fop098.pdf

¹⁶

http://www.ico.gov.uk/upload/documents/library/freedom_of_information/detailed_specialist_guides/awareness_guidance_10_-_the_defense_exemption.pdf

¹⁷ <http://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>

¹⁸ <http://spectruminfo.ofcom.org.uk/spectrumInfo/licences>

Public safety

- 3.44 A couple of responses stated that providing information concerning an operator's network would make it easier to identify key or valuable sites. The publication of this information could exacerbate the potential for focussed site vandalism and malicious attack.
- 3.45 T-Mobile indicated that criminal activity, targeted theft and illegal installation of equipment could all impact on public safety. They argue that if the network goes down as a result of any of these factors then the public will be at risk as they may be unable to contact the emergency services. They also point to the physical safety if unauthorised access to a site leaves dangerous and unprotected electrical connections exposed. In resolving with all of these problems their staff would also be put at risk when dealing with damaged antennae and other infrastructure.
- 3.46 We note that these are similar arguments that were raised and accepted by the Information Tribunal in the Sitefinder case based on the disclosure of the national Sitefinder dataset (though noting that in this statement Ofcom is not proposing to disclose national datasets)¹⁹.
- 3.47 Section 5 of this document provides information for companies who consider that the disclosure of the information they provide to us would adversely affect public safety. However, when considering any claims against disclosure adversely affecting public safety, we would take into account among other things the issues highlighted at paragraph 3.43 above, such as whether the information is already available from other sources.

Public interest not to disclose

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?

- 3.48 Eight respondents reiterated their concerns that the release of their information could lead to harm if targeted by potential terrorists and it is therefore not in the public interest to disclose.
- 3.49 We understand stakeholders concerns on this potential risk. In relation to these points we would reiterate our response in paragraphs 3.35 to 3.43 concerning national security and paragraphs 3.44 to 3.47 concerning public safety.
- 3.50 It was raised by Joint Radio Company, BT and three other respondents that the underlying reasons to publish information in order to support trading and to let people know about emissions in their area could be done in a better way. In addition the information would not be meaningful to the general public and needs an expert to understand it.
- 3.51 We acknowledge that some of this information may not be easy for the general public to comprehend. However, the factors are relevant to this consideration²⁰. In the Consultation at paragraphs 4.28 *et seq*, we outline the public interest considerations

¹⁹ See paragraph 36 *et seq* - <http://www.informationtribunal.gov.uk/DBFiles/Decision/i104/Ofcom.pdf>.

²⁰ For areas where this is public concern, e.g. mobile phone masts, we do provide tailored information on the emissions as part of our audit programme. The results can be found on our website <http://stakeholders.ofcom.org.uk/sitefinder/mobile-base-station-audits/>

that Ofcom considers weigh in favour of disclosure when looking at the public interest factors (whether aggregated or considered singularly).

- 3.52 The Joint Radio Company highlighted paragraphs 4.33 and 4.34 of the Consultation where we stated that the provision of EIR information may help wind farm developers by facilitating identification of areas where radio infrastructure is located. They advise that the information that we hold is not conclusive. Other organisations that have exclusive access to spectrum on a regional or national basis do not have to provide information on individual allocations to Ofcom. This could lead to developers being misled into thinking an area is free of radio infrastructure when in fact it is not.
- 3.53 We agree with Joint Radio Company that the information provided would only reflect the information that we hold. For this reason we have had for a number of years a process to assist Wind Farm developers in getting in touch with relevant operators, details of this process can be found on our website²¹. We would advise that developers continue to reference this information in order to make sure that all parties are notified. Ofcom has no powers to object or approve wind farm developments²² it is entirely down to the relevant planning authority, therefore we believe that there is mutual benefit to all parties in fully engaging in the process.
- 3.54 One respondent advised that given the potential co-ordination distances required for Fixed Links this would require the release of national dataset which contradicts the statement we made in paragraph 4.12 of the Consultation.
- 3.55 We understand that for some Fixed Link assignments, the release of additional information in the WTR may not be sufficient to carry out co-ordination work in regards to other links. As BT stated in their response information on High / Low designations at a particular site are useful. We do also believe that in other cases that information on the location of satellite earth stations would be of assistance. We agree that in order for organisations to use this information for all their co-ordination requirements then access to a national data set would be needed. This is discussed further in paragraph 4.21.
- 3.56 Section 5 of this document outlines our decision in regards to these issues and sets out our approach to deal with claims of exception under national security and public safety.

²¹ <http://licensing.ofcom.org.uk/radiocommunication-licences/fixed-terrestrial-links/guidance-for-licensees/wind-farms/>

²² Ofcom are identified in the PPS22 (Planning Policy Statement on Wind Farms) as a specialist consultee.

Section 4

Non-EIR information responses

Introduction

- 4.1 As well as information that we hold that falls under EIR, we took this opportunity to gather views from our stakeholders over a wide range of information issues in order to help us develop our future information policy. The Consultation requested views on the following areas:
- Our current provision of information;
 - Additional information that we hold and should consider releasing;
 - Areas to focus further research and studies on;
 - Whether we should collect and publish the price paid for spectrum in a trade;
 - Would the publication of usage data provide benefits; and
 - Any other comments or observations.

Information that is already available

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.

- 4.2 We received twelve responses to this question. On the whole most respondents stated that they were happy with the information provided by us and that it was sufficient for them to understand the technical and regulatory framework they operate in. Many of the responses that we received focused on the WTR.
- 4.3 Arqiva and Transfinite Systems both said the information provided on the WTR was useful but limited. One respondent advised that the WTR is too slow and that search results can take a number of minutes to return.
- 4.4 The limited information on the WTR is an issue and we hope that the inclusion of the additional EIR related WT Act information, such as transmission power and antenna height, will address this and benefit stakeholders when using the WTR. We acknowledge that the performance of the WTR can be slow and we are looking at ways to improve this.
- 4.5 Federation of Communications Services requested that information is only available for those licensees that notified us that they are willing to trade instead of the current policy of displaying all licences that could be traded. They also restated their concerns regarding possible security issues relating to information on sensitive sites included in the WTR. These concerns were also made by a number of other respondents.
- 4.6 The information contained in the WTR does not help identify those licensees who are actively looking to sell their spectrum. We acknowledge that a place where licensees could advertise their spectrum would assist spectrum trading. We feel that this

function could be provided by a third party spectrum broker or similar organisation. However, we believe that by restricting the WTR to only these licensees would reduce the potential opportunities for trading.

- 4.7 David Hall Systems requested that more information is needed on the spectrum that is likely to become available or opened up to more general use within a given timescale.
- 4.8 Our Spectrum Framework Review²³ provided information up to 2008 and the subsequent progress report on key spectrum activities²⁴ provides information up until 2010. We publish information in relation to proposed awards and includes spectrum that is to be awarded or cleared as part of the Digital Dividend can be found on our website²⁵. In addition the UKPFA also provides information on frequency bands that are open for assignment and under what basis e.g. first come first served.

Additional useful information

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.

- 4.9 This section of the Consultation was seeking views from stakeholders on whether there was any information that we do not currently publish or hold that would be useful to provide. We sought views in relation to how any such disclosure would promote the optimal use of spectrum, encourage innovation, research and support the spectrum market.
- 4.10 In T-Mobile's response, it advised that EIR does not give Ofcom a mandate to start collecting other information for release. For national security and public safety issues they do not believe that any further spectrum information should be made publicly available.
- 4.11 It is neither our intention to use the EIR to enable us to collect and publish more information nor does the EIR give us the power to do so. The EIR only applies to the information we hold.
- 4.12 We received ten comments and suggestions on information that it may be useful for us to provide. These can be classified under three main headings:
- Information displayed in the WTR;
 - Usage and receiver parameters; and
 - Other information.

Information contained in WTR

- 4.13 Five respondents commented on the way that the WTR could be improved or where benefits could be gained by providing additional information.

²³ <http://stakeholders.ofcom.org.uk/consultations/sfrjp/>

²⁴ <http://stakeholders.ofcom.org.uk/spectrum/spectrum-strategy/sfrprogress/>

²⁵ <http://stakeholders.ofcom.org.uk/spectrum/project-pages/ddr/>

- 4.14 Arqiva advised that technical conditions imposed on licences and licence expiry dates might be a useful addition to the WTR. BT stated that the availability of High/Low Fixed Links information would be more important to them than the actual frequency, transmit power and antenna characteristics.
- 4.15 We are looking into the addition of licence expiry dates on the WTR to tie in with our work on providing information to EFIS. While Fixed Link High/Low information is already available on the WTR, we do not currently provide site locations (although this will change when we provide EIR information) and this makes it difficult to understand which site the information is related to. At present to find the High/Low information users should visit the WTR. When conducting a search if both ends of a link are within the defined search area, users will receive a message saying that the information is not available. Narrowing the search area will increase the likelihood of only one end of the link matching the search criteria, in which case the system will display the High/Low information for that end of the link. The system supports a minimum search distance of 100m.
- 4.16 BT stated that possible benefits from allowing operators to perform initial coordination checks prior to a licence application would be impractical due to the time taken to obtain the information from the WTR. Telecommunications Association of the UK Water Industry (TAUWI) also agreed, adding that not all information concerning spectrum use is held by Ofcom and to get a full understanding of spectrum assignments information needs to be obtained from a variety of places.
- 4.17 We agree that the WTR may not be appropriate for national network planning but we do believe that providing additional information on the WTR to stakeholders could help assist with local coordination and planning issues. We acknowledge that not all information relating to spectrum assignments is held by Ofcom; however, we do not believe that this would prevent benefits from disclosure such as improved coordination from being realised. Much of the information we do not hold is for bands that do not have to coordinate with other in-band users or are nationwide exclusive allocations.
- 4.18 BT thought it would be appropriate for us to operate a registration scheme, to allow authorised users to interrogate the database for spectrum trading purposes, but this should be considered separately from our EIR obligations. They argued that logging database searches to a particular user may act as a deterrent against suspicious / malicious activity; not least because such registration could and should be designed to provide an audit trail. TAUWI also stated that the only benefits gained would be at the cost of security as there would be no way of tracking who is benefiting from access to this information.
- 4.19 Although the reasons for people accessing the WTR for trading purposes will be different to those looking for general information, we consider that using existing systems would meet the requirements of both trading and EIR. This approach would also minimise the cost associated with complying with the EIR. Regarding the issue of providing an audit trail, we do understand stakeholders concerns; however, given the wide availability of internet access points and email addresses, we do not consider that such measures would discourage a committed individual from accessing such a database.
- 4.20 Two respondents highlighted that it would be better if the information was available in a downloadable format or offline access (e.g. DVD). Transfinite Systems advised that benefits, such as improved spectrum efficiency and reduced costs, could be achieved if full assignment data was available either online or on a CD-ROM in a

similar level of detail to the Australian Communications and Media Authority (ACMA). They state the release of this information has not led to issues that were identified in our consultation.

- 4.21 At present, there are some concerns about the potential affects to public safety relating to the public release of national allocation datasets. Currently, we have no plans to publicly provide a copy of our national dataset. But we hope to look at this again once the ongoing legal issues surrounding the Sitefinder litigation have been resolved.

Usage information

- 4.22 Although the specific question on usage information gathered by us is outlined later in paragraph 4.58 we received four responses from companies with alternative usage information suggestions.
- 4.23 Freedom4 and Transfinite Systems advised that in order to get a full idea of spectrum usage it is also necessary to have access to receiver characteristics, the location of the receiver, and relevant details about the receiver's characteristics. Transfinite Systems highlighted an issue that if detailed information is not available pessimistic assumptions and larger guard bands could be required.
- 4.24 Under the WT Act it is unlawful to establish or use a wireless telegraphy station or apparatus unless you hold a licence or the device has been made exempt. Receive only equipment was made exempt in 1989 through the Wireless Telegraphy Apparatus (Receivers) (Exemption) Regulations 1989²⁶ and as a result we do not hold information on the location of most receivers as a matter of course.
- 4.25 The use of spectrum by receive only services such as Radio Astronomy is something that we are keen to acknowledge and we do this by granting Recognised Spectrum Access (RSA) status. RSAs complement licensing by providing a means for us, in carrying out our spectrum management functions, to recognise use of spectrum that cannot be licensed. We are looking to provide more information on RSA's via the WTR.
- 4.26 We understand the impact receivers have on spectrum use and we are working with our European colleagues in this area. In October 2008, the Electronic Communications Committee (ECC) adopted Report 127²⁷ addressing the impact of receiver standards on spectrum management. Since then the Receiver Parameter Pilot Project (Rx Pilot) has been set up to look further into this area. The Rx Pilot is divided into a number of Work Packages and is managed by the European Communications Office²⁸.
- 4.27 Arqiva advised that the estimation of white space could be made better in order to understand the impact of primary and secondary networks on each other.
- 4.28 Information concerning white space is becoming more important and we have researched its availability as part of the work on the Digital Dividend Review. We are

²⁶ http://www.opsi.gov.uk/si/si1989/Uksi_19890123_en_1.htm

²⁷ <http://www.ero.docdb.dk/Docs/doc98/Official/Pdf/ECCRep127.pdf>

²⁸ <http://www.ero.dk/>

currently looking into the issues surrounding cognitive access to the interleaved spectrum²⁹ and looking at ways these devices could gain access to white space.

- 4.29 BT request that we look at providing a map of the UK representing the number of channels used for each Fixed Link band. They stated that this would be of value to them when determining areas of congestion and would help when making equipment and network planning policy decisions.
- 4.30 We would like to thank BT for this suggestion and agree the information would be useful to all parties, including ourselves. However for us to provide such information at the moment, on a routine basis, would require significant investment in our systems reporting capability and would take us a considerable amount of time to prepare. Given the rate of change of licences in this area, unless information was provided frequently then it would be out of date before it was published. We will look at ways in which this information or similar information could be provided in the future.

Other

- 4.31 We also received three suggestions regarding other information that it may be useful for us to provide.
- 4.32 Jodrell Bank Observatory indicated that it was interested in us publishing all the proposed wind farm notifications that we receive as well as the database of existing requests. They are concerned about the possible effects of such structures on radio astronomy observations.
- 4.33 We are currently reviewing the way that we handle wind farm coordination requests and will take this into consideration as part of this project. We are aware that there are potential data protection/commercial confidentiality issues that may be involved in making such requests publicly available. We would advise those interested in being notified regarding potential and proposed wind farm sites to contact the British Wind Energy Association who run the UK Wind Energy Database³⁰ which lists proposed and completed on-shore and off-shore wind energy projects.
- 4.34 David Hall Systems requested that we publish information related to restrictions on the use of the particular spectrum block or any conditions attached to the use of that spectrum.
- 4.35 Information relating to restrictions on spectrum blocks can be obtained via the UK Frequency Allocation Table³¹. We already publish our template licences, which could contain conditions on use, for all of our licence classes.
- 4.36 Transfinite Systems suggested that automated online assignment tools that provide interactive access to assignment data would benefit stakeholders when considering network planning and self-assignment.
- 4.37 This is something we may consider in the future and would need a full cost/benefit assessment to be undertaken prior to any proposal. We need to balance the benefits to stakeholders of access to online tools against the costs of providing and maintaining such systems.

²⁹ <http://stakeholders.ofcom.org.uk/consultations/cognitive/>

³⁰ <http://www.bwea.com/ukwed/index.asp>

³¹ <http://www.ofcom.org.uk/radiocomms/isu/ukfat/>

Future research and studies

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?

- 4.38 We carry out a number of studies and conduct research in the use or future use of radiocommunications. We asked for views whether there were areas where we should consider researching further. We received five responses to this question.
- 4.39 A couple of respondents advised that the work carried out by us was already sufficient to meet their needs. T-Mobile advised that they would expect universities to undertake much of this work and that we should look at funding these from the Spectrum Efficiency fund.
- 4.40 Historically, the bulk of our technical research funding was specifically targeted at enhancing spectrum efficiency. Under the Spectrum Efficiency Scheme (SES) which ran from 2003 to 2007 we received £5m per year from the Treasury to use for technical research into ways to enhance the efficiency with which spectrum is used, or pay compensation to clear spectrum bands. This fund is no longer in place although our Technology Research and Development team do fund a variety of research studies into spectrum issues³².
- 4.41 David Hall Systems requested that we look into allowing better co-existence and sharing between different applications within a given frequency range.
- 4.42 As part of our research programme into enhancing spectrum efficiency we are looking at ways that sharing can be improved³³. The work is looking to establish the degree by which spectrum efficiency and utilisation could be improved by using new methods. We are also evaluating the risks associated increased sharing of the radio spectrum in terms of how new services will affect others users in order to determine where maximum benefit lies to the UK. In addition to the work that we carry out we also provide input and support into studies carried out by CEPT and European Telecommunications Standards Institute (ETSI).
- 4.43 Transfinite Systems requested that we should look into the area of receiver characteristics as studies may cause larger guard bands to be introduced. They highlight that compatibility studies often involve modelling radio systems operating in adjacent bands and if detailed information is not available pessimistic assumptions and larger guard bands could be imposed. While transmit spectrum masks are often available (e.g. as ETSI standards as part of the equipment type approval process), receiver characteristics are rarely given.
- 4.44 We agree that receiver characteristics play an important role in spectrum management. We have recently published research on current and future receiver performance³⁴. The study examines issues involved in improving the performance of radio receivers in consumer equipment such as TVs and cellular devices. The study focuses on the cost / performance trade-off to make a receiver less susceptible to interference from other frequency bands, based on technologies that can be

³² <http://www.ofcom.org.uk/research/technology/research/>

³³ <http://stakeholders.ofcom.org.uk/market-data-research/technology-research/ctc/era05-07/>

³⁴ <http://stakeholders.ofcom.org.uk/market-data-research/technology-research/research/spectrum-liberalisation/receiver/>

envisaged over the next ten to twenty years. As indicated in paragraph 4.26 this area is currently being investigated by the CEPT and we will assist these studies as required.

- 4.45 Transfinite Systems indicated the value of a database of assignments is strongly related to the quality of data and requested that we carry out work to look at the accuracy of information. They indicated that we should set at an eight digit National Grid Reference (NGR) (accurate to 10m) as opposed to the current six digit NGR (accurate to 100m) currently provided.
- 4.46 The information that we hold is based on the information provided by licensee, we do not visit the site to independently verify the information. The WT Act licence only applies to the location provided in their application. For some licences classes (e.g. Business Radio) we hold the information in a six digit NGR format but for most other licence classes we hold the information in an eight digit format. We will provide information based on the level of detail that we record against the WT Act licence.

Price paid for spectrum in a trade

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?

- 4.47 At present information relating to the price paid for spectrum on a trade is provided on voluntary basis and is not published. We considered that there may be benefits to the market from making this a mandatory requirement of the trading process and we asked stakeholders for their views. We received eleven responses to this question with no overall preference in favour to release this information.
- 4.48 Three respondents advised that we should not require and publish this information. Another respondent stated that this information would not be relevant for them. Arqiva commented that they saw that this type of information was not important to prospective new owners. Freedom4 indicated that parties would develop their own approaches rather than relying on published information.
- 4.49 Four respondents advised that the publication of the price paid for spectrum in a trade would be of use to them. David Hall Systems considered that this information would be extremely useful. They stated that in other sectors this information is generally available and questioned why the spectrum market is different. Transfinite Systems also believe that this information would increase the transparency in the market.
- 4.50 BT and Transfinite Systems supported the publication of historic information on spectrum transactions. They stated that it would help with performing cost benefit analysis on spectrum assets and would provide a methodology to generate a book value for spectrum assets. TAUWI also agreed that this information would be of use to companies in order for them to see how much their spectrum is worth.
- 4.51 Transfinite Systems and T-Mobile indicated that there can be difficulties in some form of trades in identifying what part of the price was due to spectrum alone and how much was covered by an external factor such as a contract or the company as a whole. T-Mobile also pointed out that it would not always be possible to validate the information provided.

- 4.52 Transfinite Systems commented that it was too early to assess the success of spectrum trading and it would be better for us to monitor the situation. One respondent advised we should maintain the current voluntary requirement but make the information available on request.
- 4.53 As outlined in the paragraphs above, the responses to this question were split with no significant preference for our proposal. We understand that this proposal could provide benefits to stakeholders however, as we discussed in the consultation, it may be difficult to disentangle the value of the spectrum from the value of the company and physical assets.

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?

- 4.54 All of those in favour of the publication of the price paid for spectrum in a trade indicated a preference for the actual monetary value to be shown. Transfinite Systems advised that an approach similar to the Land Registry should be adopted.
- 4.55 We note that the actual monetary value would be a preferred option for displaying information. We appreciate that this valuation may be difficult to reach and validate especially when spectrum is not the sole element of the trade.

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?

- 4.56 BT requested that the information should not be made publicly available and restricted to spectrum managers. Transfinite Systems advised that if this information was required for all transactions between spectrum owners this could result in higher administrative overheads. They also indicated that while there could be some concerns about confidentiality but there could also be wider general benefits. T-Mobile stated that this would be an additional regulatory burden and that it could require significant resources to determine and agree a price for spectrum.
- 4.57 David Hall Systems stated they did not believe that this would impose any significant regulatory burden. Another respondent advised that as most information is computerised there should be no problem in making this information available.

Spectrum usage information

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.

- 4.58 We considered that there may be potential benefits to stakeholders from the release of usage information, gather from our Unmanned Monitoring Station (UMS) network. We asked stakeholders for their views as to whether this information would be useful to them. We received seven responses with no overall preference in favour to release this information.
- 4.59 Arqiva and David Hall Systems supported the publication of occupancy data to aid the identification of un- / under-used spectrum. One respondent advised that publishing usage information for licence exempt spectrum would help operators to identify where there is sufficient capacity.

- 4.60 Transfinite Systems advised it can be difficult to use monitoring data to determine usage as a number of services can operate with very low field strengths. BT also agreed stating that this could be the case for the Fixed Link allocated bands, where the antennas are very directional and may not be picked up by the monitoring equipment.
- 4.61 We agree that although the UMS may show un- / under-used spectrum it does not necessarily mean that this is the case. However, by providing access to information it may be possible to better understand the spectrum environment and may identify areas of spectrum that could potentially be exploited further.
- 4.62 T-Mobile stated that the data produced by the Cambridge Radio Frequency Services (CRFS) research and UMS is of little value as the collected data is generic and limited in its geographic reach and time of day for CRFS information. They are typically interested in large scale interference effects caused by high power transmitters and small scale effects such as jammers. They point out that these require very specific and detailed investigations similar to those offered for spectrum auctions. BT echoed this in their response stating that simple measurement campaigns of average signal levels may not be useful. Transfinite Systems advised that it would be difficult to use the data and that instead we should use detection and enforcement as a mechanism to ensure the integrity and accuracy of our assignment database.
- 4.63 The information provided by the CRFS and the UMS network is not intended to be used resolve issues of localised interference but could assist in the process. We have a team of dedicated field engineers as well as a network of direction finding sites that enable us to investigate and identify sources of interference. The information held by us on a WT Act licence is provided to us by the licensee. If the licensee is using equipment either at a different location or with different characteristics than those outlined in their licence then they would be in breach of their licence conditions. In these cases the licence would not be valid and the licensee could be subject to prosecution.
- 4.64 Freedom4 advised that information needs to be made available about the location and spectrum use of receivers as well as transmitters.
- 4.65 As stated in paragraph 4.24 receivers are exempt from licensing and therefore we do not hold this information.

Other non-price information

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.

- 4.66 Transfinite Systems recommended that we look to providing a web tool to identify transmitters where health and safety limits are met/ exceeded.
- 4.67 As part of our commitment to Sitefinder we regularly carry out audits of base station emissions from mobile phone masts. These can be found on our website³⁵ but there is no evidence of significant demand for this type of information and we currently have no plans to extend this to other mast types.

³⁵ http://www.ofcom.org.uk/sitefinder/audit_info

Impact of disclosure

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

- 4.68 David Hall Systems responded by saying that the provision of more information would allow a more effective spectrum market to evolve.
- 4.69 In the response from Joint Radio Company they stated that the deluge in information is obscuring and inhibiting market players. And that we may find that restricting information to those licensees willing to trade might be more effective. This point was also made by Federation of Communications Services.
- 4.70 We can understand both points of view and as we advised in paragraph 4.6 we believe that there is room for third parties to act as spectrum brokers putting together those who wish to buy and sell spectrum.
- 4.71 T-Mobile stated that there could be very significant negative impacts on mobile operators and the public in the event that detailed information on point to point Fixed Links are disclosed. BT also highlighted the possible risks to defence and national security if information about their network was released. Freedom4 shared these concerns that uncontrolled disclosure of details of the locations of its transmitter sites could expose networks to criminal acts ranging from theft to sabotage, particularly if information on many sites can be gathered easily.
- 4.72 Our response to these concerns are addressed in Section 3 of this document.
- 4.73 Freedom4 sought clarification on the information, if any, that will be disclosed about equipment sited at customer premises.
- 4.74 We only hold information contained as part of a WT Act licence. If we hold information relating to an individual transmission site we would publish the information listed, unless covered by an exemption. In most cases where a licence is area defined or a national allocation we are unlikely to hold information concerning individual customer sites.
- 4.75 JFMG wished to clarify how the EIR could affect the information provision requirements of the band manager and whether any of these requirements could be extended to enable the band manager to facilitate greater planning and co-ordination in the PMSE area. They ask that we consider allowing the band manager with PMSE obligations the right to publish live frequency information, without the users' prior consent, if it is not already required by the implementation of our proposed spectrum information policy.
- 4.76 On 15 April 2010 we published a statement³⁶ advising that the band manager award will be deferred until after the Olympics in 2012. Given this decision, we are unable to advise on the possibility of enabling such a request. We would suggest that interested parties speak to the designated band manager contact within Ofcom to discuss these matters further. We advise that companies seeking to publish customer details seek their own legal advice.

³⁶ <http://www.ofcom.org.uk/consult/condocs/bandmanager09/statement/>

Section 5

Our decision

Information that is covered by EIR

5.1 We plan to proceed with our proposals to progressively release the Information, unless an exception applies under the EIR and it is in the public interest not to disclose. The Information will be provided via the WTR. This statement relates only to the progressive publication of environmental information under Regulation 4 EIR. It does not apply where Ofcom has been asked for specific environmental information it holds (under Regulation 5 EIR). Ofcom will deal with such requests by following its general information request procedure outlined at its website.

Figure 1: Information that falls under EIR

Licence Class	Currently available information	Information to be released under EIR
Business Radio (Simple UK)	Licence number, Licence holder, Contact details, Licence Class, Transmission Power, Frequency and Bandwidth.	No additional information.
Business Radio (Area defined)	Licence number, Licence holder, Contact details, Licence Class, Frequency, Area of transmission, Transmission Power and Bandwidth.	No additional information.
Business Radio (Suppliers Light)	Licence number, Licence holder, Transmission Power, Contact details and Licence Class.	No additional information.
Business Radio (Technically Assigned)	Licence number, Licence holder, Contact details, Licence Class, Frequency, Transmitter location and Bandwidth.	Max mobile ERP, Antenna type, Antenna gain, Antenna tilt, Antenna Azimuth, Antenna ERP and Antenna height above ground.
Fixed Links (Point to Point)	Licence number, Licence holder, Contact details, Licence class and High/Low designation.	Frequency, Transmitter location, Polarisation, EIRP, Antenna gain, Antenna tilt, Antenna Azimuth, Antenna ERP and Antenna Height above ground.
Fixed Links (Scanning Telemetry) (National)	Licence number, Licence holder, contact details, licence class.	Maximum transmit power.
Fixed Links (Scanning Telemetry) (Shared)	Licence number, Licence holder, Contact details, Licence Class and Frequency.	Maximum transmit power and Transmitter location.
Fixed Links (Self co-ordinated links)	Licence number, Licence holder, Contact details, Licence Class, Frequency, path length, Ground height, Antenna height, Equipment manufacturer, Equipment	No additional information.

	model, Bit Rate, Bandwidth, Receiver sensitivity, Antenna manufacturer, Antenna model number, Antenna maximum boresight gain, Antenna elevation, Antenna azimuth and EIRP.	
Maritime Navigational Aids and Radar	No information.	Licence number, Licence holder, Transmitter location, Maximum ERP, Antenna location, Antenna type, Antenna gain, Antenna tilt, Antenna Azimuth, Antenna height and Frequency.
Differential Global Positioning System	No information.	Licence number, Licence holder, Transmitter location, Maximum ERP, Antenna location, Antenna type, Antenna gain, Antenna tilt, Antenna Azimuth, Antenna height and Frequency.
Satellite (Earth Station) Network	No information.	Licence number, Licence holder, Frequency and Maximum transmit power.
Satellite (Permanent Earth Station)	No information.	Licence number, Licence holder, Earth station name, Earth station location, Antenna height, Antenna type, Transmission gain, Frequency, Associated emission and Maximum transmit Power.
Satellite (Transportable Earth Station)	No information.	Licence number, Licence holder, Equipment detail and Frequency range.
Coastal Station Radio	No information.	Licence number, Licence holder, Transmitter location, Maximum base ERP, Maximum mobile ERP, Antenna type, Antenna gain, Antenna tilt, Antenna Azimuth, Antenna height and Frequency.
5.8 GHz Fixed Wireless Access	Frequency.	Licence number, Licence holder, Transmitter name and Transmitter location.

Source: Ofcom

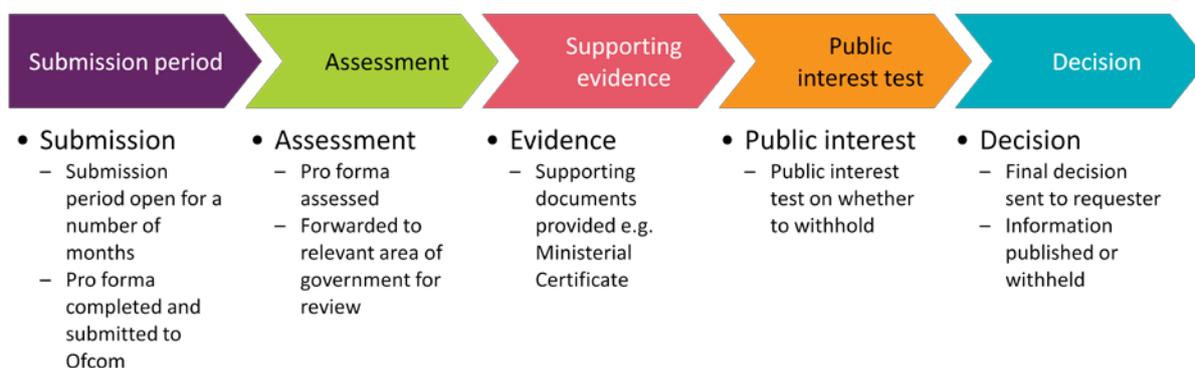
- 5.2 During the consultation, we received a number of responses from companies and organisations stating that they operate CNI. They advised that the release of any information relating to their licences would adversely affect national security and/or public safety and therefore they should be exempt from disclosure. We have been working with government to identify a process to enable these concerns to be assessed and exempted from release where appropriate.
- 5.3 As we were unable to substantiate the claims for exception thus far on the evidence provided to us, and the potential consequences if we miss any relevant evidence in coming to our decisions, we have set out an evaluation process for those companies

wishing the licence information they provide to us to be considered for an exception under EIR.

EIR exception evaluation process

5.4 This section sets out the process for dealing with and evaluating requests for exception under EIR. We will be following a five stage assessment process as outlined in Figure 2.

Figure 2: Exception evaluation process



Source: Ofcom

Looking at each stage in turn:

Submission

5.5 The evaluation process is open to all stakeholders and not only those companies that responded to our initial consultation. To help us to understand and assess how critical the system is and the impact that disclosure would have, we have devised three pro formas (copies available in Annex 2 and on our website) – in relation to national security, defence and public safety claims. We would ask that all those stating an exception for a specific site under EIR to provide information in this format. The submission period for requests for exemption is open for five months to enable a sufficient amount of time to for stakeholders to gather the required information. It closes on the 12 November 2010.

We will publish the Information after this date where we have not received such a pro forma claiming exception from disclosure.

Assessment

5.6 In order for us to make an informed decision on the requests for exception, we have been working closely with CPNI who have agreed to advise us on CNI related issues and co-ordinate with the government on this area. For non-CNI related issues we will discuss the matter with the sponsoring government department where relevant.

5.7 Once we receive the completed pro forma, we will assess the request and if necessary forward it on to the relevant part of government who will advise us as to its consideration of the impact of disclosure of such information and the merits of the exception case put forward – and any related public interest considerations. We are not [looking for a blanket statement but evidence in relation to particular sites.](#)

- 5.8
- 5.9 Elements of national infrastructure are graded into five levels based on their importance, the top three levels being (3 - 5). As part of our discussions with CPNI, it has been agreed that a site or asset which is recognised in government as CNI categories 3 to 5, we will forward them to the CPNI. The CNI working group that will formally assess each request. For non-CNI related information, we will contact the sponsoring Government department for their advice and in cases dealing with National Security we will also be in contact with the National Security Liaison Group (NSLG).
- 5.10 For claims of exception relating to public safety we would take on board any information provided by third parties.
- 5.11 Whilst a request is going through the assessment process, we will not release any of the relevant information until the evaluation has been completed.

Supporting evidence

- 5.12 Any claim that disclosure of a particular piece of information would adversely affect defence/national security and/or public safety **must be supported** by appropriate evidence³⁷; as should any claims that such disclosure would be against the public interest.

Without appropriate supporting evidence as to the application of exceptions for each site, we will disclose the Information.

- 5.13 Please note, for an exception to be granted under EIR, it needs to be shown that the release of such information would adversely affect any of the exceptions listed in regulation 12(4) or (5). For Ofcom to engage a Regulation 12(5) exception for national security, following the Information Commissioner's guidance, we would have to show:
- 5.13.1 It is required for the purposes of safeguarding national security;
- 5.13.2 It has not been applied in a blanket fashion; and
- 5.13.3 There must be evidence that disclosure of the information in question would pose a real and specific threat to national security.

Public interest

- 5.14 Any decision to support a request to withhold information from release is also subject to a public interest test. This could mean that even though the information may be covered by an exception, the information would still be disclosed unless the public interest is against such disclosure. In the EIR, there is a clear bias in favour of publication³⁸ and where an exception(s) is applied, Ofcom would be expected to demonstrate why it is still in the public interest not to disclose. If we are unable to do so, in these cases we would have no option other than to release. Therefore, any completed pro forma would also have to set out why it is in the public interest not to

³⁷ Information Commissioner ruling on Sitefinder paragraph 28 "in order to engage an exception, some harm must be certain rather than merely likely"

³⁸ High Court ruling on Sitefinder paragraph 53 <http://www.bailii.org/cgi-bin/markup.cgi?doc=/ew/cases/EWHC/Admin/2008/1445.html&query=ofcom&method=boolean>

disclose information – as against each exception separately and also as a whole (i.e. aggregating the relevant public interest considerations).

Without appropriate supporting evidence as to the public interest in non-disclosure of the Information for each site, we will disclose the Information.

Decision

- 5.15 For companies and organisations that have the necessary supporting evidence of exception and it is not in the public interest to disclose, we will not disclose the information under Regulation 4. However, separately, under Regulation 5, if we receive any future requests for information under EIR this would still have to be reviewed again based on the merits of each single request.
- 5.16 We will notify licensees with our decision on their request for exception as soon as practically possible after the decision has been made.

Timetable for evaluation process

- 5.17 Set out below is an indicative timetable for the next steps in the evaluation process for those organisations wishing Information pertaining to them to be considered for exception from disclosure under Regulation 4 of the EIR because an exception applies and it is in the public interest not to disclose (although this timetable is subject to change dependent on the number of requests received).
- **29 July 2010** - submission stage open;
 - **12 November 2010** - submission for exception closes;
 - **After 12 November 2010** - publish Information where Ofcom has received no submissions as to its exception under EIR; and
 - From **1 February 2011** – information to be released where appropriate.

Process for future WT Act licence applications

- 5.18 This will also be the process to enable new licensees to apply for an exception of their information under EIR. We propose to use the same five stage approach when dealing with such requests from new licensees whose licences were issued after the closure of this submission period. New licensees wishing to have their information exempted from disclosure would need to complete one of the three pro formas and submit their request, including any supporting information, with their licence application. We will then consider the request in line with the process outlined in paragraphs 5.4 to 5.15.

Non-EIR information

- 5.19 We would like to thank those who responded to the questions on where we could improve our information provision. We have taken on board a number of the comments and proposals outlined in Section 4. We are to look into the possibility of improving the WTR in relation to the information it provides and its performance.
- 5.20 In the consultation we raised two specific proposals that we requested comments on from our stakeholders. These were to mandate the price paid for spectrum in a trade

and to release spectrum usage information collected from our network of UMS. Our decisions on both proposals are provided below.

Price paid for spectrum in a trade

- 5.21 In light of the responses we received we do not plan to change the current voluntary arrangements for the provision of information concerning the price paid for spectrum in a trade. We appreciate that this information could be beneficial to the market but we understand stakeholders concerns that obtaining this information may be difficult and that there is no way of currently validating this information at present. We will however continue to monitor the situation and may revisit this decision if it is clear that the lack of price information is a barrier to the market. Any future proposal would be subject to further consultation.
- 5.22 As we noted in our consultation, the mandatory requirement to provide this information may increase the regulatory burden on stakeholders. This mainly occurs for trades that do not only involve spectrum but the company and its assets. In the consultation we advised that the ACMA had recently consulted on similar proposals. In discussions we have had with the ACMA they highlighted that for tax purposes the information on spectrum trades is already required to be provided to the Australian Taxation Office. As this is an existing requirement on companies then the additional regulatory burden placed on companies is limited. As no specific requirement exists in the UK the regulatory burden of complying with a mandatory requirement could potentially be significant.
- 5.23 We would prefer that licensees who wish voluntary to provide us with this information to use the actual monetary value of the spectrum.

Spectrum usage information

- 5.24 Having reviewed the responses received we have decided not to release the information collected from our UMS at this moment in time. We will continue to look at the issue of spectrum usage and as part of this exercise may publish further studies in this area as part of our research programme.

Annex 1

List of respondents

A1.1 We received thirty-one responses to the consultation, below is a list of names of all non-confidential respondents.

Arqiva

British Telecom PLC (BT)

David Hall Systems LTD

Federation of Communication Services

Freedom4

JFMG

Jodrell Bank Observatory

Joint Radio Company LTD

Scottish & Southern Energy

Scottish Power Energy Networks

Telecommunications Association of the Water Industry (TAUWI)

T-Mobile

Transfinite Systems

UK Petroleum Industry Association

Annex 2

Request for exception pro forma

Criteria for exception from disclosure of the Information – National Security

Introduction

To address concerns relating to potential release of sensitive information, a process has been developed to gather the necessary evidence from licensed operators on why they consider that the licence information they provide Ofcom should be excepted from disclosure in order to protect national security. This is by way of a pro forma for operators to complete. This information will be shared with Government who will make an assessment as to whether a valid case exists based on the evidence provided and advise Ofcom of its views.

Criteria for exemption (CNI related information)

1. The licensed communication transmissions must relate to a site or other asset which is recognised in Government as **CNI** (cat 3-5).
2. The CNI asset must be critically dependent on the licensed communication transmissions in question, such that:
 - loss or compromise of the transmissions would **critically affect the functioning of the site/operation and the services** it delivers (causing a critical impact on delivery of essential services to the citizen);
or
 - have a **critical impact on public safety** (e.g. leading to casualties/fatalities);
3. The licensed communications transmissions must be **vulnerable to compromise** (i.e. jamming & interference); and
4. That the information provided is **specific to a particular site/transmitter**, requests for entire network exemptions will not be considered.

Additional Factors: A case for exception will be assessed primarily against the above criteria and evidence will need to be provided supporting any claims made in this regard. However, additional secondary factors may be considered and you may want to provide additional supporting evidence³⁹.

Evaluation process

We request that all pro forma's are completed in full and returned to Paul.Chapman@ofcom.gsi.org.uk or via post to Paul Chapman, Ofcom at Riverside House, 2a Southwark Bridge Road, London SE1 9HA. Once received we will forward this to the Centre for the Protection of National Infrastructure (CPNI) and/or relevant Government

³⁹ The Information Commissioner has published guidance for public authorities on dealing with national security exemptions
http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/eip076_guidance_for_pub_doc_version3.pdf

Department who will then co-ordinate the evaluation of the request for exemption and advise Ofcom as to whether valid national security concerns apply. Taking this into account, Ofcom will then make a decision on disclosure.

Exemption of non-CNI information on National Security grounds

There may be legitimate national security concerns of a non-CNI nature. If so, please specify this on the attached pro forma section 10. You should seek to demonstrate that loss or compromise of the licensed communications transmissions would cause a national security impact; that the licensed communications transmissions are vulnerable to compromise (i.e. jamming, interference); and that the information provided is specific to a particular licence or transmitter. Ofcom will consider these non-CNI cases in consultation with the National Security Liaison Group (NSLG) and responsible government department.

Closing date

The closing date for all requests for exemption for Wireless Telegraphy Act licences currently issued is **5pm 12 November 2010**.

NATIONAL SECURITY PRO-FORMA FOR COMPLETION BY OPERATORS

Your Details

Company Name	Address
Contact name	Telephone / email

Site/ transmission to be considered for exemption

Licence number	
Site location	
Frequency	

Please provide answers to questions below giving specific examples where necessary.

Do your 'national security' concerns relate to CNI? YES/NO	
	<p>If YES, please answer questions 1-9 below.</p> <p>If No, please go straight to question 10.</p>

The licensed communication transmissions must relate to a site or other asset which is recognised in Government as CNI (cat 3-5)	
1.	Please provide details of the CNI site which the licence in question supports and the specific operation/service which the transmitter(s) relates to:
2.	What specific information in relation to the Wireless Telegraphy Act licence are you requesting to be withheld?
3.	Is the information regarding the transmission you wish to exempt from disclosure already in the public domain? [i.e. anywhere on the world wide web (such as local authority websites), journals or other publications]
The CNI asset must be critically dependent on the licensed communication transmissions in question	
4.	What is the impact of loss or interference of the licensed communication transmission? (e.g. nothing, degradation or complete transmission loss)?
5.	What is the impact on the CNI asset that is supported by the licensed communication transmission in the event that it is lost or interfered with?

6.	Is the licensed communication transmission that supports the delivery of critical services resilient? Does it have a back up communication media? If so, what and how does it work?
The licensed communications transmissions must be vulnerable to compromise (i.e. jamming & interference).	
7.	Is the licensed communication transmission encrypted?
8.	What type of transmission is it (e.g. burst or continuous)? How long does the transmission last for? How often does the transmission occur?
9.	<p>Transmitter / Receiver accessibility:</p> <ul style="list-style-type: none"> • Is the transmitted visible and identifiable? • How far is the transmitter / receiver from uncontrolled land? • At what height is the transmitter / receiver? • What are the access control procedures / systems in place to access the transmitter / receiver? • Is the transmitter / receiver protected by physical security (e.g. CCTV, AACS, fences, building fabric or controls, guard force, IDS or PIDS)? • What are the response procedures in the event that the licensed communication transmission is lost or degraded? • Is the licensed communication transmission near to or on top of the CNI defined critical asset?
Other Potential Factors for consideration	
10.	<p>Are there other reasons why this information should not be released on national security grounds?</p> <p><i>[If you believe you have a legitimate non-CNI case you should seek to demonstrate the following:</i></p> <ul style="list-style-type: none"> - <i>that loss or compromise of the licensed communications transmissions would cause a national security impact;</i> - <i>that the licensed communications transmissions are vulnerable to compromise (i.e. jamming, interference);</i> <p><i>Alternatively, if you cannot provide details for protective marking/security reasons, you should contact your lead government department to make representations to Ofcom on your behalf.</i></p>

Criteria for exception from disclosure of the Information – Defence

Introduction

To address concerns relating to potential release of sensitive information, a process has been developed to gather the necessary evidence from licensed operators on why they consider that their information should be excepted from disclosure in order to protect defence. This is by way of a pro forma for operators to complete. This information will be shared with Government who may make an assessment as to whether a valid case exists based on the evidence provided and advise Ofcom of its views.

Criteria for exemption

1. Disclosure of information regarding the asset would or would be likely to prejudice:
 - the defence of the British Islands (i.e. the UK, Channel Islands and the Isle of Man) or any colony;
 - the capability, effectiveness or security of the armed forces or that of any forces cooperating with them
2. The information concerning the asset is not available from any other sources.
3. That the information provided is specific to a particular site/transmitter, requests for entire network exemptions will not be considered.

Additional Factors: A case for exception will be assessed primarily on the evidence set out against the above criteria. However, additional secondary factors may be considered and you may want to provide additional supporting evidence⁴⁰.

Evaluation process

We request that all pro forma's are completed in full and returned to Paul.Chapman@ofcom.gsi.org.uk or via post to Paul Chapman, Ofcom at Riverside House, 2a Southwark Bridge Road, London SE1 9HA. Once received we will evaluate the request and if necessary forward it to Government for advice. Taking this into account, Ofcom will make a decision on disclosure.

Closing date

The closing date for all requests for exemption for Wireless Telegraphy Act licences currently issued is **5pm 12 November 2010**.

⁴⁰ The Information Commissioner has published guidance for public authorities on dealing with defence exemptions
http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/eip076_guidance_for_pub_doc_version3.pdf

DEFENCE PRO-FORMA FOR COMPLETION BY OPERATORS

Your Details

Company Name	Address
Contact name	Telephone / email

Licence/ transmission site to be considered for exemption

Licence number	
Site location	
Frequency	

Please provide answers to questions 1-7 below giving specific examples where necessary.

	The licensed communication transmissions must relate to a site or other asset whose disclosure would or would be likely to prejudice defence matters.
1.	Please provide details of the site which you are seeking to exempt and of the specific operation/service which the transmitter(s) relates to:
2.	What specific information in relation to the Wireless Telegraphy Act licence are you requesting to be withheld?
3.	What would be the direct impact on defence if this information was made available?
4.	What evidence do you have to support this claim?
	The licensed communications asset must be vulnerable to compromise.
5.	Transmitter / Receiver accessibility: <ul style="list-style-type: none"> • Is the transmitted visible and identifiable? • How far is the transmitter / receiver from uncontrolled land? • At what height is the transmitter / receiver? • What are the access control procedures / systems in place to access the transmitter / receiver?

	<ul style="list-style-type: none"> • Is the transmitter / receiver protected by physical security (e.g. CCTV, AACS, fences, building fabric or controls, guard force, IDS or PIDS)? • Is the licensed communication transmission near to or on top a CNI defined critical asset?
6.	Is information on the asset available already via other means (e.g. local council planning authorities)?
Other Potential Factors for consideration	
7	<p>Are there other reasons why this information should not be released on defence grounds?</p> <p><i>[If you believe you have a legitimate case you should seek to demonstrate the following:</i></p> <ul style="list-style-type: none"> - <i>that disclosure might assist an enemy</i> - <i>that the information on the licensed communications transmissions or other information is not in the public domain;</i> <p><i>Alternatively, if you cannot provide details for protective marking/security reasons, you should contact your lead government department to make representations to Ofcom on your behalf.</i></p>

Criteria for exception from disclosure of the Information – Public Safety

Introduction

To address concerns relating to potential release of sensitive information, a process has been developed to gather the necessary evidence from licensed operators on why they consider that their information should be excepted from disclosure in order to protect public safety. This is by way of a pro forma for operators to complete. This information will be shared with Government who may make an assessment as to whether a valid case exists based on the evidence provided and advise Ofcom of its views.

Criteria for exemption

1. Disclosure of information regarding the asset would have a **critical impact on public safety**, such that:
 - it would lead directly to casualties/fatalities;
 - it would lead to public harm; or
 - it would have an adverse affect upon the health and safety of the public.
2. The information concerning the asset is not available from any other sources.
3. That the information provided is specific to a particular site/transmitter, requests for entire network exemptions will not be considered.

Additional Factors: A case for exception will be assessed primarily on the evidence set out against the above criteria. However, additional secondary factors may be considered and you may want to provide additional supporting evidence⁴¹.

Evaluation process

We request that all pro forma's are completed in full and returned to Paul.Chapman@ofcom.gsi.org.uk or via post to Paul Chapman, Ofcom at Riverside House, 2a Southwark Bridge Road, London SE1 9HA. Once received we will evaluate the request and if necessary forward it to Government for advice. Taking this into account, Ofcom will make a decision on disclosure.

Closing date

The closing date for all requests for exemption for Wireless Telegraphy Act licences currently issued is **5pm 12 November 2010**.

⁴¹ The Information Commissioner has published guidance for public authorities on dealing with public safety exemptions
http://www.ico.gov.uk/upload/documents/library/environmental_info_reg/introductory/eip076_guidance_for_pub_doc_version3.pdf

PUBLIC SAFETY PRO-FORMA FOR COMPLETION BY OPERATORS

Your Details

Company Name	Address
Contact name	Telephone / email

Licence/ transmission site to be considered for exemption

Licence number	
Site location	
Frequency	

Please provide answers to questions 1-7 below giving specific examples where necessary.

The licensed communication transmissions must relate to a site or other asset that would lead to casualties/fatalities if disrupted	
1.	Please provide details of the site which you are seeking to exempt and of the specific operation/service which the transmitter(s) relates to:
2.	What specific information in relation to the Wireless Telegraphy Act licence are you requesting to be withheld?
3.	What would be the direct impact on public safety if this information was made available?
4.	What evidence do you have to support this claim?
The licensed communications asset must be vulnerable to compromise.	
5.	Transmitter / Receiver accessibility: <ul style="list-style-type: none"> • Is the transmitted visible and identifiable? • How far is the transmitter / receiver from uncontrolled land? • At what height is the transmitter / receiver? • What are the access control procedures / systems in place to access the transmitter / receiver?

	<ul style="list-style-type: none"> • Is the transmitter / receiver protected by physical security (e.g. CCTV, AACS, fences, building fabric or controls, guard force, IDS or PIDS)? • Is the licensed communication transmission near to or on top a CNI defined critical asset?
6.	Is information on the asset available already via other means (e.g. local council planning authorities)?
Other Potential Factors for consideration	
7	<p>Are there other reasons why this information should not be released on public safety grounds?</p> <p><i>[If you believe you have a legitimate case you should seek to demonstrate the following:</i></p> <ul style="list-style-type: none"> - <i>that loss or compromise of the licensed communications transmissions would cause a public safety impact;</i> - <i>that the licensed communications transmissions are vulnerable to compromise (i.e. jamming, interference);</i> <p><i>Alternatively, if you cannot provide details for protective marking/security reasons, you should contact your lead government department to make representations to Ofcom on your behalf.</i></p>

Annex 3

Glossary of abbreviations

ACMA	Australian Communications and Media Authority
BR IFC	Radiocommunications Bureau International Frequency Information Circular
CAA	Civil Aviation Authority
CNI	Critical National Infrastructure
DDR	Digital Dividend Review
DSO	Digital Switchover
EC	European Commission
ECC	European Communications Committee
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