OFFICE OF COMMUNICATIONS

# Statement on the Wireless Telegraphy (Exemption) (Amendment) Regulations 2006

Statement

Publication date: 23 November 2006

# Contents

## Section 1

# Summary

1.1 This statement confirms that, following a formal consultation process, the Wireless Telegraphy (Exemption) (Amendment) Regulations 2006 ("the Regulations") have been made by Ofcom and will come into force on 8 December 2006.

1.2 The Regulations were consulted upon in a Notice published by Ofcom on 5 October 2006. This consultation closed on 6 November 2006 and Ofcom received 8 supportive responses, which have been published on the Ofcom website. In addition to these responses Ofcom received detailed opinions from the European Commission ("the Commission") on the Interface Requirements ("IRs") relating to the following technologies that had been included in the Notice:

- digital PMR 446 ("walkie talkies"); and
- High Definition Fixed Satellite Systems ("HDFSS").

1.3 It is a requirement under the Technical Standards Directive[1] and the Radio and Telecommunications Terminal Equipment Directive[2] for EU Member States to notify draft IRs to the Commission. The Commission considers notifications over a three-month period during which it may deliver a detailed opinion that the IR in question may create obstacles to the free movement of goods within the internal market. In these circumstances, the IR may not be adopted for a further three months to allow the Commission sufficient time in which to propose amendments in order to remove or reduce those obstacles.

1.4 As a consequence of the Commission's detailed opinions, Ofcom cannot finalise and publish the IRs relating to digital PMR 446 and HDFSS. IRs are an integral element of the overall legislative package since the Regulations refer to them, thus a delay to the IRs would also delay the Regulations themselves. In order to avoid this delay extending to all the equipment proposed for exemption in the Regulations, Ofcom has removed these two technologies from the scope of the Regulations. The exemption of digital PMR 446 and HDFSS equipment will now be taken forward separately in the New Year following an analysis of the concerns raised by the Commission.

1.5 The Regulations therefore implement the remaining proposals for the use of the following to be exempt from the need to hold a Wireless Telegraphy Act ("WT Act") licence. These are:

- Citizens' Band (CB) radio – measures to remove the need for users of CB radio, of which there are currently 20,000, to obtain a licence from Ofcom;
- "micro" FM transmitters – these devices are designed to facilitate easy connection between audio sources (such as digital audio devices and MP3 players) and normal FM broadcast receivers by way of a radio link; and

[1] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.
[2] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

- a range of new technologies and novel applications of radio:
  - Inmarsat BGAN satellite terminals;
  - narrowband use of 24 GHz for short-range radar (including automotive applications); and
  - Radar Level Gauges.

Additionally the Regulations facilitate the implementation of the following Commission Decisions:

- Commission Decision 2006/771/EC establishing a framework for the harmonisation of radio spectrum for use by short-range devices in the Community. This Decision will shortly be published in the Official Journal of the European Union and whilst arrangements in the UK are already largely compliant with it the Regulations implement a number of minor changes that will bring the UK fully in line with the Decision;
- Commission Decision 2005/928/EC of 20 December 2005 on the harmonisation of the 169.4-169.8125 MHz frequency band in the Community. This Decision makes spectrum available for a range of applications including hearing aids, social alarms and asset tracking; and
- Commission Decision 2005/513/EC of 11 July 2005 on the harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of wireless access systems including radio local area networks (WAS/RLANs). Although existing arrangements are believed to be fully compliant we will make some minor changes to bring terminology fully into line with the Decision.

Further changes include:

- a range of additional measures to harmonise, on a voluntary basis, with Europe where such measures are viewed as beneficial; and
- editorial and minor changes designed to improve the clarity of current exemption arrangements and bring them fully up to date.

The Regulations can be found on the Ofcom website at: http://www.ofcom.org.uk/radiocomms/isu/licence_exempt/regulations/.

## Regulatory impact assessment

1.6 The regulatory impact assessment conducted in relation to Ofcom's exemption proposals can be found in Annex 1 of this statement.

## Further information

1.7 Ofcom's full outline of exemption proposals can be found in the consultation document "Wireless Telegraphy Licence Exemption – Amending the Wireless Telegraphy (Exemption) Regulations 2003" and available on the Ofcom website at: http://www.ofcom.org.uk/consult/condocs/wtexemption/.

1.8 The Notice of Ofcom's proposals to make the Regulations is available on the Ofcom website at: http://www.ofcom.org.uk/consult/condocs/exemption/.

## Section 2

# Introduction

2.1 This document confirms that Ofcom has made the Wireless Telegraphy (Exemption) (Amendment) Regulations 2006 ("the Regulations") and that the Regulations will come into force on 8 December 2006.

2.2 The Regulations amend the Wireless Telegraphy (Exemption) Regulations 2003 and provide for the use of certain radio equipment without the need to hold a WT Act licence. In line with section 1(1) of the WT Act 1949[3] use of wireless telegraphy equipment in the UK is authorised either by the issue of an appropriate WT Act licence or through the specific exemption from the need to hold such a licence.

2.3 Exemption is realised by describing the details of equipment and the parameters under which it may be used in Regulations which exempt users of such equipment from the need to hold a WT Act licence provided they comply with the terms of those Regulations.

2.4 Ofcom consulted on a range of proposals between 14 July and 22 September in the document "Wireless Telegraphy Licence Exemption – Amending the Wireless Telegraphy (Exemption) Regulations 2003" available on the Ofcom website at: http://www.ofcom.org.uk/consult/condocs/wtexemption/. The results of this consultation were largely positive and consequently Ofcom did not revise its proposals and sought to implement them by making Regulations. In order to do this and in accordance with Ofcom's statutory obligations, a draft of the Regulations along with a summary of the consultation responses were the subject of a further one month consultation document "Notice of Ofcom's proposal to Amend the Wireless Telegraphy (Exemption) Regulations 2003" (the "Notice") available on the Ofcom website at: http://www.ofcom.org.uk/consult/condocs/exemption/.

2.5 The responses to the Notice are discussed in the next chapter of this statement. Additionally detailed opinions delivered by the Commission on two of the IRs referred to by the draft Regulations along with the need to reduce the scope of the Regulations are also discussed in chapter 2 of this statement.

[3] Note that from 8 February 2007 the WT Act 1949 will be replaced by the WT Act 2006 but the effect of the provisions will be the same.

## Section 3

# Scope of the Regulations

### Responses to the Notice

3.1 There were 8 non-confidential responses to the Notice all of which were supportive of the Regulations. These are listed in Annex 2 of this statement and can be found on the Ofcom website at: http://www.ofcom.org.uk/consult/condocs/exemption/responses/.

3.2 One respondent felt that the present exemption allocations for audio apparatus were becoming congested. They suggested that a further licence exemption of audio apparatus within the present UHF terrestrial TV broadcast band that may become available as a result of the digital dividend would provide a significant social benefit.

3.3 Ofcom is currently running a project, the Digital Dividend Review, which is considering the options for the award of the spectrum which will be released from the digital switchover programme. This spectrum lies in the frequency ranges 470-862 MHz. There are many potential uses of this spectrum, and licence exemption of part of the band is one of the options that Ofcom will be considering. Ofcom will be publishing a consultation shortly, and our proposals for the spectrum will be set out at that time. The consultation will be available on Ofcom's website at http://www.ofcom.org.uk/radiocomms/ddr/. This link contains some further information about the project.

### IRs and the Commission

3.4 The R&TTE Directive simplifies the procedures for placing radio and telecommunications terminal equipment on the market, into free circulation and into service in the EU. It was adopted into UK law through the Radio Equipment and Telecommunications Terminal Equipment Regulations 2000 on 8 April 2000. The Directive covers equipment and its relevant components that are capable of communication by the emission and/or reception of radio waves (i.e. radio equipment) and/or enabling communication by connecting to the interface of public telecommunications networks (i.e. telecommunications terminal equipment). Under the R&TTE Directive, it is the person responsible for placing equipment on the UK market who must declare that it is compliant with the R&TTE Directive and any other applicable EU legislation. They must indicate an equipment's compliance by marking it with an appropriate CE mark, providing consumers with clarity as to the status of the equipment in relation to the R&TTE Directive. Licence-exempt devices put into service after April 2000 must be compliant with the R&TTE Directive.

3.5 IRs for radio equipment provide a link between the requirements of the R&TTE Directive and the use of national radio spectrum. The UK IRs describe the minimum technical specifications, such as power limits, frequency bands and channel spacing, which are necessary to avoid interference between radiocommunication services. Radio equipment must meet the UK IRs before it can be licensed or exempted from licensing. There is a separate IR for each different area of spectrum use.

### Final scope of the Regulations

3.6 Rather than describe detailed technical parameters, the Regulations cross refer to a number of IRs relevant to the use of equipment being exempted. Under the

requirements of the Technical Standards Directive and the R&TTE Directive, EU Member States are required to notify draft IRs to the Commission and Ofcom followed this process in relation to those IRs referenced in the Regulations. Following the 3 month standstill period which closed in early November, Ofcom received two detailed opinions from the Commission on the proposed IRs for digital PMR 446 and HDFSS.

3.7 When the Commission delivers a detailed opinion this automatically invokes a further three month standstill period during which the associated IRs may not be finalised and published. Because of the link between the IRs and the Regulations this delay would have delayed the Regulations themselves. To avoid this and thereby implement the remaining exemption proposals as originally scheduled, Ofcom has therefore removed digital PMR 446 and HDFSS from the scope of the Regulations.

3.8 Ofcom will liaise with the Commission to address its concerns over the IRs related to the use of this equipment and will seek to implement exemption in a separate process to be initiated in the New Year. At this time Ofcom will highlight any changes made to the IRs and provide details of the associated analysis.

3.9 The Regulations are unchanged in relation to implementing the remaining exemption proposals and these are:

- CB radio – measures to remove the need for users of CB radio, of which there are currently 20,000, to obtain a licence from Ofcom;
- "micro" FM transmitters – these devices are designed to facilitate easy connection between audio sources (such as digital audio devices and MP3 players) and normal FM broadcast receivers by way of a radio link; and
- a range of new technologies and novel applications of radio:
    - Inmarsat BGAN satellite terminals;
    - narrowband use of 24 GHz for short-range radar (including automotive applications); and
    - Radar Level Gauges.

Additionally the Regulations facilitate the implementation of the following Commission Decisions:

- Commission Decision 2006/771/EC establishing a framework for the harmonisation of radio spectrum for use by short-range devices in the Community. This Decision will shortly be published in the Official Journal of the European Union, and whilst arrangements in the UK are already largely compliant with it the regulations implement a number of minor changes that will bring the UK fully in line with the Decision;
- Commission Decision 2005/928/EC of 20 December 2005 on the harmonisation of the 169.4-169.8125 MHz frequency band in the Community. This Decision makes spectrum available for a range of applications including hearing aids, social alarms and asset tracking; and
- Commission Decision 2005/513/EC of 11 July 2005 on the harmonised use of radio spectrum in the 5 GHz frequency band for the implementation of wireless

access systems including radio local area networks (WAS/RLANs). Although existing arrangements are believed to be fully compliant we will make some minor changes to bring terminology fully into line with the Decision.

Further changes include:

- a range of additional measures to harmonise, on a voluntary basis, with Europe where such measures are viewed as beneficial; and

- editorial and minor changes designed to improve the clarity of current exemption arrangements and bring them fully up to date.

3.10 The Regulations can be found on the Ofcom website at: http://www.ofcom.org.uk/radiocomms/isu/licence_exempt/regulations/

## Annex 1

# Regulatory Impact Assessment

## Introduction

A1.1 In accordance with government practice, where a statutory regulation is proposed, a Regulatory Impact Assessment ("RIA") must be undertaken. The analysis presented here, when read in conjunction with the associated consultation documents, represents a Regulatory Impact Assessment as defined by section 7 of the Communications Act 2003 ("the Act") for amending the Wireless Telegraphy (Exemption) Regulations 2003.

A1.2 RIAs provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in section 7 of the Act, which means that Ofcom will generally carry out impact assessments where proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. In accordance with section 7 of the Act, in producing this RIA, Ofcom has had regard to such general guidance as it considers appropriate including related Cabinet Office guidance. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website: http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

## Background

A1.3 In the United Kingdom, Ofcom is responsible for the authorisation of civil use of the radio spectrum and achieves this by granting Wireless Telegraphy ("WT") licences under the Wireless Telegraphy Act 1949 (the "1949 Act") and by making Regulations exempting users of particular equipment from the requirement to hold such a licence. Under section 1 of the 1949 Act, it is an offence to install or use equipment to transmit without holding a licence granted by Ofcom, unless the use of such equipment is exempted.

## Proposal

A1.4 This RIA relates to the update of the current statutory instrument governing the use of wireless telegraphy on a licence-exempt basis, "The Wireless Telegraphy (Exemption) Regulations 2003 (SI 2003 N0.74) ("the existing Regulations)". This update will be achieved through an amendment to the existing Regulations and the nature of the changes proposed fall into the following three categories:

i) New requirements – where use of equipment is being made newly licence-exempt either because we are removing the need for an individual licence from an existing (licensed) type of use or introducing a new technology on a licence-exempt basis;

ii) Changes to existing exemptions in relation to some short range devices – where currently specified conditions in the existing Regulations need to change either to

comply with a European Commission Decision or to harmonise with Europe where such measures are viewed as beneficial;

iii) Editorial changes – to improve the clarity of drafting in the 2003 Regulations, update relevant cross references and update references to the legacy regulator (the Radiocommunications Agency) which no longer exists, to Ofcom which is now the regulatory body with responsibility for managing the radio spectrum.

## The citizen and/or consumer interest

A1.5 Ofcom takes account of the impact of its decisions upon both citizen and consumer interests in the markets it regulates. In proposing changes to the existing Regulations we have considered the wider impact beyond immediate stakeholders in the radiocommunications community and sought the advice of the office of the Ofcom Consumer Panel. We believe that the proposals will be of benefit to consumers for the following reasons:

i) The measures proposed all concern the use of radio equipment on a licence-exempt basis which reduces the regulatory and administrative burden on Ofcom's customers;

ii) Licence exemption is proposed only in areas where use of equipment is unlikely to cause harmful interference to other spectrum use;

iii) In many areas the proposals relax existing restrictions e.g. the de-regulation of CB radio and the identification of micro FM transmitter equipment which could be authorised in the UK without the need for a licence;

iv) They support the introduction of new and innovative technologies which will be of benefit to consumers in general; and specifically measures that address social groups such as the elderly and the hearing impaired.

## Ofcom's policy objective

A1.6 Ofcom seeks wherever possible, to reduce the regulatory burden upon its stakeholders, in this instance users of the radio spectrum. One way in which it can do this is to remove the need for spectrum users to apply for individual licences to authorise the use of radio equipment. In line with section 1(1) of the WT Act 1949, the use of Wireless Telegraphy (WT) equipment in the UK is authorised either by the issue of an appropriate WT Licence or through the specific exemption from the need to hold such a licence. Exemption is realised by describing the details of equipment and the parameters under which it may be used in a Statutory Instrument (secondary legislation called Regulations) which exempts users of such equipment from the need to hold a WT Licence provided they comply with the terms of the Regulations.

A1.7 In accordance with section 1A(A) of the WT Act 1949, Ofcom aims to exempt from licensing the use of specified equipment where it is not likely that such use will cause interference to other legitimate users of the radio spectrum or is contrary to an international obligation. Ofcom is also required to implement European Community (EC) Directives or Decisions relating to radio spectrum and from time to time this requires licence exemption arrangements to be changed.

## Options considered

A1.8 The options open to Ofcom in relation to the management of radio spectrum equipment use generally fall into the following categories:

i) Not to authorise use in the UK e.g. for national spectrum management reasons;

ii) To authorise use through the issue of a WT licence; and

iii) To authorise use through exemption from the need to hold an individual WT licence.

## Analysis of options

### Allocation decision

A1.9 In relation to the proposals outlined in this document, the first of these options has been discounted because in the case of each exemption proposal, failure to authorise use in the UK would mean that Ofcom would either fail to meet European Commission (EC) requirements which are binding in law or be in breach of its statutory obligations to authorise radio spectrum use where such use is not deemed to cause interference. Failure to provide an authorisation regime in the areas proposed for exemption would also stifle the development of innovative radio spectrum applications with the subsequent loss of benefits to UK citizens and the UK economy.

### Licence or licence Exempt

A1.10 The licensing option has also been discounted since the authorisation of use of equipment through individual licensing is either disproportionate and impracticable or inconsistent with EC direction to adopt the least onerous regulatory approach

A1.11 Licence exemption is therefore proposed because the analysis of the equipment proposed for exemption shows that there is minimal risk of interference to other users of the radio spectrum; this approach is in line with Ofcom's regulatory duties and meets the demands of EC requirements providing the following benefits:

i) Reduction of the regulatory burden; and

ii) Introduction of innovative applications and new technologies.

## Benchmarking benefits and costs

A1.12 To assess the preferred option we have compared the additional costs and benefits of a licence exempt regime against the baseline where each service is subject to a licence application procedure. For some services such as CB radios this comparison is relatively simple because there is an existing licensing regime in place against which to compare an exemption regime. For other services there is currently no provision for licence exemption hence these services would be subject to licensing requirements under the 1949 Act.

A1.13 Therefore, to enable comparison of a licence exempt against a licensing regime, it is necessary to make assumptions about the licensing regime where this is adopted as the alternative to licence exemption. We have based our assumption on the fact that the types of services which are typically made licence exempt would, under a

licensing regime, be issued with an “off the shelf licence”. This type of licence generally requires no specific assignment coordination and attracts a relatively low fee. For the purposes of this RIA the fee rate used for analysis is £50 for five years based upon current fee trends for off the shelf licences.

## Costs to business

A1.14 Licence exemption represents the least cost regulatory approach to the authorisation of spectrum use. If use of spectrum is authorised through a WT licence, businesses will face administrative costs associated with applying for the licence and compliance with the terms and conditions of that licence.

A1.15 If the licence is awarded by means of an auction the licensee will bear the costs of participating in the auction, including the cost of management time.

A1.16 Clearly this burden will be avoided if use of spectrum is made exempt from licensing, which could save each business user depending on the type of licence and method by which it is awarded. In estimating the costs associated with applying for a licence we have assumed the same cost as indicated above in terms of the cost to Ofcom of processing a licence application.

A1.17 One cost to business that is not included as a benefit of the licence exempt regime is the direct cost of any licence application fee. This is because we seek to identify below the benefits associated with reduced administrative costs to Ofcom. If we also included savings to business in not having to pay Ofcom’s admin fees then this would double count the benefit. Nevertheless, the licence fee may be relevant for the assessment of service take-up if it represents a large proportion of the overall value of the service in question

## Costs to Ofcom

A1.18 There are one-off administrative costs associated with making a Statutory Instrument. Ofcom considers the implementation costs to be low and offset by the benefits of licence exemption. There may be a slight reduction in spectrum management costs in certain areas. Licence exemption would reduce the cost incurred by Ofcom in operating a licensing regime. This could include running an award process, issuing licences, collecting licence fees and enforcing terms and conditions of licences.

## Costs to consumers

A1.19 The costs to consumers of licensing versus exemption would mainly arise from the potential disincentive effects on take up of services and hence a loss of the consumer surplus that licensing costs may impose and which are discussed in the sections below.

## Estimating the qualitative benefits of service take-up

A1.20 In this section, Ofcom considers the potential benefits of removing licensing obligations on service take-up. The licensing regime imposes an additional cost on a consumer using a product. This cost relates both to the licence fee levied as well as the time taken to make a licence application each time. Clearly this will affect existing users of a product who are obliged to incur these costs in order to continue utilising the product. Licensing costs can also create a barrier to the use of

spectrum and could deter service take up for that product. Therefore, in addition to existing users there is a potential impact on prospective users.

A1.21 In this RIA, Ofcom has assumed that for most products the licence fee would be £50 over a five year term (i.e. the consumer would have to take necessary time to apply for a single licence covering this whole period). Users when deciding whether or not to buy a product will be likely to consider the price of procuring the service in question but will also factor in the "price" associated with the licence fees. In this way, if the requirement for a product to be licensed is removed but the retail price of the product otherwise remained unchanged it would be expected (other things being equal) that total demand for the product would increase.

A1.22 The above discussion suggests that there would be likely to be an increase in service take-up but does not explain how this can be measured as a potential benefit. One approach is to consider the increase in "consumer surplus" that would arise from greater service take-up. Consumer surplus captures how much more consumers would be willing to pay for a service than the market price, and therefore how much each consumer benefits from being able to buy a particular service at a particular price. The potential benefits from service take up can therefore be reflected in the consumer surplus for those consumers who would now purchase such a service but who currently would not be prepared to pay the "higher price" of that service under a licensed regime (i.e. retail price plus licensing costs).

A1.23 To measure the consumer surplus benefit would require estimates of demand under licensed and licence-exempt regimes in order to measure consumer surplus under each scenario. Measuring the likely impact on demand will depend on a number of factors. For example, if licensing forms a small overall proportion of the cost of a service then it is unlikely to have a significant impact on service take-up as it would only be equivalent to a small reduction in price. Furthermore, it may be the case that the prospective number of new users is quite small so that even if licensing were deterring some users the total number is not likely to be very large.

A1.24 There are likely to be difficulties in estimating these demand effects without detailed estimates of demand. However, for the purposes of this RIA, Ofcom considers that it may be relatively less important to attempt to quantify the precise magnitude of any benefit. On this basis, Ofcom has considered a more qualitative approach. Nevertheless, for illustrative purposes Ofcom has also sought to derive some quantitative estimates of the potential consumer surplus benefits for some of the products considered in this RIA.

## Qualitative approaches – estimating the direction of any benefit

A1.25 In the case of the issues considered for this RIA, in directional terms, the incremental benefits associated with a reduction in admin costs are all likely to be positive. The main costs associated with spectrum relate to the allocation decision leading to inefficient use of the spectrum where the decision to permit use of the spectrum could potentially create interference or preclude use of the spectrum for other uses that were potentially more valued by consumers.

A1.26 In the case of the proposed licence exemptions for this RIA, Ofcom has not had to consider whether a particular allocation decision should be made. Ofcom has also assumed that there are limited risks of interference (over and above licensing) because the exemption regime establishes technical parameters aimed at reducing this risk. On this basis, provided that there are sufficient benefits arising from reducing the administrative burdens of a licensing regime, it may not be necessary

to quantify service take-up benefits to show a positive net benefit. It would be sufficient to show in qualitative terms that service take-up does not work against the other benefits (i.e. service take-up brings positive benefits) and adds to the weight of evidence in favour of licence exemption.

A1.27 The main focus of a qualitative approach is on the direction of any benefit of a licence exemption (i.e. whether or not any net benefit is likely to be positive). Ofcom has made assumptions about the form of licensing likely for these licence exempt services. Where the costs associated with licence application are large relative to the value of the service in question then licensing may act as a barrier to entry. If the price of one service (for example FM transmitters) is relatively low compared to the price of, say, industrial Radar Level Gauges (which are likely to cost several thousand pounds), then if both services faced similar costs in terms of the admin associated with licensing, this is likely to have a greater impact on the lower priced service in terms of service take up.

A1.28 Other factors may however mean that demand for the service is relatively unresponsive to prices (demand is inelastic). On the other hand small price changes could have a large impact on demand (demand is elastic). Therefore reducing administrative barriers would be unlikely to enhance significantly the demand for those services which are price inelastic. In these circumstances the main benefit of the removal of administrative costs would likely fall on the existing users of that service rather than prospective users.

A1.29 The scale of administrative costs relative to the price of the service and other demand factors influencing elasticity of demand are set out in the table below. This highlights that the benefits of service take-up are likely to be positive but the scale of any benefit is likely to vary.

**Table 1: Qualitative assessment of service take-up benefits**

| Service type | Admin costs relative to price of service | Other demand factors | Impact on service take-up |
|---|---|---|---|
| CB radios | High | Likely Inelastic | **+ve (small)** |
| Radar level gauges | Low | Likely Inelastic | **+ve (insignificant)** |
| Micro FM transmitters | High | Likely Elastic | **+ve (medium/high)** |
| SRR and movement detection systems | Medium/high | Likely Elastic | **+ve (medium/high)** |

## Quantifying service take up benefits

A1.30 In this section Ofcom provides some illustrative estimates of the quantitative benefits of service take-up. For the purpose of this RIA, Ofcom is only seeking to show that service take-up provides a positive benefit and has tended to rely on qualitative assessments to demonstrate this. Nevertheless, Ofcom has sought to provide some quantitative analysis to support the case for licence exemption for

some of the products considered and to estimate the potential extent of service take-up.

## Methodology

A1.31 In this section, Ofcom considers the potential quantitative benefits of removing licensing obligations on service take-up. Licensing costs can create a barrier to the use of spectrum and could deter service take up for that product. Therefore, in addition to existing users there is a potential impact on prospective users.

A1.32 Given that there would be likely to be an increase in service take-up, it is necessary to find some way of measuring this potential benefit. Ofcom's approach in this RIA is to consider the increase in "consumer surplus" that would arise from greater service take-up. Consumer surplus captures how much more consumers would be willing to pay for a service than the market price, and therefore how much each consumer benefits from being able to buy a particular service at a particular price.

### Step 1: estimating the demand

A1.33 The first step in the process is to estimate the demand for the product in question in order to derive an existing consumer surplus. In the absence of detailed consumer survey or market information Ofcom has had to make certain assumptions regarding "current" demand based on available information or relevant benchmarks.

A1.34 The circumstances in which demand is measured may vary by product. For example, in relation to some products there is a licensing regime so demand estimate is under a licensing regime. In other cases there is neither a licensing nor an exemption regime therefore there will be an impact of legalising use.

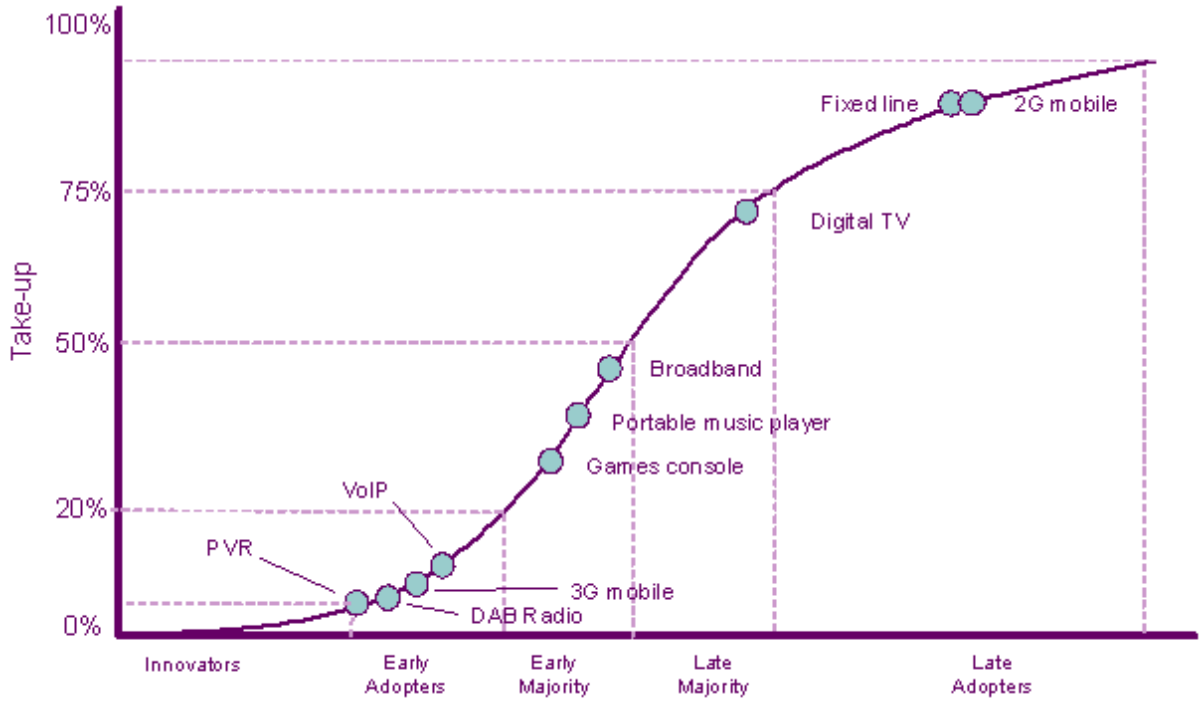
### Step 2: estimating the impact of licence exemption

A1.35 Ofcom has used relevant licence costs as an estimate of the price difference in retail prices in the presence and in the absence of a licence regime.[4] Measuring the likely impact on demand will depend on a number of factors. For example, if licensing forms a small overall proportion of the price of a service then it is unlikely to have a significant impact on service take-up as it would only be equivalent to a small reduction in price (unless users are particularly sensitive to price changes). Furthermore, it may be the case that the prospective number of new users is quite small so that even if licensing were deterring some of these users the total "pent-up" demand for a product is not likely to be very large.

A1.36 To estimate total potential demand, where alternative benchmarks are not available, Ofcom has considered an adoption curve – this is an S-shaped curve to show the cumulative adoption of a new technology or innovation by society. Ofcom's latest Communications Market report included an adoption curve for different technologies shown in figure 1 below.

[4] In the case where no licence fee exists, Ofcom has assumed that the licence fee would be £50 over a five year terms (i.e. a single licence covering this whole period).

**Figure 1:** Adoption curve for communications services and devices, Q1 2006 - **Ofcom's Communications Market Overview - 2006**




*Source: Ofcom*

*Note: Penetration of DAB radio, 3G mobile and VoIP are based on individuals; other technologies are based on households*

A1.37 As shown in figure 2, the above adoption curve shows take-up by number of households of different technologies. A small number of early adopters select the technology first, followed by the majority, until a technology or innovation is common. Figure 2 only shows adoption rates expressed as a percentage of total households for comparative purposes. There is however a further dimension to the adoption curve, as for some technologies there may be a natural limit in terms of the maximum addressable market. Particularly for products that can be viewed as complements to another good, there will be a natural limit to take-up of the former based on the existing ownership base for the latter product. For example, sales of digital set-top boxes would be expected to have a reasonably close relationship to the ownership of televisions.

A1.38 In these circumstances, an adoption curve can also be applied to this addressable population. Using assumptions or observed data on the current level of demand and the likely stage of adoption it is possible to estimate the scope of the market and the size of any additional demand. This would not provide the full picture on the likely service take-up only the potential maximum extent of the sales to that market.

A1.39 For each technology type, Ofcom has had to make further assumptions as to where a particular customer may lie on the adoption curve given the addressable market. This information has been used to formulate Ofcom's assumptions regarding the potential sensitivity (elasticity) of demand to price changes (which in this case is assumed to be equivalent to the imposition or removal of the licensing costs). As Ofcom has not been able to estimate with any certainty the elasticity for particular

products, it has sought to estimate the potential impacts of licensing and exemption under different elasticity assumptions.

## Citizens' Band Radios

A1.40 CB radios are an existing licensed service. To consider the potential benefits of license exemption requires consideration of how much of a deterrent the licensing regime might be on service take-up and whether there are likely to be other factors that tend to dominate demand for the product.

A1.41 Licensing costs are likely to be quite large proportion relative to the cost of procuring a CB radio. For example, the admin fees alone over 5 years (£15 per annum) (in net present value terms) would be £70.10 compared to around £100 for the cost of purchasing a CB radio.

### Step 1: Estimating demand

A1.42 The existing number of licensees is around 20,000 users. Based on an estimate of current price of CB unit plus the costs of licensing therefore provides a price (£170.10) and quantity demanded (20,000).

### Step 2: Estimating potential increase in demand

A1.43 The introduction of the legal 27 MHz frequency band for CB radio was some 24 years ago. Even on the basis of a slow adoption rate, the prospective number of additional users is potentially quite low as the market is likely to be particularly mature (i.e. there is limited prospect of further growth). Ofcom has estimated take up based on the likely stage of adoption for CB radios. On this basis, it is likely that demand is fairly inelastic, Ofcom has therefore assumed that the elasticity is low (<0.5), and has considered three elasticity scenarios to estimate a potential demand curve under the existing licensing regime.[5] The results of the consumer surplus estimates are set out in table 2 below.

**Table 2: Estimated calculations of consumer surplus based on elasticity assumptions**

| Elasticity | Estimated extent of service take-up (£) | Net consumer surplus (£) |
|---|---|---|
| 0.5 | 7,010 | 1,647,598 |
| 0.25 | 3,505 | 1,524,761 |
| 0.125 | 1,752 | 1,463,342 |

A1.44 The above figures show a range of benefits between £1.46 to £1.65 million. It should be noted however that most of this benefit accrues to the existing 20,000 customers that no longer have to pay the licence costs, which equates to £1.40 million (the costs of the licence fee multiplied by the number of existing customers). Therefore, the benefit of additional service take-up using the above elasticity assumptions is in a range of £0.06 to £0.25 million.

[5] This is a linear demand curve of the form $p = (-a)(q) + b$, where $p$ = retail price, $q$ = quantity demanded, $(-a)$ represents the slope of the demand curve $(0<a<1)$ and $b$ is a constant term.

## Micro "FM" transmitters

A1.45 Micro "FM" transmitters are not currently a licensed service. While there are potentially numerous innovations that might utilise this technology going forward, for the purpose of this example, Ofcom has only considered the benefits associated with Mp3 devices such as the "iTRIP" products.

### Step 1: Estimating demand

A1.46 Ofcom has estimated that the current price of micro FM transmitters is around £29. Ofcom does not have any estimates of the current customer base for micro FM transmitters. Nevertheless, the potential market for micro FM transmitters could be estimated based on the overall market for Mp3 devices. This is because a micro FM transmitter can only be consumed where the owner also has access to an Mp3 unit. However, this is very much an upper bound to the total demand potential, as not all Mp3 owners will necessarily demand a micro FM transmitter (e.g. they may only wish to use Mp3 player using headphones or may not own or use a car).

A1.47 It is also likely that adoption of micro FM transmitters would lag the current rate of adoption for Mp3 players.

A1.48 As shown in figure 1 above, the percentage take-up of Mp3 players is around 35 percent of all households. Based on current sales to date, this would equate to a potential market of 8.75 million Mp3 players. For the purpose of this impact assessment Ofcom has taken a reasonably conservative assumption and has considered that the maximum size of the potential micro FM transmitter market would be 10 percent of the Mp3 market. This would be equivalent to 875,000 units.[6]

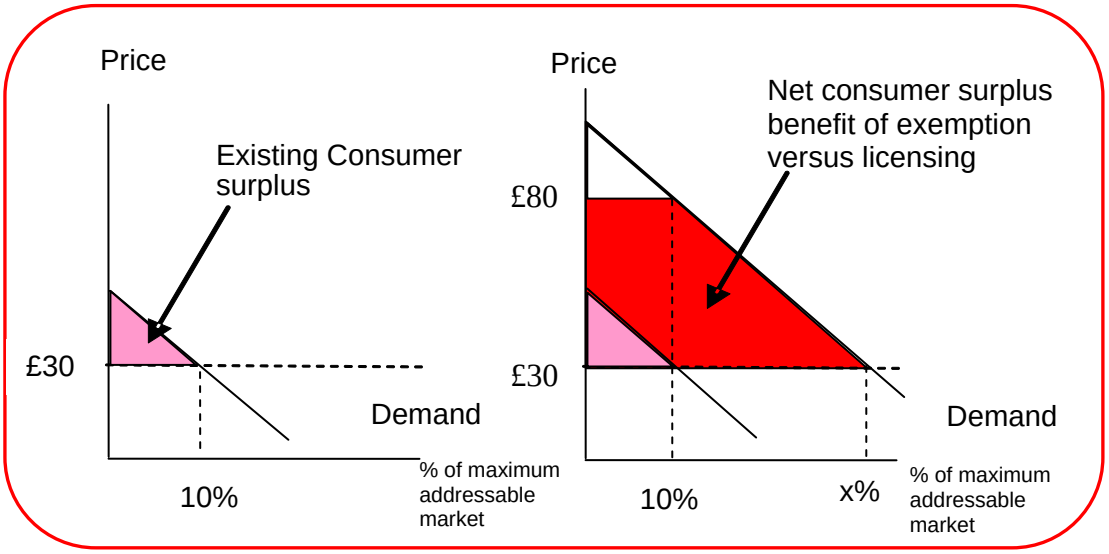
A1.49 In relation to the existing market, it should be noted that micro FM transmitters are currently on sale in the UK and have been overseas for sometime. In the absence of exemption it remains illegal to use a unit in the UK without a licence, but there may have been early adopters aware of Ofcom's proposed consultation or have purchased the micro FM transmitter to use overseas in jurisdictions where it is legal to do so. There may also be other users that have been using Micro FM transmitters illegally. Ofcom has therefore assumed that as an initial starting position that at least 10 per cent of the total addressable market for micro FM transmitters has already adopted the technology.

### Step 2: Estimating potential increase in demand

A1.50 The above discussion suggested that there is an existing consumer base for micro FM transmitters. However, the illegality of use is likely to be a major barrier to more widespread adoption of this technology. Under both the licensing and exemption route there is likely to be shift in demand in relation to permitting use of micro FM transmitters legally. In addition, there are potential impacts on consumer surplus of licensing versus exemption as shown in figure 2.

[6] For the purpose of this RIA, we have ignored any further potential take-up of Mp3 players over the course of this period.

**Figure 2: Consumer surplus before and after the removal of licensing**




A1.51 The left hand diagram shows Ofcom's assumption that around 10 percent of the addressable market for micro FM transmitters might have already adopted the technology. In these circumstances it is possible to estimate current consumer surplus based on assumptions regarding the elasticity of the demand curve at this point. Table 3 provides estimates of consumer surplus based on different elasticity assumptions.

**Table 3: "Existing" consumer surplus**

| Elasticity | Existing consumer surplus (10 percent adoption and £30 retail price) (£) |
|---|---|
| 0.5 | 2,625,000 |
| 1 | 1,312,500 |
| 1.5 | 875,000 |

A1.52 The right hand diagram shows that demand curve would shift outwards by some amount given that micro FM transmitters will become legalised. In figure 3, at the current retail prices of £30, consumers would demand an amount representing "x" percent of the addressable market. Ofcom has not specified a single number here, but as set out in table 4 below, has instead applied different scenarios (namely an increase to 25 per cent, 50 per cent and 75 per cent of the addressable market). This methodology is slightly different to the approach adopted for CB radios. This is on the basis that there is an additional effect associated with legalising the micro FM technology.

A1.53 Given the different scenarios in relation to this outward shift in the original demand curve, Ofcom has calculated the consumer surplus under an exempt and licence exempt regime based on different elasticity assumptions to derive a potential demand curve. It can be seen in figure 3 that under a licence regime that we have assumed that a consumer having to pay £80 (£30 for a micro FM transmitter plus a £50 licence fee) can be compared against the exempt regime where a £30 retail price is assumed.

**Table 4: Estimated net consumer surplus benefit of exemption under different demand assumptions**

| | Demand scenario (as % of addressable market) | | |
|---|---|---|---|
| Elasticity scenario | 25% | 50% | 75% |
| 0.5 | 6,562,500 | 17,500,000 | 28,437,500 |
| 1 | 5,979,167 | 16,916,667 | 27,854,167 |
| 1.5 | 4,593,750 | 15,531,250 | 26,468,750 |

A1.54 It should be noted that the figures in table 3 provide estimates of net consumer surplus for exemption relative to licence exemption. In addition, the above figures also exclude the existing consumer surplus as shown in table 3 based on Ofcom's assumption about the size of the "existing" customer base. In other words the relevant comparison is the relative consumer surplus benefit that would accrue under a licence exempt or licensing regime.

A1.55 Based on Ofcom's calculations, the net consumer surplus benefit of exemption is between £4.6 million to £28.4 million depending on assumptions about demand and potential growth in micro FM transmitter usage over the period considered in this RIA.

## Radar level gauges

A1.56 Businesses are currently licensed to use Radar Level Gauges but no licence fee is levied for their use. The licence would last for the lifetime of the product. Radar level gauges are specialised products used for specific industrial applications. As the administrative costs are likely to form a small proportion of the overall costs of these products, it is unlikely that this will be a significant barrier to usage.

A1.57 On this basis, any additional benefits are likely to be the avoided costs to existing businesses in terms of administrative costs which have already been noted as a benefit elsewhere in this document.

## SRR and movement detection systems

A1.58 There is a range of applications for Short Range Radar and movement detection systems. For short range radar, the proposals are to increase the available bandwidth within the 24 GHz and 2.4 GHz ranges. Ofcom's previous RIA for the extension of SRR to use within the 24 GHz band[7] estimated the benefits of the uptake of SRR devices was in the region of £140 to £280 million. As the proposed licence exemption would entail lifting some restrictions on the usage of SRR in the existing bands, these estimates could provide an indication of the benefits associated with other SRR applications.

A1.59 Given that an existing licence exemption is available for SRR these benefits may have accrued already (albeit under more restrictive conditions). The proposal is to de-restrict the areas of the spectrum that these licence applications could use will

[7] http://www.ofcom.org.uk/consult/condocs/24ghz/24ghz.pdf

nevertheless create scope for greater flexibility and potentially additional functionality in SRR design. It should be recalled however that the question in the context of this RIA is to quantify the impact of licence exemption versus licensing rather than the initial allocation decision. Based on the above calculations even if the removal of licensing were to result in only a 1% increase in demand this would deliver an additional £1.4 to £2.8 million benefit.

A1.60 Movement detection systems include a range of applications from Burglar Alarms and speed monitoring. For the purpose of this impact assessment, for the reasons set out previously, Ofcom has only sought to identify indicative benefits in some of the areas considered by the licence exemption. For movement detection systems it would be fairly impractical to seek to quantify the benefits given the range of applications or potential innovations that could utilise spectrum for these technologies.

## Annex 2

# List of Respondents

A2.1 The following submitted non-confidential responses to the "Notice of Ofcom's proposal to amend the Wireless Telegraphy (Exemption) Regulations 2003" which ran from 5 October to 6 November 2006. The responses may be viewed on the Ofcom website at http://www.ofcom.org.uk/consult/condocs/exemption/responses/

- Mr Abraham
- Mr B Copsey
- Gennum UK LTD
- Mr S Hoare
- Mr E Lewtas
- S Willoughby
- Name Withheld 1
- Name Withheld 2