# Radio - Licensing Policy for VHF Band III, Sub-band 3

**Consultation**

Publication date: **19 October 2005**

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# Contents

**Section 1**

# Foreword

In phase I of Radio – preparing for the future we set out our plans to facilitate the growth of Digital Audio Broadcast (DAB) digital radio by allocating more VHF Band III spectrum to local and national DAB.

While many people agreed with our plans, there were objections from others.

So, we have returned to first principles to consider what we should do. This document sets out the additional evidence we have considered, the analysis we have done, and the proposals we are making.

We now expect four blocks of spectrum to be available within Band III. Ofcom's overall spectrum framework policies suggest that spectrum should be allocated in a technology and service neutral way and be auctioned, to allow the market to decide on its use, unless there are exceptional policy reasons for doing otherwise. The hurdle rate for such grounds is high. It requires confidence that the public policy grounds are genuinely compelling, and the benefits of intervening significantly outweigh the costs.

We consider that in this case the public policy grounds are compelling. They relate to the need to secure wider availability of local digital radio services in areas that presently don't have them, and more digital radio services available nationally. These reasons are particular to the present circumstances of digital radio.

While radio is available on many digital platforms, DAB digital radio is the only digital platform currently available that can deliver national and local services to portable and mobile receivers throughout the UK. Local digital radio services are available in many parts of the country but not all, because a lack of spectrum limited past licensing.

So, to allow every part of the UK to benefit from local digital radio services, we propose to allocate three blocks of spectrum in Band III to fill the gaps in existing local coverage.

It has been argued that all the potential new spectrum should be allocated to local multiplexes to allow a migration path to DAB for all existing and planned analogue radio services. In fact our plans allow for the migration of all BBC stations, and those stations which account for 95% of existing commercial radio listening. But this document explains our view it would not be the best use of spectrum to allocate the fourth block of spectrum to more local multiplexes.

There are several reasons for this. One of the most important is our view that listeners' interests will be best served by making more services available nationally. There is evidence of strong demand from operators wishing to provide such services, and we judge that making more services available nationally is the best way of strengthening listener range and choice. We know from other platforms, such as digital satellite, that listeners have a wider range of radio stations than is currently available on DAB, and we do not believe that any impact upon existing multiplex operators will be disproportionate. We also judge that using the fourth block for more local services on DAB would, in practice, have little benefit to stations that presently lack a migration path to digital: other technologies, such as Digital Radio Mondiale are likely to be more suitable.

The Communications Act is clear that Ofcom has a duty to secure a wide range of radio services throughout the UK that taken as a whole are both of high quality and appeal to a

variety of tastes and interests.  In our view, this should be taken to mean that any new services on the additional national multiplex should appeal to tastes and interests that are distinct from those met by the existing commercial multiplex.

Ofcom therefore proposes to allocate the fourth block to a new national multiplex. We also propose to award all the multiplexes under the process set out in the Broadcasting Act 1996, to help ensure we achieve our policy objectives.

This document sets out proposals that should help to create a virtuous circle for digital radio. With more opportunities for existing and new services to be carried on DAB, the attractiveness of the DAB platform can only be increased for listeners and advertisers - thus helping to secure the digital future radio needs.

## Section 2

# Ofcom's duties and functions

## Introduction

2.1 This section provides an overview of the main UK and European legislative provisions relevant to the award of spectrum in sub-band 3 of Band III but is not intended as a comprehensive statement of all Ofcom's duties and functions.

2.2 The relevance of sub-band 3 spectrum to particular objectives of broadcasting policy makes it relevant and necessary to consider a range of duties relating to both broadcasting and spectrum management and the interaction between them.

## Ofcom's general duties

2.3 Under section 3(1) of the Communications Act 2003, it is the principal duty of Ofcom in carrying out its functions:

(a) to further the interests of citizens in relation to communications matters; and

(b) to further the interests of consumers in relevant markets, where appropriate by promoting competition.

2.4 In carrying out this principal duty, Ofcom is required to secure a number of objectives in particular (section 3(2)) and to have regard to such of a number of matters as set out in sections 3(3) and 3(4). Those in section 3(3) must be considered in all cases whereas those in section 3(4) have to be taken into account only insofar as Ofcom considers them relevant. Some of these objectives and matters are general, such as the desirability of promoting competition, investment and innovation. Others, as outlined below, are more relevant to spectrum or to broadcasting, although the division is not always completely clear-cut, especially as most broadcasters use spectrum.

2.5 There is no hierarchy in the legislation between the two components of the principal duty in section 3(1) or between the objectives in section 3(2) or between the matters in section 3(4).

2.6 Section 3(3) requires Ofcom to apply certain regulatory principles in all cases. Ofcom has a duty under this section to have regard in all cases to principles under which regulatory activity should be transparent, accountable, proportionate, consistent and targeted only where such action is needed, as well as to any other principles appearing to Ofcom to be best regulatory practice. Ofcom has stated that it will operate with a bias against intervention but with a willingness to intervene firmly, promptly and effectively where required; and, further, that it will intervene where there is a specific statutory duty to work towards a public policy goal that markets alone cannot achieve. If a case for intervention can be made, Ofcom is committed to choosing the least intrusive means.

## Ofcom's spectrum duties

2.7 In carrying out its general duties, Ofcom is required by section 3(2) to secure in particular the optimal use of the electro-magnetic spectrum for wireless telegraphy[1] and a wide range of electronic communications services; by section 3(4)(e) to promote broadband availability and use; and by section 3(4)(f) to have regard to the different needs and interests of all persons who may wish to make use of the spectrum for wireless telegraphy.

2.8 In addition, in carrying out its spectrum functions, Ofcom is specifically required by section 154 to have regard in particular to:

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

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

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

and to have regard, in particular, to the desirability of promoting:

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

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

(c) the development of innovative services; and

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

2.9 The management of the UK radio spectrum is also governed by the European Communications Directives, which aim to harmonise the regulation of electronic communications networks and services throughout the European Union. Section 4 of the Communications Act 2003 requires Ofcom when carrying out its spectrum functions to act in accordance with the six "community requirements" set out in that section. The following requirements seem relevant to this consultation:

(a) to promote competition (section 4(3));

(b) to promote the interests of all persons who are citizens of the European Union (section 4(5));

(c) to take account of the desirability of Ofcom carrying out its functions in a technology neutral way (section 4(6)); and

(d) to secure efficiency and sustainable competition and maximum benefit for service providers and their customers (section 4(8)).

## Ofcom's radio broadcasting duties

2.10 Ofcom's general duties also include requirements germane to radio broadcasting. Section 3(2) requires Ofcom in carrying out its functions to secure:

[1] "Wireless telegraphy" is the expression used in the legislation to denote use of electro-magnetic spectrum for an extremely wide range of applications, from radar to remote car keys. Spectrum used for wireless telegraphy is also sometimes referred to as the "radio spectrum". This should not be confused with use of the term "radio" to denote sound broadcasting, which is just one application of wireless telegraphy, albeit an economically and socially important one.

(a) the availability throughout the UK of a wide range of television and radio services which (taken as a whole) are both of high quality and calculated to appeal to a variety of tastes and interests;

(b) the maintenance of a sufficient plurality of providers of different television and radio services;

(c) the application, in the case of all television and radio services, of standards that provide adequate protection to members of the public from the inclusion of offensive and harmful material;

(d) the application in the case of all television and radio services of standards that provide adequate protection to members of the public from the inclusion of , unfair treatment in programmes and unwarranted infringement of privacy.

2.11 In addition, Ofcom is required, where it is considered to be relevant in the circumstances, to have regard to the different interests of persons in different parts of the UK, different ethnic communities and rural and urban areas (section 3(4)(l)).

2.12 Ofcom's duties relevant to spectrum and broadcasting are summarised in the following table:

<table>
<tr><th>Duty</th><th>Spectrum</th><th>Broadcasting</th></tr>
<tr><td>Principal duty in carrying out functions – section 3(1)</td><td colspan="2">Further interests of:<ul><li>citizens; and</li><li>consumers, where appropriate by promoting competition</li></ul></td></tr>
<tr><td>Duty to secure in carrying out principal duty – section 3(2)</td><td>Optimal use of spectrum<br><br>Availability of wide range of electronic communications services</td><td>Availability of a wide range of television and radio services<br><br>Maintenance of sufficient plurality of providers of broadcast services<br><br>Adequate protection from offensive and harmful material<br><br>Adequate protection from unfairness or invasions of privacy</td></tr>
<tr><td>Matters to have regard to in all cases –section 3(3)</td><td colspan="2">Regulatory principles of transparency, accountability, proportionality, consistency and acting only where necessary<br><br>Any other regulatory principles Ofcom considers represent best practice</td></tr>
<tr><td>Matters to have regard to where relevant in the circumstances – section 3(4)</td><td colspan="2">Competition, investment and innovation<br><br>Interests of persons in different parts of the UK, different ethnic communities and rural and urban areas</td></tr>
</table>

| Duty | Spectrum | Broadcasting |
|---|---|---|
| | Availability and use of broadband<br>The different needs and interests of persons wishing to use spectrum | Standards to guarantee appropriate freedom of expression |
| To act in accordance with European principles – section 4 | Promote competition<br>Promote interests of all citizens of the EU<br>Technology neutrality<br>Efficiency, sustainable competition, maximum benefits | |
| Additional matters to have regard to in carrying out spectrum functions – section 154 | Availability of spectrum<br>Current and expected future demand for spectrum<br>Efficient management and use of spectrum<br>Economic and other benefits<br>Innovation and competition<br>Efficiency and sustainable competition and benefits for operators and customers | |

## Relationship between Ofcom's duties

2.13 Parliament recognised that Ofcom's duties require it to pursue a range of objectives while taking a variety of matters into consideration and that this was likely to present Ofcom with a need to resolve conflicts between these duties and matters. Ofcom therefore is given a wide measure of discretion in such circumstances within an overall framework set out in the Act. Thus priority must be given to the duties in section 4(1) for the purpose of fulfilling Community obligations over the general duties in section 3 (section 3(6)) in respect of the functions set out in section 4; and the section 3 duties take precedence over the section 154 spectrum duties (section 154(4)). Subject to that, however, section 3(7) gives Ofcom a broad discretion to resolve conflicts between its general duties in the manner it thinks best in the circumstances. The "general duties" referred to here include the principal duty under section 3(1), the duty to secure the objectives set out in section 3(2) and the duty to have regard to the matters in section 3(4).

2.14 Where Ofcom resolves a conflict in an important case, it must publish a statement setting out the nature of the conflict, how Ofcom decided to resolve it and the reasons for resolving it in that manner. An important case is one that involves a major change in Ofcom's activities, that is likely to have a significant impact on business or the general public or that Ofcom considers to be of unusual importance.

## Impact assessment

Ofcom is required under section 7 of the Communications Act to carry out an assessment of the likely impact of implementing a proposal where it appears to Ofcom that the proposal is important. This document constitutes an impact assessment for this purpose.

## Conclusion

2.15 Ofcom has a number of duties relevant to sub-band 3. These may be summarised as a duty to secure certain public policy objectives in relation to broadcasting while observing the regulatory principle of intervening as little as possible to attain those objectives and securing "optimal use" of the radio spectrum, while taking into account the whole range of economic and social considerations. Promotion of competition is a theme that runs throughout Ofcom's duties but this is counterbalanced by recognition that markets are not perfect and that it may be necessary to intervene where there is a specific statutory duty to work towards a public policy goal that the market, left to itself, would not achieve. Where Ofcom does intervene, it will do so firmly, promptly and effectively and in the least intrusive manner consistent with achieving its objective.

2.16 In other words, Ofcom will intervene only where two criteria are satisfied. There must be a specific statutory duty to achieve some aim and the market alone will not achieve that aim. For a further discussion of how Ofcom proposes to reconcile these duties and aims in the context of sub-band 3 of Band III, see section 4 below, which outlines Ofcom's approaches to sound broadcasting policy and to managing the radio spectrum.

## Section 3

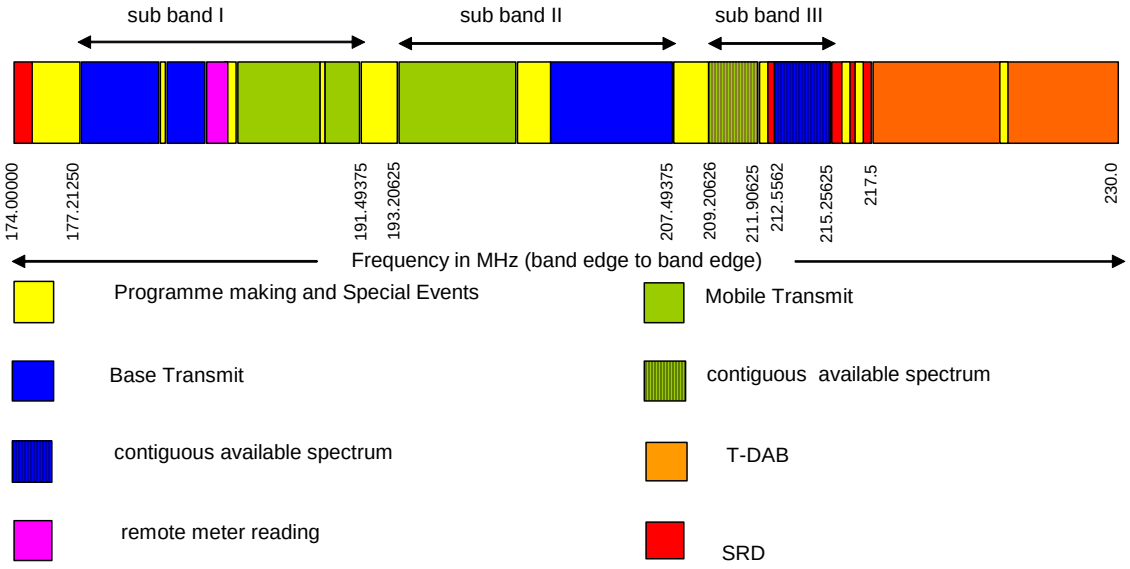
# Spectrum in VHF Band III, sub-band 3

## Development and current use of spectrum in Band III

3.1 This consultation covers the radio frequency range 209.2 to 217.5 MHz (which encompasses the range referred to in the UK as sub-band 3 of VHF Band III, and the associated 'guard bands').

3.2 Band III spectrum, including that in sub-band 3, was used for television broadcasting in the UK until 1984, when 405-line television transmission ceased. Elsewhere in continental Europe, and the Republic of Ireland, it is still used extensively for television.

3.3 In the UK, the current primary use of sub-band 3 is for Terrestrial Digital Audio Broadcasting (T-DAB). The UK government in 1994 allocated spectrum for T-DAB in the range 217.5 to 230.0 MHz; a European Conference of Postal and Telecommunications Administrations (CEPT) planning meeting held at Wiesbaden the following year provided a European framework for T-DAB frequencies. The band is also used for Programme-Making and Special Events (PMSE) and short-range devices (SRDs) on a secondary basis. The current use of Band III in the UK is as follows:




3.4 The propagation characteristics of Band III make this spectrum well suited to wide area broadcasting. It is also possible to use this spectrum to serve multifunctional handset devices such as those envisaged for mobile and portable multimedia (i.e. sound, video and data). Other frequencies (such as spectrum available at 1.5 GHz , 'L-Band') can also be used for mobile and portable multimedia, but are less suitable for wide area broadcasting.

3.5 In 1993, the 'lower' part of sub-band 3 was set aside for new land mobile services technology but no such assignments were ever made. Due to increasing calls for

more spectrum from potential users such as the digital radio community and the transport communications industry, in the Summer of 2002 a decision was taken by the Radiocommunications Agency to review Band III as a whole with a view to releasing spectrum to the market in a way that would optimise its use. A joint consultation by the Radiocommunications Agency and Radio Authority, 'Opportunities for Future Use of Spectrum within VHF Band III (174 to 230 MHz) and in the 1.5 GHz Band (1452 to 1492 MHz)', was subsequently published in October 2003. The specific content and outcome of this consultation, and its relevance to the matters which form the basis of this present document, are set out in Section 5.

3.6 Work is currently underway to update the international regulatory framework for the use of this, and other, spectrum for digital terrestrial broadcasting. This framework will be set at a Regional Radiocommunications Conference (RRC), the final session of which is scheduled to take place in May/June 2006. A first session, held in May 2004, agreed the broad parameters within which the final planning agreement would be made. The RRC is organised under the auspices of the International Telecommunications Union (ITU), and next year's session is intended to achieve an international agreement and a coherent plan for digital broadcasting (both television and radio) in Bands III, IV and V across the majority of the countries in ITU Region 1 (Europe, Africa and part of Asia) and the Islamic Republic of Iran. This is necessary to allow for the introduction of digital broadcasting in Europe without each country having to agree every broadcasting station individually with its neighbours, and to allow analogue TV to be switched off.

3.7 The RRC is designed to create a common plan for digital broadcasting and countries must submit new requirements expressed in broadcasting terms. Certain other existing services using Bands III, IV and V will be taken into account, and it is the clear intention of many countries that capacity for new services should be released for multiple alternative uses once analogue TV is switched off, but the agenda for the RRC is focused on digital broadcasting.

3.8 Ofcom leads the UK delegation to the RRC on behalf of the UK government. In the inter-sessional period, Ofcom also leads the UK delegation at bilateral and multilateral meetings with the UK's near neighbours (especially France, Belgium, Netherlands and Ireland), where co-ordination of plans is particularly important. In all these negotiations, the UK objective is to secure the maximum amount of spectrum capacity – for broadcasting, for existing non-broadcasting services and for new services – consistent with the corresponding requirements of our neighbouring countries.

3.9 The overall responsibility for the UK's position at the RRC rests with an intergovernmental committee. The development of that position, and the management of the UK negotiations in preparation for the RRC, is carried out by a sub-committee chaired by Ofcom – the International Broadcasting Planning Group (IBPG). The detailed approach is considered by subgroups – in this case the Band III Subgroup. This sub-group is chaired by Ofcom, with representatives from BBC, Digital One, Commercial Radio Companies Association(CRCA), Arqiva and Crown Castle.

3.10 Our current negotiating position is that we wish to secure international agreement for the use of the frequency range 209 to 217.5 MHz (i.e. part of sub-band 3 of VHF Band III) for T-DAB. This equates to five 'frequency blocks', labelled as 10A, 10B, 10C, 10D and 11A. By virtue of the required geographical extent of their use, national multiplexes are more demanding of international co-ordination, and require more accommodation from neighbouring countries, than local multiplexes.

Consequently, seeking co-ordination for national use for all five of these frequency blocks, in addition to the frequency blocks already used nationally by the BBC and Digital One, would have been seen as seeking to claim an inequitable share of the spectrum. Phase 1 of the Radio Review had indicated that completing the coverage of local T-DAB multiplexes throughout the UK would require a minimum of three of these frequency blocks, and therefore we have based our negotiating position on seeking international agreement for national use for two of the five frequency blocks. The outcome of the RRC will determine the technical characteristics and extent of the spectrum resource available to the UK that can be used without further agreement of other countries. It will not necessarily determine how that spectrum resource will be used or assigned within the UK. The policy work to determine what is the right use of this spectrum can therefore take place in parallel with the RRC negotiations, and the negotiations can take place in accordance with the overall ITU timetable, without needing to wait for policy decisions in the UK.

3.11 We identified in Phase 1 of the Radio Review that the number of frequency blocks in sub-band 3 that could actually be released would depend on whether alternative spectrum could be found for the PMSE users which currently occupy the band, as well as on international clearance at the RRC. Since Phase 1 was published, we have been carrying out further work on both of these issues, and the latest information available to us in relation to both of these issues suggests that in practice only four blocks may now be available for release initially. Therefore, this document focuses on the allocation and assignment of four blocks, and it does not contain a comprehensive discussion of the issues in relation to the fifth block. In the event that it does prove possible to release a fifth block, we would expect to undertake a further consultation specifically in relation to this block. It is important to note that the RRC negotiations are still continuing and the release of the four spectrum blocks depends on the outcome of the RRC.

## Issues that need to be addressed

3.12 Ofcom needs to address a number of issues in considering how to allocate and assign spectrum. The first question relates to timing: should the spectrum be released immediately or held back. The latter course has the advantage that it enables more information to become available to guide the regulator in decisions on how the spectrum might be most advantageously used. On the other hand, this will not usually be in accordance with Ofcom's duty to make optimal use of the spectrum as it would result in spectrum remaining unused when it could be utilised to generate economic or other benefits. The resulting delay to the introduction of new services or increased competition can result in substantial loss of consumer benefit. Spectrum is a major asset to the UK and it will not usually be optimal to keep it unused, especially when the market is demanding access to more spectrum.

3.13 The introduction of spectrum trading and liberalisation allow spectrum to change hands and to migrate to higher value uses. This reduces any risk there may be that an early award will lock out later uses that might generate greater benefits.

3.14 In the case of Band III, keeping the spectrum unused would prevent its use for any purpose including the provision of electronic communication services and broadcasting services.

3.15 A second issue is whether Ofcom should release it in a way that could allow alternative uses. In the case of sub-band 3, possible alternative uses to T-DAB include programme-making and special events (PMSE) and private mobile radio

(PMR).

3.16 Ofcom's general policy is to impose a minimum of restrictions on use of spectrum as we believe that this is most likely, in general, to secure its optimal use. However, we also have to consider in the case of sub-band 3 whether allowing alternative uses would secure Ofcom's statutory objectives in relation to broadcasting, and what is the appropriate balance between Ofcom's different statutory duties in this particular case.

3.17 Where there are users already occupying the band, Ofcom needs to consider whether they can continue in the band in co-existence with the new application from the point of view of not causing or suffering harmful interference. There may also be considerations of whether the unoccupied spectrum is suitable for the new use. For example, if existing users are scattered throughout the band, the spectrum may be too fragmented unless the incumbents are moved elsewhere in the band to create contiguous blocks.

3.18 It may be necessary in some cases to relocate incumbents within the band or to move them to another band. If they cannot, it will be necessary:

- to move them to another part of the spectrum; or
- for the current users to relinquish their use of spectrum.

3.19 Ofcom aims to give reasonable period of notice to incumbent users if it is necessary for spectrum management reasons or in order to secure its statutory duties, to require them to vacate spectrum.

3.20 Decisions on revocation are taken by Ofcom on a case-by-case basis in the light of relevant circumstances.

3.21 If Ofcom decides to release the spectrum in a way that allows alternative use, it has to consider how the spectrum should be released. This requires decisions on:

- the channel plan: all decisions to release spectrum require specification of a certain number of technical parameters, such as the upper and lower frequency boundaries;
- whether equipment using the spectrum should be licensed or exempt from licensing;
- the appropriate boundary conditions, known as the 'spectrum mask', that specify how the maximum permitted transmitted power varies as a function of frequency;
- any restrictions as to technology;
- any restrictions as to geography;
- any restrictions as to type of service or application;
- the mechanism for licensing;
- the assignment mechanism – auction, comparative selection or first come, first served;
- assignment criteria – what conditions licensees will have to meet;
- in the case of T-DAB, whether the multiplexes should be licensed under the Broadcasting Act and Wireless Telegraphy Act, or under the Wireless Telegraphy Act alone.

3.22 To address them requires consideration of the relationship between Ofcom's framework and objectives for spectrum policy and those for sound broadcasting policy, with particular reference to digital services. That is the subject of the next section.

## Section 4

# Spectrum policy and radio broadcasting policy

## Introduction

4.1 This section provides an account of:

- Ofcom's general objectives for radio broadcasting services, with particular reference to digital sound broadcasting and the present state of development of digital services in the UK; and
- Ofcom's spectrum policy framework;
- and discusses the general relationship between radio broadcasting and spectrum policy within the framework of Ofcom's statutory duties described in section 2 above.

## Radio broadcasting policy

4.2 Parliament has set down certain statutory duties in relation to radio broadcasting outlined in Section 2 of this document. One of Ofcom's main duties in this regard in carrying out its functions, is to secure a wide range of radio services which are of high quality and are designed to appeal to a variety of tastes and interests. The strategic framework within which Ofcom approaches the regulation of radio broadcasting is set out in Phase 2 of Radio – Preparing for the future, which is being published simultaneously with this consultation. This policy framework is based on Ofcom's statutory duties, our stated regulatory principles, and is further informed by research conducted among consumers and citizens as to the purposes and characteristics of radio and, in particular, the identification of those purposes which may require intervention. This has led to Ofcom articulating a strategic framework for its overall policy towards radio regulation:

- To enhance choice, diversity and innovation for consumers at the UK, national, regional, local and community levels. In the short-term, this means we need to:
  - ensure a wide range of services in the commercial sector and, in particular, the provision of local material, by regulating in the most effective way possible;
  - encourage the development of more choice and competition by licensing new analogue and digital services and encouraging the growth of digital radio; and
  - encourage the growth of a strong commercial sector, capable of extending range and choice and investing in the future.
- To secure citizens' interests through the provision of radio designed to meet public purposes. The public purposes will be met in different ways by different sectors, taking into account:
  - the need to achieve a balance between the public and commercial sectors and clear boundaries between them

- the amount of public funding and intervention required to meet the public purposes
- the importance of plurality of provision of radio designed to deliver those purposes
- the need to encourage the development of a thriving community radio sector

- To do this with as little intervention in the market as possible, consistent with meeting our objectives:
  - based, where possible, on the range and quality of services provided to consumers, rather than intervening to determine methods of production;
  - in a way that is as consistent as possible across media and across platforms; and
  - adapting regulation to changes in the market and increasing levels of competition.

4.3 Among our stated aims, therefore, are the securing of a wide range of commercial radio services to enhance choice and competition by licensing new digital services and by encouraging the growth of digital radio more generally.

## Digital radio

4.4 As was set out in detail in Phase 1 of 'Radio – Preparing for the future'[2], digital radio services are available on a variety of platforms. There are currently 88 radio services provided on the digital satellite platform (i.e. Sky), 25 on the digital terrestrial platform (i.e. Freeview), 40 on digital cable, and thousands on the internet. 30% of the population claims to listen to radio via their television, while 16% say they listen to radio services on the internet.

4.5 In Phase 1 of 'Radio – Preparing for the future' we argued that digital radio across all platforms (including digital TV, the internet, and platforms designed specifically for digital radio, such as DAB), provides significant benefits to UK citizens and consumers compared to analogue radio. These benefits include a more effective use of spectrum than analogue and the ability to offer more stations, more robust reception with less interference, easier tuning, new interactive data services and new functions (such as the ability to pause and rewind live radio). We also pointed out that digital radio in the UK is further developed in terms of the number of stations provided and consumer take-up than in any other European market and, arguably, any other market in the world. The increase in listening to radio over digital platforms has been one of the major recent trends in radio in the UK.

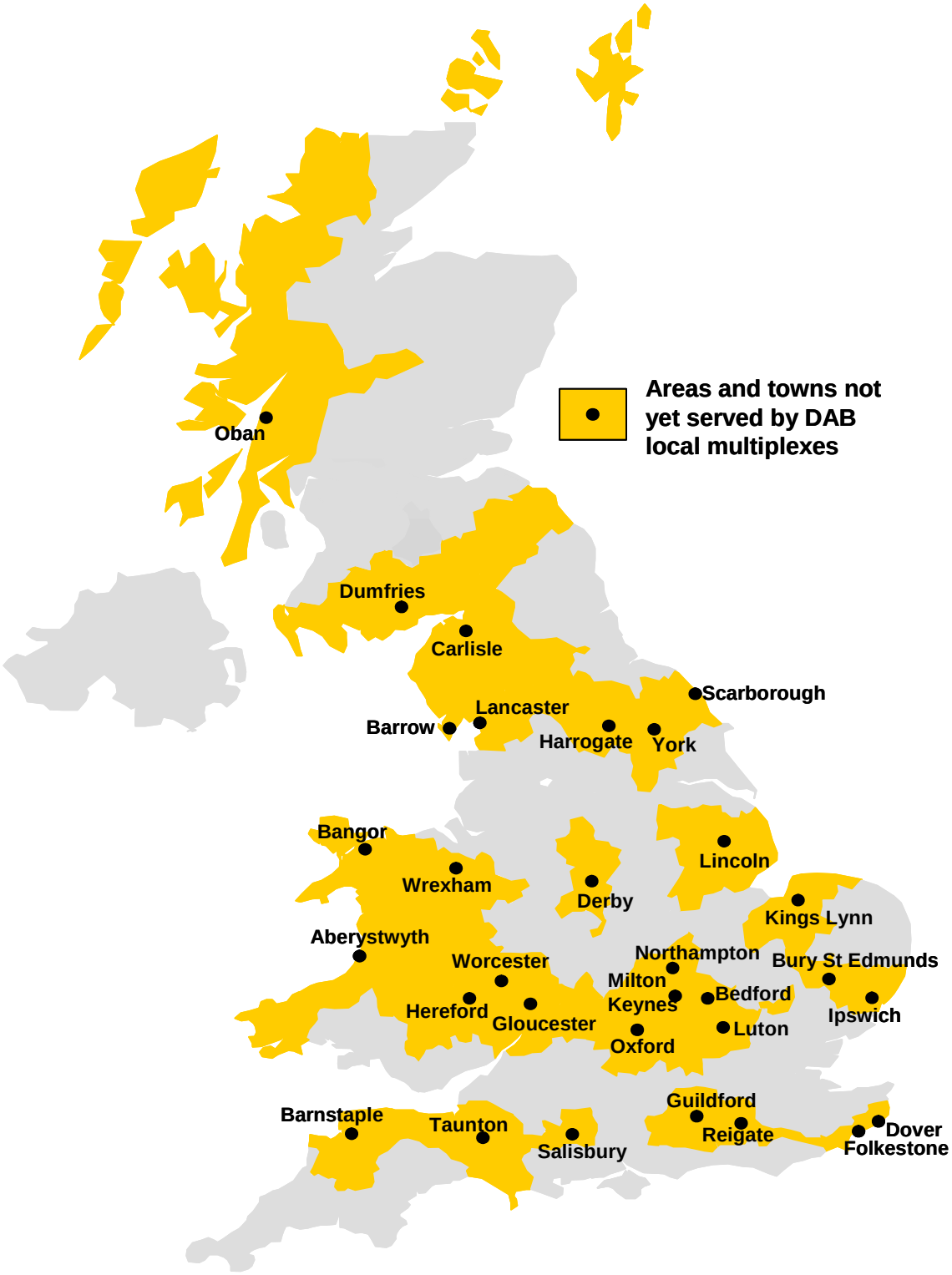
4.6 There are currently two national T-DAB digital radio multiplexes (one of which is operated by the BBC and the other by Digital One) offering a total of 19 programme services, ten of which are only available in digital form. There are also 46 local DAB digital radio multiplexes offering, collectively, a total of 196 individual programme services, of which 35 are only available to digital listeners.

4.7 The coverage of T-DAB digital radio is, however, presently geographically constrained within the UK. The two existing national multiplexes have the potential to cover the whole of the UK (in the case of the BBC) or the whole of Great Britain (in

[2] See, in particular, p.88-111.

the case of Digital One). However, the coverage of local digital multiplexes is constrained. About 11% of UK households are in an area where no local digital radio multiplex has been licensed, and therefore no local radio services are available in that area in digital form. Areas which fall into this category include Oxfordshire, Lincolnshire, Northamptonshire, large parts of Wales and Scotland (see Figure 1). These gaps in coverage are due to the fact that there was insufficient spectrum available to enable the Radio Authority to license local multiplexes in these areas or, in some cases, spectrum was (and still is) available, but the size of the population in the area was considered (by both the Radio Authority and prospective licence applicants) to be too small to support a commercially viable multiplex during the early period of DAB development.

**Figure 1: Areas and towns not yet served by a local DAB multiplex**




Source: Ofcom

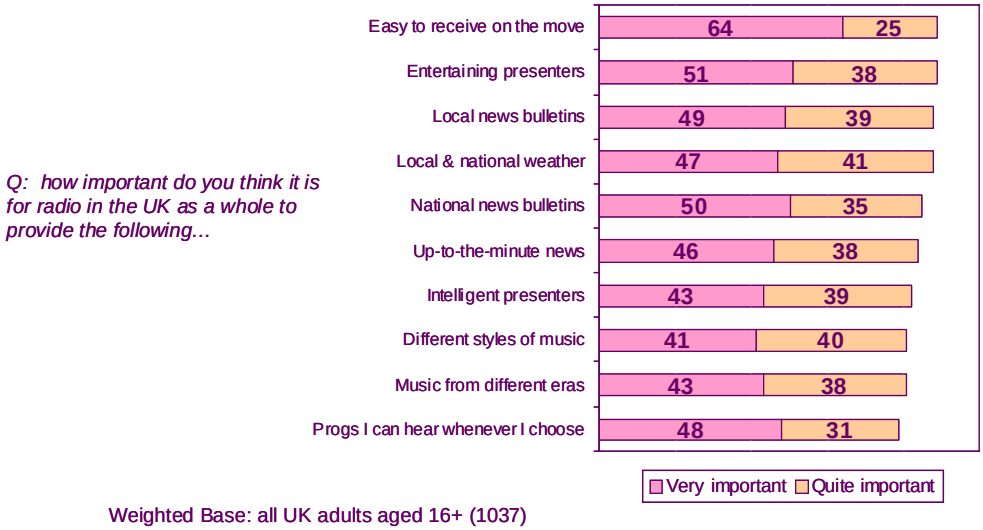
### Important characteristics of T-DAB

4.8 In Phase 1 Ofcom recognised the importance of T-DAB in offering a readily available digital alternative to AM and FM radio in terms of offering:

- mobility – reception on the move, availability in the car, or on personal devices such as walkmans and mobile phones;
- portability – reception on devices which can be carried around the home to enable listening in the bedroom, kitchen, bathroom, etc
- local radio services – other platforms can offer local services but not allow for local coverage, which is not economically or technically efficient.

4.9 In April 2005, The Knowledge Agency (TKA) conducted research into the public purposes of radio. This is summarised in Appendix A to Phase 2 of 'Radio – Preparing for the future'. The findings demonstrate that consumers value being able to receive radio services (analogue and digital) on the move. This relates to portability and mobility (see Figure 2).

**Figure 2: The importance of different attributes of radio**




Weighted Base: all UK adults aged 16+ (1037)
Source: TKA April 2005

4.10 Ofcom considers that T-DAB is currently the digital platform which best delivers these important characteristics and thus is most similar to traditional analogue (FM and AM) radio, particularly in terms of the ability of listeners to receive services on fully portable and mobile devices. Unlike TV and internet platforms, T-DAB was developed specifically for radio. Ofcom's view is that T-DAB therefore reflects many of the characteristics that people presently associate with radio as a medium. Portability and mobility are important examples of this, as is the greater ease and cost effectiveness with which it can carry local broadcasting (in addition to regional or national), and therefore more readily supply local content.

4.11 The distinctiveness of T-DAB in terms of portability and mobility, relative to other

platforms, may however decline over time as other platforms develop their technical capability and other new technologies are deployed. For example, one technology at advanced stage of development is DVB-H (Digital Video Broadcasting to Handheld devices). DVB-H was developed principally with video transmission in mind, but it can also carry sound services (DAB can also carry video services). Like DAB, it can serve mobile and portable devices. There do not appear to be any insuperable technical obstacles to using DVB-H to carry local broadcasting in addition to or in place of regional, national or international.

4.12 It is also likely that over time existing platforms may acquire more of the attributes presently associated with the analogue and T-DAB platforms. Other platforms may, for example, be able to offer portable reception of radio in and around the home (wi-fi internet, and the recently announced Skygnome, will make this possible).

4.13 Other existing platforms could also, in principle, deliver local digital radio services to portable and mobile devices. For example, in theory, it would be possible for those local radio stations not already on DAB to be carried via nationwide satellite or terrestrial broadcast television services, but this is neither a particularly efficient nor a cost-effective way for local stations to reach audiences. Cable TV can also offer services locally within the relevant cable footprint, although it does not currently offer the portability that consumers can currently obtain via analogue radio. Internet radio can offer local services, but is not currently available to portable and mobile devices outside the home, although the emergence of podcasting allows for mobile reception of non-live radio received through the internet. Digital radio may also be carried to mobile telephones via the internet as well as T-DAB.

4.14 The characteristics of different platforms are complex and likely to change over time. However, Ofcom considers that T-DAB is currently the platform that best delivers the key attributes that are presently associated with analogue broadcasting and which consumers value, namely portability and mobility (see Figure 2).

4.15 The DAB platform is also presently more constrained than other digital platforms in terms of the number of digital radio services that it can carry nationally. Its capacity in this respect is smaller than other existing digital platforms identified above. This is despite the fact that, as already noted, T-DAB is currently the platform that best delivers full mobility and portability of reception. Given the importance of mobility and portability of reception to listeners (see Figure 1), Ofcom considers that it would in principle be desirable for additional services to be available nationally in a form that allows reception in this way. The case for intervening to secure this must however be considered against both the costs and benefits of the intervention, including alternative uses of the spectrum.

4.16 The policy issues associated with additional capacity for local and national digital radio services are addressed in full in Section 6 of this document.

**Licensing framework**

4.17 The existing DAB platform is more heavily regulated than other digital radio platforms. The statutory framework for the licensing of DAB digital radio was originally set out in the Broadcasting Act 1996 (1996 Act), which established two types of radio multiplex licence – national and local. Both types of licence restrict the amount of capacity that may be used for non-radio services (e.g. data, multimedia) to 20% of total capacity. The legislation requires that when such licences are made available, certain matters, such as the area the licence is designed to cover, are specified, and also sets out in some detail the matters that must be taken into

account when such licences are granted (e.g. the extent of the coverage area proposed to be achieved, the ability of an applicant to establish and maintain its proposed service). Any national radio licensee is also required to deliver the commitments on marketing expenditure it proposed in its original application, as a means of helping to promote the take-up of compatible receivers. In a parallel with the gifting of spectrum on the digital terrestrial television (DTT) platform to public service broadcasters, the 1996 Act provides for the guaranteed carriage of BBC Local and Nations' Radio services on local radio multiplexes. However, the legislation does not provide for all (or indeed any) existing local analogue commercial radio services to gain automatic carriage on the DAB platform. All 47 (one national and 46 local) of the multiplex licences granted hitherto have been in accordance with these statutory requirements.

4.18 Section 258 of the Communications Act, however, enables Ofcom to license multiplexes on a simpler and more flexible basis. It introduced a new class of multiplex (the 'general multiplex') that is licensed solely under the Wireless Telegraphy Act and does not need a licence under the 1996 Act. Section 258 has the effect that a Broadcasting Act licence for a new multiplex is required only if the Wireless Telegraphy Act licence requires a Broadcasting Act licence to be held. It is also important to note that Parliament has given Ofcom a broad discretion in section 258 to license multiplexes under different regimes; the legislation expressly provides that multiplexes licensed under the 1996 Act before the commencement of the Communications Act (i.e. all 47 existing multiplexes) should continue to be required to hold a licence under the 1996 Act.

## Spectrum policy

4.19 Ofcom set out its approach to spectrum management in the conclusion to its Spectrum Framework Review (SFR) published on 28 June 2005. The Review advocates a market-led approach, in contrast to the previous regime, known as ' command & control', under which the regulator decided the type of organisation that should have access to specific parts of the spectrum and how they should be used. Ofcom's proposals were subject to public consultation and were broadly supported by stakeholders. The Review set out four key recommendations to achieve Ofcom's duties and aims.

- Allow the market to decide on the best use and user for much of the spectrum.
- Allow licence holders to trade spectrum in an open market and change the use they make of it in order to develop new technologies and offer innovative services.
- Clearly define the rights of spectrum users, giving them the confidence to plan for the future.
- Increase the amount of licence-exempt spectrum where feasible and appropriate to allow businesses to develop new technologies and services without the need for a licence.

4.20 Ofcom considers that the management of the radio spectrum can be carried out most effectively if market mechanisms are harnessed to a significantly greater degree than in the past and that this approach is better calculated than command & control to achieve Ofcom's statutory duties. In particular, market mechanisms will:

- promote efficient use of the radio spectrum by allowing spectrum to be transferred to, and used by, the user who values it most highly;
- promote competition by increasing the availability of spectrum for use by the most

valuable service; and

- facilitate economically valuable innovation as new users enter the market to offer new services.

4.21 The new approach is being primarily implemented through the development and implementation of three policies:

- spectrum trading;
- spectrum liberalisation; and
- prompt release of unused spectrum into the market, allowing maximum flexibility as to subsequent use.

4.22 The second and third of these are of particular relevance to the allocation and assignment of Band III.

4.23 Although the SFR sets out a vision based on market mechanisms, it acknowledges that there are certain areas in which trading and liberalisation cannot be fully applied. These include broadcasting, which is subject to national broadcasting legislation and a number of international agreements and technical constraints.

## Spectrum liberalisation

4.24 Spectrum liberalisation is central to Ofcom's new approach to spectrum management and has been discussed in several documents published by Ofcom, including the consultation and statement on liberalisation (17 September 2004 and 26 January 2005) and the SFR consultation and statement. By "liberalisation" we mean making spectrum use as flexible as possible by imposing no more restrictions than are necessary in order to avoid harmful interference or comply with international obligations. This involves including in licences a minimum of restrictions on the technology to be used or the service to be provided. This allows users themselves to optimise use of radio spectrum. They are likely to have better information than the regulator about how best to meet the needs of consumers and market mechanisms can react more dynamically to changes in consumer demand and technology than regulation. Hence, liberalisation is likely to further the interests of consumers, to secure optimal use of the spectrum and to promote competition and innovation in line with Ofcom's duties.

4.25 The application of the principle of technology neutrality is also a requirement of the European Framework Directive 2002/21/EC. Article 8 requires national regulatory authorities to take "the utmost account" of making regulations technologically neutral. However, the Authorisation Directive 2002/20/EC limits the restrictions that may be imposed on rights to use spectrum. This includes designation of type of service or technology, including where applicable exclusive use of frequencies for transmission of specific audiovisual content or services.

4.26 In addition to avoidance of interference or compliance with international obligations, it may be necessary in certain cases to impose restrictions on spectrum use in order to secure certain public policy objectives. In general, Ofcom considers that such cases should be the exception rather than the norm, and are likely in general to be transitional in nature.

## Release of spectrum

4.27 Ofcom believes that releasing available spectrum to the market on a technology and

application neutral basis is more likely to achieve optimal use more quickly than holding it back until the regulator perceives a demand for a particular application.

4.28 In line with its new approach to spectrum, Ofcom has proposed a programme of releasing spectrum as quickly as possible to the market. Ofcom's Spectrum Framework Review Implementation Plan (SFRIP), published on 13 January 2005, proposed a programme of releasing unused spectrum in a range of bands, including Band III, over the next three years together with a programme for introducing trading and liberalisation in those bands.

4.29 Ofcom has a legal duty in section 1AA of the Wireless Telegraphy Act 1949 to exempt equipment from licensing if it is satisfied that its use is not likely to cause harmful interference. So Ofcom requires equipment to be licensed only if its use is likely to cause such interference. If it decides that licensing is necessary, it has broad discretion about how to assign the spectrum, i.e. whether to auction the licences, hold some form of comparative selection (or 'beauty contest') or to make licences available on a first come-first served basis. Ofcom has concluded that, in general, auctions are the best mechanism where the nature of the spectrum available means that demand is likely to exceed supply. This is because well-designed auctions are more likely to place spectrum in the hands of those who can make best use of it and also have important advantages of transparency, objectivity and speed. However, broadcasting legislation requires that many types of licence (e.g. local commercial radio) are awarded via the exercise of administrative discretion under a statutory scheme (such as a beauty contest).

4.30 The SFRIP proposed to allocate sub-band 3 to services compatible with T-DAB, subject to finding a solution for existing users, including programme-making and special events (PMSE) and securing international agreement on use of the band, which will be reviewed at the Regional Radio Conference (RRC) in 2006 so that UK users can operate without causing or suffering interference. Further details of the proposals were included in 'Radio – Preparing for the Future', the first phase of Ofcom's Radio Review, published on 15 December 2004.

4.31 Ofcom published an Interim Statement on responses to the SFRIP on 28 July 2005. There was general agreement from respondents that auctions should, in general, be the preferred assignment mechanism where demand for spectrum is expected to exceed availability. The Interim Statement made no new proposals for Band III as this document was expected to be published in due course.

## Relationship between the broadcasting and spectrum policy frameworks

4.32 Ofcom has set out above its statutory duties in respect of broadcasting and in respect of spectrum and the policy frameworks for broadcasting and spectrum which it has derived from these duties, its regulatory principles and research.

4.33 Taking these broadcasting and spectrum policy frameworks together, Ofcom considers that it is necessary for it to consider whether, and to what extent, it is necessary for it to intervene to secure outcomes that it is expressly required by statute to secure and that the market alone might not achieve. Where it decides that it is necessary to intervene, it is then necessary to judge the degree of intervention that is the minimum needed to secure the desired outcome.

4.34 In the case of broadcasting, Ofcom has a number of strategic objectives including to enhance choice, diversity and innovation for consumers at national, regional, local and community levels and to secure citizens' interests through provision of radio

designed to meet public purposes.

4.35 Ofcom has first to consider whether the market alone would achieve these outcomes. This requires consideration of whether spectrum would not be allocated through the market to broadcasting. It also requires consideration of whether, even if the market would be likely to use the spectrum resource for broadcasting, there is a need to intervene to secure a particular mix of national, regional, local and community stations and programmes to meet the objectives. Phase 1 of the Radio Review discussed the need for regulatory intervention and concluded that there are two possible rationales for intervention.

4.36 The first is based on consumer considerations and the extent to which the market might fail to deliver certain types of broadcasting that consumers wish to listen to or to have an option to listen to. This consumer rationale originates in the nature of broadcasting as a public good. In other words, programmes, once made and broadcast, can be consumed by additional consumers without diminishing the ability of others to listen, at least in the absence of encryption. Without encryption, commercial radio is funded by consumers indirectly through advertising. Where spectrum is scarce, broadcasters are likely to cluster around the most lucrative demographics and to maximise the audience geographically, which means that listeners may be deprived of certain types of programmes or local services, as has occurred in France and the USA. In the longer term, as digital radio grows, new services will extend the range of services the market provides and it may be necessary to reduce the amount of intervention required to address consumer market failure.

4.37 The second rationale is based on citizenship considerations. There may be an argument to intervene to correct externalities and consumers' failure to recognise the full value of the services (known as 'merit goods'). Intervention may be necessary to ensure that certain types of programming that we, as citizens, want to be widely available for as many people as possible to listen to but that the market would not provide enough of. For example, listening to news on the radio, national and local, helps make citizens better informed and so better able to participate in democratic society. Similar arguments may apply to programmes that enhance access to information, cultural identity, knowledge-building and common shared values. Existence of such externalities risks under-provision of certain types of radio programmes. This could be addressed by mandating a specific amount of provision.

## Ofcom's discretion

4.38 As stated in section 2 above, Ofcom has a wide measure of discretion in balancing its statutory duties where these conflict. In so doing, Ofcom will take all relevant considerations into account. For example, if the market would be likely to allocate spectrum to a non-broadcasting use, Ofcom would, in deciding whether or not to intervene to reserve the spectrum for broadcasting, balance the loss of economic benefit from the intervention, and in particular the effect on competition and innovation, against the gains from achieving Ofcom's policy objectives related to broadcasting. It would not represent optimal use of the spectrum if the costs of intervention exceeded the gains; nor would it be reasonable or consistent with the regulatory principles under which Ofcom operates, including proportionality.

4.39 If Ofcom were to intervene in the allocation of spectrum, this would have associated costs and benefits, as summarised in the following table.

| Option | Benefits | Costs/risks |
|---|---|---|
| Ofcom reserves spectrum for broadcasting | Reduces risk to achievement of broadcasting policy objectives, such as promotion of variety and choice in radio services, securing particular patterns of coverage, and promoting public purposes | Precludes potential higher benefits from other services<br><br>Potential effects on innovation and competition<br><br>Spectrum use cannot change in response to market demand or technology development (except via further administrative decisions)<br><br>Additional burden of regulation |
| Ofcom awards spectrum via a market-based mechanism | Spectrum goes to service with the greatest economic value<br><br>Innovation from new services<br><br>Greater competition<br><br>Scope for use to change dynamically over time | Risk to broadcasting policy objectives |

4.40 In deciding whether or not to intervene in a specific case, Ofcom must balance the benefits against the costs and risks. Thus Ofcom would be likeliest to intervene where a particular broadcasting objective would be highly unlikely to be achieved without intervention (i.e. where it was judged that the market was unlikely to deliver Ofcom's policy objectives) and where the intervention would involve a relatively small loss of economic benefit, innovation or competition in services other than broadcasting. Conversely, where intervention would carry a high price, Ofcom would be less likely to intervene, especially if the market is likely to deliver Ofcom's broadcasting objectives.

4.41 In making its assessment, Ofcom will take into account any relevant quantitative and qualitative data where available. Where such evidence is difficult to obtain, or subject to uncertainty, Ofcom has to exercise its judgement, taking the full range of considerations into account.

## Summary

4.42 Ofcom has derived one set of policy objectives for broadcasting and one for spectrum. Looking at the two frameworks together, it is necessary for Ofcom to consider whether, and to what extent, it is necessary for it to intervene to secure its policy objectives that the market alone might not achieve.

4.43 In deciding whether, or to what extent, to intervene in the allocation of spectrum, Ofcom will exercise its discretion by taking account of the costs and benefits of intervention in the particular circumstances of the case. Section 6 discusses the implications and application of this to sub-band 3 of VHF Band III, including the question of the degree of intervention that is appropriate.

## Section 5

# Analysis and consultations since 2003

## Introduction

5.1 As noted in Section 3 of this document, the spectrum in Band III (and, in particular, sub-band 3) has been the subject of previous consultation. This section focuses in particular on:

- 'Opportunities for Future Use of Spectrum within VHF Band III (174 to 230 MHz) and in the 1.5 GHz Band (1452 to 1492 MHz)' – a consultation document issued by the Radiocommunications Agency and Radio Authority, October 2003
- 'Assessment of options for allocating available spectrum within VHF Band III (174-230 MHz) and L-Band (1452-1492 MHz)' – a report for Ofcom produced by Analysys, Mason Communications and DotEcon, August 2004
- 'Radio – Preparing for the future. Phase 1: developing a new framework' – a consultation document issued by Ofcom, December 2004

5.2 The content of each report is described, together with a summary of the responses received (where relevant) and an assessment as to the relevance of the outcome to the proposed decision in respect of sub-band 3 of VHF Band III which is the subject of this document.

## VHF Band III and 1.5 GHz Band consultation, October 2003

5.3 Before Ofcom had developed the policies in its Spectrum Framework Review, in October 2003, the legacy regulators, the Radiocommunications Agency and Radio Authority, issued a joint consultation exercise seeking views on the opportunities for future use of spectrum within VHF band III and the 1.5 GHz band (the so-called 'L-Band). It was aimed at trying to develop the full and effective use of the spectrum in a way that maximised the benefits derived from it.

5.4 This consultation laid out the current allocation and uses of the bands, identified spectrum that was potentially available (including relevant restrictions), and sought responses to some specific questions.

5.5 With relation to the VHF Band III spectrum, the following specific questions were asked:

- Should available spectrum in VHF sub-band II and/or sub-band III be used to ease capacity restrictions in other PAMR (Public Access Mobile Radio) or PMR (Private Mobile Radio) bands?
- Is there an anticipated market for digital PMR in Band III?
- Do PAMR operators foresee an increase in demand for spectrum in Band III to accommodate a growing customer base?
- Is there anticipated demand for Band III spectrum by the bus and coach or rail industries?
- Is there anticipated demand for more VHF spectrum for terrestrial Digital Audio Broadcasting (T-DAB)? On what timescale is this needed, and, in general terms,

what should the development priorities be?

- Is there anticipated demand for VHF spectrum for mobile portable and fixed data/multimedia services?
- Is there anticipated demand for more VHF spectrum for programme-making purposes (e.g. for studio microphones)?

The full responses to this consultation are published on the Ofcom website at http://www.ofcom.org.uk/consult/condocs/ra_rau/.

## Summary of responses

5.6 Responses to the consultation (of which there were 77 in total) fell into two broad camps: those who wanted spectrum for PMR services (primarily transport companies and those with transport interests), and those who argued for more allocation to DAB digital radio and data services (primarily the broadcasters and members of the public).

### Responses relating to PMR

5.7 We asked whether available spectrum in sub-band II and/or sub-band III occupied by land mobile services (LMS) should be used to ease capacity restrictions in other PAMR/PMR bands. There were mixed views from respondents on this question, with those in favour stating that more spectrum was required to ease current restrictions. Those opposed felt that the spectrum should not be used for PMR/PAMR at the expense of T-DAB, or felt that the spectrum was not suitable. One respondent noted their desire that sub-band II be used to ease the pressure on PMR/PAMR and that sub-band III be used for T-DAB.

5.8 We also asked if there was an anticipated market for digital PMR in band III. The balance of responses could not see the case for a digital PMR market in Band III today. There were a number of respondents who felt that there was no current demand, but there may be demand in the future. For example The Joint Radio Company (JRC) said, “Users like to see multi-vendor support for expensive new technology. Manufacturers like to see a large market before committing investment, on a regional basis or ideally globally. It is not clear at present whether a sufficiently large market exists for suppliers to want to make products available”. Hurdles to be overcome include lack of an international market for equipment, no current standard ( although the Federation of Communications Services (FCS) felt that one would emerge) and that it was not cost effective today.

5.9 None of the PAMR operators could foresee an increase in demand for spectrum in Band III to accommodate a growing customer base.

5.10 We asked if there anticipated demand for Band III spectrum by the bus and coach or rail industries. All of the respondents to this question anticipated a strong demand for additional Band III spectrum by the bus and coach or rail industries. There was seen to be an opportunity to develop management and information systems as well as benefits such as “improved service running, improved management of road capacity and road safety etc”. For example the Real Time Information Group (RTIG, which comprises parties interested in the development of real time information systems, such as those used for some transport applications) said: “Given the recent escalation in investment in PMR systems in the last year Band III based equipment will be in use for a significant number of years, with additional capacity being required

as existing systems are extended. Investment in such systems is typically based on a 10 to 15 year asset life, and the majority of current systems are quite young. Therefore there is a strong anticipated demand for Band III spectrum by the local authorities and the bus industry".

5.11 A number of respondents made general comments in relation to questions on PMR/PAMR. GWR and Digital One acknowledged that there were a number of uses for the spectrum. GWR acknowledged " that there may be public policy or commercial reasons to allocated spectrum for use by particular public service organisations or to non-broadcast business interests". Digital One felt that "There may be pressing non-radio needs for the spectrum…and Ofcom will have to decide what priority to give to such an allocation of spectrum." However, all felt that sound broadcasting had a strong claim on the spectrum.

**Responses relating to T-DAB and data/multimedia services**

5.12 We asked if there was anticipated demand for more VHF Band III spectrum for Terrestrial Digital Audio Broadcasting (T-DAB), on what timescale this was needed, and, in general terms, what should the development priorities be.

5.13 Those supporting further allocation to T-DAB digital radio included the BBC, the Commercial Radio Companies Association (CRCA), the Christian Broadcasting Council, the transmission providers Crown Castle, the Community Media Association, the CN Radio Group, Digital One, Emap, GWR (now part of GCap Media), Lincs FM, MXR, Motorola and NTL (now Arqiva).

5.14 The key reason for the support given to the allocation of the spectrum for further digital radio by many of the respondents can be summarised in a quote from the joint submission from the Commercial Radio Companies Association and the BBC that said "additional spectrum allocation would enable several important limitations of digital radio…to be tackled, such as completion of local digital coverage and the introduction of new, innovative data services which would further drive take-up of digital sets".

5.15 Digital One supported the allocation of further spectrum for T-DAB, although it accepted that there may be non-radio needs for spectrum and said that it was for Ofcom to prioritise. It also considered that in order of priority Ofcom should allocate Band III spectrum to enable Digital One to complete its national coverage, then to complete local and regional multiplex coverage (where practical to enable equivalent digital coverage for all current and future analogue stations). It also wanted capacity for access/community radio on L Band or Band III, and wanted some L-Band "to allow digital radio coverage of geographic areas too small to justify a Band III allocation".

5.16 Digital One also thought that the national digital radio market was fragile, and that therefore the consumer would benefit most if "consideration of the need for another national commercial multiplex, or part multiplex, is deferred until the sector is markedly more mature". Finally it felt that "a new national commercial digital multiplex established now would be likely to set back the digital radio sector as a whole".

5.17 Emap considered that there was "clear demand for an immediate expansion of T-DAB from the radio industry, advertisers and listeners". It also felt that early advertising of a national general multiplex would "promotes innovation and

competition within the market, and … maximise public revenue from spectrum".

5.18 MXR, which holds five local radio multiplex licences (each of which provides coverage of a region), said that allocating additional spectrum to DAB would "both add to audience choice and also go some way to helping meet consumer expectations"

5.19 The Community Media Association (CMA) noted that it had concerns about "the efficacy of Eureka 147 DAB technology particularly for local services" but recognised the importance of industry and government support if DAB were to succeed. However, it supported the use of additional Band III spectrum for DAB. It also considered that the success of broadcast radio would require multiple standards in addition to DAB (e.g. DRM, DTV, broadband wireless internet and mobile technologies).

5.20 GWR (now part of GCap Media plc) recommended that a minimum of four additional frequency blocks of Band III is required for continued development of DAB. The company proposed that this spectrum should be used to:

- Ensure that all existing local analogue commercial services have the opportunity to broadcast in digital.
- Boost coverage and field strength of existing multiplexes to ensure robust reception
- License a further tier of local and regional multiplexes
- Allow Digital One to extend its coverage to Northern Ireland

5.21 GWR also stated that if another national multiplex is to be added this should be the lowest priority as it would "add little or no impetus to DAB development", and recommended that the 20% cap on the amount of spectrum that can be allocated for data as opposed to audio should be removed.

5.22 The submissions from the two transmission providers supported additional spectrum for DAB. Crown Castle said "we see clear evidence of demand for DAB capacity both for public service and commercial radio broadcasters. We would support the release of additional Band III spectrum for this application at the earliest opportunity….. The diversity of programming available to the digital listener is limited by existing multiplex capacity ". While NTL (now Arqiva) said that it believed "that there is a very strong case for extending the allocation of spectrum within Band III to provide a growth path for digital radio and further opportunities for the market to expand through increased coverage and services"

5.23 Lincs FM, which was one of only a few of the smaller local radio groups to respond to the consultation, wanted additional Band III spectrum and felt that the priority should be local multiplexes and that the "mirroring of existing 'heritage' analogue service coverage should continue".

5.24 CN Group wanted Ofcom to "ensure that a way forward is plotted for Britain's truly local stations to continue to thrive in the digital era"

5.25 However, although there was widespread agreement amongst this group of respondents that further spectrum in Band III should be allocated for T-DAB, there were differences of opinion as to the priorities for how any such spectrum should be assigned, i.e. whether for local or national services, the proportion that should be

used for data, and the licensing regime for the spectrum.

5.26 A number of individuals pointed out that they would like the BBC to be given additional DAB spectrum, and expressed concerns about the bit rate used for DAB. A petition with 253 signatories was submitted in support of more DAB spectrum for BBC services.

5.27 We asked if there was an anticipated demand for VHF spectrum for mobile portable and fixed data/multimedia services. The respondents to this question had mixed views with no consensus emerging. The concerns included the lack of sufficient spectrum to create a viable business model, antenna engineering restrictions, no anticipated public sector requirements, high bandwidth requirements of video, lack of a global market and the availability of other spectrum that was better suited to data/multimedia services (e.g. 1.5 GHz).

5.28 Those respondents who anticipated demand for VHF spectrum to be used for portable and fixed data/multimedia services felt that there could be a number of potential uses. For example London Buses felt that the spectrum could allow better integration and management of business and passenger information. While RTIG said “there is an increasing demand for transmitting data to and from vehicles as well as to passenger information displays”.

5.29 We asked if there was an anticipated demand for more VHF spectrum for programme-making purposes. There were mixed views on this question. There was a view that the uncertainty for PMSE in other bands would mean that demand in Band III would increase, and also that community radio’s growth was expected to lead to an increase in demand. The Joint Frequency Management Group (JFMG) noted a “growing demand in Band III for more low power repeater links, available for use over wide areas” and that ” with the very limited alternative UHF spectrum available for the specific area requirements of the news organisations, and uncertainty regarding its long term availability, loss of these Band III assignments would directly impact and curtail their activities. Significant costs would be imposed where alternative solutions exist”.

## Progress since the consultation

5.30 The consultation closed in January 2004. At that time, Ofcom announced that in light of the conflicting demands for spectrum in these bands, and in the context of our statutory obligation to undertake a review of digital radio later that year (Phase 1 of ‘ Radio – Preparing for the future’), we did not intend taking any immediate decisions on the future allocation or assignment of these bands. We said that we would be investigating various options for the future allocation, assignment and management of these bands over the coming months, and that we would consult again on any proposals before implementation. In the mean time we said we would continue to assign spectrum in VHF Band III sub-band II for the expansion needs of private mobile radio (PMR) and public access mobile radio (PAMR).

5.31 Ofcom’s Spectrum Framework Review Implementation Plan (SFRIP), published on 13 January 2005, set out plans for the allocation of spectrum in the L-Band (from 1452 MHz to 1492 MHz). Further consultation on the use of this band will be undertaken during 2005-06, but the current plan is to auction the spectrum in a way that allows the market to decide upon its best use. Limited use of L-Band is already made in some other countries in Europe to provide DAB services, although its technical characteristics make it less suited than VHF Band III for covering large areas, as a much greater number of transmitters is required for a given area.

Possible uses in the UK include DAB-compatible services – offering audio, video and/or data (allowing for up to 16 blocks of national or local spectrum); satellite-based applications; DVB-H, which could also offer audio, video and/or data services, or a wide range of alternative technologies that can support broadly similar applications; alternative applications, such as programme making and point-to-point links.

5.32 The SFRIP proposed that, for the available spectrum in VHF Band III,

- sub-band 2 should continue to be allocated to services compatible with the technical configurations for PMR and PAMR; and
- sub-band 3 should be made available on a basis compatible with the technical configuration for T-DAB

5.33 With respect to PMSE, Ofcom has commissioned Quotient Associates Ltd and Spectrum Strategy Consultants to undertake a study into the current and future demand for spectrum (in Band III and elsewhere) among the programme-making and special events sector. As noted in paragraph 3.11, early work in this area is a contributory factor as to why this document is now considering the issues relating to the release of four, rather than five, blocks of spectrum. The other factor is uncertainties relating to international clearance at next year's RRC. Consequently, PMSE is not part of our consideration of the potential uses of these four blocks.

5.34 This document proposes how the available spectrum in sub-band 3 of Band III should be allocated, taking into account, amongst other things, the responses to the 2003 consultation.

## Analysys, DotEcon and Mason Communications report

5.35 Drawing on the responses to the Radiocommunications Agency/Radio Authority consultation, Ofcom identified several potential alternative uses for the spectrum in Band III, and therefore commissioned Analysys, DotEcon and Mason Communications (ADM) to assess the relative economic benefits of alternative uses. This work also assessed the technical limitations on each alternative use that arise from agreements on coordination of interference with neighbouring countries to the UK, and how an assignment process could allow selection between alternative uses to be made.

5.36 The potential uses of the spectrum considered in this analysis were:

- Private Mobile Radio (PMR)
- Public Access Mobile Radio (PAMR);
- Terrestrial Digital Audio Broadcasting (T-DAB) radio and;
- Portable and mobile multimedia services (via T-DAB and/or digital video technologies e.g. DVB-H).

5.37 Analogue television was not considered because, as well as being a move away from digital switchover, a reversion to use of VHF Band III would be constrained by interference from transmissions from neighbouring countries which still use this band for television. In addition, it would be associated with prohibitive costs to broadcasters and viewers. (Broadcasters would need to install new transmitters and

viewers would be required to purchase new aerials and receivers or set top boxes.)

5.38 The external study's examination of the technical feasibility of sharing a spectrum block between different services concluded that sharing within blocks was not practical, as the interference problems would be too great. It noted that within individual blocks "spectrum could be allocated to PMR/PAMR or T-DAB, but not both" and that "if T-DAB is favoured, then this would require displacement of PMSE". The report also noted that, as with analogue television, the use of PMR/PAMR within sub-band 3 would be likely to be highly constrained by incoming interference from neighbouring countries. The report went on to conclude that the best way to optimise the value of the available spectrum in Band III was to evaluate the net economic benefits of use for different services and allocate the spectrum on a basis that reflected the most valuable use. Market mechanisms could then be used where appropriate to assign the spectrum to individual users.

5.39 The ADM report also noted that "given that there is sufficient available spectrum in sub-band 2 to accommodate almost all potential PMR/PAMR demand even under the most extreme of our scenarios, the case for allocating sub-band 3 spectrum to T-DAB appears much stronger".

5.40 While these findings indicate that T-DAB for radio services and PMSE are the most likely users of the sub-band 3 of VHF Band III spectrum, the ADM report recommended allocating the spectrum in a technology and service neutral manner, thereby enabling the market to make the final decision on the allocation of spectrum. However it recognised that T-DAB was the most likely use of this spectrum, because of the ready availability of low cost receivers and the population of receivers already deployed. The initial technical configuration of the spectrum should therefore be compatible with T-DAB, while not prescribing that T-DAB is the technology or service deployed. This would give flexibility to the market, while minimising any potential costs of re-configuration after the award.

5.41 The results of ADM's analysis were published alongside Phase 1 of 'Radio-Preparing the future', and helped to inform the thinking behind the proposals contained in the Phase 1 report. The analysis also informed the Regulatory Impact Assessment that was published to accompany the Phase 1 report. However, it is important to note that this assessment did not take into account any public policy considerations (such as the relative merits of local and national radio). These were addressed elsewhere in Phase 1 of 'Radio – Preparing for the future'. A summary of ADM's conclusions from its report are set out in Section 6.

5.42 A number of criticisms were made of the ADM report in the responses to the Phase 1 consultation, and these were put to Analysys Consulting Limited ("Analysys").

5.43 Analysys addressed three main criticisms made of the original study. The first related to a criticism that centred around the precision of the quantification of benefits of allocating additional spectrum to PMR or T-DAB use. Analysys said in reply that the concerns about the accuracy of their estimates of economic benefits was not material to the conclusions in their original study.

5.44 ADM were criticised for the way in which they assessed the economic benefits of allocating spectrum to national multiplexes as against an allocation to local multiplexes. However, Analysys said the original report did not do this. Ofcom recognises this, and has not relied on ADM's study to support its proposals on local versus national allocation in this consultation document. These proposals, and the

reasons for them, are set out in Section 6.

5.45 The final main criticism was around concerns about ADM's quantification of benefits arising if multiplex capacity was used for the provision of T-DAB mobile and portable multimedia services. Analysys said that the calculated benefits were meant to be an illustration of the magnitude of benefits that may arise, should such services be successful, rather than a precise quantification of any such benefits. Analysys said that the comments on the uncertainties underlying the quantification of benefits from multimedia services reinforced their recommendation that Ofcom should not place any constraints on the use of DAB multiplex capacity by radio, multimedia or other services (excepting local coverage in-fill obligations). Ofcom's position on this, and its proposals for spectrum allocation, are set out in Section 6.

**Development since publication of the ADM report**

5.46 One development that has occurred since the ADM report should be noted. In the course of discussions with the UK's European neighbours in the context of the Regional Radio Conference, it has become clear that the transition from analogue to digital broadcasting in the rest of Europe may have an adverse effect on the use of Band III sub-band 2 in the UK for PMR/PAMR applications.

5.47 It is not possible for Ofcom to estimate these effects with accuracy as discussions with other European administrations are still under way. The extent of the additional constraints, and the nature of options for mitigation, therefore remain unclear. However, the consequence may be an increase in the scarcity value of Band III spectrum for PMR/PAMR uses, and therefore an increase in the opportunity cost associated with requiring spectrum to be used for broadcasting, which displaces alternative uses.

## Radio Review Phase 1 consultation

5.48 Phase 1 of "Radio – Preparing for the future" resulted from two statutory requirements: to produce a progress report on digital radio for the Secretary of State, and to publish guidance as regards localness on commercial radio.

5.49 On the future of digital radio, we recognised some of the factors which have helped T-DAB become more successful in the UK than in most other European countries, where it is also the digital standard. However, we also recognised some of the obstacles to future growth and discussed measures to help to overcome those obstacles:

- Coverage of the existing national services is incomplete and signals are not as robust as the industry would like.
    - We said we would work with neighbours in Europe to secure international agreement for power increases and for transmitters to be built in coastal and border areas
- Not all areas of the UK have a local DAB multiplex
    - Subject to spectrum availability, we proposed to allocate three blocks of VHF Band III spectrum to fill in the gaps, to ensure that all areas of the country have a local DAB multiplex (this includes provision for all of the BBC's nations' and local stations). We also proposed that these multiplexes should be licensed under the terms of the Broadcasting Act.

- Not all smaller stations or community stations have an economic or technical route to go digital
    - We said we would work with the industry to identify ways these stations can go digital, if they wish to.
- The choice of stations for listeners is limited compared to other platforms (e.g. radio via TV)
    - Subject to spectrum availability, we proposed to license a further one or two blocks of VHF Band III spectrum as national DAB-compatible spectrum blocks.
    - In order to allow the market to decide on the best use of the spectrum we said that we were minded to license these one or two blocks without Broadcasting Act multiplex licences and rely solely upon the Wireless Telegraphy Act. However, we recognised that the resulting lack of restrictions (e.g. on ownership) may not be welcomed by all. Therefore, we also asked whether people thought the current limit of 20% on the amount of each multiplex that could be used for data services should be raised, to allow new data services to develop if there was market demand. As coding technology improves, we also asked whether the current regulation to ensure minimum bit-rates for sound services was appropriate, and we suggested moving towards a co-regulatory approach.
- Spectrum for digital radio on digital terrestrial television (Freeview) is limited
    - We asked whether people thought the current limit of 10% of capacity for radio and other data services on these multiplexes should be raised.
- Consumers are unaware of the benefits of digital radio
    - We suggested the industry increase its efforts to promote digital radio
- DAB sets are expensive relative to analogue sets
    - We believe the steps we propose will lead to a growth in the UK market and encourage the rest of Europe to take up digital radio, so bringing down prices. We said we would work with the rest of Europe to promote the adoption of common standards

5.50 The questions asked in the Phase 1 consultation which are of direct relevance to this document are as follows:

- Do you agree with our proposals to allocate more spectrum in VHF Band III for DAB-compatible use (subject to spectrum clearance and international agreement) in the following way:
    - Three blocks to provide local multiplexes to those areas which currently do not have their own local multiplex and some areas which already have local multiplexes?
    - One or two blocks for national coverage (depending upon whether four or five blocks of spectrum are available in total)?
- Do you agree that the proposed local DAB digital radio multiplexes should be awarded as Broadcasting Act licences?

- Do you agree that the frequency blocks proposed to be allocated to national coverage should be awarded under the terms of the Wireless Telegraphy Act only (i.e. without the need for a Broadcasting Act licence)?
- What demand do you envisage there being for nationally-allocated DAB-compatible spectrum?
- Do you think the limit on non-programme related data carried on each commercial DAB digital radio multiplex should be raised from the current limit of 20%? If so, what should the limit be raised to? What do you envisage the extra capacity would be used for?
- Do you agree with the proposal to abolish the minimum bit-rate limit for DAB digital radio and replace it with a co-regulatory system akin to that applied in television for picture quality?

## Responses to the consultation

5.51 All of the non-confidential responses to the consultation are published on the Ofcom website (http://www.ofcom.org.uk/consult/condocs/radio_review/responses/) and they are also summarised, along with Ofcom's position on the issues raised, in Appendix B to this document.

### Developments since the Phase 1 consultation

5.52 In addition to conducting a full analysis of the responses to the consultation, including putting criticisms of the ADM report to Analysys, we have since Phase 1 carried out further work in order to better inform our thinking relating to the allocation of the available spectrum in sub-band 3 of Band III.

5.53 The first such work was a research study carried out by The Knowledge Agency into the purposes and characteristics of public service radio. The results of this research are summarised in Appendix A of Phase 2 of 'Radio – Preparing for the future', and Ofcom has used this research in this consultation document to demonstrate the value that consumers attach to portability and mobility of radio (see Figure 2).

5.54 The second was a report produced jointly by Ofcom and Arqiva (previously NTL Broadcast) for the DRDB's Analogue Radio Switchover Group (chaired by Lord Smith), which examined whether there are potential benefits to be accrued from replanning the frequency and power allocations of the existing DAB multiplexes in the UK. This report is appended to Phase 2 of 'Radio – Preparing for the future' as Appendix D. Ofcom has taken this report into account in this consultation document in considering its proposals for the allocation of spectrum (see paragraph 6.182).

5.55 Ofcom has received comments from some of the respondents to the consultation regarding industry and consumer demand for further national digital radio services. We have received two further responses to the Phase 1 consultation from two major radio industry companies, both of which provide more detail on their intention to apply for any national radio multiplex licences. ICM, on Ofcom's behalf, conducted research into consumer demand in April 2005. One respondent also provided its own research into consumer demand. Full details of this additional analysis is included in the next section of this document.

## Section 6

# Spectrum and licensing policy

## Introduction

6.1 This section considers how spectrum in sub-band 3 of Band III should be allocated and assigned in the light of Ofcom's statutory duties, principles and policies outlined in previous sections, and also in the light of the responses to the Radiocommunications Agency/Radio Authority consultation of October 2003, the work done by Analysys, DotEcon and Mason Communications following that consultation, the responses to Phase 1 of the Radio Review, together with the additional work set out in Section 5.

## Exemption versus licensing

6.2 As outlined above, it is incumbent upon Ofcom to consider whether use of the spectrum should be allowed on a licence-exempt basis. Ofcom has identified five types of primary service that are the most likely potential users of VHF Band III under present technological and economic conditions: T-DAB; mobile and portable multimedia services; PMR; transport communications; and PAMR. None of these are suitable for exemption because the transmitters used are sufficiently high-power to pose a significant risk of harmful interference unless they are individually planned. Ofcom is not aware that there are any potential low power applications for the band that are likely to represent a more optimal use than the five possibilities listed above.

6.3 Ofcom therefore concludes that licensing will be necessary in the band unless it is used for a low-power application that is unlikely to interfere with a licensed use. This conclusion does not preclude the possibility that use of the spectrum may be allowed on a licence-exempt basis in future.

## Types of decisions to be made

6.4 In order to promote efficient use of the spectrum, there are certain parameters that must be determined by Ofcom before awarding any licences. These include:

- The channel plan, i.e. the specification of upper and lower boundaries for the frequency range that is being made available
- The spectrum mask, i.e. maximum power level and specification of the boundary conditions between this band and adjacent bands
- The geographical scope, which may be UK-wide or more limited.

It is useful to see these as in effect the minimum set of constraints that regulators need to impose in order to make a primary assignment (even these constraints could be modified commercially after the primary assignment). There is then scope for the regulator to prescribe a wide range of further constraints on use of the spectrum, in order to pursue particular policy goals. For example, restrictions can be put on:

- The type of technology that may be used

- The type of services that may be offered
- The minimum coverage area that must be served

6.5 Further constraints may also be imposed, if the licensing of the multiplex is carried out under the Broadcasting Act 1996 in addition to the Wireless Telegraphy Act 1949.

6.6 The discussion below considers first the minimum set of constraints that need to be imposed on use of the spectrum. It then addresses the case for imposing additional further constraints in order to pursue particular policy objectives relating to broadcasting. Section 7 then addresses the question of the licensing and assignment mechanisms that are most suitable for the policy proposals set out in Section 6.

## Minimum technical parameters

6.7 In assigning spectrum, it is necessary to consider how the channels in the band should be arranged and to identify the spectrum mask that should be applied. As discussed in Section 5, Ofcom commissioned ADM to assess the options for allocating available spectrum in Band III. The results of the analysis were published alongside Phase 1 of 'Radio - Preparing for the future' and helped to inform the thinking behind the proposals contained in the Phase 1 report. The analysis also informed the Regulatory Impact Assessment that was published to accompany the Phase 1 report. It is important to note that this assessment did not take into account any public policy considerations, which were addressed elsewhere in the Phase 1 report.

6.8 The ADM report assessed the relative economic benefits of spectrum allocation to the various possible uses which had been identified in the earlier consultation, and also included an assessment of the technical limitations on each alternative use which arise from agreements on co-ordination of interference with neighbouring countries as well as the technical feasibility of sharing a spectrum block between different types of service.

6.9 The conclusion as regards the technical feasibility of sharing a spectrum block within sub-band 3 was that "spectrum could be allocated to PMR/PAMR or T-DAB, but not both" and that "if T-DAB is favoured, then this would require displacement of PMSE"[3]. The ADM report further noted that, as would be the case if the spectrum was used for analogue television, the use of PMR/PAMR within sub-band 3 would be likely to be highly constrained by incoming interference from neighbouring countries[4], and added that "given that there is sufficient available spectrum in sub-band 2 to accommodate almost all potential PMR/PAMR demand even under the most extreme of our scenarios, the case for allocating sub-band 3 spectrum to T-DAB appears much stronger"[5].

6.10 In the period since the ADM report was completed Ofcom has noted a growing interest in technologies in addition to T-DAB that can deliver multimedia services (such as television and radio) to handheld terminals. DVB-H is one such technology which is currently attracting particular interest in Europe and which offers to deliver good quality TV to handheld terminals. DVB-H and other mobile multimedia technologies could potentially operate at a wide range of frequencies, including those within VHF Band III (174-230 MHz). However, Ofcom considers that the conclusion reached by ADM (that the technical parameters for release of the spectrum in sub-

[3] Analysys DotEcon and Mason Communications report, section 5.2, p.47
[4] Ibid, section 6.2.1, p.60 and Annex F
[5] Ibid, section 6.2.1, p.60

band 3 should be based on T-DAB) continues to be robust. This is because the alternative technologies to T-DAB (such as DVB-H) have spectrum requirements that are likely to be met more satisfactorily in other bands. The two key factors which suggest this are:

- The channelisation of Band III, sub-band 3, which generally offers smaller channels than is required by other technologies. (For example, DVB-H requires at least 5MHz and preferably 7 MHz of bandwidth. This is inconsistent with the smaller channelisation (1.75 MHz) of the DAB channels already accommodated in Band III.)
- The longer antenna needed to achieve good quality reception in Band III compared to higher frequency bands (such as the UHF band currently employed for analogue TV).

6.11 The findings of ADM's analysis were that the economic value of the spectrum would be maximised by allocating sub-band 3 of VHF Band III to five T-DAB compatible frequency-blocks, permitting both radio and data/multimedia services. (By DAB-compatible, we mean with technical characteristics that would permit DAB use.)

6.12 While these findings indicate that T-DAB for radio services and PMSE are the most likely users of the sub-band 3 of VHF Band III spectrum, the ADM report recommended enabling the market to make the final decision on the allocation of spectrum. However it recognised that T-DAB was the most likely use of this spectrum, because of the population of receivers in the market. The initial technical configuration of the spectrum should therefore be compatible with T-DAB which would help to minimise any potential costs of re-configuration after the award.

6.13 Allocation of this spectrum for DAB-compatible use would not preclude its use for other purposes and technologies (providing those other purposes/technologies can exist within the T-DAB spectrum specifications) although, as noted in paragraph 6.10, the VHF Band III spectrum considered here may not be ideally suited to alternative digital radio or multimedia platform standards.

6.14 Ofcom's view is that the available spectrum in sub-band 3 of VHF Band III should be allocated for T-DAB compatible use. This view takes into account the responses to the 'Opportunities for Future Use of Spectrum within VHF Band III (174 to 230 MHz) and in the 1.5 GHz Band (1452 to 1492 MHz)' consultation, the subsequent analysis conducted by ADM, additional information which has become available subsequently, and the responses to Phase 1 of the Radio Review.

6.15 It is then necessary to consider whether particular technologies and services should be specified for use in the spectrum and how the spectrum should be packaged geographically (i.e. whether the spectrum should be made available in blocks that cover the entire UK or parts of it). There is a broad range of options from releasing all available blocks with no restrictions on geography, application or technology, to releasing some or all of the blocks with restrictions on all three elements. For example, a block could be made available with restrictions requiring it to be used for local T-DAB in defined areas A range of possible options is set out below. The list is intended to be indicative rather than exhaustive:

- No blocks used for local digital radio multiplexes to all four blocks used for local digital radio multiplexes, to extend or complete local digital multiplex coverage in the UK.
- No blocks used for local digital radio multiplexes to all four blocks used for local digital radio multiplexes, to provide additional local digital multiplex coverage even

where this already exists (i.e. not specifically to complete local multiplex coverage in the UK).

- No blocks used for national digital radio multiplexes to all four blocks used for national digital radio multiplexes.
- No blocks used for either local or national digital radio multiplexes, but released in a manner which gives more or less freedom to the licensee(s) in relation to the use made of the spectrum.

## Policy case for intervention

6.16 As indicated above and earlier in this document, in deciding how to allocate spectrum, Ofcom needs to judge whether there is a case for intervening in order to secure a particular policy objective. This requires us to take a view on a variety of different factors. These include:

- the weight to be given to particular broadcasting policy objectives; this is relevant to the priority to be attached to achieving particular objectives, both as compared to each other, and compared to a policy of non-intervention;
- the risk that the objective would not be achieved absent the intervention; this is relevant to the proportionality of the intervention; Ofcom would in general expect to intervene only where it is necessary to do so;
- the size of the opportunity costs that would be imposed by the intervention; this is also relevant to the proportionality of the intervention, and to the requirement for Ofcom to balance its different statutory duties in judging whether or not to intervene, and if so how.

6.17 We now consider the evidence that we have available that is relevant to judging whether or not to intervene and if so in what form, given Ofcom's policy objectives and statutory duties.

### Possible uses of spectrum for broadcasting and other services, and relevant policy objectives

6.18 As discussed above there is a wide range of possible uses that could be made of this spectrum for broadcasting and for other services. There is also a wide range of particular broadcasting policy objectives that could be pursued, and that may be relevant to the case for regulatory intervention.

6.19 Ofcom has considered both the alternative uses and the relevance of particular objectives in order to assess the optimal balance of policies in relation to this spectrum. The discussion below therefore considers:

- The broadcasting policy objectives that may be relevant to decisions on use of this spectrum.
- The opportunity costs of intervening to secure broadcasting policy objectives.
- Other policy objectives and statutory duties that may be relevant.

### Relevant objectives in broadcasting policy

(a) Securing wider access to local digital radio services in areas that presently do

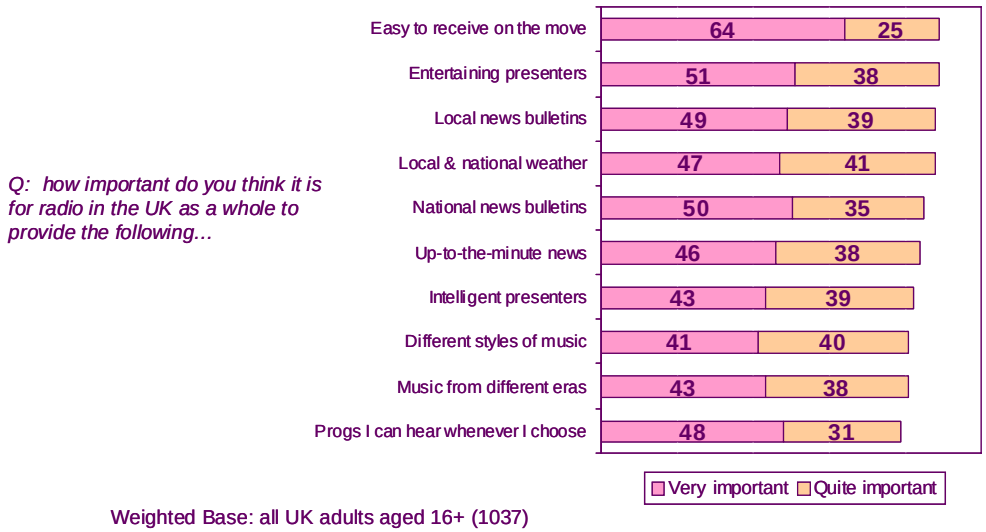
not have coverage from local services on the DAB platform.

6.20 As is set out in paragraph 4.7 and shown in the map in Figure 1, approximately 11% of UK households are in areas currently without local digital radio services. This includes some sizeable centres of population such as Derby, Oxford, Wrexham, and Salisbury, as well as large parts of Wales and Scotland.

6.21 Ofcom considers that extending the availability of local digital radio services to areas that are presently not served by local digital radio services is an important policy objective. This is because securing access to local digital radio services in areas that are presently unserved would reduce geographical inequities in access to services, and promote greater variety and choice in the relevant areas. This objective flows from, Ofcom's statutory duty to secure the availability throughout the United Kingdom of a wide range of radio services which are of high quality and calculated to appeal to a variety of tastes and interests. Extending the availability of local multiplexes to areas that do not presently receive such coverage will also facilitate the migration of all of the BBC's local and nations services to the T-DAB platform, as provided for by the Broadcasting Act 1996.

6.22 The pursuit of this objective is supported by the evidence that is available to us (discussed below) about the importance that is attached by listeners to the availability of local radio services. Our research into the public purposes of radio (see Appendix A of Phase 2 of 'Radio – Preparing for the future') demonstrates the value that people place on local radio in the UK, both as consumers and citizens. In particular, as citizens, they value the availability of the local news and information services provided by radio (see Figure 3).

**Figure 3: The importance of different attributes of radio**




Weighted Base: all UK adults aged 16+ (1037)
Source: TKA April 2005

6.23 A number of the respondents to both the October 2003 consultation published by the Radiocommunications Agency and Radio Authority and Phase 1 of 'Radio – Preparing for the future' also commented on the importance of extending the

availability of local digital radio services to areas of the country that are presently unserved. In general, the responses to these consultations suggested strong support for pursuit of this objective.

6.24 For example, the joint response from the BBC and the CRCA to the October 2003 consultation stated that "additional spectrum allocation would enable several important limitations of digital radio…to be tackled, such as completion of local digital coverage". Other respondents who expressed specific support for spectrum to be allocated for local digital radio included Digital One, GWR Group (now part of GCap Media plc),Lincs FM, CN Group and one confidential respondent. Digital One and GWR were also among the respondents who expressed the view that enough spectrum in Band III should be allocated to allow for all existing and future local analogue services to have the opportunity to migrate to the digital platform. This issue is addressed below.

6.25 Phase 1 of 'Radio – Preparing for the future' asked whether respondents agreed with a proposal to allocate more spectrum in Band III to provide more local digital radio, both in areas where some already exists as well as in those areas where none is currently available. Again, there was very broad support for this proposal from among the companies which responded to the consultation, including the BBC, Capital Radio (now part of GCap Media plc) Chrysalis, Digital One, Emap, GMG, GWR (now part of GCap Media), Lincs FM, SRH (now owned by Emap), Saga, Sunrise Radio and a confidential respondent. The BBC, GWR and Digital One, among others, reiterated their belief that Ofcom should prioritise the facilitation of a migration path for all existing and future local analogue stations when deciding how to allocate more spectrum.

6.26 As was noted in paragraphs 4.13-4.14, there are a variety of platforms which could potentially deliver local digital radio services and to devices which are mobile and portable: characteristics that are valued by consumers. However, Ofcom considers that T-DAB is currently the platform that best delivers these key attributes.

6.27 Ofcom considers that extending the coverage of local multiplexes on the T-DAB platform will have multiple advantages for consumers. T-DAB receivers are readily available, and in many of the areas to which local coverage can be extended T-DAB receivers are already in use (as national digital multiplexes cover these areas, though locals ones do not). Moreover, the T-DAB platform is presently the platform that best offers the combination of mobility, portability and local content for sound services. It is therefore the platform that is most similar to existing analogue broadcasting in terms of the attributes for listeners[6]. The extension of local digital radio multiplexes, using the T-DAB platform, to areas that are presently unserved will therefore offer consumers digital radio services that expand the variety and choice available, while doing so via a platform that preserves many of the key attributes associated with radio as a medium.

6.28 Ofcom considers that it is unlikely that the market would by itself provide a local digital radio multiplex in every part of the UK. As is set out in paragraph 6.139, in some areas it is doubtful whether a local commercial multiplex service will be viable at present. However, there are other areas of the UK that are presently unserved

[6] As discussed in section 4, the distinctiveness of the DAB platform may decline over time, though the speed and extent of change are unclear. For example, DVB-H (or one of the many analogous technologies) could also offer full mobility and portability. However, the business model for services using this platform is unclear, and the carriage of local services may or may not feature. Other existing platforms are also innovating to offer some attributes similar to DAB (e.g. the Skygnome will offer portability around the house). However, T-DAB remains the digital platform presently best able to offer local services to portable and mobile devices.

where we judge that a local digital radio multiplex could be economically viable, but it is still unlikely to represent the profit-maximising use of the radio spectrum.

6.29 This is because, in the absence of intervention, the holder of spectrum who is not restricted in how it can be used geographically can be expected to wish to maximise his profits. This is most likely to be achieved either by using the spectrum for national coverage, or by using it to maximise population coverage (and thereby revenue) relative to costs (probably by concentrating on the major urban centres). Local multiplexes are therefore unlikely to be the outcome of a profit-maximising approach to spectrum usage. It is even less likely that the outcome of such a strategy will be that configuration of local multiplexes which is necessary to achieve the public policy objective of extending the coverage of local digital radio services in areas presently unserved.

6.30 In summary, Ofcom considers that a high weight should be attached to the broadcasting policy objective of securing wider access to local digital radio services in areas that are presently unserved. Completing the plan of local multiplexes will help us to secure important public policy objectives for broadcasting. Ofcom also considers that the appropriate means of pursuing this objective is to seek to extend the coverage of local digital radio multiplexes using DAB technology. Ofcom also considers that, without regulatory intervention, this objective is very unlikely to be secured, as the required local coverage plan would not be profit-maximising. Consequently, the risk to the goal being achieved, absent intervention, appears to be high.

(b) Securing additional national sound services on the DAB platform that contribute to choice and diversity for listeners and are widely available.

6.31 Ofcom considers that it is also important to ensure that a wide range of radio services is available nationally that can provide breadth of choice and diversity for listeners, and that are accessible in ways that meet listeners' expectations and preferences.

6.32 The provision of radio services on a national basis can contribute significantly to the range and quality of radio services that are available to the listening population as a whole. This is for several reasons. The first is that services that are available nationally are, by definition, available to a higher proportion of the population than services that are available locally. In principle, therefore, a given number of services that are available nationally can extend the choice available to listeners taken as a whole by significantly more than a similar number of services that are available only in one or a few localised areas.

6.33 This point acquires more significance when the physical characteristics of spectrum planning are borne in mind. This is because any given frequency block could in principle be used either to provide national coverage, or to provide localised coverage with different services provided in a number of discrete areas. Under the latter option, given the requirements for separation between transmitters that use the same frequency for different services, a given frequency will inevitably achieve lower population coverage than if it is used to provide the same services nationally.

6.34 There is therefore a balance to be struck between allocating spectrum for the provision of local services and for the provision of national services. The former is spectrally less efficient in terms of population coverage achieved per MHz, but allows a range of services to be provided with a distinctively local character. The latter allows more services to be provided in total to a larger proportion of the population.

6.35 There is a further point that is relevant to the decision whether to use spectrum for national as distinct from local services. This relates to the economics of radio services as these relate to coverage areas, and the interaction between coverage areas and the potential for service diversity and innovation.

6.36 In general, the larger the coverage area the larger the market that a given radio service can address, and thus the larger the potential revenue that can be earned by a commercial service. There is a very wide variety of actual and potential types of radio services, as the discussion of formats in Radio Review – Phase 1 illustrates (see Section 6.1). Much of the innovation in the radio sector centres around the development of new formats and of new types of programming, and the provision of services that have special appeal to groups with particular interests (such as interests in different types of music or speech, or programming with relevance to particular ethnic groups).

6.37 However, commercial services that appeal to groups with particular interests are less likely to be economically viable if the coverage area for the service is small. This is because the addressable market is not likely to be large enough to support a viable offering. This view is reinforced by an analysis of the formats that are typically offered at present in the UK by commercial services on the analogue platform, where in general services with small local coverage areas tend to have the format with most popular appeal (as discussed in phase 1 of 'Radio – Preparing for the Future' (see Section 6.1). More unusual formats tend only to be viable in coverage areas that have a relatively large population.

6.38 Ofcom therefore considers that there is greater potential for services to add to the diversity of the experiences available to listeners, and to the range and choice of radio services, if a given frequency is made available for national coverage rather than local.

6.39 These considerations do of course have to be balanced against other relevant factors, including the desirability of ensuring that listeners have access to a range of services with local identity. The balance that has been struck in this respect in the past is reflected implicitly in the present allocation of spectrum as between services with local and national coverage. It is also relevant to note that the process for licensing national and local digital multiplexes under the Broadcasting Act gives the regulator some influence over the character of the services provided. This means that the services provided on commercial multiplexes are not a result merely of an economic process intended to maximise profit. However, Ofcom considers that the underlying economics of national versus local coverage areas is relevant to policy in relation to spectrum usage. This is because the economics will inevitably constrain the types of services that it is feasible for multiplexes to carry, not least given that the services in question must be commercially viable.

6.40 It is now useful to turn to other considerations that are relevant to Ofcom's judgement as to the weight that should be attached to the objective of securing additional national sound services on the T-DAB platform. These include:

- The evidence of demand that is available from the radio industry (including potential new entrants) for the release of additional spectrum in order to offer national sound services.

- The evidence of consumer views in relation to the use of spectrum for this purpose.

- Other considerations, such as potential effects on competition

6.41 Ofcom considers that evidence of demand from the radio industry for the release of spectrum for national digital radio services is relevant to Ofcom's decision on use of the spectrum. If there is evidence of such demand, this suggests that potential providers of a national digital radio multiplex see demand for additional national digital radio services from listeners in the future. Potential providers of a national digital radio multiplex are only likely to incur the costs of building and operating a national digital radio multiplex if they see the prospect of a commercial return, and this commercial return can only arise if the services provided attract significant numbers of listeners and thereby advertising revenue. Ofcom considers that, considered in aggregate, more information is available to the companies which operate in the radio market than is available to the regulator about the potential commercial opportunities that exist for providing listeners with services that they will use in the future. The consultation process, which allows the industry to express views on matters such as this, can therefore be very helpful in enlarging the information available to the regulator. Ofcom therefore considers that it is appropriate to attach considerable weight to views expressed by the radio industry about the desirability of making more spectrum available for national radio services.

6.42 Having reviewed this evidence carefully, Ofcom considers that there is clear evidence of significant demand for access to spectrum assigned on a national basis for digital radio services. This evidence comes from a variety of potential operators and service providers.

6.43 For example, in their responses to Phase 1 of the Radio Review, Emap, Chrysalis, GMG and SRH each said that they would be interested in acquiring national capacity for T-DAB services. The transmission operator Crown Castle also stated in its response that it believes that there is significant unmet demand for national T-DAB capacity.

6.44 Emap argued that "another frequency block should be allocated for an additional Broadcasting Act national multiplex. There is no doubt that demand exists from suppliers, listeners and advertisers for national radio services using T-DAB technology. Consideration should then be given to using the remaining capacity for another tier of regional T-DAB Broadcasting Act multiplexes. In addition, having a single "gatekeeper" for access to national T-DAB does not promote competition, either in markets for the provision of national digital sound programme services or in transmission networks. The monopoly position of the sole national sound multiplex operator is further exacerbated by the removal of limits on the provision of sound programme services in the Communications Act 2003."

6.45 MXR (holder of several regional T-DAB multiplexes, and jointly owned by Chrysalis, GMG, Capital Radio (now part of GCap Media), UBC Digital and the Ford Motor Company) argued that "the release of spectrum in Band III creates the potential for digital radio to maximise its benefit to the public. Digital radio has not brought the proliferation of new audience choice that digital television has achieved and spectrum scarcity is one key reason for this. National multiplexes have benefits over local:

- National coverage brings increased choice to the greatest number of listeners, thereby maximising the public benefit
- National coverage is also necessary to provide the greatest possible incentive to receiver manufacturers, the car industry and major retailers

- National coverage also maximises the commercial opportunity for major radio advertisers, making it more likely that digital radio can begin to generate sufficient revenues to give a return on the enormous investment that broadcasters have already made in this new platform".

6.46 The benefits of allocating spectrum for further national digital radio services were seen by respondents as including: increased listening choice, maximising opportunities for national advertisers, incentivising receiver manufacturers and retailers, developing multimedia services, reducing what some respondents saw as the monopoly power of Digital One, serving currently unserved audiences, and generally increased diversity and functionality of radio services.

6.47 A number of respondents pointed to the large number of radio stations available on Sky and Freeview as evidence of unmet demand for additional spectrum for national radio services. In addition some pointed to the existence of quasi-national T-DAB stations as evidence for demand for more national spectrum. Five respondents (the BBC, Chrysalis, Premier Christian Radio, Sunrise, and a confidential respondent) said that they would be interested in putting T-DAB sound services on a new national multiplex.

6.48 In addition to these consultation responses, Ofcom subsequently received further evidence of demand for further national digital radio capacity to be made available from two respondents. This evidence included more detailed information about the commercial preparations that the respective broadcasters were making for the possibility that additional spectrum would be made available for national digital radio services.

6.49 The first of these broadcasters stated that it had invested resource in commissioning work to identify likely frequency availability and consider the associated network design, roll-out and costs. This respondent also provided information on its proposed partners in a consortium and set out possibilities for different content providers. The respondent has been able to commit signatories to the letter to an expression of interest in running a national service on any additional national multiplex, and it stated that it believed that it was realistic to expect demand for access to national T-DAB carriage to exceed available supply.

6.50 The second of the radio broadcasters submitted additional correspondence to Ofcom that showed further evidence of support for the release of spectrum for national digital radio services. This broadcaster stated that delay could lead to stagnation of the market and younger audiences by-passing the T-DAB platform altogether. The respondent suggested that if this were to occur it would be very damaging to the development of this platform and for radio in general. The respondent did not however provide evidence to support this claim.

6.51 This objective rests in part on the desirability of widening the range and variety of sound services available nationally on the T-DAB platform.

6.52 As was set out in Section 4.6 services are currently available nationally on T-DAB on the two national multiplexes (one operated by the BBC, the other by Digital One). This compares to 88 radio services available nationally via the digital satellite platform, 25 available near-nationally via Freeview, 40 available (in cable areas) on digital cable, and some thousands on the Internet. However, of all the digital platforms presently available, Ofcom considers that T-DAB currently best delivers mobility and portability.. It is in Ofcom's view the platform that is therefore most similar to the existing analogue platform in terms of certain key attributes for

listeners.

6.53 There were a number of respondents who, while considering that there may be high demand for spectrum to be used for a national multiplex, felt that there were other relevant considerations. RNIB said "There will of course be a high demand for national T-DAB coverage, but equally there will be a high demand for local representation on T-DAB too". GWR said that "at least four blocks of spectrum should be allocated to local radio" and suggested that Ofcom should "in order to maintain flexibility, keep at least one of the blocks of spectrum in reserve". Digital One said that "five blocks of Band III spectrum are needed to allow all local radio stations to have the opportunity to migrate to the digital platform."

6.54 There were also some respondents who did not see any demand for further national multiplex capacity. For example Passion for the Planet, Panjab Radio, Abracadabra and Zeta Digital said, in a joint response, that: "We do not envisage great demand for further sound programmes on a national multiplex".

6.55 Ofcom has also conducted research directly with consumers to try to gather further information about the extent of demand for new digital radio services. This research was conducted in the spring of 2005 by ICM (see Appendix A). The objectives of the research included seeking to establish the demand for further digital radio services, and how the provision of more services than are currently available would be likely to affect consumers behaviour in relation to buying digital radio receivers.

6.56 This research found that there was no widespread agreement among respondents as to whether a wider choice of commercial stations would be appealing to them – the responses to this question were mixed. The results regarding the increased likelihood of purchasing a T-DAB set, based on extra stations compared to the current line-up, appear to show that the more stations that are available, the more people say they are interested in buying a T-DAB digital radio. However, the difference in increased likelihood to purchase a T-DAB set when offered 8 or 16 additional national stations was not statistically significant.

6.57 Ofcom also received evidence of consumer demand undertaken on behalf of a confidential respondent to Phase 1. This research was considered by the respondent to show that increasing the number of national radio stations would make T-DAB digital radio only slightly more attractive to consumers; that the non-availability of current AM/FM local stations makes T-DAB digital radio less attractive to consumers; that a majority of consumers believe you can have "too many radio stations to choose from"; and that other possible changes to the way T-DAB digital radio is marketed, such as better advertising and retailing to communicate consumer benefits and existing station choice, have more significant impact than increasing station choice.

6.58 Ofcom recognises that consumer research of this type can be open to question and therefore needs to be treated with caution. There are a number of reasons why both of these pieces of research might be treated with caution.

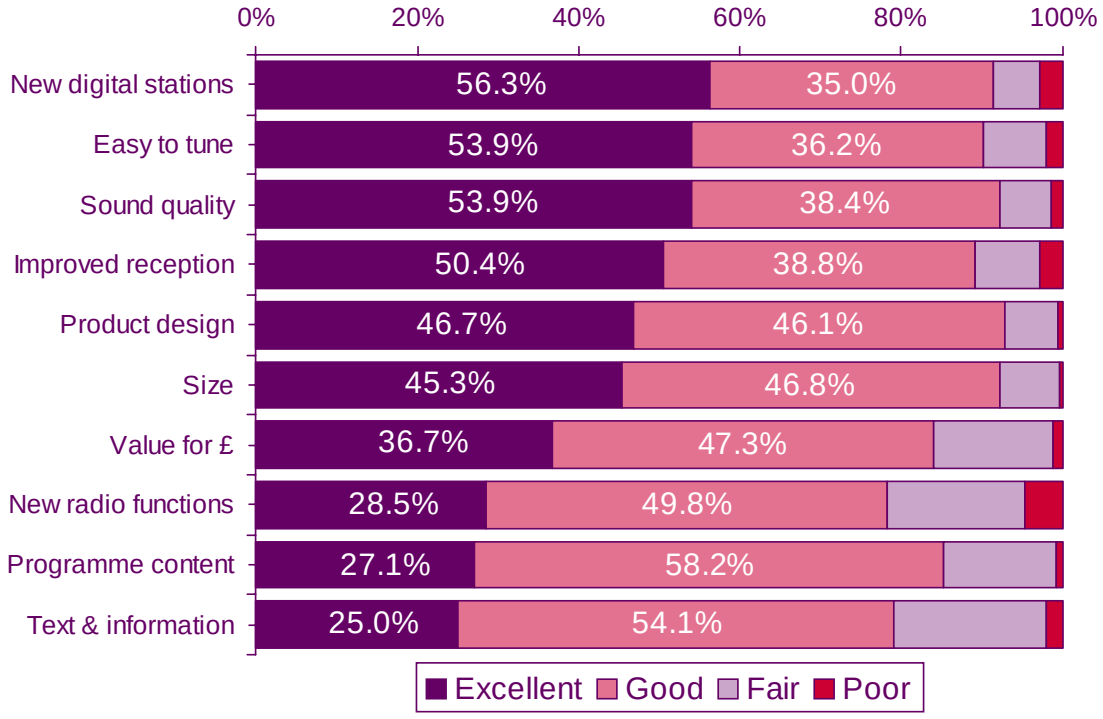
6.59 Firstly, listeners may find it difficult to have a strong opinion about something they have not experienced. Secondly, it is not possible to know which stations would be offered on a new multiplex and therefore a number of assumptions have to be made in the questions asked. Thirdly, it is not possible to take account of any additional marketing that a new multiplex operator and new stations would bring to the market, and how this might affect consumers' behaviour.

6.60 It is also instructive to consider how other new technologies have been perceived before deployment, and how they have developed subsequently. History suggests that research cannot always be relied upon to be predictive of future behaviour. For example, demand for multi-channel television was low in the mid-1980s, yet 62% of the population now has access to it. Similarly, the rate at which the number of people who listen to radio via their television has increased (the proportion is now almost 30%) is widely considered to have taken the radio industry by surprise.

6.61 Ofcom considers that the evidence that is available from these two pieces of consumer research is not conclusive, and needs to be seen alongside the evidence from representations made by companies in the radio industry. Ofcom considers that the latter is strongly suggestive of significant demand for additional spectrum for national radio services, and that, for the reasons discussed, this can be regarded as a good indicator of the potential for the assignment of spectrum for national sound services to be used effectively to provide additional services to listeners.

6.62 It is also useful to consider the findings from research conducted earlier this year by the Digital Radio Development Bureau (DRDB), which indicate that purchasers of T-DAB digital radio receivers find the new stations that they are able to listen to the most satisfying aspect of their purchase. This research has been conducted among consumers who already own a T-DAB receiver, and therefore asks questions about consumers' current experience rather than their likely future behaviour. Consequently, it is less likely to be inconclusive than the type of research discussed in the preceding paragraphs. Figure 4 shows what owners of T-DAB receivers consider to be the key benefits of the T-DAB platform.

**Figure 4: The key benefits of DAB**




Source: DRDB (Q1, 2005)

6.63 The DRDB research also found that the main reason consumers gave for buying a DAB radio is to receive stations that are available on this platform but not available

on the analogue radio platform. In addition, 65% of respondents (all owners of a DAB receiver) said that being able to receive new stations was the main factor which influenced them to buy a DAB receiver rather than an analogue one. The next most popular factors were better sound quality (43%), and to receive improved reception of existing stations (40%).

6.64 Ofcom has also considered an argument made by some respondents opposed to releasing more spectrum for national services, to the effect that the consequence of this policy will be to undermine the viability of existing local multiplexes by providing an alternative platform onto which services may migrate. This issue is addressed in detail below.

6.65 There are certain other considerations that are also relevant to the use of spectrum for additional national sound services. These include the ability to secure that any national sound services are widely available, and that the services contribute to the choice and diversity available to listeners. These matters are also considered further below.

(c ) Provide additional capacity for radio services that are presently broadcast only in analogue, to secure a migration path to digital broadcasting

6.66 Some respondents to the Phase 1 consultation have argued that Ofcom should prioritise another broadcasting policy objective in considering its policy towards use of this spectrum. These respondents have suggested that a more important objective than securing additional national sound services is to secure a migration path that would allow more or all existing and future local radio services to transfer to the T-DAB platform.

6.67 Ofcom has considered this matter carefully. Ofcom considers that in principle it is desirable for as many radio services as possible that are presently broadcast in analogue to have the option of broadcasting viably on one or more digital platforms. This is desirable in order to secure the availability of a wide range of services, over a wide range of platforms. Ofcom also considers that the importance of digital platforms is likely to increase significantly in radio, and that it is desirable to avoid some radio services finding that they are 'land-locked' on an analogue platform that may decline in its relative importance to listeners. Ofcom is of the view that these considerations apply in principle to small local commercial and community radio services just as they do to services with larger coverage areas and of greater economic viability. This reflects the important contribution that small local commercial and community radio stations can make to the diversity and range of services available to listeners, and to important characteristics of radio such as local identity.

6.68 However, the desirability of making digital platforms accessible to existing analogue services has to be tempered by considerations of practicality and economic efficiency. Based on its statutory duties, if it would not be an efficient use of the spectrum in Band III sub-band 3 to provide additional capacity specifically in order to accommodate stations that are presently broadcast in analogue only, then it would be less appropriate for Ofcom to focus on this policy goal, compared to others, in making its decisions about use of this spectrum.

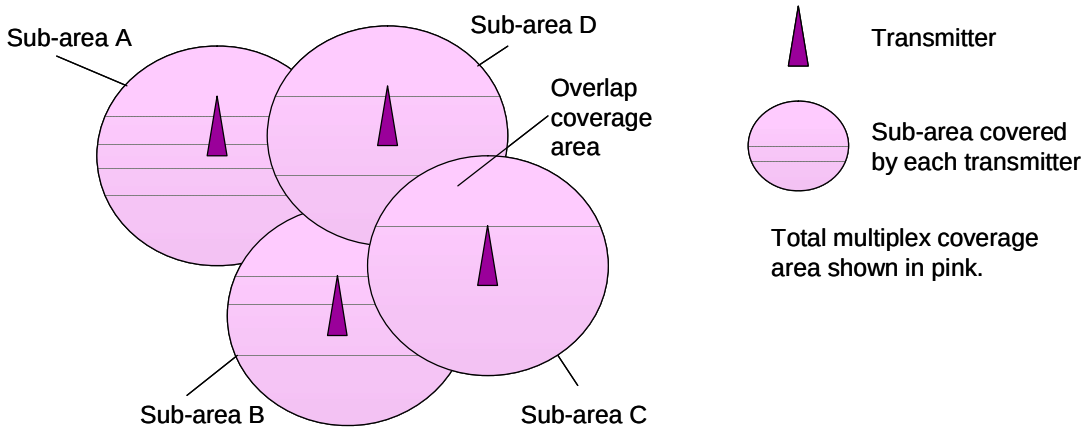
6.69 Ofcom has considered this point carefully and in its judgement considers that the use of spectrum in Band III sub-band 3 for additional local digital radio multiplexes would not be an efficient means of enabling more small stations currently broadcasting in analogue to access a digital platform. This is because of the technical and economic

character of broadcasting via T-DAB.

6.70 T-DAB broadcasts using multiplexes. This means that, based on the technology currently available, each frequency can carry around nine stereo services. Each of the services on the multiplex uses a number of transmitters on the same frequency to cover exactly the same area. It would not make sense, economically or editorially, for a small scale commercial or community station broadcasting to only a part of a multiplex licence area to broadcast to the whole of the area.

6.71 An illustration is given in Figure 5. The whole area is covered on a single frequency from four transmitters and the same set of services is broadcast by each transmitter. Because all of the services carried are the same, the signals from one transmitter do not interfere with those from an adjacent transmitter. In fact, the signals reinforce each other in overlap areas to provide listeners with better reception. If each transmitter broadcast a separate set of local services, they would interfere with each other and there would be no reception in large parts of the areas between transmitters.

**Figure 5: The configuration of a typical T-DAB multiplex licence area**

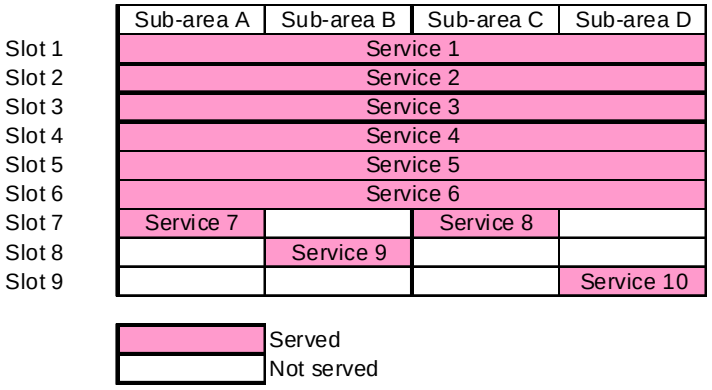



Source: Ofcom

6.72 In order to support their contention that T-DAB multiplexes using Band III spectrum could provide a solution for smaller stations to migrate to digital, some of the respondents to the Phase 1 consultation argued that it would be technically feasible to use a technique called 'windowing', whereby a multiplex is split so that different sub-areas within a wider area can receive different services.

6.73 In the hypothetical case in Figure 6, six of the nine slots available on the multiplex carry services across the whole area. Slots 7, 8 and 9 are used to provide local windows: Slot 7 carries separate local services for sub-area A and sub-area C. It can do this because there is no overlap between the two coverage sub-areas. Slot 8 carries a local service for sub-area B and Slot 9 a local service for sub-area D. These slots cannot be used for other services in any of the other sub-areas as all of the other sub-areas overlap with the local service provided.

**Figure 6: Multiplex windowing**




Source: Ofcom

6.74 However, Ofcom considers that windowing is unlikely to be a viable option for smaller stations. This is because the windowing technique is significantly more expensive than a standard multiplex set-up, as it would require separate multiplexing equipment for each of the transmitters, rather than the single multiplexer for all four transmitters if they all carried exactly the same set of services.

6.75 In addition, as the slots used for windowing in a particular sub-area cannot generally be used in other sub-areas because of interference problems, this approach would have the undesirable consequence of preventing increased competition in other sub-areas from emerging. Windowing offers a no more economic or spectrum efficient solution than using a standard multiplex for the whole area. We have therefore concluded that this is unlikely to be a general digital solution for smaller commercial and community stations.

6.76 In its response to the Phase 1 consultation, Digital One expressed its belief that there are "new business models for sustainable local T-DAB digital radio multiplexes" and indicated its intention to apply for small local radio multiplex licences should any be advertised. While it may be the case that new business models can be developed which could make local multiplexes covering small areas more commercially viable, we are not aware that such models yet exist, and we are not convinced that allocating spectrum now for this purpose would represent the most appropriate solution in respect of the available Band III frequency blocks.

6.77 Ofcom has also considered the extent to which the allocation of an additional block of spectrum for local multiplexes could in practice provide capacity for services that presently broadcast only on analogue to broadcast on the T-DAB platform. Analysis of this point involves various uncertainties, not least the local coverage plan that would be adopted for a block that was assigned specifically to facilitate a migration

path for stations that are presently only on analogue. The impact of such a policy would depend on the coverage plan; coverage planning is a complex and detailed task, and no such plan has been finalised. However, it is possible to make a number of observations based on analysis that Ofcom has undertaken.

6.78 At present, of the 295 analogue commercial services currently on air or about to go on air, 131 currently broadcast on T-DAB. These are shown in purple on the map in figure 12.

6.79 The plan to provide a local T-DAB multiplex in every area of the UK would allow many of the stations not currently on T-DAB to start broadcasting on T-DAB. It is not possible to say exactly how many actually would broadcast on T-DAB, as that is a decision for the stations themselves and is subject to them negotiating with the relevant local multiplex licence holder. It is also important to note that no commercial local station has an automatic right of carriage on a local digital multiplex. Our best estimate is therefore based on the number of existing stations that broadcast within the areas which currently have no local multiplex and which the three new spectrum blocks are designed to fill. These areas are shown in yellow on the map in figure 12 and the stations within those areas are shown in red. There are around 74 such stations – the exact number will depend upon the precise boundaries of the new multiplexes and these have not yet been fixed.

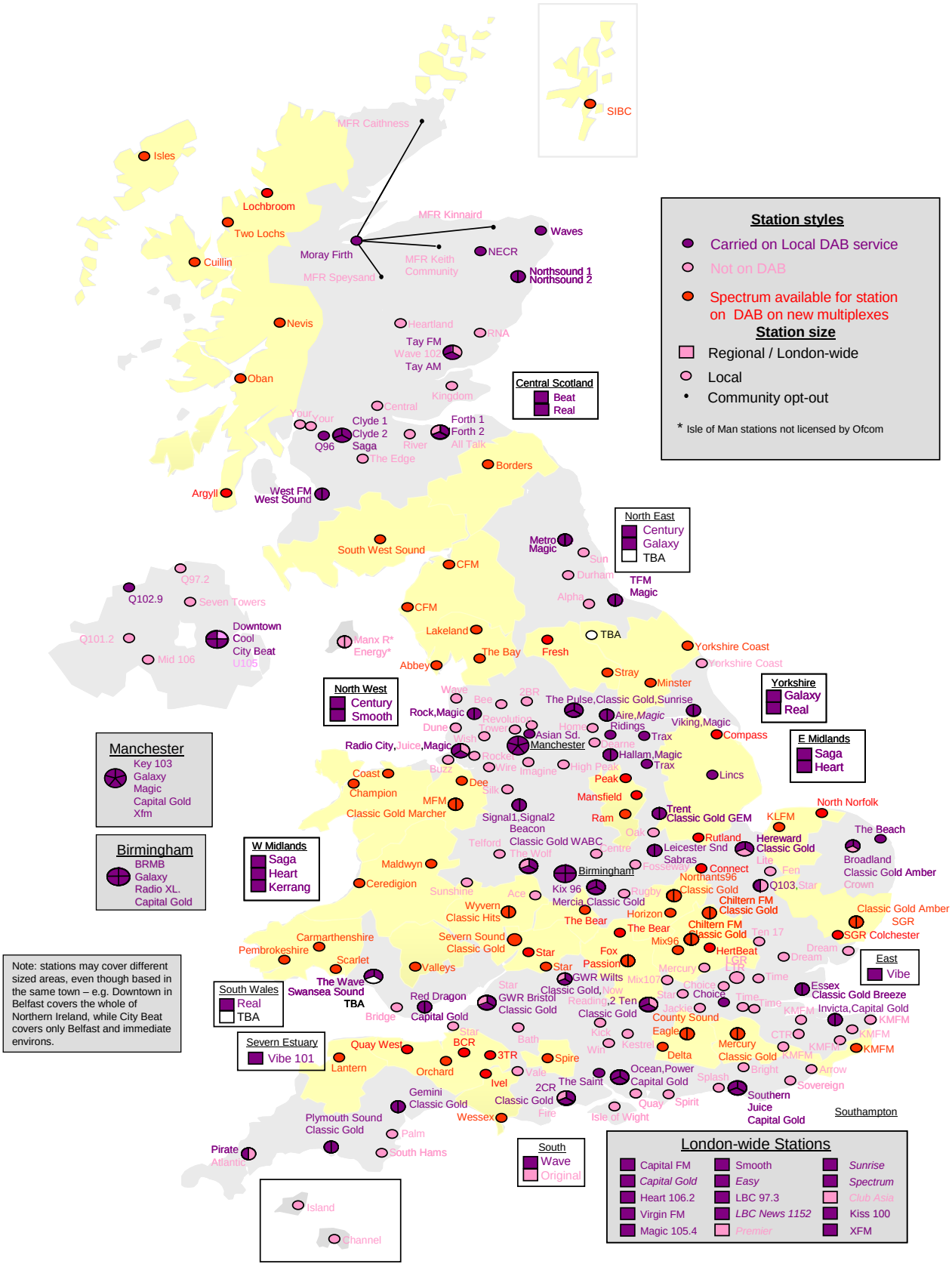
6.80 This leaves around 90 stations which are not on existing local multiplexes and are outside the areas of the proposed new multiplexes. These are shown in pink on the map in figure 7. Again, it is difficult to be precise about the number as some of them may be able to secure carriage on their local T-DAB multiplex at some future date if they decide to do so and if there is capacity. However, it is certain that not all of these will be able to secure carriage on existing multiplexes and a significant number will remain without access to a T-DAB multiplex.

6.81 It is worth noting that the 131 stations that are already on T-DAB, plus the 74 stations that could gain access under the proposal to fill in the gaps, currently account for around 95% of commercial radio listening. The remaining 90 stations therefore currently account for around 6% of commercial radio listening, or around 2% of total radio listening. This does not mean it is unimportant to consider a digital migration path for the remaining stations, as these stations are highly valued by their listeners, but the benefits of allocating more Band III spectrum to these stations, beyond that proposed above, needs to be weighed against the benefits of alternative uses.

6.82 Of these 90 stations, there are:

- 7 in Northern Ireland and 2 in the Channel Islands where it is not yet certain that spectrum will be available, but which could be accommodated on new local multiplexes should such spectrum become available;
- 20, which are in areas where there is an existing local multiplex which has spare capacity. These stations have chosen not to seek T-DAB capacity to date either because they regard it as not financially viable for them or because the multiplex covers a much larger geographical area than the stations do on analogue and the station does not wish to cover this larger area;
- 61 which are in areas where there is already a local multiplex, but there is no spare capacity on the multiplex.

**Figure 7: Stations' potential for carriage on T-DAB**




Source: Ofcom

6.83 Many of these 61 stations excluded in this way are smaller local stations, often on the edges of metropolitan areas, where even if there were capacity on the local multiplex, the area covered by that multiplex is too large to be attractive to the station and the costs of carriage are too high (because the multiplex covers a large area and so requires a number of transmitters) to justify the benefits. An example is Radio Jackie in Kingston-upon-Thames. This lies within the coverage area of the London multiplexes. The problems are that the London multiplexes cover an area which stretches well beyond Greater London into the Home Counties; capacity on the multiplexes is in high demand for London-wide stations, so that there is no space available and even if there were it would be too expensive for a relatively small station like Radio Jackie to afford.

6.84 It is important to note that, if the fourth block of potentially available spectrum was to be used for more local multiplexes and was allocated in such a way as to match the areas of those existing 61 stations, so allowing them a T-DAB migration path, then only around 20 of those 61 stations could be accommodated, as sufficient gaps would need to be left between the multiplexes to prevent mutual interference. This can only be an approximate estimate, as it would depend upon exactly which areas were allocated spectrum.

6.85 This analysis also ignores the many new community radio stations which Ofcom is now licensing, whose budgets are small and which cover much smaller areas than any of the existing or planned multiplexes. 48 such community licences have already been awarded and many more will follow over the coming months and years. As noted in section 5, these community stations are an important part of Ofcom’s future radio framework.

6.86 So, there is, as yet, no obvious route for smaller analogue commercial stations or community stations to provide their services digitally in a way which is economic for them, even if spectrum was available. The main problem arises because of the technical characteristics of T-DAB, which broadcasts using multiplexes. This means that each frequency can carry around nine stereo services. Each of the services on the multiplex will use a number of transmitters on the same frequency to cover exactly the same area. It would not make sense, financially or editorially, for a small scale commercial or community station broadcasting to only a part of a multiplex licence area to broadcast to the whole of the area.

6.87 Taking all of these considerations into account, Ofcom is of the view that it would not be a technically or economically efficient use of the scarce spectrum resource to use the available spectrum in Band III sub-band 3 to provide additional capacity targeted at stations that currently do not have economically viable access to a digital radio platform, instead of alternative uses, notably use for additional national services. Ofcom does however intend to continue working with the radio industry to consider options for digital broadcasting that could be viable for these stations. Such options could, in time, include the use of the Digital Radio Mondiale (DRM) standard at frequencies already available for sound services but with spare capacity (such as Medium Wave).

6.88 It is also possible that the wider availability of dual band FM/T-DAB receivers could reduce the risk that these stations lose their ready access to audiences. In time, additional FM spectrum may also become available if some larger stations decide to migrate entirely to digital platforms, and this could have further benefits for many stations (such as those presently on Medium Wave or that are constrained in their

coverage on FM).

(d) Providing additional capacity for local digital radio services per se, including in areas already served by local digital radio multiplexes

6.89 We have also considered whether it would be appropriate to intervene in use of the spectrum to facilitate further local radio multiplexes wherever they prove technically and economically viable (i.e. not giving priority to the areas where none currently exist, or to facilitating the migration of analogue-only services to digital).

6.90 Such a policy could potentially increase the range and variety of local radio services available to listeners in these areas. However, Ofcom considers that it would make a less material contribution to the achievement of Ofcom's public policy objectives than intervention to secure coverage in areas that are presently unserved by local digital radio services. This is because of the considerations of geographical equity discussed above. Ofcom considers that the incremental benefit in public policy terms of securing coverage for local services in areas that are not presently served at all is greater than the incremental benefit of providing additional range and choice of services in areas that are already served. Ofcom therefore considers that, within the context of broadcasting policy, a higher priority should be attached in the allocation of the scarce spectrum resource to the objective of extending local multiplex coverage.

6.91 Ofcom considers that similar considerations apply to a comparison between the use of spectrum to provide additional capacity for local digital radio services and the use of spectrum to secure additional national digital radio services. For reasons already discussed, the use of spectrum for national services allows more services to be provided across a larger proportion of the population than the use of spectrum for local services. The viability of services appealing to specialist interests is also increased if spectrum is made available nationally, potentially increasing the diversity and range of services for listeners.

6.92 Ofcom considers that two further considerations are relevant to its view that a higher priority should be attached, within the context of broadcasting policy, to the assignment of spectrum on a national rather than local basis in terms of providing additional capacity for local areas already served by a local T-DAB multiplex.

6.93 The first is that Ofcom has not received evidence of demand for the assignment of additional capacity for local multiplexes per se that is as strong as the evidence received in relation to a potential national multiplex. The second consideration is that if spectrum is allocated for local multiplexes in areas that are presently not served, this will have the effect of also allowing additional multiplexes to be planned covering some areas that already have local digital radio services. This is due to the fact that in planning spectrum for local coverage the same frequency can be used for different services after a certain spatial separation. Ofcom has not yet planned in any detail this local multiplex "dividend", but its initial assessment is that it may be possible to license a number of additional local multiplexes in areas where demand for local digital services is high. This may also assist in providing services that are presently constrained to be analogue-only with additional opportunities to broadcast on the T-DAB platform. Ofcom will consult before planning any local multiplexes arising out of this dividend (see also paragraph 6.146).

**Opportunity costs**

6.94 The above discussion of broadcasting policy objectives needs to be balanced by a discussion of the opportunity costs associated with precluding alternative uses of the spectrum. Opportunity costs arise whenever a regulator intervenes to require spectrum to be used for a particular purpose, as other potential uses will be precluded. It is for this reason, amongst others, that Ofcom's wider policy towards spectrum emphasises making assignments on a technology- and use-neutral basis, as this minimises the opportunity costs of regulation and the risk of regulatory failure.

6.95 The size of the opportunity costs in any particular case will depend on the characteristics of the spectrum and the nature of the alternative services that could be provided. However, it is difficult to estimate these with accuracy. Moreover, the most efficient use of frequencies over time is likely to change (assuming no regulatory intervention) so that the opportunity costs may also change (up or down).

6.96 Ofcom has considered the opportunity costs associated with a regulatory intervention in this case in as much detail as the information available allows. There are various reasons for inferring that the opportunity costs in relation to the use of this spectrum are significant.

6.97 The first is a general observation on the characteristics of these frequencies. Compared to higher frequencies (such as those above 1 GHz), these frequencies have good propagation characteristics, which allow networks to be deployed at relatively low cost. This advantage is offset to some extent by the requirement for devices such as receivers to have larger aerials in order to ensure adequate reception. This requirement might constrain the utility of the spectrum for some applications (such as those that use handheld devices). However, it may also be possible to overcome or mitigate such a limitation through ingenious technical design.

6.98 The second reason for inferring that the opportunity costs are significant is that there are already alternative uses for this spectrum and for adjoining bands. These alternatives to sound services include data and multimedia services, private mobile radio and public access mobile radio, as described below. However, it is also important to note that other spectrum should become available (such as L-Band) which could be used to support data and multimedia services. This will tend to reduce the opportunity costs (although alternative frequencies are not perfect substitutes for Band III).

<u>Data and multimedia services</u>

6.99 This spectrum is technically capable of supporting data and multimedia services, such as video and television services. Use for broadcasting additional television services to household receivers in the form of traditional terrestrial television can be discounted as unlikely, not least given that households in the UK would need to acquire new equipment to receive a service. However, use of the spectrum for new applications, such as video or television delivered to mobile (perhaps handheld) devices is a plausible commercial application. Indeed, BT Livetime commenced a pilot mobile broadcast television service in June 2005, providing access to Sky Sports News, Sky News and Blaze, a new music channel designed specifically for mobile television. These three services have been provided using 20% of the spectrum on the Digital One national radio multiplex.

6.100 On this basis, if an entire T-DAB compatible spectrum block (1.5 MHz) was allocated

to television services, preliminary estimates suggest that it could support up to 15 mobile broadcast television channels, to the standard envisaged by the BT Livetime pilot. A number of other developments in the UK and elsewhere suggest that there is considerable interest in the commercial potential for mobile data and multimedia services. There are, for example, a number of trials of DVB-H technology currently talking place in Europe (including one in Oxford). Band III spectrum could in principle support services that are likely to have similar features to those supported by DVB-H.

6.101 The responses to the Phase 1 consultation also provided some support to the idea of allocating spectrum to data and multimedia services (although the balance of the responses favoured sound services).

6.102 For example, MXR said "DAB technology is an excellent solution for many mobile data or multimedia transmission scenarios, with power efficient receiver modules, a robust transmission scheme, and the ability to cover large geographic areas using the same frequency. Because of these factors, we anticipate that many demands might be placed upon such spectrum, including from broadcasters wishing to broadcast radio stations on a national basis. Further to this, we believe there may be considerable interest from content providers wanting to push video, music, or other premium services to portable devices."

6.103 UKRD said: "We believe that as consumer DAB take up grows exponentially, demand by programme service providers – and therefore demand by multiplex operators for DAB-compatible spectrum will increase. This might include programme-related data (graphic-rich content) or additional, data only services – real-time traffic information for example"

6.104 UBC said "We believe there will be strong demand for both audio and data services. It is likely that the models for data use will be more economically compelling than those for audio and therefore that such applications will, generally, be better funded".

6.105 SRH commented, however, that "we believe multimedia data services should be operated exclusively in L-band".

6.106 GWR said that it "accepts demand for national capacity may be strong amongst certain radio groups who have secured carriage for all their existing analogue services on local T-DAB multiplexes and therefore whose growth ambitions could be met through regional or national multiplexes. However, even if it were permissible to license such spectrum (which it is not), GWR believes that it would be unfair for Ofcom to give preference to the desires of those few commercial entities, rather than satisfying and serving consumers as a whole."

6.107 In late 2004, ADM estimated in their study for Ofcom of potential uses of Band III that the value of use of the spectrum for data and multimedia applications might be approximately £200 million. This estimate is however inevitably subject to a wide margin of error, for the reasons set out in the study.

Private mobile radio (PMR) and public access mobile radio (PAMR) services

6.108 These services use a variety of technologies and business models. There is however a general trend towards rising demand from end-users (including for new applications such as real-time information systems). There is also demand for capacity to effect a smooth transition to more use of digital systems. However, there are constraints on the spectrum available for these services. In addition, as paragraphs 5.44-5.45 state, it is possible that the transition from analogue to digital broadcasting in continental

Europe may have an adverse effect on the availability of other parts of Band III for PMR/PAMR applications in the UK. It is not possible for Ofcom to estimate the effects of this with accuracy as discussions with other European administrations are still under way.

6.109 The responses to the Phase 1 consultation did not press the case for spectrum to be made available for PMR/PAMR services, though this matter had been raised at some length in responses to the earlier Radiocommunications Agency and Radio Authority consultation. Ofcom's view is that, despite the absence of comments, use of the spectrum for PMR/PAMR remains a possibility in principle, though a variety of considerations suggest that data and multimedia services are more likely commercial applications (including potential interference constraints from the Continent, and the relative level of commercial interest).

**Conclusion**

6.110 If sub-band 3 of Band III is reserved for use by sound services, this will impose opportunity costs because less spectrum capacity will be available for services such as data and multimedia, PMR and PAMR. There are also likely to be additional opportunity costs due to the reduced potential for the use of the spectrum to change over time (except through further regulatory intervention).

## Level of intervention

6.111 Having discussed our broadcasting policy objectives, and the potential opportunity costs of intervening to secure these, it is now necessary to consider what is the appropriate and proportionate degree of intervention in relation to the release of this spectrum.

6.112 In considering this matter, Ofcom needs to make a judgement as to which approach provides the best balance between its statutory duties, taking into account its duties in relation to optimal use of the spectrum, broadcasting services, electronic communications services, and all other relevant matters.

6.113 Ofcom considers that this matter is best addressed by considering first how much spectrum might be required in order to achieve the objective of wider coverage for local digital radio services; and then how much spectrum might be required to achieve the objective of securing additional national sound services; then considering other broadcasting policy objectives. It is then necessary for Ofcom to make a judgment, in the round, about whether the merits of intervening to secure particular broadcasting policy objectives outweigh the merits of intervening to secure other broadcasting policy objectives, taking account in all cases of the opportunity costs of intervention.

**Intervention to secure completion of local digital radio coverage**

6.114 As set out in paragraph 3.11, the latest information available to us suggests that only four blocks of Band III spectrum may now be available for release. Ofcom would expect to undertake a further consultation if a fifth block becomes available at some point in the future. The next matter to consider is how much of this spectrum it might be proportionate to allocate for local digital radio multiplexes.

6.115 In considering this question, Ofcom considers that any plan should be based upon and around the existing local multiplexes, which use five blocks of VHF Band III spectrum. These existing multiplexes all have 12-year licences (and an automatic

right to an eight or 12-year renewal), some of which have only recently commenced broadcasting, and all required international spectrum clearance and a considerable amount of investment on the part of their operators. We have considered carefully whether there would be any merit in seeking to re-plan any or all of the existing multiplexes in order to produce an optimal plan for the whole UK. However, such an exercise would require the technical re-planning, and possibly advertisement and re-licensing, of all existing multiplexes – a process which would be likely to take a number of years, and could be costly for all involved and potentially be destabilising for the market. We conclude that any benefits from such a re-plan would not outweigh the significant costs. Our work in this area, which was conducted in partnership with the transmission provider Arqiva (formerly NTL Broadcast) on behalf of the DRDB, is appended to Phase 2 of 'Radio – Preparing for the future' at Appendix D.

6.116 In deciding how much spectrum it might be proportionate to allocate to local digital radio, there are a number of further considerations which must be taken into account:

- Is the area to be covered by a multiplex large enough, in population terms, to be viable for a potential operator?
    - While the costs of covering a larger area are greater than a smaller area, they do not rise proportionately.
    - A minimum population will be required to allow sufficient returns in the long-run to ensure profitability – notwithstanding that new technology may in the future help to bring costs down.
    - Will there be a sufficient number of stations, either existing or new, to make the provision of multiplex services economically viable?
- Does the area match the coverage area of existing local radio stations?
    - If it is too large, a station may be unable to pay the higher coverage costs for a larger area, which it does not wish to cover as a local station.
    - If it is too small, the station may not be able to cover all of its existing area.
    - Under the provisions of the 1996 Act, Ofcom is required to reserve digital capacity to the BBC to enable all of its local and nations services to be received in digital form "within a coverage area which, so far as reasonably practicable, corresponds with the [analogue] coverage area for [each] service".

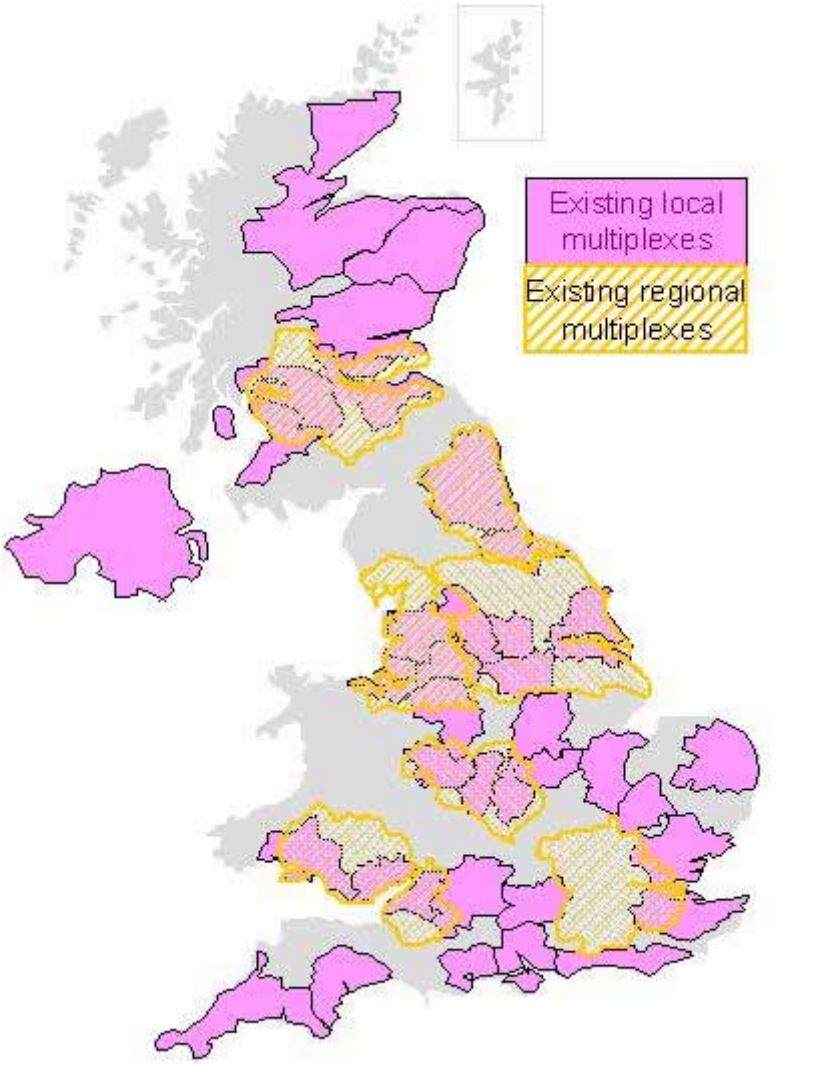
6.117 In drawing up the map of existing local radio multiplexes, the Radio Authority based its plan (following a full consultation with the radio industry) on the TSAs of the existing 'heritage' commercial local radio stations – i.e. those original commercial stations, mainly first licensed in the 1970s and 80s, which tend to be the market leaders in their areas and which tend to cover approximately county-sized areas – rather than on the TSAs of those stations which were licensed later and which tend to cover smaller areas.

6.118 For the reasons set out above, as well as the economic considerations which were set out in Phase 1 of 'Radio – Preparing for the future', Ofcom considers that it is desirable to adopt the same approach when considering how additional spectrum

could be assigned to achieve wider coverage of local digital radio services.

6.119 Figure 2 in this document shows the locations where local digital radio provision does not currently exist. The current configuration of local and regional radio multiplexes is shown in Figure 8.

**Figure 8: The existing local and regional multiplexes**




Source: Ofcom

6.120 Given that only four blocks of spectrum are expected to be available in T-DAB compatible form, the options are to use one, two, three or all four of these blocks to complete the coverage of local multiplexes. We now consider each option in turn.

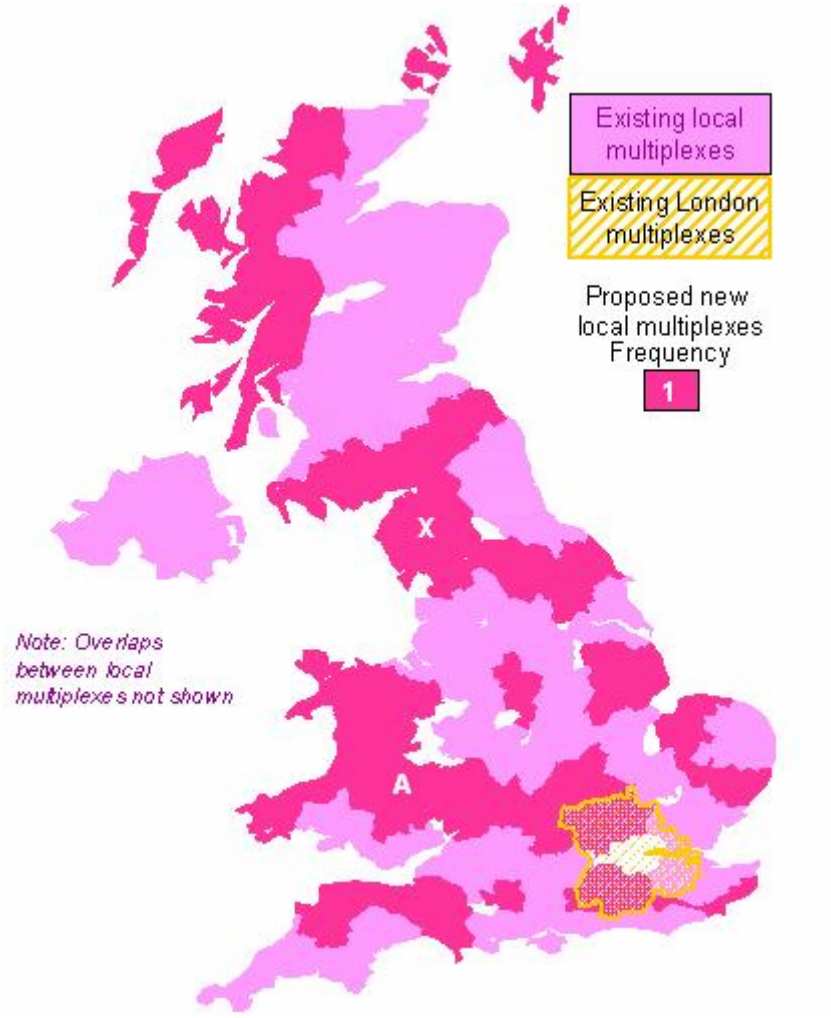
**Option 1: One additional block for local services**

6.121 In Figure 9, the existing local multiplexes are shown in light pink and the Greater London multiplex area in yellow.

6.122 Using a single frequency block it would be possible to fill in all of the gaps in coverage. This is shown in dark pink. (Note: the remaining white areas are generally unserved areas between existing local multiplexes; we will consider extending

existing local licensed areas slightly to fill in these gaps.)

**Figure 9: One additional block for local multiplexes**



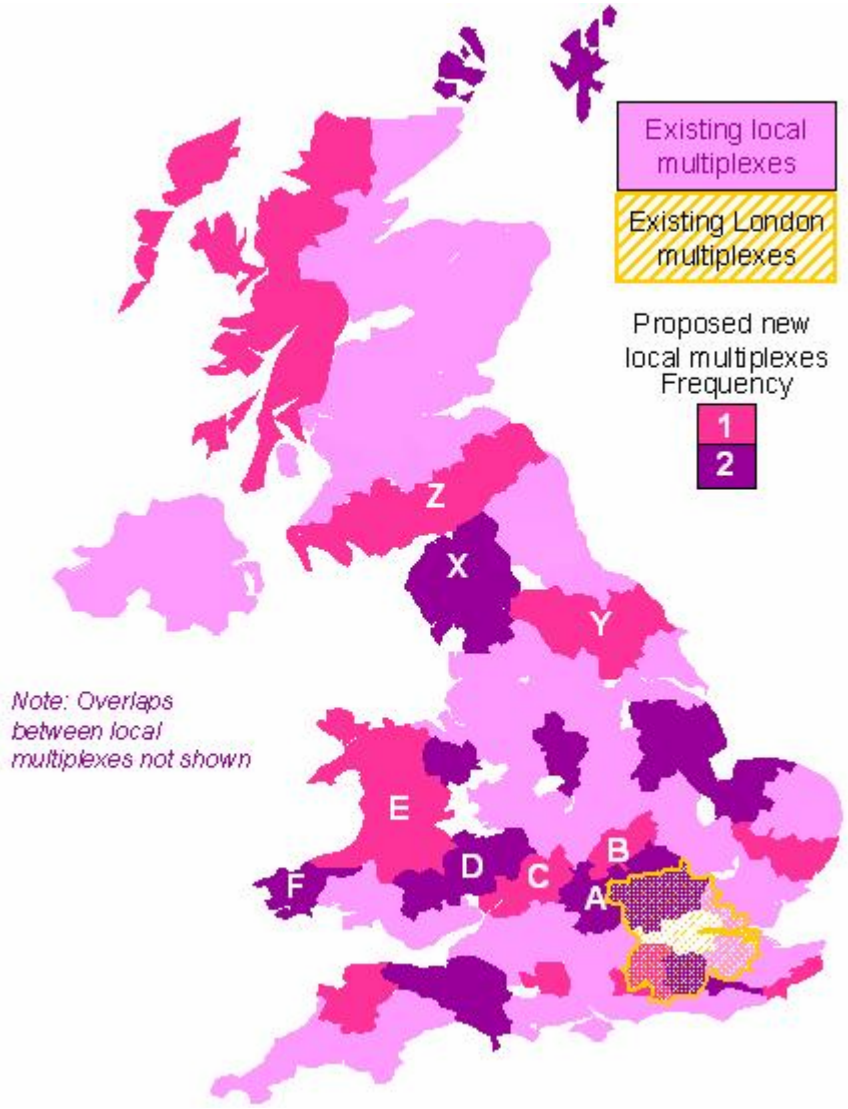

Source: Ofcom

6.123 The problem with this option is that, because only a single frequency is used, the same services must be provided on the multiplex throughout any contiguous areas. So, for example, the area marked A on the map in Figure 9 would offer the same services on its multiplex across the whole area, which stretches from Luton in the east to most of Wales in the west. While it would be possible for this multiplex to offer a number of local services, the local services carried would not be relevant to most of the listeners in the area. Moreover, an existing analogue local station within area A is unlikely to want to provide a simulcast of its analogue service to the entire whole of area A – partly because of the cost of doing so and partly because its service is targeted at a particular local area, which forms only a small part of area A.

6.124 Similarly, in the area marked X, the same local services would be provided across an area stretching from Scarborough to Stranraer.

**Option 2: Two additional blocks for local services**

**Figure 10: Two additional blocks for local multiplexes**




Source: Ofcom

6.125 This option (shown in Figure 10) shows how the availability of two blocks would overcome these issues to some extent. It should be noted that the configuration shown in Figure 9 is only one possible configuration of two additional blocks, but the principles would apply to any configuration, and Ofcom considers that this is a representative illustration of the outcome were two blocks used for this purpose.

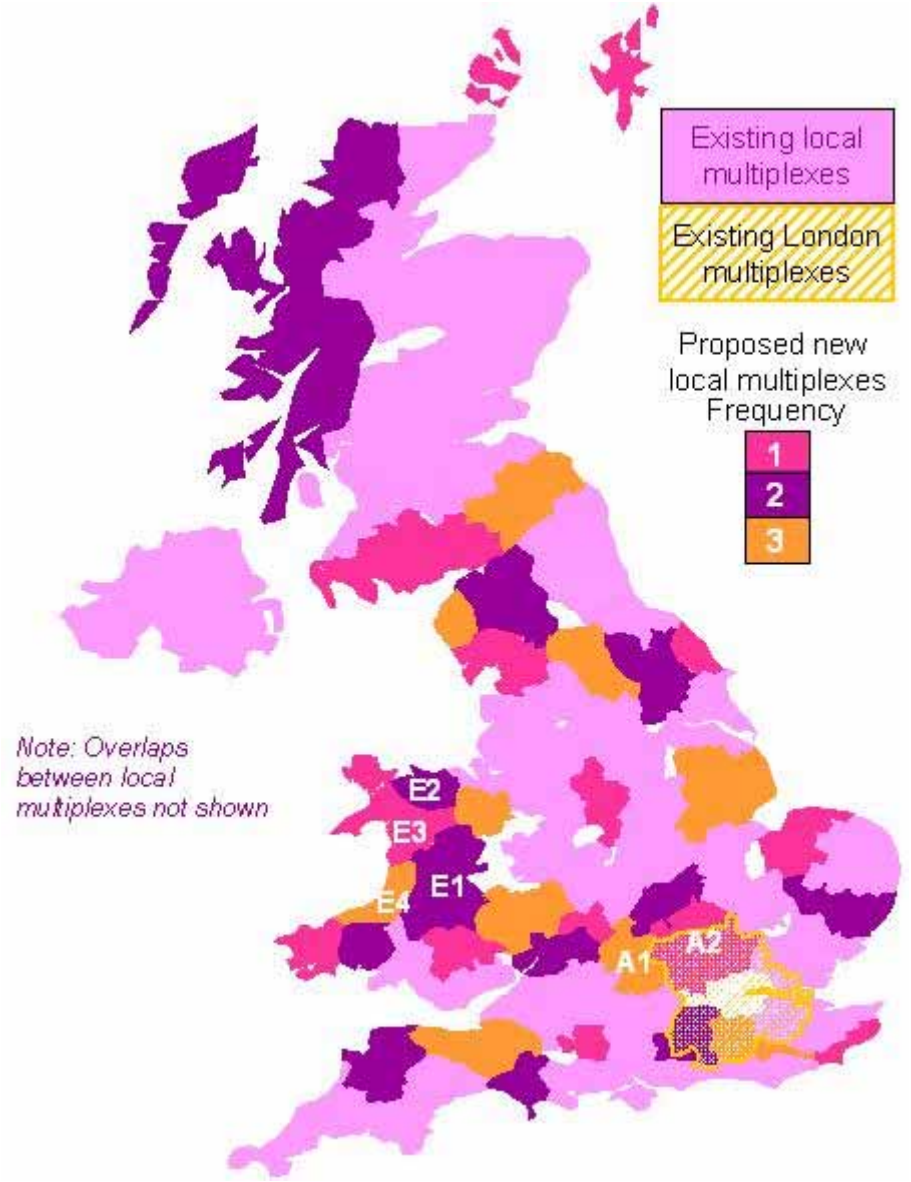
6.126 With two blocks, it can be seen that it is possible to split area A in Figure 9 (under the one block option), into a number of separate areas. This lessens the problem of stations being carried well beyond their existing analogue areas, although the areas achievable are still quite large. For example, the new multiplex A would cover an area stretching from Luton to Oxford (an amalgamation of four separate analogue

licence areas), while the new area E would cover most of mid and north Wales.

6.127 New multiplex Y would cover most of North Yorkshire while Z would cover the whole of southern Scotland from Stranraer to the North Sea. Multiplex X would require the amalgamation of three separate analogue licence areas across two counties.

**Option 3: Three additional blocks for local services**

**Figure 11: Three additional blocks for local multiplexes**



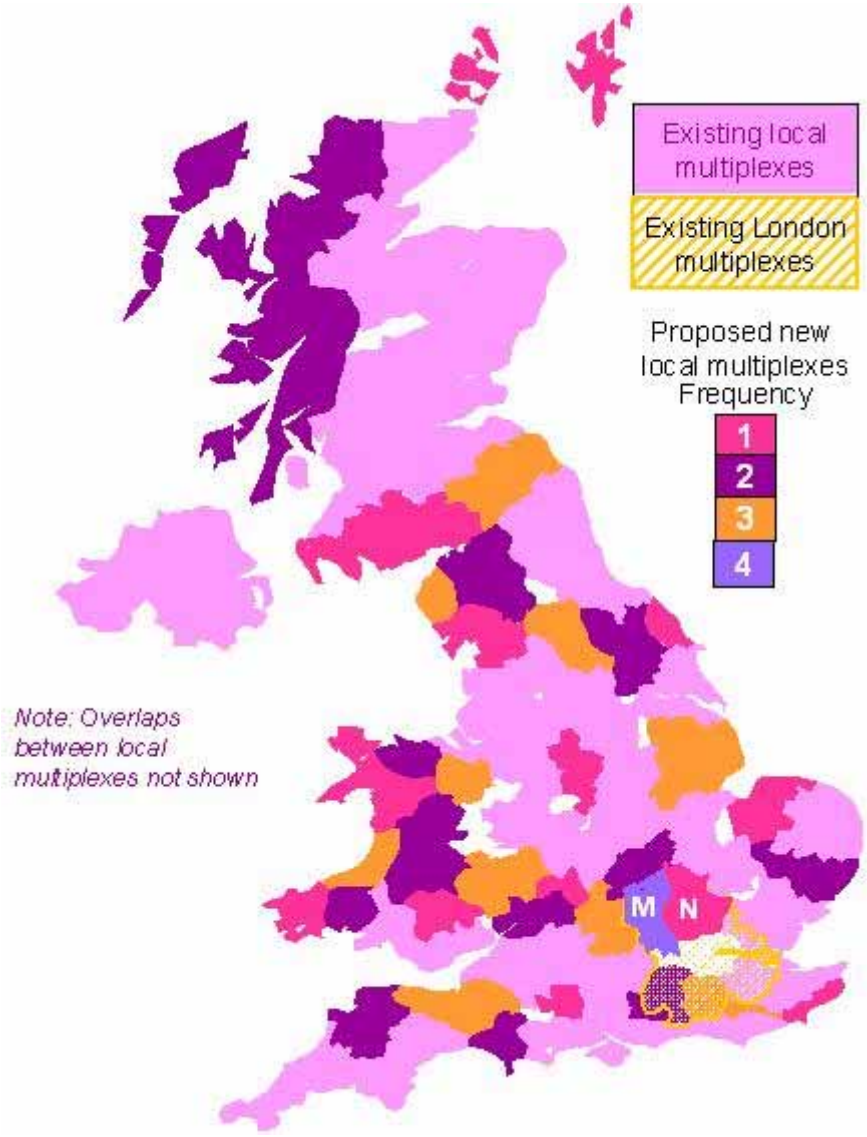

Source: Ofcom

6.128 This option allows for much greater granularity of coverage areas, more closely matching the coverage areas of existing heritage and BBC analogue stations. For example, it would be possible to split area E (under the two block option) into four separate areas (Figure 11) covering mid Wales, the North Wales coast, north-west Wales and Cardigan Bay. It would also be possible to split area A into two parts; one covering Oxfordshire and Aylesbury, the other Hertfordshire, Bedfordshire and

Buckinghamshire.

**Option 4: Four additional blocks for local services**

**Figure 12: Four additional blocks for local multiplexes**




Source: Ofcom

6.129 Allocating all four blocks to local multiplexes would provide the maximum granularity possible with the available spectrum. However, under this option, and based on our planning assumptions as set out above, the only place where greater granularity would offer significant benefits to localness is in the northern Home Counties, where it would be possible to split the Hertfordshire, Bedfordshire & Buckinghamshire area into two areas (M and N in Figure 12). Elsewhere, the areas are already the size of the existing heritage analogue areas, and there would be little to be gained from splitting frequencies further as splitting the blocks into smaller areas is likely to make them commercially unviable.

6.130 In addition, a further relevant consideration is that if all of the available blocks of Band III T-DAB compatible spectrum were used for local T-DAB coverage, this would likely mean that the net welfare gain from this decision would be less than that of ensuring at least some additional national coverage because, by the very nature of local coverage, there would be a requirement for there to be 'dead areas' between spectrum blocks of the same frequency. This would likely reduce the number of listeners with access to the services carried on this local spectrum compared to national coverage, as there is no such need for 'dead areas' in the provision of national multiplex services.

6.131 Based on the planning assumptions set out above, we consider that the optimal quantity of spectrum to be used to secure wider availability of local digital radio services is three T-DAB compatible blocks. This would be sufficient to complete the local digital radio map, with a local multiplex available to listeners in practically every part of the UK. The use of fewer than three blocks would not allow for the required degree of granularity (i.e. the areas covered by each multiplex would be much larger than is required), while the use of all four blocks would offer significant benefits in terms of granularity only in the northern Home Counties of England, where it would be possible to provide separate multiplexes for the Luton/Bedford and Milton Keynes areas (these two separate analogue licence areas would constitute a single multiplex area if three blocks are used).

6.132 The allocation of more than three blocks of the Band III spectrum to deliver local services would potentially increase the choice of local broadcasting, particularly in respect of the possibility that additional multiplexes could be licensed in areas which already have a local multiplex. However, this would be at the cost of reducing the spectrum available for national sound or other services. It would also reduce the number of services that could be available across the UK, as the use of spectrum for local multiplexes by definition requires there to be a certain degree of geographical separation between the use of individual frequencies to avoid interference, whereas the use of spectrum for national coverage does not result in such sterilisation.

6.133 Ofcom therefore proposes that three blocks of the available spectrum in sub-band 3 of VHF Band III should be assigned for local digital radio multiplexes in order to secure coverage in areas not presently served by local digital radio services.

6.134 This position reflects Ofcom's view that a policy intervention in the use of the spectrum is necessary in order to secure the policy objective of wider coverage for local digital radio services. It also reflects Ofcom's view that, on balance, the public policy benefits of securing this objective, with the granularity that is possible with three blocks, outweighs the opportunity costs of the intervention. Ofcom considers that this step is proportionate given the importance of the objective and the risk that, absent intervention, the objective would not be secured. Ofcom therefore considers that this policy represents the best available balance between its relevant statutory duties.

**Local multiplex areas**

6.135 The proposal that three blocks of the available spectrum in sub-band 3 of VHF Band III should be allocated to allow for the completion of local digital radio coverage implies additional regulatory intervention to secure the required geographical pattern of development (i.e. to ensure that multiplexes are provided in the right areas) and the provision of sound services (particularly those of the BBC).

6.136 The use of three blocks of spectrum for local digital radio multiplexes would allow a

significant number of additional local multiplexes to be awarded. In Phase 1 of 'Radio – Preparing for the future', we listed the likely multiplex areas which would result from the use of three blocks of spectrum in areas that presently do not have local digital radio services.

6.137 In its response to the consultation, SRH argued that multiplex licences should be advertised only where they would be commercially viable, while Lincs FM supported the proposition that new multiplex licence areas should match as closely as possible the broadcast area of the relevant main existing (local commercial) analogue service. The BBC had a similar but slightly different view, proposing that the new multiplex licence areas should match the editorial areas of its own analogue local and nations services. Two commercial radio companies had specific requests relating to the aggregation of adjacent multiplex areas where they hold the relevant analogue licences.

6.138 In the light of these comments, and on the basis that three blocks of spectrum are proposed to be assigned for this purpose, we have revised slightly the list of planned local multiplex areas which was published in Phase 1. Where possible, we have sought to take account of local affinities as well as potential viability. We have also sought to take account of the needs of the BBC.

6.139 We continue to include a multiplex for every area of the UK, although we take the point made by SRH, that some of the smallest areas, in terms of population (such as the west of Scotland or the Orkneys and Shetlands), may never be commercially viable for T-DAB local multiplexes. We leave this question open for now, although it may be that any solution for smaller commercial and community stations may also be more appropriate for these largely rural areas rather than a local T-DAB multiplex.

6.140 We now propose to amalgamate the following planned multiplexes: the North Wales Coast with North West Wales, Pembrokeshire with Carmarthenshire, York with Scarborough, Carlisle with West Cumbria, and Ceredigion with mid-Wales.

6.141 In Northern Ireland we hope to be able to provide at least one additional local multiplex although this is subject to discussion with the authorities in the Republic of Ireland.

6.142 On the west coast of Scotland and the Western Isles, we have proposed a single multiplex area. It would be possible to split the area into smaller licences as there is no shortage of frequencies in that area. However, even as a single licence it may not be commercially viable and other digital solutions may be more appropriate for this area. Nevertheless, we include a T-DAB multiplex as an option at this stage.

6.143 In Kent, we hope to be able to extend the coverage of the existing Kent local multiplex to the coast (as allowed for in the licence), but in the event that this does not prove possible, we would aim to license a separate multiplex for the Kent coast area.

6.144 We will continue to investigate the availability of spectrum to provide a multiplex for the Channel Islands.

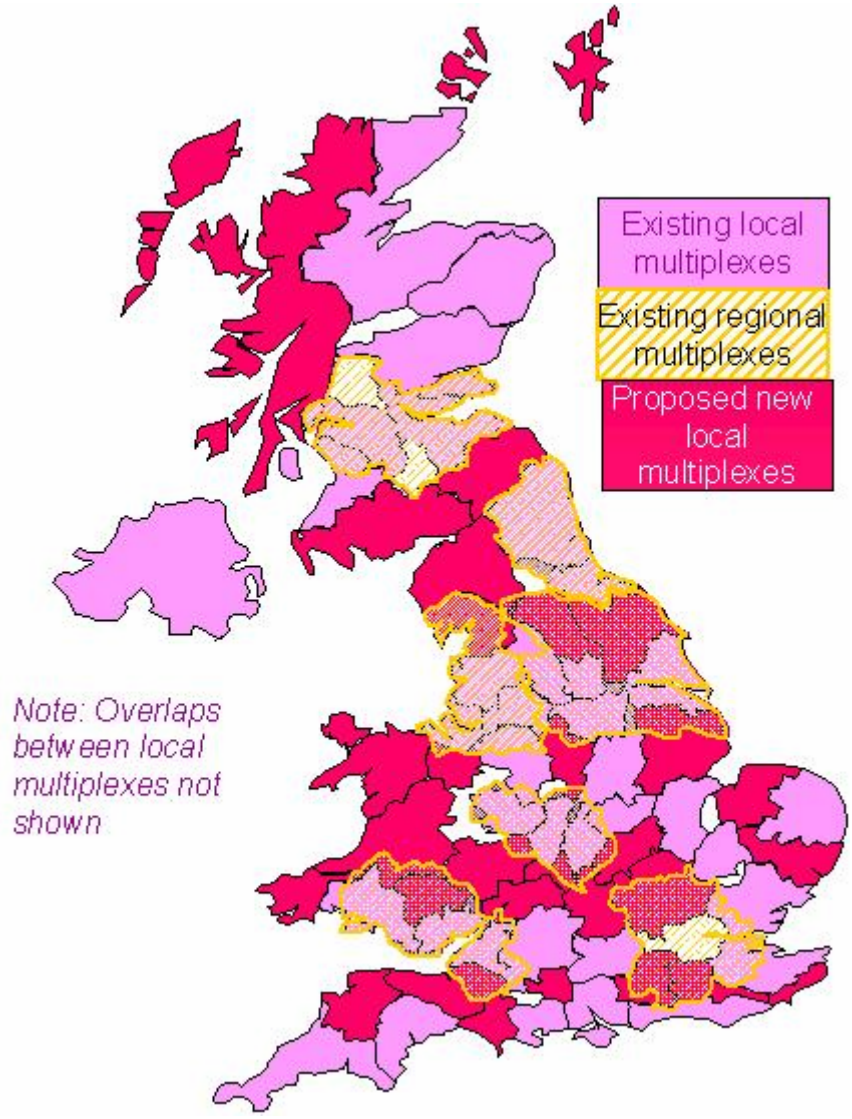
6.145 The revised list of proposed new local multiplex areas is shown in Figures 13 and 14.

**Figure 13: Planned new local multiplex areas**

| | Licence area | BBC stations carried | Est. pop. coverage |
|---|---|---|---|
| 1 | Luton, Bedford & Milton Keynes | BBC Three Counties Radio | 1,082 |
| 2 | Oxfordshire & Aylesbury | BBC Radio Oxford | 767 |
| 3 | Chester & Wrexham | BBC Radio Wales, BBC Radio Cymru (plus any new BBC Radio Cheshire) | 668 |
| 4 | Hereford & Worcester | BBC Hereford & Worcester | 642 |
| 5 | Lincoln | BBC Radio Lincolnshire | 639 |
| 6 | Guildford | BBC Southern Counties Radio | 536 |
| 7 | Reigate & Crawley | BBC Southern Counties Radio | 417 |
| 8 | Derby | BBC Radio Derby | 400 |
| 9 | Northampton | BBC Radio Northampton | 393 |
| 10 | Ipswich & Bury St Edmunds | BBC Radio Suffolk | 375 |
| 11 | Heads of South Wales Valleys | BBC Radio Wales and BBC Radio Cymru | 350 |
| 12 | York & Scarborough | BBC Radio York | 349 |
| 13 | Somerset (Taunton & Yeovil) | BBC Somerset Sound | 332 |
| 14 | Gloucester & Cheltenham | BBC Radio Gloucester | 324 |
| 15 | Carlisle & West Cumbria | BBC Radio Cumbria | 271 |
| 16 | Pembrokeshire & Carmarthenshire | BBC Radio Wales and BBC Radio Cymru | 267 |
| 17 | Morecambe Bay | BBC Radio Cumbria and BBC Radio Lancashire | 239 |
| 18 | North Wales Coast & North West Wales | BBC Radio Wales and BBC Radio Cymru | 234 |
| 19 | Stratford-upon-Avon | BBC Coventry & Warwickshire | 190 |
| 20 | Harrogate | BBC Radio York | 177 |
| 21 | Weymouth & Dorchester | (the proposed BBC Radio Dorset) | 107 |
| 22 | Kings Lynn | BBC Radio Norfolk | 96 |
| 23 | North Devon (Barnstaple) | BBC Radio Devon | 94 |
| 24 | Dumfries & SW Scotland | BBC Radio Scotland and BBC Radio nan Gaidheal | 87 |
| 25 | Scottish Borders | BBC Radio Scotland and BBC Radio nan Gaidheal | 82 |
| 26 | Salisbury | BBC Wiltshire Sound | 75 |
| 27 | Ceredigion & Mid-Wales | BBC Radio Wales and BBC Radio Cymru | 72 |
| 28 | Orkney & Shetland | BBC Radio Scotland and BBC Radio nan Gaidheal | 42 |
| 29 | Western Scotland | BBC Radio Scotland and BBC Radio nan Gaidheal | 40 |
| 30 | Kent Coast | BBC Radio Kent | n/a |
| 31 | Northern Ireland | - | 1,330 |

6.146 In addition to the local multiplexes identified in the above table, it may be possible to use some of the three blocks of spectrum to provide further local, or regional, multiplexes in certain parts of the UK. This potential spectrum 'dividend' has not yet been fully examined, as our priority has been to plan local multiplexes in areas where local digital radio provision does not currently exist. However, in principle, we consider that these three blocks of Band III spectrum could be used to support further multiplexes in addition to those listed in the table above. We will consult fully before deciding on how to proceed with this matter.

**Figure 14: The map of proposed local multiplexes**




Source: Ofcom

**Intervention to secure additional national radio services on the T-DAB platform**

6.147 This document has already set out Ofcom's view that the use of spectrum to secure additional national sound services is a higher priority in terms of Ofcom's policy objectives for sound broadcasting than the pursuit of alternative broadcasting policy objectives, other than securing wider coverage of local digital radio services in areas

that are presently without coverage. The document has in particular identified why Ofcom considers securing additional national services to be a more appropriate policy ground for determining use of the spectrum resource than use for additional local multiplexes in areas that already have coverage from local digital services, or seeking to provide capacity on the digital platform for local services that are presently broadcast only in analogue.

6.148 Ofcom considers that certain other considerations are also relevant to the form of any intervention to secure additional national sound services. These include the character of those services, and their ability to appeal to a variety of listeners' tastes and interests, and the geographical coverage that is provided.

6.149 Under the Broadcasting Act licensing regime, applicants for national radio multiplex licences are required to demonstrate how their proposed line-up of programme services would appeal to a variety of tastes and interests. In addition, Ofcom has a duty under section 3(2) to secure in carrying out its functions the availability throughout the UK of a wide range of television and radio services, which taken as a whole are both of high quality and calculated to appeal to a variety of tastes and interests. In our view, this will be taken to mean that any new services should appeal to tastes and interest that are distinct from those met by services on the existing commercial national multiplex.

6.150 Geographical coverage is also an important aspect of broadcasting policy. If decisions in relation to geographical coverage were left entirely to the market, it is possible that new services might be provided only in the most populous, or most economically attractive, parts of the country. There is a risk that such an outcome would increase choice only for those who already have the greatest amount of choice, and Ofcom considers that this would fit poorly with its statutory duties in relation to radio services. Under the Broadcasting Act licensing regime, applicants for national radio multiplex licences are required to submit a technical plan which indicates the coverage they propose to achieve. In deciding whether, or to whom, to award such a licence, Ofcom is required to have regard to the extent of the coverage area proposed by an applicant in his technical plan. While this is only one of six criteria specified in the legislation which must be taken into account when making a licence award decision, Ofcom is unlikely to take the view that a technical plan which did not seek to provide coverage to at least the same proportion of the population as that committed to by Digital One in its application would be consistent with the statutory duty to ensure that the award of a new national radio multiplex licence is "calculated to promote the development of digital sound broadcasting in the UK otherwise than by satellite" (section 47(1), 1996 Act). Under a Wireless Telegraphy Act licence only regime, Ofcom could require the holder of the spectrum to provide a minimum level of coverage.

6.151 Ofcom considers that, of the four blocks of T-DAB compatible spectrum expected to be available for release, the use of one block to secure additional national digital sound services is a more proportionate intervention in pursuit of broadcasting policy objectives than the use of two blocks or more. The use of one block for additional national digital sound services would allow the operation of two national commercial multiplexes, an increase from one. The use of one block to secure national digital sound services, and three blocks to secure wider coverage of local digital radio services, therefore appears to Ofcom to offer the optimal balance in the use of this spectrum in relation to broadcasting policy objectives. There are also, in Ofcom's view, grounds based on its statutory duties for ensuring that the additional national commercial multiplex offers services that appeal to tastes and interests different from

those carried on the existing multiplex, and for ensuring that the additional national multiplex has widespread geographical coverage.

**Competition and other considerations**

6.152 Ofcom has also considered the effect that use of this spectrum could have on competition. Ofcom has a statutory duty to further the interests of consumers by promoting competition where appropriate.

6.153 Ofcom considers that the use of three blocks of spectrum to offer additional local multiplexes in areas presently not served should have some benefits to competition for listeners and advertisers. This is because the effect of release of spectrum in these areas will be to alleviate spectrum scarcity, allowing existing and new services additional routes to market. This should create some additional opportunities for entry and innovation in serving listeners and advertisers.

6.154 Ofcom considers that the release of the fourth block for an additional national multiplex is likely to have similar, but possibly more marked, effects on competition. The effects will be similar in that, as with the local multiplexes, the additional spectrum will allow new opportunities for the services carried on the multiplex to provide services of value to listeners and advertisers. This will include additional opportunities to compete with other radio services and platforms and to provide additional choice and variety for listeners. There will also be the opportunity to exploit the 20% of multiplex capacity that may be used for non-sound services to provide services such as data and multimedia, contributing to competition and innovation in electronic communication services. The effects may be more marked than in relation to additional local multiplexes given that the coverage of the national multiplex will be much wider.

6.155 The extent of demand for capacity to offer additional national services suggests that there could be excess demand for carriage on national multiplexes. An implication of excess demand is that there might be the possibility for multiplex operators to supply carriage at a price premium. To the extent that a price premium exists, licensing additional spectrum for national use may lead to an erosion of this and so could provide substantial benefits for consumers. Consumers, in this context, include digital radio stations and data providers as well as listeners and advertisers.

**Consultation responses opposed to an additional national commercial multiplex**

6.156 Some respondents to the Phase 1 consultation argued strongly against any spectrum being allocated for further national radio services.

6.157 Digital One, which holds the only current national radio multiplex licence, said in its response to the consultation that, *inter alia*:

- “Ofcom should recognise and respect Digital One's position as the first and only national commercial multiplex. The investment, risks and burden undertaken by Digital One are significant and relevant factors. A decision to licence [sic] any further national DAB-compatible spectrum would unfairly damage Digital One whilst it is still only part way through its initial licence period”.
- “Additional competition must be managed carefully, introduced gradually and with great care. Excessive and unfair competition carries the danger of damaging or destroying the entire market. Licensing timetables for new multiplexes should take account of the financial consequences for existing multiplex operators and digital

radio stations as being a relevant factor. It would be an injustice to cause material financial damage to such companies".

- "A top priority should be allocating spectrum to Digital One to extend coverage of the national commercial multiplex into Northern Ireland and level the playing field with the BBC".
- "Five blocks of Band III spectrum are needed to allow all local radio stations to have the opportunity to migrate to the digital platform. The current proposal to use only three blocks would 'orphan' many stations on AM and FM and disadvantage their listeners".
- "It is recognised by Ofcom that the DAB digital radio market is still in its early stages. Digital One sees advantages in a flexible approach and proposes that, given the likelihood of a long migration period from analogue to digital and consequently that the future is not clear, there is a strong argument for some spectrum to be reserved for future use as the market develops".
- "Allocation of further national multiplexes, whether under the Broadcast [sic] Act or Wireless Telegraphy Act, would be unfair and a disproportionate distortion of the market."

6.158 Ofcom recognises the investment and risks that Digital One has taken, and its important role in promoting the development of the T-DAB platform. However, we do not believe that the allocation of further spectrum for national radio services would "unfairly damage" Digital One, or that it would be "an unfair and a disproportionate distortion of the market".

6.159 In awarding spectrum, Ofcom does not have a duty to protect the revenues of existing market players. Rather, our duties concern furthering the interests of citizens and consumers, including through securing optimal use of the spectrum, the promotion of competition where appropriate, and securing the availability of a wide range of radio services that (taken as a whole) are of high quality and appeal to a variety of tastes and interests.

6.160 Ofcom considers that in fulfilling these duties it is relevant to consider whether the effect of its proposal would undermine the existence of the T-DAB platform as a whole, as the existence of this platform is beneficial to listeners. We have therefore considered the possible impact of a further national multiplex on Digital One (the holder of the only current national radio multiplex licence), the holders of local radio multiplex licences, and digital-only stations, and taken this into account in reaching the proposals in this document.

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[Paragraphs 6.161 to 6.165 have been redacted for confidentiality reasons]

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6.166 For the reasons set out above, Ofcom does not believe that the effect on Digital One's business plan is disproportionate to the benefits to consumers and citizens, or some respondents, or to the benefits of enhanced competition brought about by the operation of a second national multiplex.

6.167 Ofcom has also considered another issue raised by some respondents to the Phase 1 consultation. There are currently 46 local radio multiplex licences in issue, with a number of individual programme services available on several, if not many, of these

local multiplexes. It is the contention of some radio companies (including GCap Media plc) that the licensing of a further national multiplex would encourage some of these so-called 'quasi-national' programme services to withdraw from the local multiplexes so as to seek carriage on the new national multiplex. This, they contend, would have a negative impact on the viability of the affected local multiplexes.

6.168 Ofcom has carried out an analysis of those services which might be classified as 'quasi-national' to consider whether the scenario painted by some respondents is a realistic one.

6.169 Of the 29 stations which could be classed as 'quasi-national' (i.e. those broadcasting on more than one local multiplex to areas outside their analogue areas, or digital-only stations in London with widely-known national ambitions):

- 10 are stations which offer local variants of their brand (e.g. Heart in London and the West Midlands), as a result of owning local analogue licences and having their analogue licence automatically extended as a result of being carried on T-DAB. If they were to transfer to a national multiplex, they would no longer be simulcasting their local services on digital and so would automatically lose their analogue licence extensions. In addition, all but two of these stations are carried on local multiplexes in which the station operator has a partial or controlling interest. For these two reasons, Ofcom considers that it is unlikely that these stations would transfer to a new national multiplex.
- A further five stations are London-only analogue brands carried to new areas via T-DAB. Four of these five are mainly carried on multiplexes which are operated (wholly or partially) by the owner of the radio station. Ofcom considers that it is unlikely to be in the owner's interests to remove these from the local multiplexes in order to be carried on a national multiplex, without being able to replace them with another of their own stations or with another operator's local or 'quasi-national' station (see below), as they would lose local multiplex revenues. The only station in this group which may want to transfer to a national multiplex is Sunrise Radio, which is currently carried on 6 of the 46 local multiplexes.
- The remaining 14 "quasi-national" stations are digital-only stations. Of these:
    - Nine are carried almost wholly on multiplexes which are operated (wholly or partially) by the owner of the radio station. Again, it seems to Ofcom that it is unlikely to be in the owners' interests to remove these from the local multiplexes in order to be carried on a national multiplex, without being able to replace them with another of their own stations or with another operator's local or 'quasi-national' station, as they would lose local multiplex revenues.
    - Five are stations in which the multiplex owner does not have a financial interest and which may wish to seek national coverage. However, two of these (Virgin Radio Classic Rock and Virgin Radio Groove) are only available currently in London, where there is likely to be sufficient demand to fill any vacant slots. A third, Gaydar, is only available in London and Brighton, and the same argument applies.
- This leaves just two stations (Passion for the Planet, which is currently provided on eight multiplexes, and Yarr, a service aimed at a young Asian audience which is currently available on four multiplexes) which could be considered likely to seek to move from local multiplexes to any new national multiplex and whose loss potentially could damage existing local multiplexes.

## Quasi-national DAB stations

| Stations with analogue licences offering local content on some multiplexes, broadcasting to new areas on digital | No. of multiplexes carrying the service | No.of those multiplexes owned or partly owned by the station owner | Station owner |
|---|---|---|---|
| **1** Capital Gold | 7 | 7 | GCap Media |
| **2** Classic Gold | 24 | 0 | UBC |
| **3** Galaxy | 8 | 6 | Chrysalis |
| **4** Heart | 7 | 5 | Chrysalis |
| **5** Kerrang! | 11 | 9 | Emap |
| **6** Magic | 10 | 10 | Emap |
| **7** Real Radio | 4 | 3 | GMG |
| **8** Saga | 4 | 0 | Saga |
| **9** Smooth | 5 | 5 | GMG |
| **10** Vibe | 6 | 2 | SRH |
| **Stations with only a London analogue licence, broadcasting to new areas on digital** | | | |
| **1** Choice | 5 | 5 | GCap Media |
| **2** Jazz | 6 | 4 | GMG |
| **3** Kiss | 29 | 17 | Emap |
| **4** **Sunrise Radio** | **6** | **0** | **Sunrise** |
| **5** XFM | 18 | 10 | GCap Media |
| **Stations on digital multiplexes only** | | | |
| **1** 3C | 10 | 10 | Emap |
| **2** Capital Disney | 11 | 11 | GCap Media |
| **3** Chill | 13 | 13 | GCap Media |
| **4** Fun | 6 | 6 | GCap Media |
| **5** **Gaydar** | **2** | **0** | **Gaydar** |
| **6** Heat | 8 | 8 | Emap |
| **7** **Passion for the Planet** | **8** | **0** | **Passion for the Planet** |
| **8** Smash Hits | 18 | 15 | Emap |
| **9** Storm | 15 | 15 | GCap Media |
| **10** The Arrow | 7 | 5 | Chrysalis |
| **11** The Hits | 2 | 1 | Emap |
| **12** **Virgin Classic Rock** | **1** | **0** | **SMG** |
| **13** **Virgin Groove** | **1** | **0** | **SMG** |
| **14** **YARR** | **4** | **0** | **Sunrise** |

Source: Ofcom (May 2005)

6.170 While we accept that there may be some individual stations which are currently being provided on local multiplexes that may wish to switch to a national multiplex should a further one be licensed, we consider for the reasons set out above that the risk is not so severe as to be likely materially to damage any of the existing local multiplexes.

6.171 Finally, we have considered the possible impact of a further national multiplex on the businesses of existing digital-only radio stations. The extent to which existing stations' audiences would be diluted by the introduction of an additional national multiplex will be dependent on (amongst other things): the competitive conditions in the provision of those multiplex services; the competitive conditions in the provision of sound services; the growth in take up of T-DAB listening; and the development of digital radio advertising markets. While we have considered all these factors, we would note that it is not possible for Ofcom (or others) to predict with any accuracy what the net effect of these developments will be, especially not for individual stations.

6.172 Existing stations – both national and local, and on all platforms – will also face increased competition because the new capacity will increase the ability of new stations to enter national and local markets. Increased competition for listeners, and hence for advertising revenue, will have varying effects on stations' revenues, depending on their suitability for the market and the effectiveness of their offering. A similar effect could arise from the potential entry of other services, such as multimedia services, which are carried on the new multiplexes. Our current view is that this effect will be beneficial for listeners, potential consumers of other services and advertisers, and also for stations and services – existing ones and new entrants – who can identify, and meet the tastes and interests of, some or all listeners in the affected areas.

6.173 It is possible that the new places available for stations to broadcast nationally on T-DAB may be (partially or completely) filled by stations which currently broadcast on other platforms but which don't yet broadcast on T-DAB. This could contribute to increasing take up of T-DAB receivers as listeners seek to receive their favourite digital stations on mobile radios and not only via digital television or via the internet.

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[Paragraphs 6.174 to 6.178 have been redacted for confidentiality reasons]

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6.179 In the light of all of the above, Ofcom considers that the allocation of spectrum to a further national multiplex offering radio services would not have a disproportionate impact upon the existing digital-only stations.

6.180 Another contention was that spectrum in Band III should be used to facilitate a digital migration path for all existing and future analogue services. This issue is addressed earlier in this document. while the broader strategic issue is addressed in Phase 2 of 'Radio – Preparing for the future', being published simultaneously with this document.

6.181 With regard to Digital One's suggestion that spectrum should be allocated to allow it to extend coverage of its national radio multiplex licence to Northern Ireland, the national radio multiplex licence held by Digital One specifies that it is designed to serve Great Britain. Should any spectrum become available in Northern Ireland (and it is by no means certain that any such spectrum will become available), this would need to be assigned to the market by Ofcom by whatever method was judged appropriate at the time given Ofcom's statutory duties. However, we are not aware of any reason why Digital One should have guaranteed access to this spectrum, should it become available.

6.182 In a separate but related issue, some respondents to the Phase 1 consultation suggested that some of the technical and licence parameters of the existing radio multiplexes could be changed so as to achieve universal coverage for T-DAB and therefore to reduce the need for new platforms to be necessary to support a migration of all existing analogue services to digital. This particular issue is addressed by Rt Hon the Lord (Chris) Smith of Finsbury in his recently published report 'Digital Radio Switchover: A Report commissioned by the DRDB'. As noted in paragraph 5.53, to help inform the findings in this report, which is available at www.drdb.org , Ofcom and the transmission provider Arqiva (formerly NTL Broadcast) investigated whether re-planning the existing multiplexes would deliver the benefits that proponents of the idea suggest. This concluded that the costs of carrying out such an exercise would far outweigh the benefits, and thus it is not

considered to be a viable option at this stage. A copy of this report is appended to Phase 2 of 'Radio – Preparing for the future'.

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[Paragraphs 6.183 to 6.199 have been redacted for confidentiality reasons]

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**Proposals in relation to optimal use of Band III sub-band 3**

6.200 Digital One has made further confidential responses to Ofcom objecting to a further national radio multiplex licence being awarded, and Ofcom has taken these into account in reaching its proposals in this document.

6.201 Ofcom notes that Digital One in its response to Ofcom submitted that Ofcom should recognise and respect Digital One's position as the "first and only" national commercial multiplex. Ofcom has carefully considered Digital One's submission on this point but does not consider that it is precluded in law or otherwise from its proposal in this document to allocate spectrum for a further national multiplex. Ofcom has written further separately to Digital One this issue.

6.202 We propose that three blocks of the available spectrum in sub-band 3 of VHF Band III would appear to be the optimal number for securing the highest priority objective for broadcasting policy that is relevant to this matter, namely securing wider coverage of local T-DAB digital radio services in areas presently not served. We also propose that securing additional national T-DAB sound services is a more appropriate use of this spectrum than use for additional local services in areas that are already served by local services. We also propose that it is a more appropriate use than use in order to provide capacity on the T-DAB digital platform for local services that are presently broadcast in analogue only.

6.203 Ofcom, in meeting its statutory duties, has had regard to the following public policy objectives in particular in reaching this view:

- the desirability of the provision of viable local commercial radio services on the T-DAB platform in areas where currently there are none;
- the desirability of the provision of all of the BBC's local and nations' services on the T-DAB platform;
- the desirability of securing an increased range and choice of national radio services on the T-DAB platform.

6.204 Interventions to secure these broadcasting policy objectives will impose opportunity costs by displacing other uses of the spectrum that may have high economic value. However, Ofcom's judgement is that the weight to be attached to the broadcasting policy objectives, and the risk of failing to achieve these objectives absent intervention, is sufficient to justify intervening in the use of the spectrum in this way. This view also takes into account the expected availability of other spectrum which could be used for data and multimedia services, PMR, PAMR and other alternative uses of Band III, sub-band 3.

6.205 Having come to the view that there are sufficient public policy justifications for regulatory intervention in the allocation and assignment of the available spectrum in sub-band 3 of Band III, the only issue that remains is how the spectrum should be

licensed. We address this matter in the following section.

## Section 7

# How should this spectrum be licensed?

### Introduction

7.1 Prior to the enactment of the Communications Act 2003, radio multiplexes were required to be licensed under both the Broadcasting Act 1996 (BA), which applies the broadcast licensing regime to multiplexes, and the Wireless Telegraphy Act 1949 (WTA), which authorises the use of spectrum by multiplexes. Licences awarded under the Broadcasting Act are subject to specific provisions covering a wide range of issues, from who may or may not own a licence to (in the case of a local multiplex licence) a requirement that each new licence should increase the range and diversity of digital radio services in the area. In addition, Ofcom has powers to impose additional conditions in licences for reasons of broadcasting or competition policy. There is also a limit on the amount of capacity that may be devoted to non-broadcasting services. This limit is set by the Secretary of State, not Ofcom, and currently stands at 20%. The licences are awarded on the basis of criteria set out in the legislation, and there is no cash bid element.

7.2 Section 258 of the Communications Act enabled Ofcom to license multiplexes on a simpler and more flexible basis. It introduced a new class of multiplex (the 'general multiplex') that is licensed solely under the WTA and does not need a BA licence. Section 258 has the effect that a BA licence for a new multiplex is required only if the WTA licence requires a BA licence to be held.

7.3 A WTA licence can impose many – but not all – of the requirements contained in a BA licence, including the limit on non-broadcasting use, and the award process is not prescribed in nearly as much detail. Ofcom could auction the licence with wide discretion about the design of the auction or hold a comparative selection ('beauty contest') or operate a 'first come – first served' policy. The providers of programmes to a general multiplex are regulated in exactly the same way under the broadcasting legislation as if the multiplex were licensed under the BA.

7.4 In short, the WTA licence offers greater flexibility as to how the licence is awarded and the services that may be provided by the licensee. On the other hand, certain restrictions that can be imposed under the BA cannot be replicated in a WTA licence, notably on competition and ownership. Details of Ofcom's view of the two licensing regimes were included in Appendix E to Phase 1 of 'Radio – Preparing for the future'.

7.5 In the Phase 1 consultation, we asked: Do you agree that the proposed local DAB digital radio multiplexes should be awarded as Broadcasting Act licences?

7.6 All of the respondents agreed with this proposal. It was felt that it would encourage development of local digital radio and allow a variety of free-to-air radio services. Without it, people could not see how we would ensure that local sound services could be extended to the currently unserved areas. GWR regarded the regulation of all local multiplexes under the same legislation as fair and providing a level playing field. A confidential respondent was worried that a WTA licence only would mean radio operators were priced out.

7.7 We also asked about the licensing regime for national spectrum: Do you agree that the frequency blocks proposed to be allocated to national coverage should be awarded under the terms of the Wireless Telegraphy Act only (i.e. without the need for a Broadcasting Act licence)?

7.8 By contrast, most respondents disagreed with this proposal and wanted the blocks to be licensed under the terms of the BA. It should be noted that although BT responded, no mobile network operators or wireless broadband operators responded to this consultation.

7.9 One reason for opposition to greater flexibility was that players with 'deep pockets', like BT, would outbid broadcasters in any auction. Ofcom considers that this argument is flawed as, even a player with 'deep pockets' should not rationally bid more than the spectrum is worth to it and would win the auction only if it could generate greater economic value from the spectrum than other bidders, regardless of their size. This consideration rests on certain assumptions about availability of capital and efficiency of capital markets but suggests that the concern expressed is overstated. In fact, in its response BT did not support greater flexibility.

7.10 Some respondents, including BT, GWR (now part of GCap Media), UTV, and NTL (now Arqiva), wanted all national multiplex licence holders (existing and new) to face the same regulatory regime. There was a concern that it would not be fair to have different (and less restrictive) licensing arrangements for the new blocks of spectrum compared to the existing blocks. However, Ofcom does not consider that there is a fundamental unfairness in multiplexes operating under different regimes. Parliament has given Ofcom a broad discretion in section 258 of the Communications Act to license multiplexes under different regimes and expressly provided that broadcasting multiplexes licensed under the Broadcasting Act before commencement of the relevant provision of the Communications Act should continue to require a Broadcasting Act licence.

7.11 GWR and one other respondent argued that a BA allocation would at least mean that Ofcom would have a duty to ensure that any new services broadened choice and so did not compete head-on with Digital One services, so leading to a clustering of services around mainstream music offerings. However, unlike for local multiplex licences, the specified criteria that must be taken into account when a national radio multiplex licence is awarded do not include a requirement that the services must broaden choice relative to existing national T-DAB provision. That said, in considering applications for a national radio multiplex licence, Ofcom would also wish to consider how its general duties under section 3 of the Communications Act should be secured, including in particular the duty to secure the availability throughout the UK of a wide range of TV and radio services which (taken as a whole) are both of high quality and calculated to appeal to a variety of tastes and interests. This could well include a consideration of the nature and type of output of any existing national digital sound programme services. This issue is addressed in more detail below.

7.12 It is noteworthy, however, that a condition requiring any programme services on a new national multiplex to broaden choice relative to the existing such provision could be included in a WTA licence.

7.13 The only respondents to support the WTA-only approach for a further national multiplex were Lincs FM and Moss Media, who argued that it would offer the widest possible approach to the utilisation of airspace, although they felt that it would be unwise to allocate the spectrum to non-audio services for long periods of time, as this

could stifle T-DAB and potentially restrict listening choice.

7.14 One respondent thought that the spectrum should be allocated without the BA, but with the caveat that some conditions should still be imposed in any WTA licence so that Ofcom could take into account the contribution that the licence applicants would make towards fulfilling the public purposes of radio.

7.15 BT argued that it did not want any additional national multiplex licences to be awarded, as this may introduce uncertainty and additional investment risk, and may stifle the market prematurely. BT went on to argue that all multiplexes licensed should face the same regulatory regime.

7.16 In coming to our proposals on this issue, we have considered not only the consultation responses, but also the public policy objectives we are seeking to secure through intervening in this spectrum allocation. In doing so, we recognise that we also have a duty to take into account the potential opportunity cost of denying access to spectrum for innovative mobile and portable multimedia services. As discussed earlier in this document, these could generate considerable economic benefits for consumers and promote innovation and competition in relevant markets.

7.17 The public policy objectives we are seeking to secure by intervening in the allocation of this spectrum in sub-band 3 of Band III include:

- the provision of viable local commercial radio services in the digital environment where currently there are none;
- the provision of all of the BBC's local and nations' services in the digital environment;
- the provision of an increased range and choice of national radio services;

We also consider that it is desirable to further the interests of consumers by securing that these services are provided in a way that listeners consider to be of primary importance (i.e. mobile and portable reception to widely available receivers).

**Local multiplexes**

7.18 Having taken all these considerations into account, Ofcom considers that the most appropriate method of assigning the identified three blocks of Band III spectrum in order to secure the public policy objectives set out above in respect of local radio would be to advertise local radio multiplex licences for all of the currently unserved areas, in accordance with the provisions of the Broadcasting Act 1996.

**National multiplex**

7.19 As noted above, for a variety of reasons, the majority of respondents to the Phase 1 consultation wanted a further national multiplex to be licensed under the Broadcasting Act 1996. This was contrary to Ofcom’s suggested position as set out in Phase 1 of licensing a further national multiplex under the WT Act only. These reasons included:

- to ensure that it was used for radio broadcasting;
- to ensure that all national multiplex licence holders operate within the same regulatory restrictions;

- to ensure that broadcasters could not be 'out-bid' in an auction by a company wishing to use the spectrum for non-broadcasting purposes.

7.20 On the basis of the public policy objectives outlined in Section 6 of this document, Ofcom would wish to ensure that a further national multiplex licence, regardless of the legislation under which it was granted, include the following conditions:

- achieving a certain minimum level of coverage of the UK (to ensure that any new radio services carried are made available to the greatest number of consumers and citizens);
- ensuring that new digital sound programme services are provided;
- ensuring that these services increase listening choice, and appeal to a variety of tastes and interests;
- ensuring that the service is made available to listeners in the way that they expect (i.e. on mobile and portable devices which are widely available).

7.21 All of these objectives could be achieved without the use of a BA licence, by including appropriate conditions in a WTA licence. However, there seems little to be gained from licensing a multiplex as a general multiplex (i.e. without the need for a BA licence) if the conditions imposed by the WTA were similar to those that would be included in a BA licence. The implication of having a restrictive WTA licence would be that there were broadcasting policy objectives to be secured. In such a case, the BA is preferable as the regulatory tool. However, where greater flexibility is desired, for example because a lesser degree of regulatory intervention is necessary in the circumstances, licensing under the WTA as a general multiplex would be advantageous. Ofcom is therefore consulting further on this point.

**Question for consultation**

7.22 We would welcome views by 16 November 2005 on the following question

*In light of the further evidence presented in this document, Ofcom proposes to allocate three blocks of spectrum in VHF Band III, sub-band 3 for local radio multiplexes under the licensing process set out in the Broadcasting Act 1996, with the aim of covering geographical areas that do not presently have local radio multiplexes. Ofcom also proposes to allocate one block of spectrum in the same sub-band for a national radio multiplex under the licensing process set out in the Broadcasting Act 1996.*

*Do you agree that these proposals represent the optimal use of the spectrum?*

## Next steps

7.23 As has already been set out in this document, waiting to release spectrum is not in accordance with Ofcom's duty to make optimal use of the spectrum as it would result in spectrum remaining unused when it could be utilised to generate economic and other benefits. The resulting delay to the introduction of new services or increased competition can result in substantial loss of consumer benefit. Spectrum is a major asset to the UK and it will not usually be optimal to keep it unused, especially when the market is demanding access to more spectrum. Consequently, and subject to the outcome of this consultation, we would propose to commence the release of these four blocks of spectrum in sub-band 3 of Band III as soon as the two outstanding matters (i.e. international agreement at the Regional

Radiocommunications Conference and the re-assignment of existing users in the band) are resolved.

7.24 If Ofcom were to take forward the proposals as set out in this document following due consideration of the consultation responses, a proposed outline of the next steps would be as set out below:

| | |
|---|---|
| December 2005 | Planned statement on the matters in this consultation.<br>Consultation on the licensing timetable and process for licence awards |
| April 2006 | Planned statement regarding licensing timetable and process. The conclusions therein will still be subject to international clearance of spectrum at RRC. |
| June 2006 | RRC outcome known. |
| Autumn 2006 | Licensing of new national and local radio multiplexes commences. |
| Early 2007 | First awards of new radio multiplex licences. |

## Annex 1

# Responding to this consultation

### How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made by 5pm on 16 November 2005

A1.2 Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

A1.3 Please can you send your response to peter.davies@ofcom.org.uk

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

Peter Davies
Director of Radio and Multimedia
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax:020 7981 3806

A1.5 Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

A1.6 It would be helpful if your response could include direct answers to the question asked in this document, which is at Annex 4. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

### Further information

A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Peter Davies on 020 7981 3476.

### Confidentiality

A1.8 Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt (when respondents confirm on their response cover sheer that this is acceptable).

A1.9 All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so that non-confidential parts

may be published along with the respondent's identity.

A1.10 Ofcom reserves its power to disclose any information it receives where this is required to carry out its legal requirements. Ofcom will exercise due regard to the confidentiality of information supplied.

A1.11 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

## Next steps

A1.12 Following the end of the consultation period, Ofcom intends to publish a statement around the end of 2005.

A1.13 Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

## Ofcom's consultation processes

A1.14 Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 2) which it seeks to follow, including on the length of consultations. The period of the consultation in this case has been set at four weeks, given that this is the second consultation on the issues.

A1.15 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

A1.16 If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, Director, Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA
Tel: 020 7981 3000
Fax: 020 7981 3333
E-mail: vicki.nash@ofcom.org.uk

## Annex 2

# Ofcom's consultation principles

Ofcom has published the following seven principles that it will follow for each public written consultation:

### Before the consultation

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

### During the consultation

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

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

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

### After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

## Annex 3

# Consultation response cover sheet

A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.

A3.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.

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

A3.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.

A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.

## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title: Radio - Licensing Policy for VHF Band III, Sub-band 3

To (Ofcom contact): Peter Davies

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

### CONFIDENTIALITY

What do you want Ofcom to keep confidential?

| | | | |
|---|---|---|---|
| Nothing | ☐ | Name/contact details/job title | ☐ |
| Whole response | ☐ | Organisation | ☐ |
| Part of the response | ☐ | If there is no separate annex, which parts? | |

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

### DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

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

Name Signed (if hard copy)

**Annex 4**

# Consultation question

A4.1 We would welcome views by **16 November 2005** on the following question:

*In light of the further evidence presented in this document, Ofcom proposes to allocate three blocks of spectrum in VHF Band III, sub-band 3 for local radio multiplexes under the licensing process set out in the Broadcasting Act 1996, with the aim of covering geographical areas that do not presently have local radio multiplexes. Ofcom also proposes to allocate one block of spectrum in the same sub-band for a national radio multiplex under the licensing process set out in the Broadcasting Act 1996.*

*Do you agree that these proposals represent the optimal use of the spectrum?*