making communications work
for everyone

Licensing small-scale DAB

How Ofcom would exercise new functions proposed by Government

CONSULTATION:

Publication date: 5 July 2019

Closing date for responses: 4 October 2019

Contents

Section

Annex

1. Overview

Small-scale DAB is a new way of transmitting digital radio that uses advances in software and low-cost computer technology to provide a flexible and inexpensive approach to the terrestrial broadcast of digital radio services to a relatively small geographic area. The concept was first tested by Ofcom engineer Rashid Mustapha in 2012 and subsequently the Government funded a series of trials, licensed and facilitated by Ofcom, to test the feasibility of the technology. The trials demonstrated that small-scale DAB can provide a robust and reliable means for small analogue stations to broadcast on digital, as well as for entrants wishing to launch new radio services on a digital terrestrial platform.

What we are consulting on

On 20 June 2019, the Government placed a Statutory Instrument ('the Order') before Parliament that would create a framework for the licensing of small-scale DAB across the UK. This consultation sets out how Ofcom plans to license small-scale DAB, using the new powers the Government is proposing, through Parliament, to give us.

If approved by Parliament, the Order will give Ofcom the power to license new small-scale radio multiplex services[1] under a modified version of the Broadcasting Act 1996. This will enable a significantly wider range of commercial and community radio stations to broadcast on the UK's DAB digital radio platform. The Order will also provide for the issuing of Community Digital Sound Programme ('C-DSP') licences, a new type of licence designed for community radio services broadcasting on DAB.

The consultation sets out:

- Our proposed spectrum planning and licensing process for small-scale radio multiplex licences
- Our proposed licensing process for C-DSP licences.

We are seeking views from stakeholders on a range of key issues, including:

- Our approach to developing a coverage area plan for small-scale radio multiplex services
- How we intend to advertise small-scale radio multiplex and C-DSP licences
- How we will assess applications for small-scale radio multiplex and C-DSP licences.

The deadline for consultation responses is **Friday 4 October 2019**. We expect to publish a Statement setting out our final conclusions early in 2020, when we intend to start advertising licences.

[1] Multiplex services are bundles of radio channels that have been digitised and compressed to use less spectrum, which are then transmitted using a single frequency block.

2. Background

2.1 The past decade in the UK has witnessed an ongoing decline in listening to radio stations via the traditional analogue AM and FM bands[2]. Listeners have been migrating to various digital platforms, of which terrestrial digital radio ('Digital Audio Broadcasting', or 'DAB') continues to be by some margin the most popular, accounting for 40.4% of all radio listening in the first quarter of 2019.

2.2 Given that digital radio is increasingly becoming the default mode of listening, Ofcom has for some time acknowledged the consumer benefits in facilitating a migration path to DAB for small analogue commercial and community radio stations. We have also recognised the need to provide an affordable route to broadcasting via terrestrial digital radio for new entrants, to provide listeners with new and innovative listening choices.

2.3 Radio listeners in the UK are currently served by both national and local DAB multiplexes each carrying a range of range of digital programme services. Local DAB multiplexes vary in size, with some covering very substantial geographic areas and/or populations.

2.4 While nearly all parts of the UK's population are already within the actual or potential coverage area of a local DAB multiplex, many of these multiplexes have insufficient capacity available for additional stations, and the cost of carriage for an individual radio station can be high. This is particularly the case for many smaller commercial radio and community radio stations, as the coverage area of the existing local multiplexes is often wider than they need when their programming is intended to appeal primarily to people in one part of area (for example, one town amongst several served by the local DAB multiplex).

2.5 Building on an idea from Ofcom engineer Rashid Mustapha MBE and initial technical development testing carried out with Juice 107.2, a small commercial radio station in Brighton[3], the Government provided funding for a two-year programme of work by Ofcom, to examine the practical viability of a new approach to DAB transmission, known as 'small-scale DAB'. Small-scale DAB uses advances in software technology and new transmission techniques to provide a flexible and cheap approach to digital transmission. As a result, it is well-suited to providing more localised geographical coverage than existing local DAB multiplexes, potentially making it more suited to the needs of smaller stations.

2.6 Ofcom conducted 10 technical trials of small-scale DAB in various locations across the UK. The trials were designed to test the viability of small-scale DAB technology, and involved more than 100 radio stations broadcasting on DAB for the first time, including many new services. We published a technical evaluation of the trials in September 2016. Our report concluded that the trials were successful and had achieved their objectives, giving Government the confidence to legislate for small-scale DAB to be licensed on a non-trial

[2] Analogue (AM/FM) share of listening has declined from 67.5% in RAJAR Q1, 2009 to 43.6% in RAJAR Q1, 2019.
[3] Now Capital (Brighton)

basis. We have subsequently continued the trials to provide further information relevant to developing a framework for licensing small-scale DAB.

2.7 The technical trials involved the issuing of licences under the Wireless Telegraphy Act 2006, but that legislation has limited scope for the inclusion of licence conditions considered necessary by Government to support the wider provision of small-scale DAB across the country.

2.8 The Broadcasting (Radio Multiplex Services) Act 2017 enabled the creation of a new framework for the licensing of small-scale radio multiplex services. It did so by inserting section 258A into the Communications Act 2003 (the '2003 Act'), allowing the Secretary of State to make an order modifying aspects of the Broadcasting Act 1996 (the '1996 Act') applying to the licensing of national and local multiplex services to make them more appropriate for small-scale radio multiplex services.

2.9 Following the passage of the Act, the Government launched a consultation on 4 January 2018 outlining proposals to create a framework for small-scale DAB licensing. On 13 October 2018, the Government published the policy document 'Small-scale DAB licensing consultation: Government response' . This summarised responses to the consultation, and set out the Government's policy position on a range of issues. Following that, secondary legislation was drafted, and the Small-scale Radio Multiplex and Community Digital Radio Order 2019 (the 'Order') was laid before Parliament on 20 June 2019.

2.10 The Order exercises powers under the new section 258A of the 2003 Act to introduce a framework for licensing small-scale radio multiplex services. It also uses pre-existing powers under sections 262 and 402(3) of the 2003 Act to provide for the creation of community digital sound programme services ('C-DSPs'). In both cases, the Order achieves this by applying the 1996 Act with modification to types of services defined within the Order as being small-scale radio multiplex services or C-DSPs.

2.11 The framework for C-DSPs is effectively the digital version of the community radio licence that currently exists for analogue (AM and FM) stations. It is also closely linked to the framework for licensing small-scale radio multiplex services, because the Order modifies the 1996 Act to require capacity to be reserved for a minimum of three C-DSPs on small-scale radio multiplex services, supporting the "pathway to digital" for community radio stations that is part of Government policy for the sector.

2.12 In the interests of promptly implementing the new licensing regime required for the introduction of small-scale DAB, Ofcom is now consulting on the basis of the Order as laid before Parliament. Clearly, if the Order were to be withdrawn, amended and laid again, we may need to re-consult, or stop this consultation, as appropriate.

2.13 This consultation explains, and seeks views on, how Ofcom intends to:

- Plan the use of spectrum for small-scale radio multiplexes (Section 3)
- License the small-scale radio multiplex services (Sections 4 and 5)
- License C-DSP services (Sections 6 and 7).

Impact assessment and equality impact assessment

2.14 This document, as a whole, comprises an impact assessment as defined in Section 7 of the 2003 Act. We have not identified any detrimental impact on any equality groups (i.e. age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief and sexual orientation). Nor have we seen the need to carry out a separate equality impact assessment in relation to the additional equality groups in Northern Ireland: religious belief, political opinion and dependents. This is because we anticipate that the changes proposed in this document will not have a differential impact in Northern Ireland compared to listeners in the rest of the UK.

2.15 We have also paid due regard to Ofcom's Welsh Language Standards on Policy Making as outlined in its compliance notice. The policy making standards are applicable at the point where they will have an impact regardless of where the policy decision is made. We anticipate that none of the proposals outlined in this document will have any effect on opportunities for persons to use the Welsh language, or in treating the Welsh language no less favourably than the English language.

3. How we will plan the spectrum for small-scale radio multiplex services

3.1 This section sets out how Ofcom has approached the preliminary spectrum planning process for small-scale radio multiplex services, the result of which is the coverage area plan at Annex 1. It explains the legal requirements, planning principles and size limitations, as well as evidence of demand, that we have taken into account in drawing up this preliminary plan. It also sets out the planning principles we will use in our future work as we refine the coverage area plan and assess applications for small-scale radio multiplex licences.

Legal requirements

3.2 Ofcom's responsibilities for spectrum management are set out primarily in the Communications Act 2003 (the '2003 Act') and the Wireless Telegraphy Act 2006 (the '2006 Act').

3.3 Our principal duties under section 3 of the 2003 Act are to further the interests of citizens in relation to communications matters, and of consumers in relevant markets, where appropriate by promoting competition. In doing so, we are also required (among other things) to secure the optimal use of spectrum and the provision of a wide range of radio services which are of high quality and appeal to a variety of tastes and interests. We must also have regard, in performing our duties, to several factors including the desirability of encouraging investment and innovation, the desirability of encouraging competition, and the interests of people in different communities within the United Kingdom.

3.4 In carrying out our spectrum functions, we have a duty under section 3 of the 2006 Act to have regard in particular to: (i) the extent to which the spectrum is available for use or further use for wireless telegraphy, (ii) the demand for use of that spectrum for wireless telegraphy and (iii) the demand that is likely to arise in future for the use of that spectrum for wireless telegraphy. We also have a duty to have regard, in particular, to the desirability of promoting: (i) the efficient management and use of the spectrum for wireless telegraphy, (ii) the economic and other benefits that may arise from the use of wireless telegraphy, (iii) the development of innovative services and (iv) competition in the provision of electronic communications services.

3.5 In light of our duties to have regard to demand, on 27 July 2018 we published a call for expressions of interest in operating small-scale DAB multiplexes and/or providing services on them. This call was non-binding (both for Ofcom and respondents) but provided useful information to assist our planning process, and we published a summary of responses on 9 November 2018.

3.6 In addition to the general duties we have in relation to spectrum planning, section 50(2A) of the 1996 Act as proposed to be modified by the Order sets out the matters Ofcom must

have regard to in specifying the area or locality for which we are proposing to grant a small-scale radio multiplex licence:

a) *"the extent to which there is demand for, and support for, the provision of community digital sound programme services and local digital sound programme services in the area or locality"*;

b) *"whether the area or locality is appropriate for securing the provision of community digital sound programme services and local digital sound programme services"*; and

c) "where the area or locality overlaps with the coverage area of a local radio multiplex service, the desirability of ensuring that the population of the overlapping area is less than 40 per cent of the population of the coverage area of that local radio multiplex service".

3.7 Section 50(2)(b) of the 1996 Act as proposed to be modified by the Order also requires Ofcom to specify the intended frequency on which the service is to be provided.

Spectrum planning principles and methodology

Whether to provide spectrum for small-scale DAB

3.8 The first stage in the planning process is to consider, in light of our duties, whether or not to allocate spectrum for the provision of small-scale radio multiplex services, noting that the powers given under the proposed Order allow for, but do not require, the licensing of small-scale radio multiplex services.

3.9 There are several reasons why Ofcom considers it appropriate to provide spectrum for small-scale DAB multiplexes. Firstly, as noted above, listeners have increasingly migrated away from analogue and towards digital platforms (principally DAB) for radio listening. We consider small-scale DAB provides an appropriate pathway to digital for a variety of popular existing services which contribute towards the diverse range of radio services in the United Kingdom. This is particularly the case for community radio services and smaller commercial services catering to under-served groups and relatively small localities. Additionally, small-scale DAB provides additional capacity for potential new entrants, contributing to competition and to the range of radio services available.

3.10 The likelihood that these purposes would be achieved is further supported by the number of expressions of interest we have received from both potential providers of small-scale DAB multiplexes and of programme services, and by the success of the small-scale DAB trials.

3.11 We therefore consider that it is appropriate to plan for the provision of small-scale DAB, on the basis that this would be likely to represent an efficient use of spectrum.

Frequency use

3.12 The second stage in the planning process is to identify appropriate frequencies for use by small-scale radio multiplex services. For our preliminary planning, Ofcom has used six

frequency blocks (7D, 8A, 8B, 9A, 9B & 9C) from the part of the spectrum known as VHF Band III sub-band 2 as the primary spectrum for small-scale DAB. These blocks are all ones which can be used to transmit broadcast digital radio services to any DAB-enabled equipment, but have, in recent years, been only lightly used by a small number of business radio licensees that have typically used the spectrum for two-way radio communications (for example, between buses and their control centre). In 2015, Ofcom gave those remaining licensees notice that their licences will be revoked in June 2020, and we have identified alternative spectrum in VHF Band III sub-band 1 into which those users can migrate.

3.13 We will not be using frequency blocks 8C or 8D for small-scale DAB as those blocks overlap with a portion of spectrum used by Programme Making and Special Events (PMSE) licensees. We are not proposing to change the frequencies used by those PMSE licensees who will be able to continue using their existing equipment.

3.14 Where Ofcom considers additional spectrum will be required, or where the above spectrum is not available, we also intend to investigate utilising spectrum between blocks 10B to 12D of VHF Band III sub-band 3. This spectrum is currently used by local and national DAB multiplex services, though some blocks in this range are unused in some geographic areas and we would only use these blocks for small-scale DAB to the extent that existing users would not be adversely affected.

3.15 In some areas of the United Kingdom, a local radio multiplex service has not yet been licensed. In each of these locations, a frequency block designed to support such a service has already been internationally coordinated. These coordinated frequency blocks will be retained for potential future use by local radio multiplex services. Ofcom has recently advertised local radio multiplex licences using such frequency blocks in the following areas that do not yet have a local radio multiplex service: Morecambe Bay, North and West Cumbria, Southwest Scotland and the Channel Islands. If we are able to award local radio multiplex licences in all of these areas, only two areas of the UK would be left without a local radio multiplex service[4].

Defining coverage areas and licensed areas

3.16 We propose that the coverage area of a small-scale radio multiplex service is defined by the area where its transmitter(s) is/are predicted to provide a field strength of at least 63 dBµV/m, which corresponds to a level sufficient for useable indoor reception[5]. This coverage area will also constitute the licensed area for the small-scale radio multiplex service[6]. The coverage/licensed area will not include the areas in which a small-scale radio

[4] We have no current plans to license local radio multiplex services for the Borders area of northern England/southern Scotland or the Highlands and Islands of north and west of Scotland, due to a lack of demand from potential applicants.
[5] Planning levels are detailed in An approach to DAB coverage planning.
[6] This is different from the situation which pertains to national and local radio multiplex services, for which the licensed area is the area defined by Ofcom when the licence is advertised. The coverage area of a national or local radio multiplex service is the area the service actually covers, and is usually a portion of the overall licensed area.

multiplex service only provides what is termed as outdoor, or mobile, coverage (e.g. to receivers in vehicles)[7].

Protecting services from interference

3.17 A small-scale radio multiplex service using one of the six sub-band 2 frequency blocks will be limited to transmitting no more than 38 dBµV/m into the coverage area(s) of any other small-scale DAB radio multiplex service(s) using the same frequency block[8]. Where a small-scale radio multiplex service uses a sub-band 3 frequency block (blocks 10B to 12D) this level will be reduced to 29 dBµV/m to protect the mobile coverage of local or national radio multiplex services. Similarly, the small-scale radio multiplex service can generally expect to receive incoming interference of no more than 38 dBµV/m from other radio multiplex services using the same frequency block, except in small parts of its licensed area. As we anticipate having to make intensive use of the limited number of frequencies available for small-scale DAB, we will not be able to protect mobile outdoor reception from interference.

3.18 We will keep the levels defining coverage and permissible interference under review and may propose amendments should we receive evidence that it would be advantageous to do so. Any amendments will be made clear when we invite applications for small-scale radio multiplex licences.

Planning tool

3.19 Ofcom intends to use ICSTelecom planning software for the planning process. This is the tool we already use to assess the technical plans included in applications for local and national radio multiplex licences[9]. The software is currently commercially available to any party that wishes either to use it to carry out their own coverage predictions, or to request individual prediction analysis from Spectrum Center (formally ATDI), the software provider.

3.20 Further information on the specific settings and planning tool configuration we intend using to model and assess coverage is set out in Annex 2.

3.21 Ofcom may use alternative planning tools to carry out frequency planning and assessments of coverage in the future. Should we decide to do so, we will give details of the planning tool that we expect to in assessing applications when we invite multiplex applications.

[7] For national and local radio multiplexes, we also consider mobile outdoor reception which corresponds to a field strength of 54 dBµV/m. Given their smaller coverage areas, we consider that mobile reception will be less important for small-scale multiplexes, and due to the anticipated intensive re-use of frequencies we will not be able to protect outdoor mobile reception for small-scale DAB from interference.

[8] Small areas where this level is exceeded will be permitted, so long as they are small compared with the overall coverage area and are mainly limited to high ground or unpopulated areas.

[9] For example, see para 4.14 of the 2015 Advertisement of a Local Radio Multiplex Licence for Suffolk: https://www.ofcom.org.uk/__data/assets/pdf_file/0030/57594/suffolk_lrml_advertisement_notice.pdf

Measurement of population served

3.22 The assumptions we use on population coverage are relevant due to the need to apply section 50(2A)(c) of the 1996 Act as proposed to be modified by the Order, since this refers to the desirability of ensuring the population of an area of overlap between a small-scale DAB multiplex and a local DAB multiplex is less than 40% of the population within the licensed area of the latter. We plan to measure the population able to receive a small-scale radio multiplex service on the basis of the adult (aged 15+) population in the area predicted to receive a field strength of at least 63 dBµV/m from the small-scale multiplex's transmitter(s).

Multiplex size: the parameters

3.23 The clear intention of section 50(2A)(c) of the 1996 Act as proposed to be modified by the Order is that the population of the overlap between the licensed area of a small-scale radio multiplex service and that of a local radio multiplex service should normally not exceed 40% of the total population covered by the latter. However, it does not set an absolute limit but instead allows an element of flexibility (i.e. it refers to the "desirability" of remaining within that level, rather than requiring it in all cases).

3.24 It is important to be very clear about what the 40% figure applies to. Specifically, this is the amount by which the adult population of the licensed area of a small-scale multiplex service overlaps with the licensed area of an existing local radio multiplex service. So, we are not assessing the overall size of the population of the licensed area of small-scale multiplex service relative to that of the local radio multiplex service, but just the size of the overlap relative to the size of the population in the licensed area of the local radio multiplex service.

3.25 In relation to the flexibility Ofcom retains to exceed the 40% figure, we propose to do so only exceptionally where the other two matters to which we must have regard (as set out in paragraph 3.6 above) provide compelling reasons to do so. For example, it may be that complying rigidly with the 40% figure in a particular case would undermine the editorial appropriateness of the area covered by the small-scale radio multiplex service and/or the ability of the area to satisfy the demands for carriage from C-DSP or local DSP licence holders. This may be relevant where strict adherence to the 40% figure would inevitably involve either excluding a significant part of the population of a town, or artificially dividing an already relatively small urban area for which it is clearly appropriate for such services to cater, in a way that would make the scope of the licence area significantly less attractive for both listeners and programme service providers.

3.26 None of the potential small-scale radio multiplex service licensed areas (which for planning purposes we have called 'polygons') contained in the coverage area plan set out in Annex 1 overlap by more than 40% of the population of any local radio multiplex service.

3.27 In areas for which we invite small-scale radio multiplex licence applications and there is no existing or planned local radio multiplex service, the 40% figure will have no direct applicability. Under regulation 3(b)(ii) of the Order, in circumstances where there is no

overlap, the maximum coverage area of a small-scale radio multiplex service is limited to 7,500 square kilometres, a high cap which recognises the fact that the affected areas are primarily sparsely populated, rural ones. In such cases, we propose also to bear in mind the principle behind the 40% restriction, to ensure that the small-scale radio multiplex service in that area would complement rather than replicate the coverage of any potential future local radio multiplex service. Whilst it is not realistic to calculate the precise coverage of a hypothetical local radio multiplex service, we would nevertheless take into account that an area without an existing local radio multiplex service may have one in the future.

3.28 In considering the likely demand and support for small-scale radio multiplex services (as required by section 50(2A)(a) of the 1996 Act as proposed to be modified by the Order) , we have taken into account expressions of interest previously received to provide both small-scale radio multiplex services themselves and programme services on such multiplexes, as well as taking account of the coverage areas of existing analogue radio services which may wish to broadcast on small-scale DAB.

3.29 However, it should be noted that expressions of interest are non-binding, and were invited by Ofcom before the 40% figure was confirmed by Government. Where expressions of interest specified areas greater than the 40% figure would allow, we have considered them as evidence of demand from potential providers of services in those areas. We have accounted for them in our preliminary planning by including them in two or three smaller areas which would fall within the permitted parameters.

3.30 There are also, of course, practical constraints based on spectrum availability. When we consider applications for an area or locality we have specified in a licence advertisement, we can consider only technical proposals that are within the bounds set by the technical planning constraints in that particular area.

3.31 The Government has not specified a minimum size for small-scale radio multiplex services in the Order. However, as noted above, section 50(2A)(b) refers to ensuring that the area or locality is “appropriate” to support C-DSPs and local DSPs. We consider that this means striking a balance between ensuring that an area is of a size which is suitable to support smaller services which currently find it difficult to broadcast on DAB (because it would involve paying for a coverage area substantially in excess of the station’s target community), while also ensuring that the area is not so small that the viability of programme services and the radio multiplex service itself may be jeopardised.

3.32 We are also mindful of Ofcom’s over-arching responsibilities in relation to efficient use of spectrum, and of the fact that only economically viable multiplexes can provide the economic and other benefits involved in the use of the available spectrum for small-scale digital radio.

3.33 A few expressions of interest we received were for a very small area, some of less than 1km radius (with correspondingly very small populations). Generally, we consider it is highly doubtful that such small areas could be viable or represent an efficient use of spectrum. These expressions of interest have therefore not been included in our planning work, although most of the very small areas proposed therein will be included within one

of our planning polygons. However, there may be exceptional cases, such as around military bases, where different considerations apply. We are therefore not proposing that there should be a minimum coverage area with which the technical plan submitted by an applicant for a small-scale radio multiplex licence should comply, but applicants should note that we would be likely to license a small-scale radio multiplex service with a very small coverage area only in exceptional circumstances.

Question 1: Do you agree with the planning principles and methodologies that we will use in our work to refine the coverage area plan for small-scale DAB?

Identifying the demand in different localities

3.34 In any planning of spectrum use Ofcom takes into account a range of matters, including current and future demand by the direct users of the spectrum, in this case small-scale radio multiplex services. Of course, this is also dependent on demand from indirect users, in this case sound programme services, and we are also explicitly required to consider this under section 50(2A)(b) of the 1996 Act as proposed to be modified by the Order.

3.35 Last year, Ofcom invited expressions of interest in providing small-scale radio multiplex services and/or programme services to broadcast on them. We did this to assist the planning process, by giving us an idea of the likely levels of demand in different localities. The expressions of interest were therefore an important input into our draft coverage area plan.

3.36 We emphasised that expressions of interest would not confer any rights, and nor would they oblige respondents to apply for a licence in future.

3.37 More than 700 individual expressions of interest were submitted, divided into:

- Provision of a small-scale radio multiplex service
- Provision of a digital sound programme service only
- Provision of both a radio multiplex service and a digital sound programme service

3.38 Some locations were the subject of multiple expressions of interest from prospective small-scale radio multiplex service providers. Given that there is only a limited amount of spectrum available, it will not generally be possible to translate multiple expressions of interest into multiple small-scale radio multiplex services broadcasting to the same area.

3.39 In other areas, we received expressions of interest for providing programme services, but there were no expressions of interest to provide a corresponding multiplex service that could accommodate those programme services. We have endeavoured to plan a potential small-scale radio multiplex service in each of these areas, on the assumption that a multiplex operator would come forward in due course.

3.40 Where expressions of interest did not match the requirements set out by Ofcom (for example, where a coverage area boundary was missing but a coverage prediction or verbal description was provided) we have sought to take this into account as best we can based on what we consider was intended.

3.41 We recognise that expressions of interest are not the only indicator of demand. There were a few areas for which no expressions of interest were received, despite the presence in the area of analogue radio services that are not currently broadcasting on DAB. We have reviewed these areas as part of the spectrum planning work, and included a notional provision for these stations where spectrum resources permit.

3.42 We are also aware of growing interest (and indeed growing populations) in some localities, and of areas which share characteristics with high demand areas. Additionally, as already noted, spectrum availability in light of current and future demand is also a relevant factor. Our planning has therefore been guided, but not dictated, by the expressions of interest.

Channel Islands

3.43 Ofcom received a total of five expressions of interest in providing small-scale radio multiplex and/or digital sound programme services in the Channel Islands. The Order presented to Parliament will not apply to the two self-governing bailiwicks constituting the Channel Islands (the Bailiwicks of Jersey and Guernsey) unless and until it is formally adopted by them. However, Ofcom has included the Channel Islands in our planning exercise, noting the interest received, so that we can proceed reasonably promptly if those jurisdictions do decide to adopt the legislation.

3.44 Those interested in providing digital programme services to the Channel Islands should also note that Ofcom recently advertised a local radio multiplex licence for the Channel Islands, and we expect to be able to award this licence later this year.

New local radio multiplex licences

3.45 As part of our preliminary planning work described in this consultation, we have assessed how much of the available spectrum in each existing local radio multiplex service area is likely to be needed to accommodate the notional small-scale radio multiplex coverage areas we have developed. In each of those local radio multiplex service areas, we have also assessed whether there is sufficient spectrum to accommodate an additional local radio multiplex service of a similar scale to that of the existing local radio multiplex service.

3.46 The UK does not have international rights to use the six frequency blocks we have identified for small-scale DAB at high power, or in areas bordering neighbouring countries (such as near the south and east coasts of England). It would therefore not be feasible to use those frequencies in many areas for further local radio multiplex services using the same kind of transmitter network as is used by the existing local radio multiplex services (i.e. using a small number of relatively high-power transmitters).

3.47 Our preliminary work suggests, however, that there are potentially opportunities in some areas for additional local radio multiplex services to be planned alongside small-scale radio multiplexes, using frequency block 10B and above. There is, though, a strong interaction between providing additional local radio multiplex services and our ability to license small-scale radio multiplex services, as both will make demands on the same limited pool of spectrum.

3.48 At present, we expect the areas where sufficient spectrum should exist to support both small-scale DAB and additional local radio multiplex services to be limited to the following areas:

a) most of Scotland;

b) Northern Ireland;

c) Tyneside and Teesside in north east England;

d) One of; Bradford, Leeds or North Yorkshire and

e) Devon and Cornwall in south-west England.

3.49 We would need international coordination agreements with neighbouring countries regarding the use of these frequencies before we could consider advertising new local radio multiplex licences. Annex 3 sets out our preliminary analysis. However, further planning work may indicate the opportunities for accommodating further local radio multiplex services may be greater or fewer than we have assessed.

3.50 We intend to prioritise resources at this stage on planning and licensing small-scale radio multiplex services, ahead of planning for any additional local radio multiplex services or other possible uses of the spectrum. This reflects our policy priority of providing a path to terrestrial digital transmission for smaller analogue commercial and community radio services, and aligns with the Government's policy intentions in tabling the Order.

3.51 We will review the opportunities for accommodating additional local radio multiplex services on a region-by-region basis only once we have licensed small-scale radio multiplex services in those regions, and are able to confirm the availability of spectrum for licensing further local radio multiplex services, including the areas listed in 3.48 above. Where there is sufficient spectrum to accommodate both small-scale and further local radio multiplex services, we will consider whether there is demand from potential applicants for further local radio multiplex licences in those areas.

The coverage area plan

3.52 Having applied the spectrum planning principles and methodology described in this chapter, we have developed a plan of small-scale DAB multiplex areas. The plan is formed of a number of areas (which we refer to as 'polygons') which are illustrated on the maps and tables at Annex 1. In two areas of the country we have defined larger 'macro areas'. Our approach to licensing will differ slightly in these macro areas, as we describe below.

3.53 We have sought to allocate a polygon to every location for which we received an expression of interest. In areas where there were multiple expressions of interest, we have planned a polygon that seeks to balance appropriately the coverage aspirations of those different expressions of interest.

3.54 For each of the polygons, we have modelled the interference that might occur to other polygons. We have used this information to work out how many frequencies might be

needed in the different areas of the country, and compared that against the amount of spectrum available.

Areas with an adequate supply of spectrum (polygon areas)

3.55 In many parts of the UK, there is sufficient spectrum for us to be reasonably confident that we will be able to allocate a frequency for each polygon without causing or receiving undue interference to or from other polygons using the same frequency elsewhere in the UK. Our intention is to advertise and, assuming acceptable applications are received, award small-scale radio multiplex licences in each of these areas. These proposed coverage areas do not specify what transmitter sites must be used, as we expect site proposals to be part of the technical plan submitted by small-scale radio multiplex licence applicants.

Areas of spectrum scarcity (macro areas)

3.56 In some areas of high demand, there do not appear to be sufficient frequencies for every polygon to be allocated a frequency. In those areas, we have in our plan clustered together potential polygons into 'macro areas'. Our intention in those areas is to invite applications for licences in batches from parties wishing to provide a small-scale radio multiplex service for any area or locality based upon the polygons contained within the macro area.

3.57 Applicants will need to specify what locations they are seeking to serve, the coverage they plan to achieve within the macro area, and the transmitter sites they intend deploying to achieve that coverage. Where we advertise licences in this way, we would be less able to specify in advance the interference constraints between polygons within the macro area. Applicants' proposals will need to reflect the desirability of not normally exceeding 40% overlap with the licensed area of any local radio multiplex service, and we will require that applicants' proposed technical plans comply with this threshold.

International considerations

3.58 Spectrum use, including for broadcast radio, is subject to international agreements that seek to avoid undue interference between services in neighbouring countries. The UK is at varying stages of discussions with its neighbouring administrations in the Republic of Ireland, France, Belgium and the Netherlands regarding their developing plans for DAB radio multiplexes and the UK's plans for small-scale DAB. The plans set out in this consultation are based on our current expectation of future spectrum use. Further changes may be necessary when, or even before, we coordinate our requirements for small-scale DAB in the UK further with our neighbours. Further information on International Coordination matters can be found at Annex 2.

Required technical standards

3.59 Section 43(1)(b) of the 1996 Act permits the inclusion of conditions within radio multiplex licences enabling Ofcom to supervise and enforce technical standards in connection with the provision of the licensed service.

3.60 In addition, section 54(1)(g) of the 1996 Act as amended by the Order requires that for small-scale radio multiplex licences, *"the signals carrying the radio multiplex service attain reasonable standards in terms of technical quality and reliability throughout so much of the area or locality for which the service is provided as is for the time being reasonably practicable"*.

3.61 Conditions within national and local radio multiplex licences require those licensees to comply with Ofcom's Digital Radio Technical Code (with further information provided in Ofcom's Technical Guidance for DAB multiplex licensees which is referred to throughout the Code).

3.62 The legislative requirements for small-scale radio multiplex licensees (if passed by Parliament in their current form) will be very similar to those which apply to national and local radio multiplex licensees. We therefore propose that, as a licence condition, small-scale radio multiplex licensees will need to ensure that the multiplex and programme services being broadcast are compatible with the technical arrangements described in the Technical Code (and Technical Guidance). We will, however, amend the Digital Radio Technical Code to reflect the slightly different statutory requirements that apply to small-scale multiplexes.

3.63 Specifically, we propose to modify paragraph 3.3 of the Technical Code to reflect the requirement for small-scale radio multiplex services to achieve 'reasonable standards', which differs from the requirements for national and local radio multiplex services. We also propose to amend the Guidance Note to confirm that Ofcom will not regulate the audio characteristics of services on small-scale radio multiplexes. Details of our proposed amendments to the Code and Guidance are contained in Annex 6.

Requirement to use DAB+

3.64 Digital sound programme services can be transmitted using the original version of DAB, or the newer DAB+ technology. DAB+ uses more modern audio encoding than DAB and permits more efficient use to be made of multiplex capacity. This means that, for an equivalent sound quality, a DAB+ multiplex can carry more services than a DAB multiplex.

3.65 We have received a high number of expressions of interest from potential programme service providers which suggests that demand for capacity on small-scale radio multiplex services will be high. As a result, Ofcom believes that it is important to ensure that small-scale radio multiplex services can accommodate as many programme services as reasonably possible by design.

3.66 Section 49A of the 1996 Act as modified by the Order requires Ofcom to reserve such capacity as we consider appropriate to accommodate at least three C-DSPs. In order to do so, we need to understand the efficiency with which services would be encoded. A small-scale radio multiplex service using DAB+ would need a lesser reservation for the same number of services, but we would need DAB+ to be specified in licences to ensure the reservation was sufficient.

3.67 We recognise that some (particularly older) radio sets are only capable of receiving DAB services and are not compatible with DAB+. However, the number of sets that can receive DAB+ services is continuing to increase through a combination of the Digital Radio Tick Mark Scheme (which, since 2014, requires compliant receiver equipment to incorporate DAB+) and increasing prevalence of DAB+ radios in new cars (93% of new cars in the UK being fitted with a DAB+ radio as standard in 2019[10]). We are also aware that eight of the ten of the trial small-scale multiplexes carry a majority of their programme services in DAB+. We do not therefore believe that requiring small-scale DAB multiplexes to operate exclusively using DAB+ would prevent significant numbers of listeners from enjoying those services, and it would increase the number and range of services available to listeners with DAB+ compatible sets.

3.68 We are therefore proposing to amend our Digital Radio Technical Code to include a condition that requires that small-scale radio multiplex services should operate using DAB+ only. The provisions of the 1996 Act as modified by the Order allow for such a condition, as section 54(1)(a) enables licence conditions requiring provision of the radio multiplex service in accordance with the technical plan provided pursuant to section 50(4)(b), and we would use our powers under section 50(3) to provide guidance on the requirements to be met by applications for licences, including that the technical plan be based on DAB+. Our proposed changes to the wording of the Technical Code is at Annex 6.

Signal polarisation

3.69 On 11 June 2019, Ofcom published updated versions of its Digital Radio Technical Code and Guidance, following consultation earlier in the year. Although we were not specifically consulting on making changes to the requirements for the signal polarisation used by DAB transmitters, we received some responses suggesting that we should permit use of horizontal as well as vertical polarisation (the Code currently permits vertical polarisation only).

3.70 Although mixed polarisation is used for FM broadcasting, the circumstances are different to those for DAB and we could see no compelling case for permitting horizontal polarisation to be used. Specifically, FM broadcasts need to cater for an installed base of rooftop receiving aerials which are horizontally polarised for historical reasons. Horizontally polarised receiving aerials are better than vertical ones when dealing with reflected signals (particularly in hilly/mountainous areas) which affects analogue radio signals like FM.

3.71 Neither of these constraints applies to DAB, for which there is no installed base of horizontal receiving aerials and aerials on cars are generally vertical. DAB is also a technology that is largely immune to reflections. Adding a horizontal component to transmissions would make antenna installations more complex, would lead to increased transmitter power consumption and therefore a greater environmental impact, as well as

[10] Source: WorldDAB Digital Radio Europe and Asia Pacific

potentially increasing costs for licensees. Our initial proposal is therefore to continue requiring vertical polarisation only is used.

3.72 We are however open to receiving any evidence of the benefits or disadvantages that adding a horizontal component would have for small-scale DAB, or for DAB services more generally. We will review our position on signal polarisation and consider permitting use of horizontal polarisation as well as vertical polarisation if we receive evidence that it would be beneficial to do so.

Question 2: Do you agree with our proposed approach to the required technical licence conditions for small-scale radio multiplex services, and the proposed amendments to the Digital Radio Technical Code?

4. Small-scale radio multiplex licences: conditions and requirements

4.1 This section provides information about eligibility to hold, and conditions to be included in, small-scale radio multiplex licences. In several key respects, the Order would apply the 1996 Act without modifications, and we would therefore propose to include standard licence conditions which are very similar to those included in existing local and national radio multiplex licences.

4.2 However, there are some areas in relation to which the Order would modify the 1996 Act, or where slightly different considerations apply to small-scale radio multiplex licences. This section focuses on those aspects and, in particular:

- Additional eligibility and ownership restrictions
- Licence duration, and the renewal process
- The deadline for launching a small-scale radio multiplex service, post-licence award
- Annual licence fees payable to Ofcom
- Requirements for the reservation of capacity on multiplexes
- Information requirements on carriage fees charged and services carried.

Additional eligibility and ownership restrictions applicable to small-scale radio multiplex licences

4.3 Section 44A of the 1996 Act as modified by the Order will, if approved by Parliament, include several disqualifications which may prevent an applicant holding a small-scale radio multiplex licence in addition to those applying to radio multiplex services generally (in particular those included in Schedule 2 of the Broadcasting Act 1990).

4.4 We have summarised the restrictions below, but note that they are relatively complex. Applicants should seek independent advice when applying, particularly those connected with persons holding national radio multiplex licences, national sound broadcasting service licences, local radio multiplex licences, or (in due course) several small-scale radio multiplex licences in the same geographic area.

4.5 The Order states that the following may not hold a small-scale radio multiplex licence:

a) A person who is not a “body corporate” (section 44A(1)(a)). It would be very unusual for an individual or unincorporated association to hold a multiplex licence in any event, but this is explicitly prevented in the Order.

b) A body corporate holding more than 20% of small-scale radio multiplex licences (section 44A(1)(b)). This provision is intended to avoid concentration of ownership of small-scale radio multiplex services.

c) A body corporate in which a person is a participant where that person is a participant in bodies corporate holding more than 20% of small-scale radio multiplex licences (section 44A(1)(c). This is also intended to avoid concentration of ownership.

d) A holder of a national radio multiplex licence or national sound broadcasting licence (section 44A(1)(d)). This is intended to ensure the small-scale multiplex layer is separate in terms of ownership from the national layer.

e) A body corporate in which a person described in (d) has an interest of more than 30% (section 44A(1)(e)). This allows a national broadcaster or multiplex operator to be involved in small-scale radio multiplex licensees but with a cap on the extent of that interest in any one licensee.

f) A body corporate in which a person described in (d) is a participant if that person is a participant in more than six small-scale radio multiplex licensees (section 44A(1)(f)). Again, this allows but limits involvements by the national layer, this time to restricting the number of small-scale radio multiplex licensees in which they can be involved.

g) A body corporate holding a local radio multiplex licence, but only if the coverage area of the local radio multiplex service overlaps with that of the small-scale radio multiplex service in question (section 44A(1)(g)). This restricts local radio multiplex licensees from holding small-scale radio multiplex licences, but only those overlapping with their own area of operation.

h) A body corporate in which a person described in (g) has an interest of more than 30% (section 44A(1)(h)). This allows a local radio multiplex operator to be involved in small-scale radio multiplex licensees within its coverage area but with a cap on the extent of that interest.

4.6 Section 44A(2) would prevent a body corporate from holding more than one licence whose coverage area overlaps to a significant extent with that of one and the same local radio multiplex service. The legislation leaves it to Ofcom to determine what constitutes overlapping to a "significant extent". We consider that the purpose of this provision is to prevent the small-scale multiplex layer from effectively replicating the local multiplex layer, such that the holder of several geographically proximate small-scale radio multiplex licences would compete directly with the local multiplex layer. Were this to happen, it may undermine the objective of small-scale radio multiplex licensing to provide an option for those broadcasters for which the local multiplex layer is less suitable, rather than an alternative for those for whom it is suitable. It should, in our view, be read in conjunction with the overlap 40% figure in section 50(2A) and discussed above.

4.7 We do not propose to set an absolute limit on the overlap that we would consider constitutes overlapping to a "significant extent" as this may depend on local circumstances. However, we propose to consider an overlap to be significant if it would lead to a licensee breaching the level of a 40% overlap with the local radio multiplex service in question, or increasing coverage above that level.

4.8 Section 44(3) notes that the limitation on holding more than 20% of licences does not apply where fewer than 20 licences have been granted. This is necessary to avoid those to whom early licences are granted risking immediately breaching the threshold, and means licensees can hold up to five small-scale radio multiplex licences without risk of breaching the 20% threshold regardless of the number of other licences in issue.

4.9 We recognise that the limitation on holding more than 20% of licences could, in theory, mean a licensee breached the threshold due to another licensee surrendering their own licence or having it revoked (thus reducing the absolute number of licences that would need to be held to exceed the 20% level). We would advise licensees to maintain some headroom in their licence holding to accommodate this and, in the unlikely event a licensee becomes disqualified by reason of a reduction in the overall number of licences in issue, we would communicate with that licensee to seek to resolve the matter (e.g. via licence transfer, or re-advertisement of a surrendered licence) before considering revocation.

4.10 Section 44A(4) means that a "holder" of a licence includes persons connected with the person named on the licence itself, and is intended to prevent avoidance through the holding of licences by connected persons.

Licence duration and renewal

4.11 Under section 58 of the 1996 Act as proposed to be modified by the Order, Ofcom has the power to award small-scale radio multiplex licences for a period of up to seven years, with a further renewal period of five years.

4.12 An application for renewal needs to be made by the licence holder within a window that will open 18 months before the licence would otherwise expire, and which closes six months before it would otherwise expire. It is important to note that applications outside this renewal window cannot be accepted, and licensees will be responsible for ensuring that they apply for renewal in a timely manner (we are not proposing to send renewal reminders to licensees).

4.13 Under section 58(4), on renewal Ofcom may require the submission of a supplementary technical plan, addressing technical guidance from Ofcom (which may, for example, be relevant if there have been changes in technical standards over the period of a licence). We may also require adjustments to the amount of capacity on the multiplex reserved for C-DSP services. This may be relevant if there is evidence of unmet demand for capacity from such services in the area which, in Ofcom's view, may be accommodated without undermining the viability of the multiplex.

4.14 We may refuse to renew a licence if the applicant has failed to comply with licence conditions, or has failed to submit a supplementary technical plan as required, or if we are not satisfied the licensee could provide a service complying with conditions on renewal (section 58(7)).

Launch following licence award

4.15 The proposed Order would apply the 1996 Act with modifications placing a strict 18-month deadline on beginning to provide a small-scale radio multiplex service following award. Specifically, where a licence has been awarded but not granted, section 51(6) allows Ofcom to revoke an award if we have reasonable grounds to believe the multiplex service will not be operational[11] within 18 months of award. Similarly, section 53(1)(aa) applies the same rule where a licence has been granted but is yet to come into force.

4.16 These provisions are intended to avoid a long time-lag between the award of a licence and the small-scale radio multiplex service being available to consumers, and therefore to avoid inefficient use of spectrum. We consider, given the relative lack of technical complexity in small-scale radio multiplexing, 18 months is an ample period within which to launch a small-scale radio multiplex service, and we intend to enforce it strictly. During this period, Ofcom expects the successful licence applicant to conduct the necessary work to implement its technical plan, and in particular ensure that it allows adequate time to liaise with other radio multiplex licensees on any impact its proposed transmitters might have on the coverage of other DAB radio services. Details of the liaison process that licensees must follow are provided in the procedure for launching new transmitters set out in Ofcom's Technical Policy Guidance for DAB Multiplex Licensees.

Annual licence fee

4.17 The Order applies section 43 of the 1996 Act without modifications to small-scale radio multiplex licences, including provisions on licence conditions on fees. Each small-scale radio multiplex licensee will be required to pay an annual Broadcasting Act licence fee. This will be published in our tariff of licence fees, and can be varied by Ofcom.

4.18 The annual licence fee for a small-scale radio multiplex licence will initially be set at £500.

4.19 This fee will be payable for as long as the licence is in issue. We do not propose to charge a fee for licence variations.

4.20 No fee will be payable in respect of the licence issued under the Wireless Telegraphy Act 2006 which each holder of a small-scale radio multiplex licence will also be required to hold.

Reservations of capacity

4.21 The Order proposes to modify the 1996 Act by including a new section 49A in respect of small-scale radio multiplex services. This new provision requires Ofcom to ensure, in exercising our powers, that **small-scale radio multiplex licensees must reserve broadcast**

[11] The multiplex is functioning substantially in accordance with the Technical Plan including all transmitters on-air and broadcasting at least one programme service.

capacity for C-DSP licence holders, for a minimum of three programme services. Section 49A(3) requires Ofcom to underpin this capacity reservation with licence conditions.

4.22 Section 49A(2) would require us, in setting the reservation to, "have regard to the likely demand for digital capacity by persons providing or proposing to provide community digital sound programme services in the coverage area of the licence".

4.23 To estimate the level of reserved capacity that we think will be required for each multiplex licence, we propose to take into account evidence of demand including (but not limited to) the following:

- The level of demand as expressed by different types of service providers (including in the 2018 expressions of interest exercise previously conducted); and
- the current number of analogue community radio stations that have been licensed (but are not necessarily all on air) in the area.

4.24 We recognise that the results of the 2018 call for expressions of interest may be a little outdated by the time we are able to invite applications for small-scale radio multiplex licences and C-DSP licences for some parts of the UK. However, the alternative of inviting new expressions of interest every time we embark upon advertising a new batch of licences would be administratively burdensome, and would have the effect of delaying significantly the national roll-out of small-scale radio multiplex services.

4.25 Whilst section 49A explicitly requires Ofcom to take into account demand from C-DSP services, it is silent on other factors that may be relevant to Ofcom setting a reservation. In this respect, we propose also to take into account the number of small commercial radio stations that are broadcasting on analogue (but not local DAB) in the area, any additional information we have on the likely demand from such services, and the need to ensure the viability of the small-scale radio multiplex service in question.

4.26 In so doing we note, firstly, that while encouraging the provision of C-DSP services is an important policy objective, providing a pathway to digital for smaller commercial stations is also an important consideration. Secondly, while the purpose of a reservation is to encourage relatively low carriage costs for C-DSP services by ensuring there is some capacity for which they do not face competition from other programme service providers, having a large amount of unused reserved capacity would not be conducive to securing the viability of the small-scale radio multiplex service, which is important to all broadcasters including C-DSP licensees themselves.

4.27 Turning to the amount of capacity sufficient for any given number of C-DSPs, we propose that the amount of capacity that must be reserved by the small-scale radio multiplex licensee should be calculated on the basis that **each C-DSP service must be able to broadcast at a minimum of 48 kbit/s[12] using DAB+** (i.e. HE-AAC audio encoding). So, for example, on a small-scale radio multiplex service for which Ofcom has determined that

[12] The minimum reservation will therefore be for 3 x 48 kbit/s using HE-AAC (DAB+) which equates to 108 capacity units with a protection level of EEP3A, or 162 capacity units if operating with EEP2A or 216 capacity units if operating with EEP1A.

capacity for a minimum of four C-DSP services should be reserved, the total reserved capacity for that multiplex would be 192 kbit/s.

4.28 Section 49A(3) makes clear that reserved capacity is "solely" for the use of C-DSPs. That is, this amount of capacity will need to be kept available only for C-DSP services to use and must not be used to carry other programme services, even on a short-term basis.

4.29 In granting C-DSP licence holders access to reserved capacity on a small-scale radio multiplex service, we propose that the multiplex licence holder will be required to check that the body seeking carriage does in fact hold a C-DSP licence, and that the Key Commitments included in the C-DSP licence (see paragraphs 6.23-6.31) contain a reference to the small-scale radio multiplex service in respect of which they are claiming reserved capacity.

Question 3: Do you agree with Ofcom's proposed approach to setting the level of reserved capacity for C-DSP services on small-scale radio multiplex services?

4.30 Section 49A(4) to (8) of the 1996 Act as proposed to be modified by the Order allow small-scale radio multiplex licensees to apply to Ofcom to change the amount of reserved capacity required on the multiplex they operate. Ofcom can only grant such a request if the following three conditions are all met:

- the multiplex service has been provided for at least three years (section 49A(8)(a);
- the capacity is in fact unused (section 49(8)(b)); and
- the licensee has taken reasonable steps to identify parties interested in using the reservation, has acted in good faith offering to contract with them, and that it is unlikely the capacity will be used for the remainder of the licence period (section 49(8)(c)).

4.31 Subsections (a) and (b) are self-explanatory; Ofcom cannot allow a change in reservation within the first three years of operation of a small-scale radio multiplex service, or where the reserved capacity is being used by C-DSPs.

4.32 In assessing whether a small-scale radio multiplex licensee has met the requirement in sub-section (c), we propose that we would need to see evidence from the licensee that it has pro-actively (and recently) contacted all existing C-DSP licence holders and analogue community radio licensees based in the multiplex broadcast area to check that they do not wish to broadcast a service on the multiplex, either currently or in the near future. The licensee must have acted in good faith in dealing with such organisations. In this context, we note that while we consider it reasonable for broadcasters using reserved capacity to contribute to the costs of operating the multiplex, the purpose of the reservation is to create downward pressure on carriage costs compared with those occupying unreserved capacity. We would therefore expect the terms offered to C-DSPs for use of unoccupied reserved capacity to be more favourable than for unreserved capacity, and to reflect a genuine attempt to fill the available reserved capacity.

4.33 Even if it appears to us that the three conditions have been met, Ofcom must consult on the licensee's proposal under section 49A(6). In such circumstances, we propose to publish a preliminary view, and consider representations before agreeing or rejecting the request.

Information requirements on carriage fees and services carried

4.34 The Order proposes to apply a modified version of section 54 of the 1996 Act, in particular by adding subsections (1)(i) and (j).

4.35 Section 54(1)(i) as modified requires the licensee to publish, *"information, in such manner as OFCOM considers appropriate, as to the payments to be made by the holder of community and local digital sound programme licences for the broadcasting of their services under the licence"*. Therefore, we propose to require all small-scale radio multiplex licensees to publish a current 'rate card' on their website, and to provide Ofcom with details of the carriage fees currently being paid by existing programme service providers on the multiplex.

4.36 Section 54(1)(j) as modified requires the licensee to provide to Ofcom, *"information, in such manner as OFCOM considers appropriate, on the community and local digital sound programme services provided for broadcasting by means of the service (including whether any community digital sound programme service is using digital capacity reserved in pursuance of section 49A)."*

4.37 The purpose of the above provision is to ensure that Ofcom has up-to-date information on the programme services being carried on a small-scale radio multiplex service, but without requiring multiplex licensees to obtain explicit consent for changes to their programme service line-ups (as is required for holders of national and local radio multiplex licences, and has been the case for the ten trial small-scale radio multiplex services). This will enable Ofcom to identify where DSP and C-DSP services are broadcasting for the purposes, for example, of standards complaints. It will also enable Ofcom to monitor the use of reserved capacity. We therefore propose to include licence conditions requiring small-scale radio multiplex licensees to maintain on their websites up-to-date information on the programme services they are carrying, as well as to notify Ofcom in advance of changes to that list (including whether or not the services listed occupy reserved capacity).

5. Small-scale radio multiplex licences: advertisement and award

5.1 This section explains how Ofcom proposes to advertise small-scale radio multiplex licences, the criteria against which the applications will be judged, and how we can be expected to interpret these criteria when making licence award decisions.

Advertisement of licences

5.2 We propose to advertise small-scale radio multiplex licences in batches. This approach will allow us to better manage the roll-out of small-scale radio multiplex services across the UK. We plan to advertise the first batch of small-scale radio multiplex licences promptly following the completion of the consultation process.

5.3 In determining the order in which we will advertise small-scale radio multiplex licences, and the timescale for awards, we propose to have regard to the following factors:

- the level of likely demand from service providers based on expressions of interest received;
- the desirability of ensuring a broad geographical spread across the UK in early licence awards;
- population size (i.e. prioritising areas where the greatest numbers of consumers stand to benefit from new small-scale radio multiplex services);
- spectrum availability and management considerations;
- prioritising trial multiplex areas[13], noting that trial licences are due to expire in early 2020 and it would not be optimal for consumers receiving services via trial multiplexes to experience a loss of service;
- prioritising areas with full local radio multiplex services ahead of those where existing local radio multiplex services currently have vacant capacity; and
- managing the workload involved in licensing significant numbers of small-scale radio multiplex services (and associated C-DSPs given applications will open alongside those for small-scale radio multiplex licences) within the resources available to Ofcom.

Question 4: Do you agree with the factors we are proposing to take into account in deciding the order and timescale in which Ofcom will advertise small-scale radio multiplex licences?

5.4 For each batch of multiplex licence advertisements, Ofcom proposes to simultaneously open (on a permanent basis) the licence application window for C-DSP services wanting to broadcast in the same geographical areas as those designed to be covered by the multiplex licences being advertised (see details of the C-DSP application process in Section 7).

[13] These are: Aldershot, Birmingham, Brighton, Bristol, Cambridge, Glasgow, London, Manchester, Norwich and Portsmouth.

5.5 We will publish a planned timetable for advertising small-scale radio multiplex licences alongside our statement at the conclusion of this consultation, based on the factors we decide to apply following this consultation.

5.6 Small-scale radio multiplex licence advertisements will be open for 12 weeks, to allow interested parties to assemble the relevant information and apply. Depending on the number of licences advertised and the volume of applications received, we will seek to make awards as soon as possible after the application deadline has expired.

Application form and technical plan

5.7 Full details of how an application should be presented will be set out in the Invitation to Apply ('ITA') for a small-scale radio multiplex licence.

5.8 Section 50(4)(a) of the 1996 Act as modified by the Order would require applicants to pay an application fee as specified by Ofcom in its notice advertising the licence. The application fee for a small-scale radio multiplex licence will be £500, which must be paid by the application deadline.

5.9 The questions listed in the application form and the information requested will, taken together, enable Ofcom to consider an applicant's proposals against the various legislative requirements.

5.10 Because of the need to assess applications for small-scale radio multiplex licences in light of the characteristics set out in statute, some of the information required by the application form will not be directly related to on-air broadcasting activities.

5.11 Should they be successful in their application, applicants will be required to complete an Original Declaration form prior to the launch of the small-scale radio multiplex service to ensure that the prospective licensee is compliant with all the provisions of the Broadcasting Act 1990, the 1996 Act (as modified by the Order) and the 2003 Act.

5.12 It will be the applicant's responsibility to ensure that Ofcom is provided with compete applications as set out in the ITA, since applications may neither be amended, nor new material introduced, once the application deadline has passed. We may, however, contact applicants should it be necessary to seek clarification of any of the proposals or information provided.

5.13 For transparency, after the closing date, all applications (except for any sections containing confidential information) will be published on the Ofcom website.

5.14 The decision as to whether or not, and to whom, to make a licence award will be taken by Ofcom, and each application will be considered on the basis of how far the proposals appear, in Ofcom's opinion, to meet the assessment criteria.

5.15 The award decision will be announced as soon as practicable after the it has been taken. Where awards have been made, we also propose to publish the key determining factors which led to our decision.

Provision of a technical plan

5.16 Section 50(4)(b) of the 1996 Act as proposed to be amended by the Order requires applicants to submit a technical plan as a key part of their application. Specifically, it requires that this plan must include:

- the parts of the area or locality specified by Ofcom in advertising the licence which would be within the coverage area of the service;
- the timetable in accordance with which that coverage would be achieved; and
- the technical means by which it would be achieved.

5.17 Section 50(3) as modified by the proposed Order allows Ofcom to issue guidance as we consider appropriate. In relation to the technical plan, we would expect as a minimum that it should include:

a) **A description of the area intended to be served and a prediction of expected coverage.** The applicant should state what prediction tool and assumptions have been used in producing this prediction. Ofcom will carry out its own assessment of the coverage that each applicant's technical plan is predicted to achieve. A description of the planning model and the assumptions Ofcom expects to make when modelling coverage can be found at Annex 2[14].

b) **Assessment of overlap with local radio multiplex services.** Applicants should ensure that their proposed transmitter arrangement does not result in the coverage area of the small-scale radio multiplex service overlapping more than 40% of the population within the licensed area of any existing local radio multiplex service (unless, in exceptional circumstances, Ofcom itself has decided to advertise a wider area). When advertising small-scale radio multiplex licences, Ofcom will provide details of each local radio multiplex service's licensed area and population. An example of the information we propose providing for one local radio multiplex service area is given at Annex 4 and 4a, together with further guidance on how this may be used.

c) **Transmitter site information**. This will need to include details of proposed transmitter location(s), power(s) and antenna(s). Ofcom will require the information in a standard format (further details are provided at Annex 5 and 5a).

d) **Assessment of the risk of 'hole punching' occurring in the coverage of other radio multiplex services.** When a new DAB transmitter is brought on-air using a transmission site that is not currently used by other DAB broadcasters, it is possible that, for listeners close to the new transmitter site, reception of other DAB radio services could be affected. This is an effect known as 'hole punching', or Adjacent Channel Interference ('ACI'). Applicants should therefore assess what risk their proposed transmitters present to causing loss of reception for other DAB radio services and consider how that risk can be minimised. This is important to consider at the design stage, to avoid the situation where other licensees and/or Ofcom object to a

[14] Ofcom will confirm the planning model it proposes to use and any associated assumptions in each invitation to apply.

transmitter coming on air on the basis that it would lead to a disproportionate loss of listeners to other services. Further information on this is available in Ofcom's Technical Policy Guidance for DAB licensees.

e) **A timetable for delivery**. This should set out when the various components forming the technical plan will be ready to enter service. It should include details of the applicant's progress in legal and procurement matters, such as the status of agreements with landlords for gaining access to premises or transmitter sites. In this context, we note that the legislation imposes a strict 18-month deadline on launch from the date of licence award (see paragraphs 4.15 and 4.16), so we would expect a realistic timetable completing within that period.

5.18 Because of the importance of the size of the proposed coverage area, the technical plan that is submitted by applicants is an extremely important part of the application. We will not accept variations to an applicant's technical plan once applications have been submitted, although we reserve the right to seek clarifications on any aspects that are unclear. We would encourage applicants to ensure they take advice from a competent engineer to assist them in putting together their technical plan.

5.19 Once a licence has been awarded, the successful applicant must follow the process of liaison set out in our published technical policy guidance referred to above. This states that the new licensee must submit to Ofcom evidence of agreement on ACI issues with other radio multiplex licensees during the period between the licence award and the launch of the small-scale radio multiplex service. It is possible that the results of the liaison process could require changes to the applicant's the technical plan, which could in turn result to changes in coverage. Ofcom would need to approve any such changes.

Licence award criteria

5.20 The Order proposes that small-scale radio multiplex licences shall be competitively awarded, and modifies section 51 of the 1996 Act to provide the following criteria for award:

- the extent of the coverage area (within the area or locality specified in Ofcom's award notice) proposed to be achieved by the applicant as indicated in its technical plan (section 51(2)(a));
- the ability of the applicant to establish the proposed service (section 51(2)(c));
- the desirability of awarding the licence to an applicant that (i) is a person providing or proposing to provide a community digital sound programme service in that area or locality; or (ii) has as a participant a person providing or proposing to provide a community digital sound programme service in that area or locality (section 51(2)(ca));
- the extent to which there is evidence that, amongst persons providing or proposing to provide community or local digital sound programme services in that area or locality, there is a demand for, or support for, the provision of the proposed service (section 51(2)(f)); and

- whether, in contracting or offering to contract with persons providing or proposing to provide community or local digital sound programme services, the applicant has acted in a manner calculated to ensure fair and effective competition in the provision of those services (section 51(2)(g));

5.21 We set out below how we propose to apply these criteria when assessing applications for small-scale radio multiplex licences.

Extent of proposed coverage area

5.22 When inviting applications for small-scale radio multiplex licences we will define coverage areas in advance which we are calling 'polygon areas'. In two larger areas known as 'macro areas' we have grouped polygon areas together as there is likely to be insufficient spectrum available to allocate frequencies to every polygon area in these macro areas. We will in all areas seek proposals from applicants for coverage areas based upon the polygons.

5.23 The considerations we propose under this criterion are as follows:

- **Extent of proposed coverage** - we will consider how much of the population contained within the coverage area polygon is predicted to be served by the transmitters proposed in the applicant's technical plan. We will also assess how much population overspill falls outside of the polygon area, and applicants should ensure the degree of overspill is limited (see paragraph 5.28).
- **Compatibility with the overall spectrum plan** – We will assess the interference that the applicant's proposed transmitters are predicted to put into the areas where the same frequency is being (or is planned to be) used. For polygons within macro areas, we will only be able to specify interference constraints in advance into polygon areas that lie outside the macro area.
- **Degree of overlap with local radio multiplex services –** we will assess the population in the coverage overlap with the licensed area of any local radio multiplex services. Section 50(2A)(c) refers to the desirability of ensuring that the population of any overlap with the licensed area of a local radio multiplex service is less than 40% of the total licensed area population of the local radio multiplex service in question and, unless we specify in our notice that the particular local circumstances may involve exceeding that threshold on an exceptional basis, we would not license small-scale radio multiplex services where this would involve overlaps which exceed that level.

5.24 Our coverage area plan, published at Annex 1, sets out potential licence areas for small-scale radio multiplex services. The plan comprises polygons and macro areas, representing notional coverage areas that we have developed using the principles set out in Section 3.

5.25 For each of the polygons, we have provided an estimate of the number of households within the potential coverage area, and an indication of the degree of overlap with existing local radio multiplex services.

5.26 Our coverage area plan does not presume the use of any particular transmitter sites, and it is up to applicants to propose the transmitter locations they wish to use within the polygon areas to achieve the coverage they desire.

5.27 We expect the coverage area specified by an applicant to be reasonably closely correlated to the polygon which forms the basis for the licence we have advertised for that location. This is to help maintain compatibility with the overall frequency plan, and to meet the demand we identified in planning the polygons as appropriately as possible.

5.28 We understand, however, that the nature of terrestrial radio transmission means that some coverage 'overspill' may occur, so we may allow applicants to exceed the coverage area of the polygon with two important provisos. Firstly, the overspill should be as limited as reasonably possible and, in any event, not generally exceed 30% of the population contained within the original polygon. Secondly, as noted below, where the small-scale radio multiplex service (including any overspill) overlaps with the licensed area of a local radio multiplex service, the population within that overlap must not exceed 40% of the total population within the local radio multiplex service's licensed area.

5.29 We will prefer applicants that propose to cover a larger proportion of the population covered by the advertised polygon over those who propose to cover less of it, whilst minimising overspill. This is because the former represents a more efficient use of spectrum, and is likely to be more attractive to programme service providers.

5.30 In two areas of the country, our preliminary planning suggests that we cannot be confident of finding a frequency for every polygon area. In those areas, we propose to cluster the polygons into larger 'macro' areas, and invite proposals as a batch from applicants wishing to provide a small-scale radio multiplex service within the macro areas.

5.31 Our notice of advertisement in those cases will make clear that we are seeking proposals for small-scale radio multiplex services based on the identified polygon areas within those larger areas, and not proposals to serve either the area as a whole or a new area made up of parts of multiple polygons. Small scale radio multiplex services within the macro areas will also be subject to the limitation of not overlapping more than 40% of the population within the licensed area of any local radio multiplex services serving those areas.

Question 5: Do you agree with our proposed approach for assessing the technical plans submitted in small-scale radio multiplex licence applications?

Ability to establish the proposed service

5.32 In assessing applications for small-scale radio multiplex licences against this criterion, we plan to focus on three main areas:

- **Financial** - we will want to know the cost of establishing the new small-scale radio multiplex service, and how these costs will be met. We will be particularly interested in evidence of guaranteed funding, existing assets and initial charges to programme services to be carried on the multiplex service that will be used to meet these costs.

- **Expertise and experience** - we will want to know who will be responsible for managing the small-scale radio multiplex service, the identity of key staff and/or contractors, and what relevant experience and expertise they have. In particular, we will be seeking information from applicants on the relevant experience and qualifications possessed by their technical staff, or the contractors that they are proposing to use.
- **Technical** - we will want to know how the technical facilities will be set up, and whether the proposed technical plan is realistic and deliverable. This will include matters such as the technical resources the applicant has available through in-house or external expertise; what has been done and still needs to be done in getting access to transmitter sites (for example landlord agreements); assessments of the likelihood of causing 'hole-punching' to other DAB services; and the planned launch date.

Question 6: Do you agree with our proposed approach for assessing the ability of applicants to establish their proposed small-scale radio multiplex service?

Involvement of C-DSP service providers in the applicant group

5.33 Section 51(2)(ca) of the 1996 Act as proposed to be amended by the Order requires Ofcom to take into account the desirability of awarding a small-scale radio multiplex licence to a body corporate that is providing - or proposing to provide - a C-DSP service in the locality being advertised (or involving such a person as a participant in the licence-holding company).

5.34 Accordingly, we propose to take this into account. However, the legislation makes clear this is a desirable rather than a required feature, and it would not prevent a licence award to applicants not involving a C-DSP service provider directly, particularly to the extent they demonstrate, notwithstanding the lack of direct involvement, demand or support from C-DSP service providers (see below). We therefore encourage applications both from applicants directly involving C-DSP service providers in their group, and those who can otherwise demonstrate demand and support from such providers.

Demand or support from potential programme service providers

5.35 Section 51(2)(f) of the 1996 Act as proposed to be amended by the Order requires Ofcom to take into account evidence that the applicant has support from providers interested in having their existing or planned programme services carried on the proposed multiplex.

5.36 The evidence we propose to consider can come from existing holders of DSP licences, or from programme service providers who intend to apply for (or have already applied for) local DSP or C-DSP licences. We do not propose to be prescriptive regarding the nature of the evidence provided, and we do not propose to require applicants to provide us with a full line-up of services they intend to provide on their multiplex service, or details about the content of those services. However, preference will be given to applicants who can demonstrate that they will be in a position to carry a number of programme services on both reserved and unreserved capacity, giving Ofcom confidence that their small-scale radio multiplex service will be financially viable and make efficient use of the spectrum.

5.37 We note that the Order proposes to modify section 51(2) of the 1996 Act to remove subsections (d) and (e) which require us to consider the particular characteristics of DSPs proposed to be carried, and there are equivalent modifications of section 50 to remove the need for these details to be provided by applicants. Accordingly, and in line with a streamlined assessment process for a high number of small-scale radio multiplex services, we do not propose to make a detailed comparative assessment of service line-ups. Instead, we will simply be looking at the level of support from potential C-DSPs and DSPs.

Fair and effective competition

5.38 Section 51(2)(g) of the 1996 Act as proposed to be amended by the Order requires Ofcom to assess whether, in contracting or offering to contract with programme service providers, the small-scale radio multiplex licence applicant has acted in a manner calculated to ensure fair and effective competition in the provision of such services. We consider that this requirement seeks to support competition and ensure that prospective service providers are treated fairly, and have an opportunity to contract with a prospective multiplex licensee.

5.39 In assessing applications against this criterion, we will need to have confidence that the prospective small-scale radio multiplex service operator has approached a wide range of potential service providers, and in particular those currently holding either a community radio or local commercial analogue licence in the area. Negotiations that have taken place between the small-scale radio multiplex licence applicant and potential service providers (including the selection criteria for such providers) need to have been demonstrably fair, and that the terms of any contract for service provision must be fair and non-discriminatory.

5.40 The type of evidence we may require from the small-scale radio multiplex licence applicant to inform our assessment of this criterion is likely to include records of contact and discussions which take place prior to, and during, the multiplex licence application process, and the submission of proposed carriage contracts.

Non-award of licences

5.41 There are certain scenarios in which Ofcom may not award a small-scale radio multiplex licence that it has advertised. The most likely of these scenarios are as follows:

- Despite previous expressions of interest and other indicators of potential demand, there are no applicants.
- Ofcom is not satisfied, in relation to the criteria to which we must have regard when deciding whether to award a licence, that awarding a licence to any applicant would represent efficient use of spectrum.

5.42 Ofcom's presumption would be that following a non-award in an advertised area, a small-scale radio multiplex licence for the same area would generally be considered for re-advertisement only once all the batches of multiplex licences have been awarded. The

decision to re-advertise will also depend on whether we think that we will be able to make an award, and whether spectrum remains available.

6. Community digital sound programme licences: conditions and requirements

What is a C-DSP licence?

6.1 The Order proposes to introduce a new category of licence, the Community Digital Sound Programme ('C-DSP') licence, through applying sections 60 to 62 of the 1996 Broadcasting Act with modifications.

6.2 C-DSP licences have been designed specifically for community radio stations wishing to broadcast on small-scale radio multiplex services. While one policy objective in creating C-DSP licences is to provide a pathway to digital for existing analogue community radio services, C-DSP licences are also intended to encourage the development of new radio services wishing to broadcast a community, rather than commercially oriented, service to a particular area.

6.3 Many conditions in the new C-DSP licences will be familiar both to Digital Sound Programme ('DSP') licensees under the 1996 Act, and to analogue community radio licensees under the Broadcasting Act 1990 (as modified by the Community Radio Order 2004).

6.4 Like analogue community radio stations, the holders of C-DSP licences will need to meet certain community radio characteristics, including the delivery of "social gain", to the communities they have been licensed to serve. They will also have similar restrictions as currently apply to holders of analogue community radio licences relating to how much income they may obtain from the sale of on-air advertising and sponsorship.

6.5 A C-DSP licence will not be an essential requirement to broadcast on a small-scale radio multiplex service. Programme services can also be broadcast under an existing DSP licence, which – unlike C-DSP licences – do not require their holder to deliver social gain to an identified community.

6.6 Unlike the licences for analogue community radio stations, C-DSP licences will not have any spectrum attached to them. As explained in Section 4, C-DSP licence-holders will be able to apply to multiplex operators to use capacity on a small-scale radio multiplex service that has been ring-fenced for use only by C-DSP licensees ('reserved capacity').

6.7 Every small-scale radio multiplex service will have enough reserved capacity to accommodate at least three C-DSP services (the actual amount of reserved capacity will be specified by Ofcom when advertising the small-scale radio multiplex licences).

6.8 C-DSP licences may also be used to broadcast on unreserved capacity on a small-scale radio multiplex service (for example, if the reserved capacity on a multiplex is full).

6.9 C-DSP licences can be used to broadcast a programme service on a local radio multiplex service, although there will not be any capacity reserved on local radio multiplex services for the carriage of C-DSP services.

6.10 Some community radio stations may find that a DSP licence may better serve their purposes than the new C-DSP licence. DSP licences will not provide access to reserved capacity, but nor do they include social gain requirements. Like C-DSP licences, DSP licences have no spectrum attached to them, and can be used to broadcast on both local and small-scale radio multiplex services.

6.11 It should be noted that while a DSP licence can be used to cover the broadcast of a number of different programme services (from the same provider) on a variety of different local or small-scale radio multiplex services around the country, the Order requires that there must be a separate licence held for each C-DSP service.

6.12 This rest of this section provides more detailed information about eligibility to hold, and the conditions to be included in, C-DSP licences. Note that in several key respects, the Order would apply the 1996 Act without modifications, and we would therefore propose to include standard licence conditions which are very similar to those included in existing DSP licences.

6.13 However, there are some areas in relation to which the Order would modify the 1996 Act, or where slightly different considerations apply to C-DSP licences. These, which we will discuss first, are as follows:

- Eligibility and ownership restrictions
- The definition of 'community' and requirement to deliver social gain
- Key Commitments
- Funding restrictions

Eligibility and ownership restrictions

6.14 As with existing analogue community radio licences, the C-DSP licensee must be a body corporate which is not profit distributing. A body corporate is most commonly a registered company, although it can also include, for example, some bodies created by statute. An individual or an unincorporated registered charity on its own is not a body corporate (although individuals and charities are able to set up registered companies).

6.15 Unlike analogue community radio licences, there is no restriction on the number of C-DSP licences an organisation may hold. However, as already noted, the Order requires that there must be a separate licence held for each C-DSP service.

6.16 A C-DSP licence can only be held by the entity which is the provider of the programme service. So, for example, if an analogue community radio station also wishes to broadcast on a small-scale radio multiplex, the same entity which holds the analogue licence would also need to hold the C-DSP licence.

6.17 C-DSP licences will require that the licence holder does not enter into, or remain subject to, any arrangement which allows another holder of a Broadcasting Act licence, the BBC or the Welsh Authority to exercise an undue influence over the nature or content of the programmes included in the service.

Definition of 'community' and requirement to deliver social gain

6.18 In the context of licensing C-DSP services the word "community" is defined by regulation 2(1) of the Order. This is very similar to the position for analogue community radio, but with a slight adjustment to the second part to be clear that the community with interests or characteristics in common must be physically based within the particular area or locality:

- "persons living, working or undergoing work or training in a particular area or locality", or
- "persons who, in a particular area or locality, have one or more particular interests or characteristics in common".

6.19 C-DSP services are required by regulation 2(2) of the Order to deliver "social gain" for the community or communities described above, through the achievement of the following three objectives:

- "the facilitation of discussion and the expression of opinion";
- "the provision (whether by means of programmes included in the service or otherwise) of education or training to individuals not employed by the person providing the service"; and
- "the better understanding of the particular community and the strengthening of links within it".

6.20 The above three objectives closely reflect those for analogue community radio but, importantly, the objective for analogue community radio services referring to *"the provision of sound broadcasting services to individuals who are otherwise underserved by such services"* has deliberately been omitted for C-DSP services. This reflects the point noted above that C-DSP licences do not come with spectrum allocations and instead come with an opportunity, but not an automatic right, to broadcast via capacity on a small-scale radio multiplex service. There is therefore no upper limit imposed by spectrum availability on the number licensed within a locality, and no restriction on multiple C-DSP services within a locality seeking to cater for the same or a similar community to one another. This also means that, if there are already analogue community radio services broadcasting in an area, such services will be able to apply for a licence to broadcast the same service on DAB as well as analogue.

6.21 A C-DSP licensee's objectives may also include the achievement of other objectives of a social nature, as set out in section 2(3) of the Order, again closely reflecting the position for analogue community radio:

- "the delivery of services provided by local authorities and other services of a social nature and the increasing, and wider dissemination, of knowledge about those services and about local amenities";
- "the promotion of economic development and of social enterprises";
- "the promotion of employment";
- "the provision of opportunities for the gaining of work experience";

- "the promotion of social inclusion";
- "the promotion of cultural and linguistic diversity"; and
- "the promotion of civic participation and volunteering".

6.22 C-DSP services should not be provided for commercial reasons, or for the financial or other material gain of the individuals involved in providing the service (regulation 4(2) of the Order). Regulation 4(4) of the Order requires that any profits made by a C-DSP licensee should be used for securing or improving the future provision of the service, or for the delivery of social gain to the members of the public or the community that the service has been licensed to serve.

Key Commitments

6.23 Section 61B of the 1996 Act as proposed to be amended by the Order would require Ofcom to include conditions in every C-DSP licence to ensure that the character of the service, and in particular the delivery of social gain, is maintained. This reflects the existing position for analogue community radio. As a result, each C-DSP service will have specific 'Key Commitments' written into its licence.

6.24 Broadly speaking, Ofcom will take a similar approach to the structure of Key Commitments to that which we currently take with analogue community radio services. However, there are relevant differences between analogue and digital provision that mean we propose some differences in Key Commitments.

6.25 Firstly, unlike analogue community radio licences, C-DSP licences will allow - but not require - a service to broadcast. This is because a licensee would need to agree carriage with the multiplex operator. We therefore intend to be clear that Key Commitments only apply to a C-DSP licence if the service is in fact broadcasting.

6.26 Secondly, as already noted, there is not a limitation on the number of C-DSP services licensed in any one locality. By increasing capacity for services, small-scale radio multiplexing also substantially reduces (but does not altogether remove) spectrum availability constraints on the number of community and commercial services within a locality. Reflecting this, the Order removes the requirement relating to *"the provision of sound broadcasting services to individuals who are otherwise underserved by such services"*.

6.27 Whilst it remains the case that Ofcom's general duties under the 2003 Act refer to the need to secure the availability of a *"wide range"* of services, the way in which we intend to achieve this in relation to the broadcast content of C-DSP services is focused more around capacity (including both the creation of capacity on small-scale radio multiplexes and the reservation of such capacity) rather than through relatively prescriptive Key Commitments related to a station's on-air output.

6.28 For that reason, we propose that Key Commitments in C-DSP licences will focus principally on the provision of 'social gain'[15], accountability to the target community and the ability of members of that community to participate in the service. Relative to analogue community radio, we will focus less on specific programming requirements, although the Key Commitments will still need to include a description of the character of service (see paragraph 6.29, below). This approach is more consistent with the 'service descriptions' currently required by DSP licences, and reflects the fact that prescriptive requirements for particular programming output involve significant resources to enforce, and this may be disproportionate where the number of community services significantly increases as a result of the increased capacity being made available as a result of small-scale multiplexing.

6.29 We propose that the Key Commitments in C-DSP licences will need to include:

- The service name[16]
- The small-scale radio multiplex service on which the C-DSP service is to be carried
- A description of the character of service, including:

a) the target community;

b) where the target community is located (which may be a smaller area than that served by the small-scale radio multiplex service on which it plans to secure carriage); and

c) a description of the main purpose of the radio service, and its primary function or activities.

6.30 As with existing community radio analogue licences, there will also be 'standardised' Key Commitments with regard to providing the target community with social gain, accountability and opportunities to participate in the service. However, holders of multiple C-DSP licences should note that the delivery of the Key Commitments for each individual licence (for example, opportunities for members of the local community to participate in the running of the service) will need to be specific to that licence and the particular locality and community being served.

6.31 Given that a C-DSP licensee must provide social gain and opportunities to participate for, and be accountable to, its target community, we consider that the Key Commitments should stipulate, as they do for analogue community radio, that the studio from which the service is broadcast is located within the coverage area of the small-scale radio multiplex service on which it is carried.

[15] Defined as the facilitation of discussion and the expression of opinion; the provision of education or training to individuals not employed by the person providing the service; and the better understanding of the particular community and the strengthening of links within it.

[16] Ofcom has no jurisdiction over trademarks or intellectual property, therefore notifying Ofcom of a station name does not confirm the right to use it. It is the responsibility of the applicant to check the legal implications of using a particular station name or identification. Names that may cause offence or confusion with existing radio services broadcasting to the same area may not be permitted by Ofcom.

Question 7: Should Ofcom require that the studio of a C-DSP licensee be located within the coverage area of the small-scale radio multiplex service it plans to broadcast on? Please explain the reasons for your view.

Funding restrictions

6.32 Section 61A of the 1996 Act as proposed to be modified by the Order covers advertising and sponsorship restrictions. Ofcom would be required to ensure C-DSP licences have similar restrictions as currently apply to holders of analogue community radio licences relating to how much income they may obtain from the sale of on-air advertising and sponsorship.

6.33 Where a licensee holds corresponding C-DSP and analogue community radio licences (defined in section 61A(7) as where there is an 80% overlap in programme content, with at least 50% broadcast simultaneously), the funding rules will apply across both the analogue and C-DSP licences together, rather than separately. That is, the single "fixed revenue allowance" of £15,000 would apply to the combined services, and relevant income from advertising and sponsorship above that allowance would be limited to 50% of total relevant income across both the services. We therefore propose that corresponding services should report income together in a single annual financial report.

Apportionment of income for DSP licensees

6.34 Where a licensee holds an analogue community radio licence and a DSP (rather than C-DSP) licence for a corresponding service (under the definition referred to in paragraph 6.33) we propose that the licensee should apportion their income equally across their analogue and digital licences (unless they have compelling reasons to argue that their income should be apportioned differently).

6.35 In light of the introduction of C-DSP licences, we are proposing to introduce this rule to help ensure that the funding rules relating to community radio services are applied in practice fairly, and in line with the legislation. For example, the holder of an analogue community radio licence who also holds a corresponding DSP licence for the simulcast of that programme service on DAB should not, in our view, be able to claim that all of its advertising and sponsorship income derives from the DSP licence (which, unlike the analogue community radio licence, does not have any advertising and sponsorship income restrictions).

6.36 DSP licensees would not need to seek any prior approval to depart from equal apportionment. However, if they have departed from it, licensees should, if required, be able to explain why the apportionment is reasonable, and provide evidence to support this.

Question 8: We propose that holders of corresponding analogue community radio and DSP licences apportion their income equally across their licences, unless there are compelling reasons why a different apportionment is reasonable. Do you agree with our suggested approach?

Other key licence conditions

6.37 The Order proposes to apply section 43 of the 1996 Act without modification to C-DSP services and, as such, many general licence conditions would apply to C-DSP services as they do to DSP and analogue community radio services. This is under the separate, but closely related provisions, of the Broadcasting Act 1990 as modified by the Community Radio Order 2004.

6.38 C-DSP licensees will have to comply with the Ofcom Broadcasting Code as applicable to all broadcast radio services. It contains, amongst other provisions, requirements relating to editorial standards and commercial content. C-DSP licence holders will also have to comply with the UK Code of Broadcast Advertising. In certain circumstances, statutory sanctions may be imposed if licence conditions (including Code rules) are breached. These may include a requirement to broadcast a statement of findings, a financial penalty, or the suspension or revocation of a licence. Licensees will also continue to be required to retain recordings of all broadcast output and ancillary material for a period of 42 days and produce them to Ofcom on request.

6.39 C-DSP licences will, in common with other licences, also contain provisions requiring the licensee to provide Ofcom with information for the purpose of exercising our functions under the Broadcasting Acts, the Communications Act and the Order. This includes the provision of documents such as accounts estimates and returns, advance notice of a change of control, and annual reports. Once they have been broadcasting for more than a year, an annual finance report will be required from each licensee. This will enable Ofcom to check whether stations are operating within the income limits set out in their licence conditions. Ofcom will require licensees to use a form provided by us for this financial report.

6.40 Licensees will also be required to keep up to date information on how they are delivering their Key Commitments, should Ofcom need to see this information.

6.41 Each C-DSP licensee will be required to pay an annual fee to Ofcom. This will be listed in our published tariff of fees, amended from time to time by Ofcom. We propose that the annual tariff for a C-DSP licence will be £100. The annual licence fee will be payable while the C-DSP licence is in issue, regardless of whether a service is actually being broadcast. There will not be any fee charged for C-DSP licence variations or transfers.

Licence variations, transfers and surrenders

6.42 Should a C-DSP licence holder wish to vary its licence, most notably its Key Commitments, it would need to approach Ofcom to obtain written approval. Ofcom may consent to the

change, but must be satisfied that the departure would not substantially alter the character of the service having regard to the selection criteria.

6.43 Where Ofcom believes that the proposed changes would substantially alter the existing character of service, the programme service provider would need to apply for a new C-DSP licence that reflects the desired changes (and surrender the old licence). This is different, therefore, to the process for analogue community radio licences, where Ofcom is required to hold a public consultation on changes to Key Commitments that we believe would substantially alter the character of service. This difference reflects the fact that analogue community radio licences are awarded through 'beauty parade' licence contests, while C-DSP licences will be issued on demand, subject to applications meeting the necessary licensing criteria (see Section 7).

6.44 Similarly, a C-DSP licence will only be permitted to be transferred from one body to another with the written consent of Ofcom. The legislation stipulates that we cannot give our consent unless we are satisfied that the person (body or company) to whom it is proposed to transfer the licence would be in a position to comply with all of the licence conditions.

6.45 A licence transfer request can only come from the current holder of the licence. The person to whom it is proposed to transfer the licence will be asked to provide information about the company or body that will hold the licence; evidence of funds available to the new licence-holder to sustain the service going forward; and other information as deemed appropriate by Ofcom at the time of the request. The Order gives Ofcom the power to grant a C-DSP licence that remains in force for an indefinite period of time. If a licence holder wishes to surrender its licence at any point, it can do so.

Coverage and technical matters

6.46 The coverage achieved by a C-DSP service will be the coverage of the small-scale radio multiplex service it is carried on.

6.47 C-DSP licensees will need to agree with the multiplex licensee the technical arrangements for delivering their programme service to the multiplex. These arrangements will typically include how and where the C-DSP programme service will be provided to the multiplex operator, and the technical format in which it is to be delivered.

7. Community digital sound programme licences: application and grant

7.1 The grant process for C-DSP licences will not involve a competition between applicants. This is because a C-DSP licence is not granted with any allocation of spectrum, and there is no limitation on the number of C-DSP licences that can be granted in a locality. However, Ofcom must still have regard to certain matters specified in the Order when deciding whether or not to grant a C-DSP licence. It should not be assumed that Ofcom will grant a C-DSP licence to every person who applies for one; licences give access to reserved capacity on small-scale multiplexes and it is important that services operating under C-DSP licences generate the required social gain to justify that status.

7.2 In this section we describe how we propose to invite applications for C-DSP licences, and the process we propose to follow when considering applications and deciding whether or not to grant licences.

Applying for a C-DSP licence

7.3 As explained in Section 4, we plan to license the small-scale radio multiplex services in batches.

7.4 We propose that a prospective C-DSP service provider will only be able to apply for a C-DSP licence once we have invited applications for the small-scale radio multiplex licence upon which their proposed C-DSP service is intended to be broadcast. This approach will help us to process applications more quickly than would be the case if there were no restrictions on when applications for C-DSP licences could be submitted. It is also in the interests of potential C-DSP services not to have to apply and pay licence fees before the licence for the multiplex on which they may wish to broadcast has even been advertised, let alone launched.

7.5 Prospective providers of C-DSP services may wish to wait until they know for certain that the small-scale radio multiplex service on which they wish to broadcast has been awarded a small-scale radio multiplex licence (i.e. not to apply immediately that the multiplex licence is advertised). But we also recognise that there may be some prospective C-DSP service providers who would prefer to be granted a C-DSP licence at the earliest opportunity, even if they don't yet know whether the small-scale radio multiplex service on which they wish to be provided will be awarded a licence.

7.6 We do not propose to close the "window" for C-DSP applications once open, unless we are unable to award a small-scale multiplex licence following the advertisement. This is because new C-DSP services may emerge at any time after a small-scale multiplex has been launched.

7.7 We think our proposed approach strikes the right balance between these two potential preferences, while ensuring that the licensing of small-scale radio multiplex services is not impeded by the need to also process large numbers of applications for C-DSP licences.

7.8 Our proposal means that prospective applicants could apply for a C-DSP licence either before or after the corresponding small-scale radio multiplex licence has been awarded. However, depending on levels of demand, C-DSP licence applicants applying after the award of the small-scale radio multiplex licence may run the risk that the multiplex licensee may have already allocated the reserved capacity.

7.9 We recognise that the timing of being awarded a C-DSP licence may be important in terms of securing an agreement with a small-scale multiplex operator for access to reserved capacity, particularly in areas where demand is relatively high, and notwithstanding that Ofcom will seek to reflect anticipated demand considerations in determining the level of the reservation on a particular small-scale multiplex. We therefore plan to process applications for C-DSP licences in each batch on a first come, first served basis.

Question 9: Do you agree with our proposal that a prospective C-DSP service provider will be able to apply for a C-DSP licence once we have invited applications for the small-scale radio multiplex licence upon which their proposed C-DSP service is intended to be provided?

Assessment of C-DSP licence applications

7.10 For every C-DSP licence application, we will need to assess whether the applicant's proposals meet the necessary characteristics of a C-DSP service as set out in the Order.

7.11 Section 60(6) of the 1996 Act as proposed to be modified by the Order states that Ofcom must, in determining whether to grant the licence in question, have regard to the extent to which:

a) "the provision of the proposed service would result in the delivery of social gain to the public or the relevant community";

b) "members of the relevant community are given opportunities to participate in the operation and management of the proposed service"; and

c) "the applicant is accountable to the relevant community in respect of the provision of the proposed service".

7.12 The "relevant community" is defined in section 72 as proposed to be amended by the Order as "the community or communities which the service is intended to serve".

7.13 The following paragraphs below set out how we propose to evaluate these criteria in the licence award process.

Provision of social gain

7.14 When we consider whether to grant a C-DSP licence, Ofcom will assess the extent of the social gain being proposed. Therefore, applicants will be encouraged to set out what they

aim to do, as well as information about any proposed partnerships with other groups or agencies, and with reference to their own experience in training and other social gain activity.

7.15 Whilst C-DSP licences will be granted in a non-competitive process and therefore we will not weight social gain provided by the applicant against that provided by others, we are mindful that a C-DSP licence brings with it access to reserved capacity, and therefore we would expect all such licensees clearly to demonstrate how their service provides material social gain. In so doing, we note that a C-DSP licence is not a necessary condition of accessing the small-scale multiplex layer; those who cannot demonstrate social gain as defined in the Order remain able to apply for DSP licences.

Participation in the operation and management of services

7.16 The legislation requires Ofcom to have regard to the extent to which an applicant's proposals give members of the relevant community opportunities to participate in the operation and management of the proposed service. An application might, for example, set out how groups or individuals from the target community can get involved in different station activities, and how volunteers can get involved in the management of the service.

7.17 As noted above, we intend for licence Key Commitments for C-DSPs to be relatively less prescriptive in relation to content than those for analogue community radio services. However, this places a greater focus on participation (and accountability as below) and we would therefore expect a clear statement of how this will be secured and how the applicant will demonstrate it is being achieved when broadcasting.

7.18 Because of these requirements, we consider it appropriate to require applicants to have their main studio base in the locality. This requirement will be captured in the licensee's Key Commitments. (See consultation question about this proposal in Section 5).

Accountability

7.19 Ofcom will be required to consider how an applicant proposes to make itself accountable to the relevant community in respect of the provision of its proposed service. Applicants will need to set out clearly how they intend to address this requirement, including reference to both the formal and informal ways they will be accountable to their target community.

7.20 As noted above in relation to participation, there will be a particular focus in relation to C-DSPs on participation and accountability, so applicants would be expected to provide precision about how this will be secured and measured.

Holding multiple licences

7.21 Unlike holders of analogue community radio licences, there is not a restriction on holding more than one C-DSP licence. It is therefore important to emphasise that Ofcom's assessment will relate to how an application provides social gain, participation and

accountability in addition to that already provided by other licences held by the applicant or related persons.

7.22 For example, a C-DSP service operating in one locality which wishes also to offer a similar service in a neighbouring area would not be able to rely on continuing to provide social gain, participation and accountability in the original area. It would need to demonstrate, particularly by reference to those members of the community living, working and studying in the new area, material additional benefits. Where it cannot do so, the service may still wish to offer the service in the neighbouring area, but this would need to be via a local DSP licence.

Completing the application form

7.23 Full details of how a C-DSP licence application should be presented will be set out in the application form. The questions asked in the application form and the information required will be designed to enable Ofcom to consider an applicant's proposals against the various legislative requirements.

7.24 In the application form, we will ask the C-DSP licence applicant to describe the target community that they want to serve. Because the definition of "community" in the Order includes a reference to "a particular area or locality", Ofcom will need to know which area or locality a C-DSP licence applicant intends to serve, within the coverage area of the multiplex. A C-DSP applicant also needs to nominate the radio multiplex service it wishes to be carried on in its application, and to be clear in the description of the target community in its draft Key Commitments.

7.25 Some of the information applicants will be asked to provide will not be directly related to on-air broadcasting activities. For example, with regard to accountability requirements, we may ask how suggestions or criticisms from members of the target community in the broadcast area will be considered and acted upon.

7.26 As part of the application, applicants will be asked to draft their own 'Key Commitments' (see paragraphs 6.23 to 6.31). These will be included in the C-DSP licence in the event of the application being successful. In some cases, Ofcom may have to modify the draft Key Commitments post-licence award in order to ensure that they are fit for purpose and meet the legislative requirements.

7.27 At the end of the application form, applicants will be required to make and sign an 'Original Declaration' to Ofcom regarding various legal issues relating to the applicant body and its participants. This is so we can check whether we are able to grant the applicant a licence, should they be successful in their application.

Application fee

7.28 Each applicant for a C-DSP licence will be required to pay a non-refundable application fee that will be listed in our published tariff of fees. This fee will be £250.

A1. Coverage area plan

A1.1 In this annex we provide details of the preliminary coverage area plan for potential small-scale radio multiplex services. This section contains:

a) Maps showing indicative coverage area polygons, including those in our two identified 'macro areas' (including tables showing polygon area names within the macro areas).

b) For each Nation, a table showing details of the small-scale polygon areas that shows:

i) the area within each polygon (in km^2);

ii) the adult population (aged 15+) contained within each polygon area; and

iii) an indication of the frequency block (either in sub band 2 or a specific sub band 3 frequency block) that we have identified might be used by a small-scale radio multiplex serving the polygon area.

c) For each Nation, a table listing the overlaps of each small-scale polygon with local radio multiplex services that shows:

i) the total adult population contained within the licensed area of the relevant overlapping local radio multiplex service for each small-scale polygon area; and

ii) for each polygon, the adult population contained within any overlap with the licensed area of a local radio multiplex service expressed both as a population count and as a percentage of the adult population within the licensed area of the local radio multiplex service.

A1.2 The population figures in this consultation have been calculated using the planning tool and parameters we intend using for planning small-scale DAB radio multiplexes, as set out in Section 3 and Annex 2 of this document. This planning tool differs from that used by Ofcom to produce our previously-published local DAB coverage plans. Consequently, the population figures contained within local DAB multiplex licence areas may be different to those previously published by Ofcom.

A1.3 The local radio multiplex service population figures contained in this consultation are provided for comparison purposes, as it is important that we use the same planning tool to calculate coverage and count population for both small-scale and local radio multiplex services. They do not supersede those in our existing coverage plans, which remain valid for the local radio multiplex service coverage.

A1.4 Further details on how we have derived the plan are contained in Section 3 of this document.

Polygon and macro area maps

Figure A1-1: Northern Ireland polygon areas

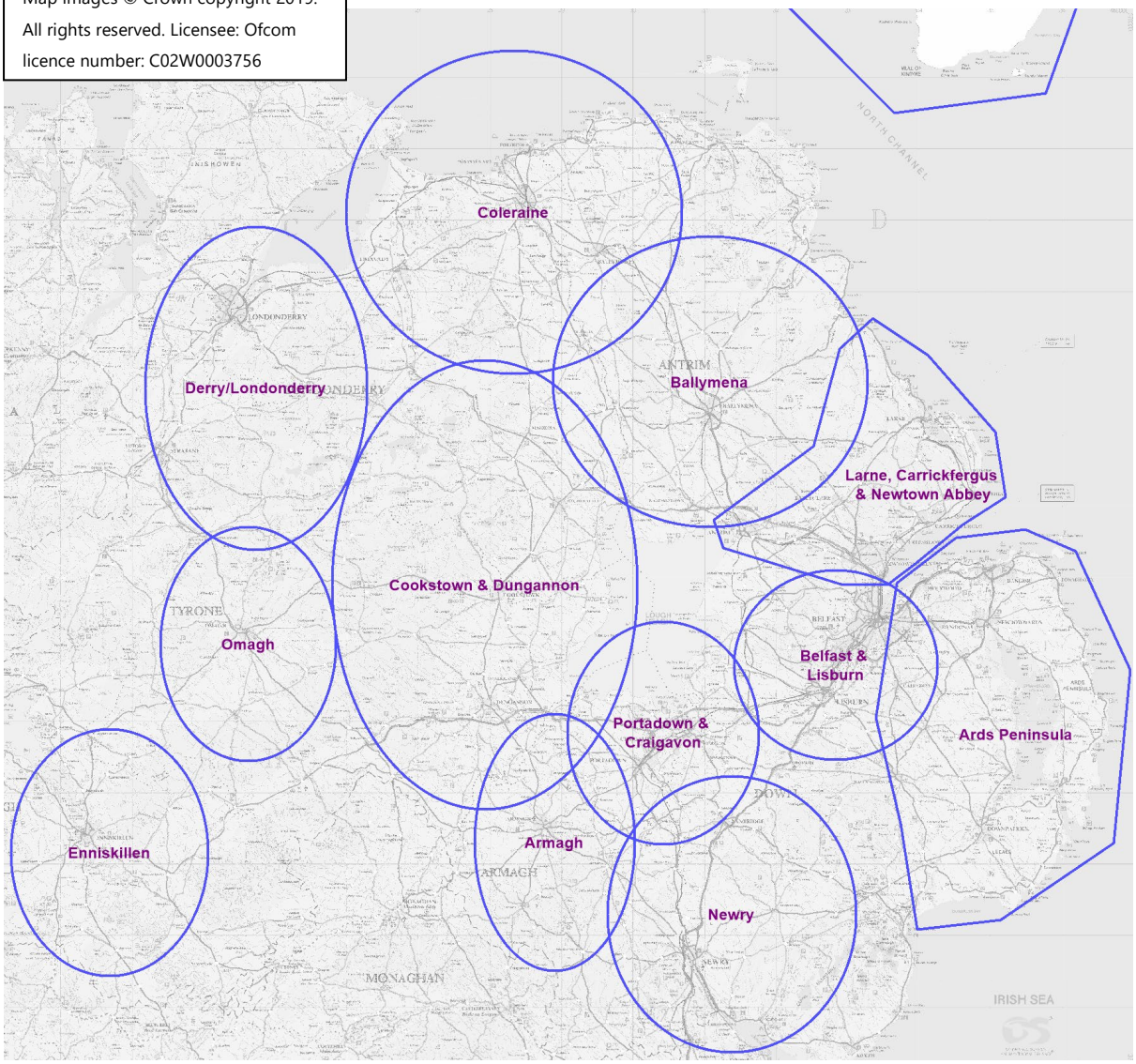


Figure A1-2: Scotland (north) polygon areas

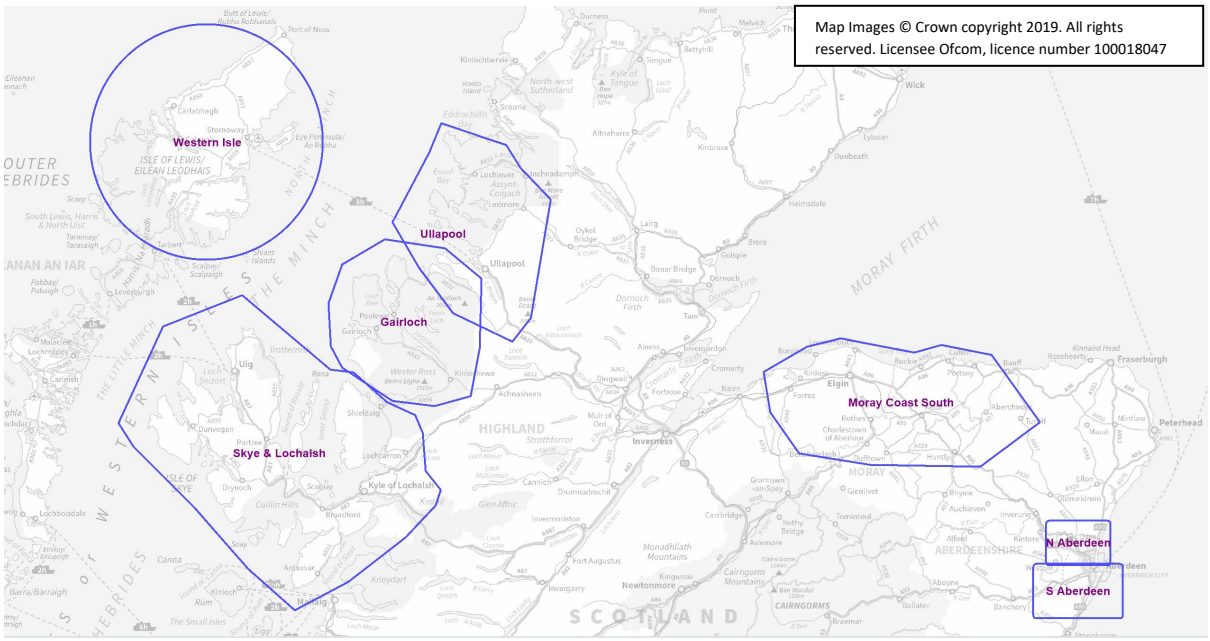


Figure A1-3: Scotland (south) and borders polygon areas

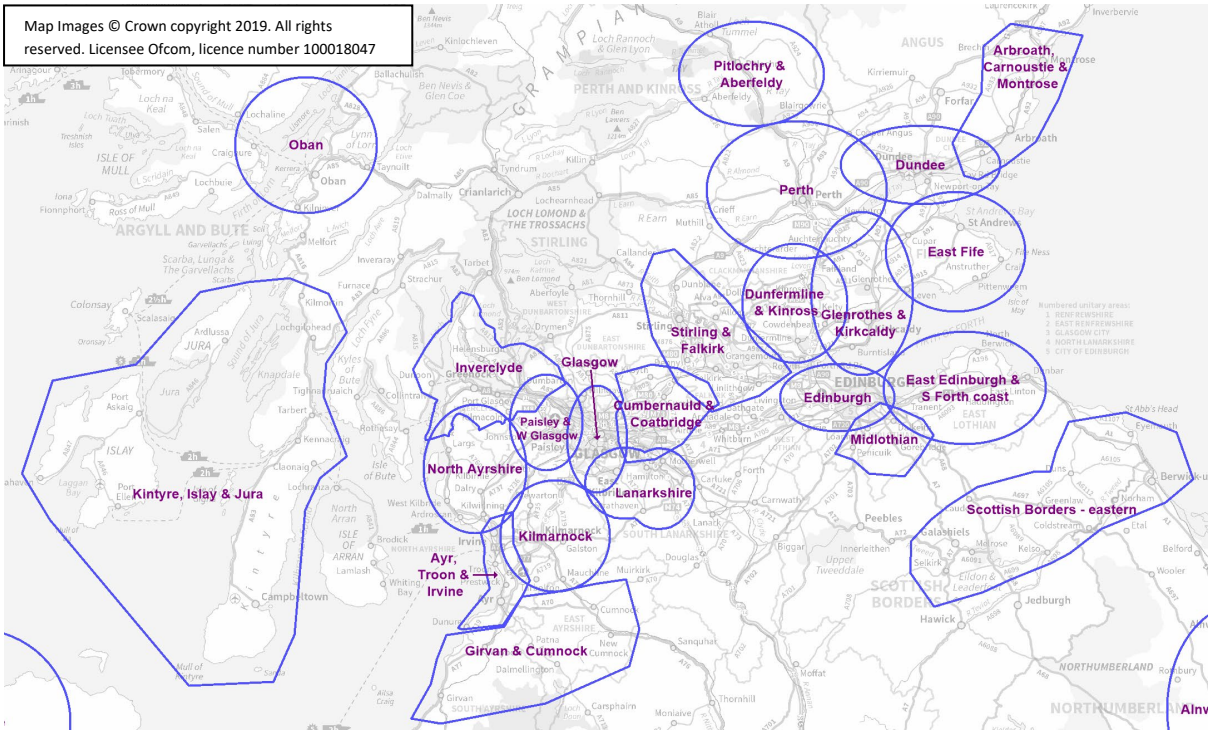
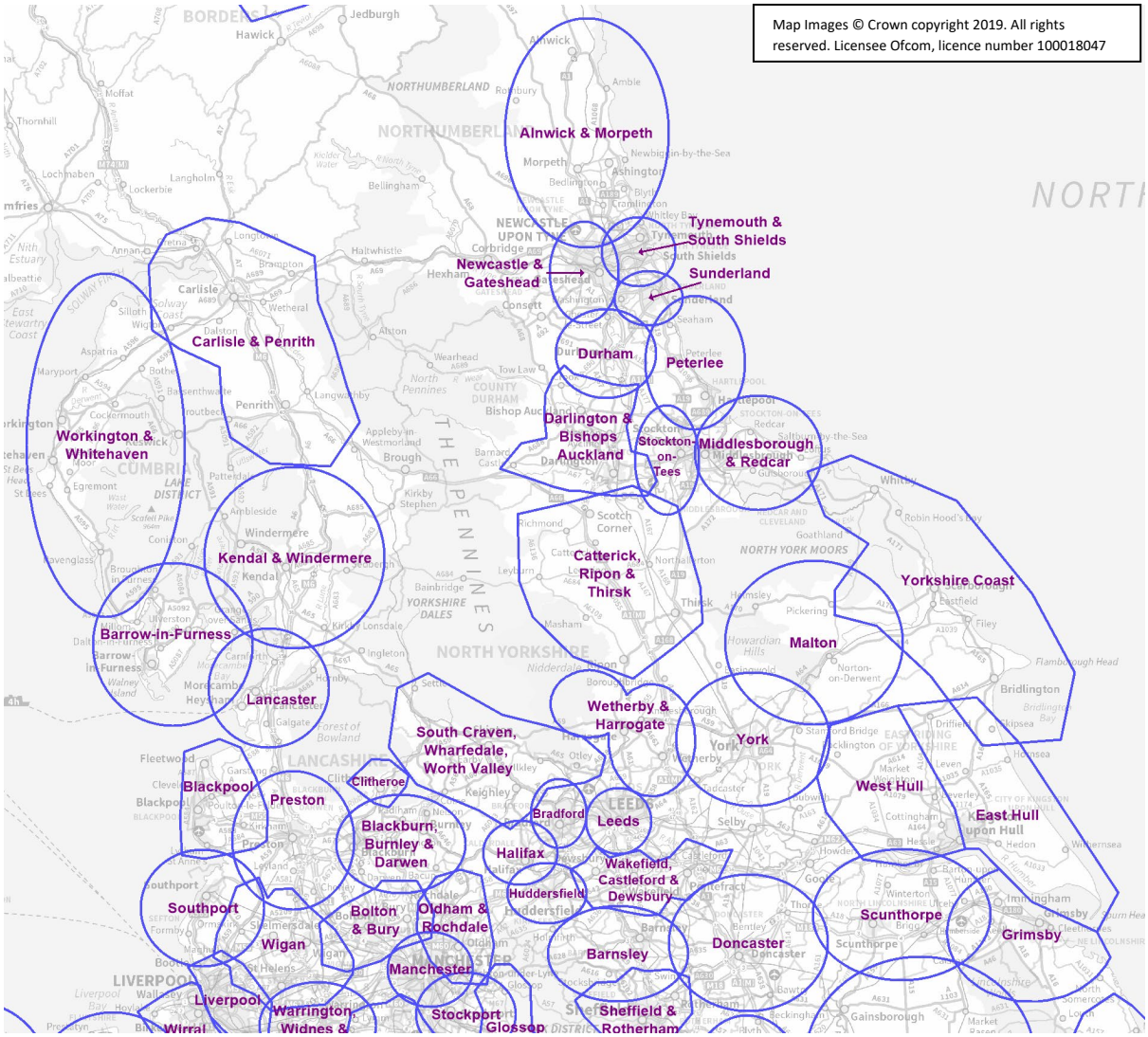
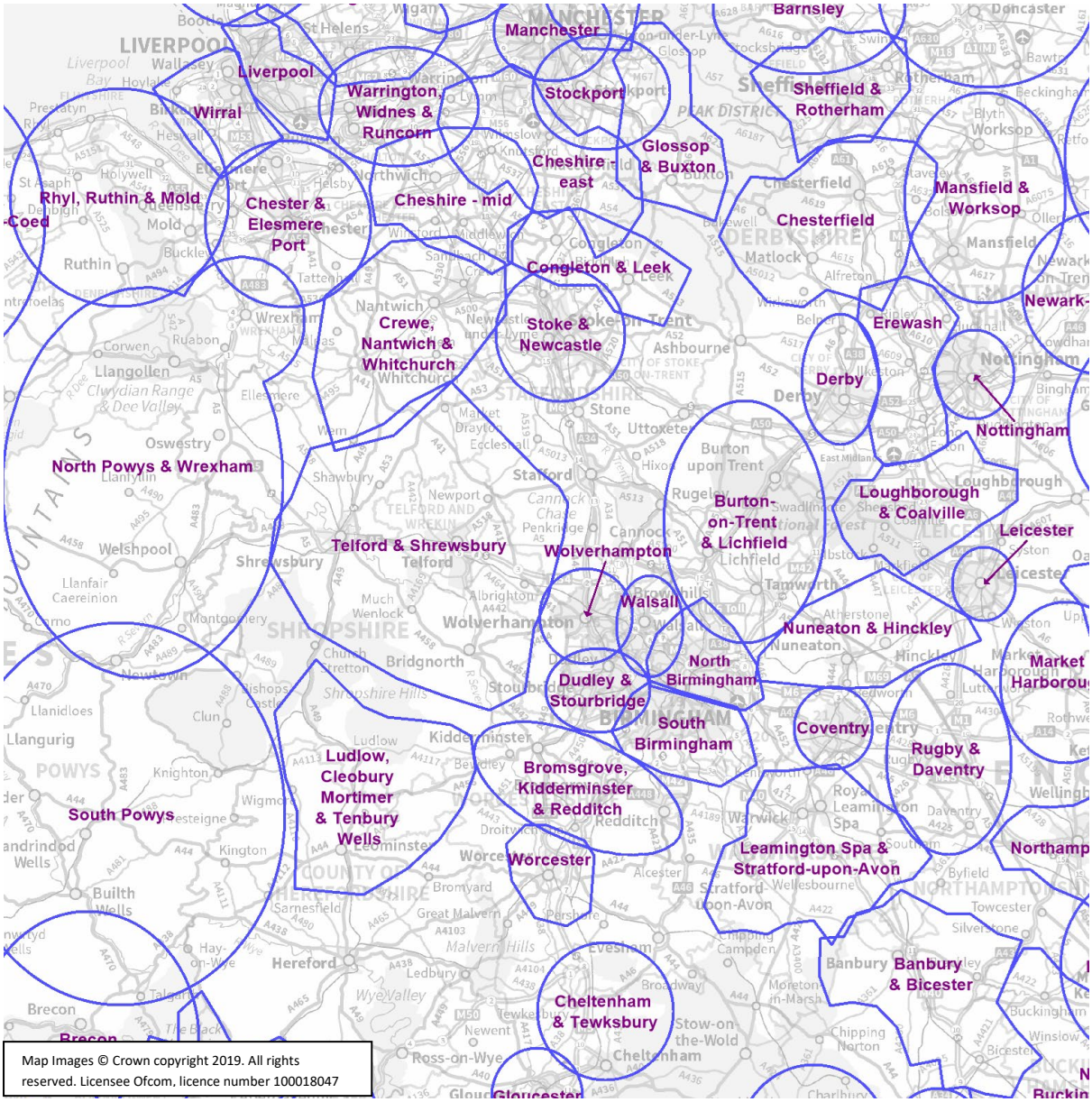


Figure A1-4: England (north) polygon areas



See also Figure A1-10 for details of the north-west macro area

Figure A1-5: England (mid) and border with Wales polygon areas



See also Figure A1-10 for details of the north-west macro area

Figure A1-6: England (mid and east) polygon areas

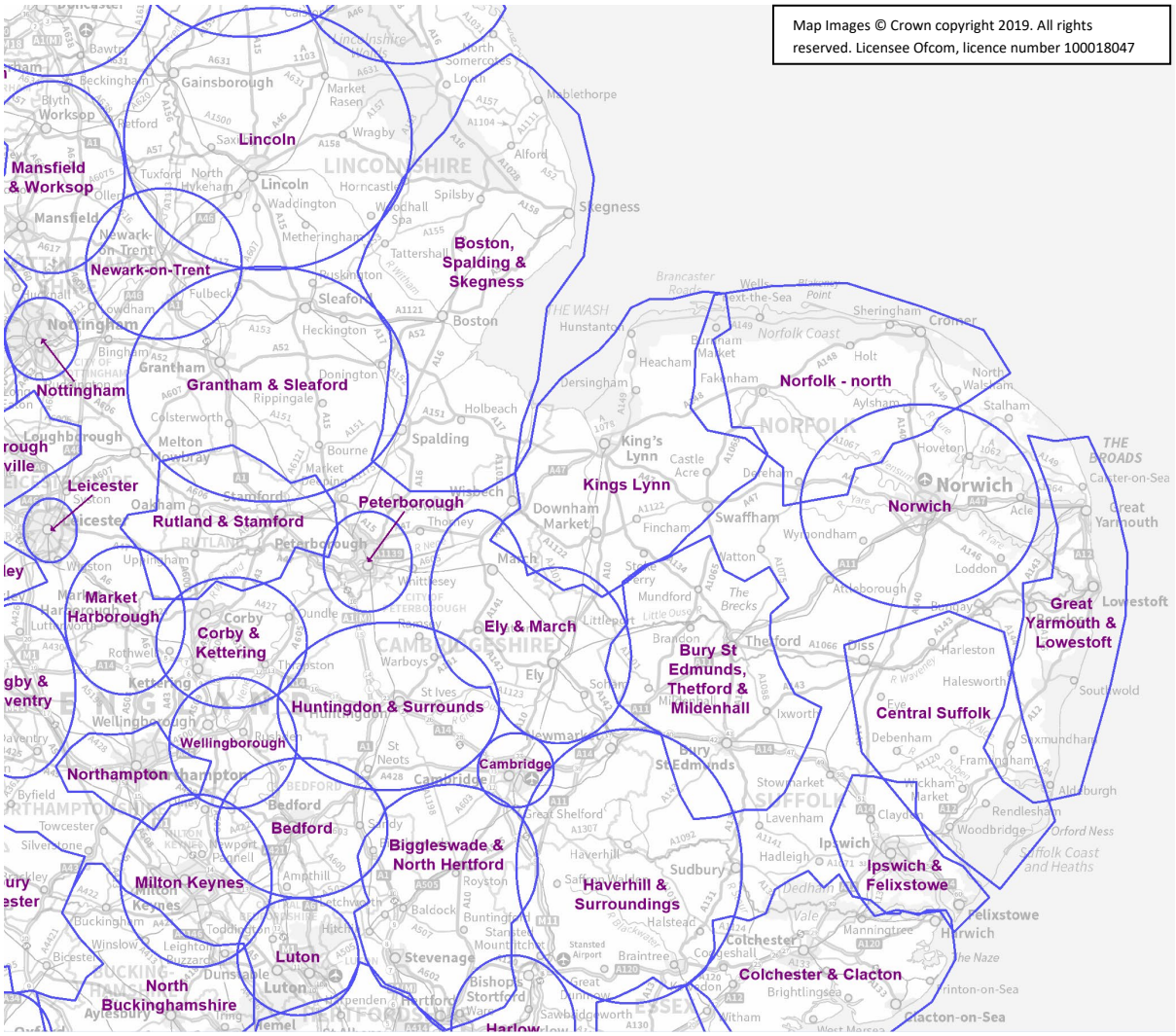
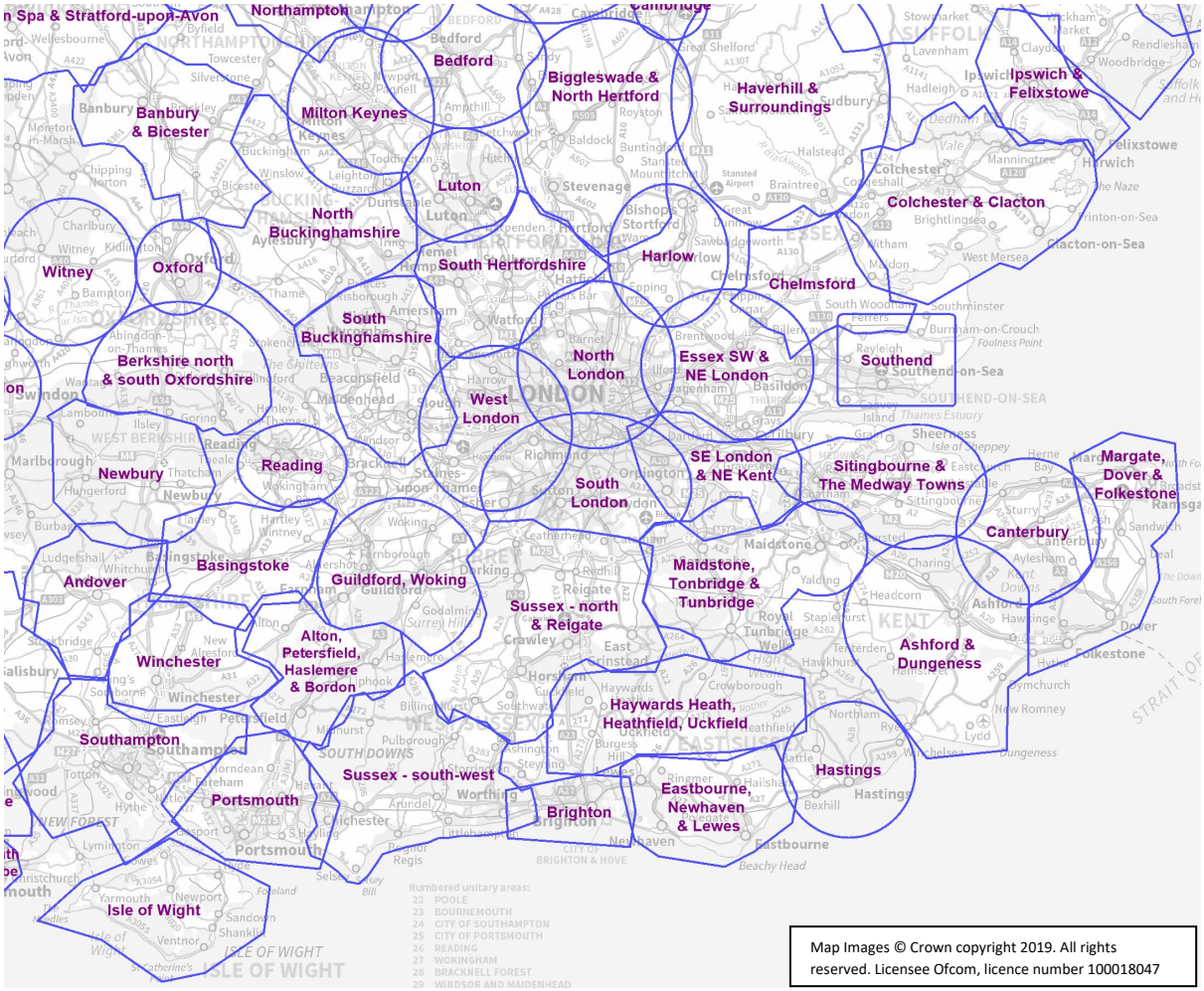


Figure A1-7: England (south east) polygon areas



See also Figure A1-11 for the south-east macro area

Figure A1-8: England (west and south west) polygon areas

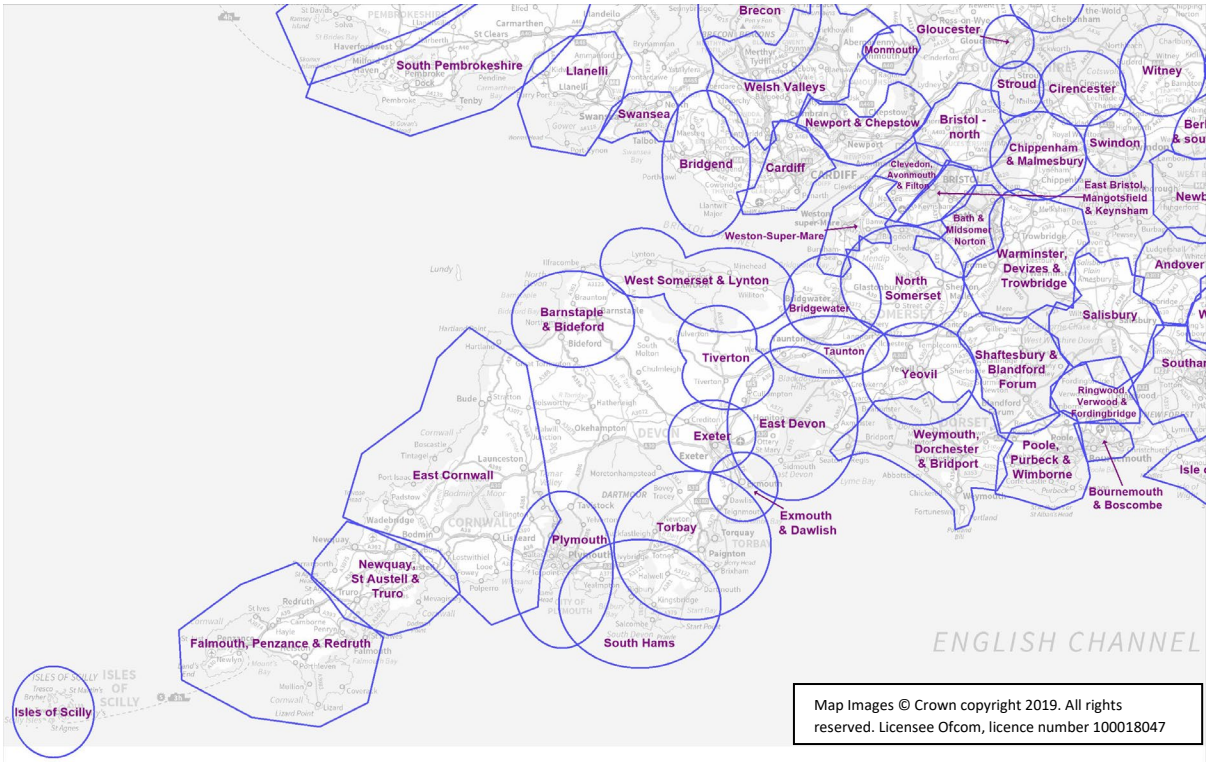
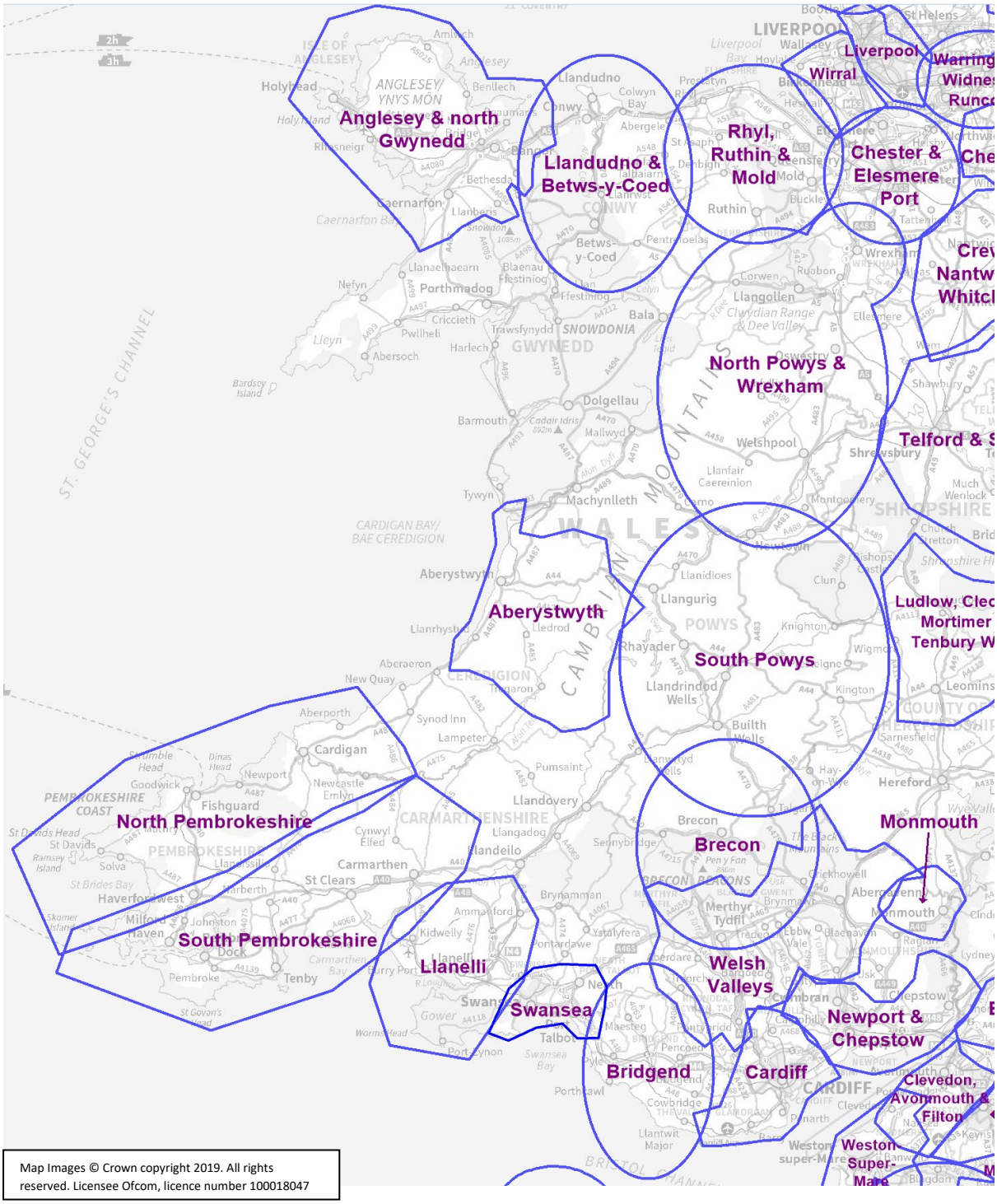


Figure A1-9: Wales polygon areas



Ffigur A1-9: Ardaloedd ‘polygon’ Cymru

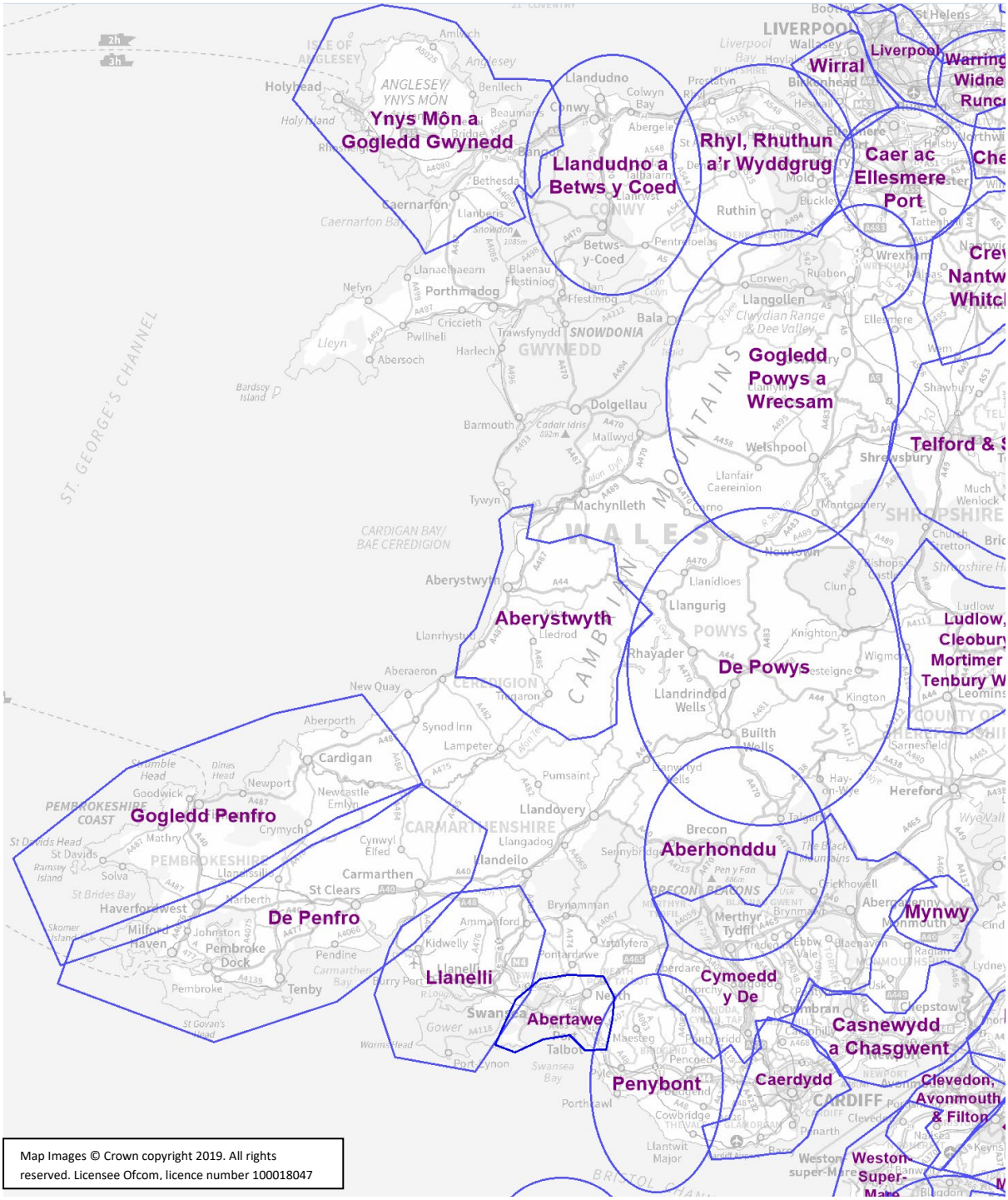


Figure A1-10: North west macro area

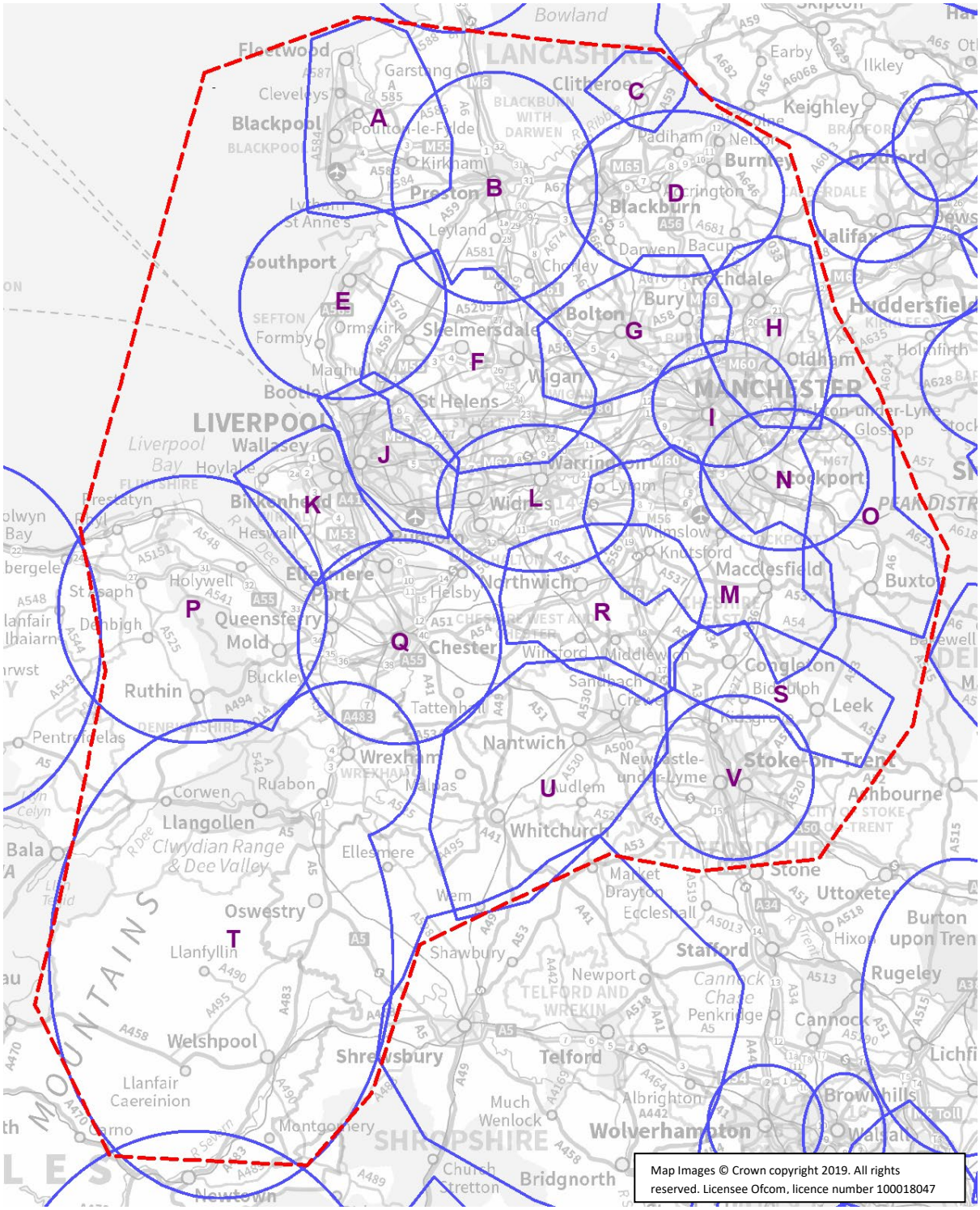


Table A1-1: North west macro area names

Macro Area	Polygon Area Name		Macro Area	Polygon Area Name
A	Blackpool		L	Warrington, Widnes & Runcorn
B	Preston		M	Cheshire - east
C	Clitheroe		N	Stockport
D	Blackburn, Burnley & Darwen		O	Glossop & Buxton
E	Southport		P	Rhyl, Ruthin & Mold
F	Wigan		Q	Chester & Ellesmere Port
G	Bolton & Bury		R	Cheshire - mid
H	Oldham & Rochdale		S	Congleton & Leek
I	Manchester		T	North Powys & Wrexham
J	Liverpool		U	Crewe, Nantwich & Whitchurch
K	Wirral		V	Stoke & Newcastle

Figure A1-11: South east macro area

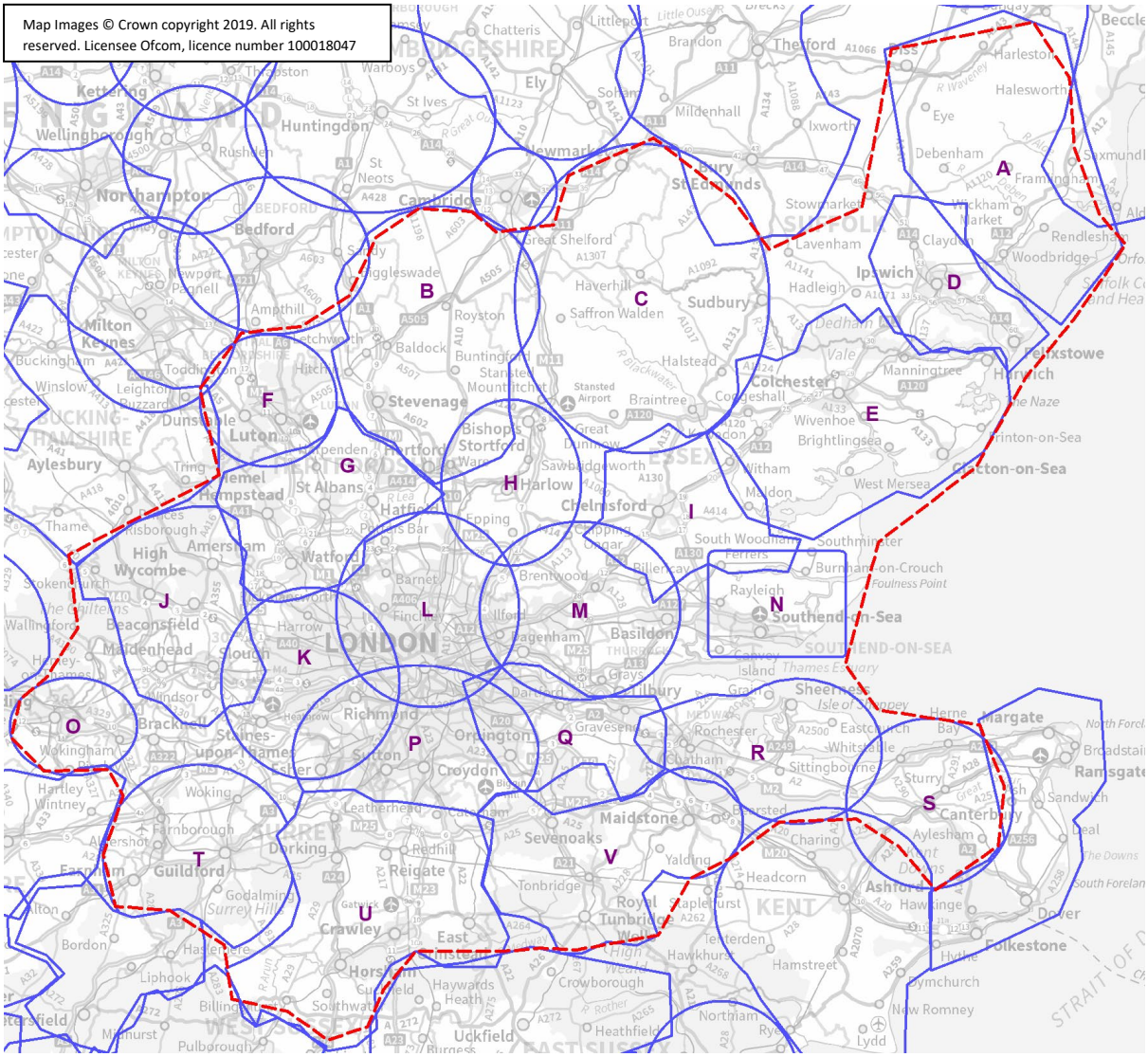


Table A1-2: South east macro area names

Macro Area	Polygon Area Name		Macro Area	Polygon Area Name
A	Central Suffolk		L	North London
B	Biggleswade & North Hertford		M	Essex SW & NE London
C	Haverhill & Surroundings		N	Southend
D	Ipswich & Felixstowe		O	Reading
E	Colchester & Clacton		P	South London
F	Luton		Q	SE London & NE Kent
G	South Hertfordshire		R	Sittingbourne & The Medway Towns

H	Harlow		S	Canterbury
I	Chelmsford		T	Guildford, Woking
J	South Buckinghamshire		U	Sussex - north & Reigate
K	West London		V	Maidstone, Tonbridge & Tunbridge

Population figures, frequency blocks and overlaps

All of the tables in this section are also available in Excel spreadsheet format published alongside this document as Annex 1A. See A2.42 for a description of the frequencies available within macro areas.

England

Table A1-3 Population and nominal frequency blocks for small-scale polygons: England

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Alnwick & Morpeth	1,591	296,271	Yes	
Alton, Petersfield, Haslemere & Bordon	573	98,330	Yes	
Andover	571	72,983	Yes	
Ashford & Dungeness	1,160	140,151	Yes	
Banbury & Bicester	765	121,661	Yes	
Barnsley	571	307,573	Yes	
Barnstaple & Bideford	831	86,071	Yes	
Barrow-in-Furness	1,079	92,161	Yes	
Basingstoke	621	153,951	Yes	
Bath & Midsomer Norton	445	141,275	Yes	
Bedford	629	185,659	Yes	
Berkshire north & south Oxfordshire	677	133,312	Yes	
Biggleswade & North Hertford	1,159	297,513	Yes	
Blackburn, Burnley & Darwen	545	349,992	Macro area	Macro area
Blackpool	458	261,256	Macro area	Macro area
Bolton & Bury	385	531,805	Macro area	Macro area
Boston, Spalding & Skegness	2,327	195,906	Yes	
Bournemouth & Boscombe	173	224,030	Yes	
Bradford	166	335,266	Yes	
Bridgewater	647	121,000	Yes	
Brighton	291	302,227	Yes	
Bristol - north	558	134,599	Yes	
Bromsgrove, Kidderminster& Redditch	535	215,107	Yes	
Burton-on-Trent & Lichfield	892	323,034	Yes	
Bury St Edmunds, Thetford & Mildenhall	1,312	136,640	Yes	
Cambridge	147	135,718	Yes	
Canterbury	564	145,530	Yes	
Carlisle & Penrith	1,810	134,472	Yes	
Catterick, Ripon & Thirsk	1,427	106,141	Yes	
Central Suffolk	1,255	84,066	Macro area	Macro area
Chelmsford	603	204,966	Macro area	Macro area
Cheltenham & Tewksbury	430	146,521	Yes	
Cheshire - east	604	284,670	Macro area	Macro area
Cheshire - mid	508	139,842	Macro area	Macro area
Chesterfield	764	254,195	Yes	
Chippenham & Malmesbury	636	91,336	Yes	
Cirencester	485	40,115	Yes	
Clevedon, Avonmouth & Filton	364	308,353	No	12D

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Clitheroe	100	17,486	Yes	
Colchester & Clacton	1,231	336,533	Macro area	Macro area
Congleton & Leek	356	71,832	Macro area	Macro area
Corby & Kettering	522	150,487	Yes	
Coventry	148	278,517	Yes	
Crewe, Nantwich & Whitchurch	812	131,761	Macro area	Macro area
Darlington & Bishops Auckland	646	210,708	Yes	
Derby	230	244,356	Yes	
Doncaster	905	363,712	Yes	
Dudley & Stourbridge	202	401,667	Yes	
Durham	378	184,372	Yes	
East Bristol, Mangotsfield & Keynsham	255	321,758	Yes	
East Cornwall	3,502	142,842	Yes	
East Devon	1,449	136,187	Yes	
East Hull	1,194	168,275	Yes	
Eastbourne, Newhaven & Lewes	610	205,046	Yes	
Ely & March	1,072	104,865	Yes	
Erewash	382	280,477	Yes	
Essex SW & NE London	726	959,705	Macro area	Macro area
Exeter	452	130,161	Yes	
Exmouth & Dawlish	350	72,571	No	12D
Falmouth, Penzance & Redruth	2,162	178,027	Yes	
Glossop & Buxton	433	88,100	Macro area	Macro area
Gloucester	201	131,796	Yes	
Grantham & Sleaford	1,735	142,727	Yes	
Great Yarmouth & Lowestoft	1,072	186,087	No	11B
Grimsby	749	151,293	Yes	
Guildford, Woking	689	442,769	Macro area	Macro area
Halifax	206	175,720	Yes	
Harlow	476	214,826	Macro area	Macro area
Hastings	493	134,348	Yes	
Haverhill & Surroundings	1,584	220,568	Macro area	Macro area
Haywards Heath, Heathfield, Uckfield	842	155,820	Yes	
Huddersfield	204	204,144	Yes	
Huntingdon & Surrounds	966	149,418	Yes	
Ipswich & Felixstowe	468	189,945	Macro area	Macro area
Isle of Wight	711	117,343	Yes	
Isles of Scilly	496	1,879	Yes	
Kendal & Windermere	1,373	65,665	Yes	
Kings Lynn	1,719	142,182	Yes	
Lancaster	606	118,097	Yes	
Leamington Spa & Stratford-upon-Avon	744	169,614	Yes	
Leeds	185	450,083	Yes	
Leicester	89	308,663	Yes	
Lincoln	1,982	221,467	Yes	

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Clitheroe	100	17,486	Yes	
Colchester & Clacton	1,231	336,533	Macro area	Macro area
Congleton & Leek	356	71,832	Macro area	Macro area
Corby & Kettering	522	150,487	Yes	
Coventry	148	278,517	Yes	
Crewe, Nantwich & Whitchurch	812	131,761	Macro area	Macro area
Darlington & Bishops Auckland	646	210,708	Yes	
Derby	230	244,356	Yes	
Doncaster	905	363,712	Yes	
Dudley & Stourbridge	202	401,667	Yes	
Durham	378	184,372	Yes	
East Bristol, Mangotsfield & Keynsham	255	321,758	Yes	
East Cornwall	3,502	142,842	Yes	
East Devon	1,449	136,187	Yes	
East Hull	1,194	168,275	Yes	
Eastbourne, Newhaven & Lewes	610	205,046	Yes	
Ely & March	1,072	104,865	Yes	
Erewash	382	280,477	Yes	
Essex SW & NE London	726	959,705	Macro area	Macro area
Exeter	452	130,161	Yes	
Exmouth & Dawlish	350	72,571	No	12D
Falmouth, Penzance & Redruth	2,162	178,027	Yes	
Glossop & Buxton	433	88,100	Macro area	Macro area
Gloucester	201	131,796	Yes	
Grantham & Sleaford	1,735	142,727	Yes	
Great Yarmouth & Lowestoft	1,072	186,087	No	11B
Grimsby	749	151,293	Yes	
Guildford, Woking	689	442,769	Macro area	Macro area
Halifax	206	175,720	Yes	
Harlow	476	214,826	Macro area	Macro area
Hastings	493	134,348	Yes	
Haverhill & Surroundings	1,584	220,568	Macro area	Macro area
Haywards Heath, Heathfield, Uckfield	842	155,820	Yes	
Huddersfield	204	204,144	Yes	
Huntingdon & Surrounds	966	149,418	Yes	
Ipswich & Felixstowe	468	189,945	Macro area	Macro area
Isle of Wight	711	117,343	Yes	
Isles of Scilly	496	1,879	Yes	
Kendal & Windermere	1,373	65,665	Yes	
Kings Lynn	1,719	142,182	Yes	
Lancaster	606	118,097	Yes	
Leamington Spa & Stratford-upon-Avon	744	169,614	Yes	
Leeds	185	450,083	Yes	
Leicester	89	308,663	Yes	
Lincoln	1,982	221,467	Yes	

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Liverpool	263	626,682	Macro area	Macro area
Loughborough & Coalville	434	160,019	Yes	
Ludlow, Cleobury Mortimer & Tenbury Wells	879	48,680	Yes	
Luton	375	247,015	Macro area	Macro area
Maidstone, Tonbridge & Tunbridge	917	355,976	Macro area	Macro area
Malton	1,208	47,336	Yes	
Manchester	274	852,714	Macro area	Macro area
Mansfield & Worksop	758	264,808	Yes	
Margate, Dover & Folkestone	742	260,350	Yes	
Market Harborough	473	55,710	Yes	
Middlesborough & Redcar	610	225,436	Yes	
Milton Keynes	695	260,397	Yes	
Newark-on-Trent	626	67,574	Yes	
Newbury	696	93,440	Yes	
Newcastle & Gateshead	300	446,252	Yes	
Newquay, St Austell & Truro	1,053	128,450	Yes	
Norfolk - north	1,562	117,645	Yes	
North Birmingham	245	598,040	Yes	
North Buckinghamshire	998	203,736	Yes	
North London	730	3,640,216	Macro area	Macro area
North Somerset	1,007	105,533	Yes	
Northampton	330	202,538	Yes	
Norwich	1,219	299,519	Yes	
Nottingham	162	394,795	Yes	
Nuneaton & Hinckley	480	223,220	Yes	
Oldham & Rochdale	370	547,423	Macro area	Macro area
Oxford	236	170,349	Yes	
Peterborough	234	150,681	Yes	
Peterlee	563	168,959	Yes	
Plymouth	1,117	288,655	Yes	
Poole, Purbeck & Wimborne	656	173,606	Yes	
Portsmouth	566	444,102	Yes	
Preston	710	370,103	Macro area	Macro area
Reading	261	271,011	Macro area	Macro area
Ringwood. Verwood & Fordingbridge	427	71,802	Yes	
Rugby & Daventry	539	117,784	Yes	
Rutland & Stamford	769	62,414	Yes	
Salisbury	942	101,458	Yes	
Scunthorpe	958	139,594	Yes	
Shaftesbury & Blandford Forum	831	70,874	Yes	
Sheffield & Rotherham	395	523,896	Yes	
Sittingbourne & The Medway Towns	674	327,369	Macro area	Macro area
South Birmingham	294	535,316	Yes	
South Buckinghamshire	739	459,936	Macro area	Macro area
South Craven, Wharfedale, Worth Valley	998	201,349	Yes	

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
SE London & NE Kent	562	776,535	Macro area	Macro area
South Hams	1,476	113,663	Yes	
South Hertfordshire	671	507,549	Macro area	Macro area
South London	758	2,799,064	Macro area	Macro area
Southampton	879	436,990	Yes	
Southend	374	276,970	Macro area	Macro area
Southport	599	185,997	Macro area	Macro area
Stockport	362	528,832	Macro area	Macro area
Stockton-on-Tees	296	174,828	Yes	
Stoke & Newcastle	398	349,389	Macro area	Macro area
Stroud	217	57,532	Yes	
Sunderland	157	221,113	Yes	
Sussex - north & Reigate	1,189	442,716	Macro area	Macro area
Sussex - south-west	1,062	333,840	Yes	
Swindon	308	187,436	Yes	
Taunton	536	103,546	Yes	
Telford & Shrewsbury	1,884	301,844	Yes	
Tiverton	711	44,341	Yes	
Torbay	1,673	251,549	Yes	
Tynemouth & South Shields	214	380,429	Yes	
Wakefield, Castleford & Dewsbury	402	348,490	Yes	
Walsall	156	370,539	Yes	
Warminster, Devizes & Trowbridge	1,088	184,083	Yes	
Warrington, Widnes & Runcorn	431	322,489	Macro area	Macro area
Wellingborough	444	126,922	Yes	
West Hull	856	246,271	Yes	
West London	707	2,267,807	Macro area	Macro area
West Somerset & Lynton	1,216	32,386	Yes	
Weston-Super-Mare	404	137,741	Yes	
Wetherby & Harrogate	617	123,846	Yes	
Weymouth, Dorchester & Bridport	1,160	127,332	Yes	
Wigan	668	577,031	Macro area	Macro area
Winchester	603	76,112	Yes	
Wirral	258	280,633	Macro area	Macro area
Witney	581	77,906	Yes	
Wolverhampton	203	383,794	Yes	
Worcester	197	100,055	Yes	
Workington & Whitehaven	2,207	122,738	Yes	
Yeovil	855	106,029	Yes	
York	857	203,930	Yes	
Yorkshire Coast	2,150	134,451	Yes	

Table A1-4 Polygon population overlaps with local multiplexes: England

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Alnwick & Morpeth	Tyne & Wear	1,475,294	296,271	20.1%
Alton, Petersfield, Haslemere & Bordon	South Hampshire	1,203,463	27,902	2.3%
Alton, Petersfield, Haslemere & Bordon	Surrey	1,126,308	62,699	5.6%
Alton, Petersfield, Haslemere & Bordon	Sussex	1,344,906	7,729	0.6%
Andover	Berkshire & N Hampshire	905,496	53,710	5.9%
Andover	South Hampshire	1,203,463	6,244	0.5%
Andover	Swindon & Wiltshire	614,196	13,029	2.1%
Ashford & Dungeness	Kent	1,413,090	134,292	9.5%
Ashford & Dungeness	Sussex	1,344,906	5,859	0.4%
Banbury & Bicester	Coventry	749,125	1,766	0.2%
Banbury & Bicester	Herts, Beds & Bucks	2,008,567	2,023	0.1%
Banbury & Bicester	Northamptonshire	531,211	3,053	0.6%
Banbury & Bicester	Oxfordshire	531,992	114,819	21.6%
Barnsley	Bradford	934,540	20,571	2.2%
Barnsley	Leeds	1,152,218	1,307	0.1%
Barnsley	South Yorkshire	1,416,988	285,695	20.2%
Barnstaple & Bideford	Exeter, Torbay & N Devon	704,183	86,071	12.2%
Barrow-in-Furness	Cumbria	539,366	92,161	17.1%
Barrow-in-Furness	Morecambe Bay	282,730	92,161	32.6%
Basingstoke	Berkshire & N Hampshire	905,496	126,792	14.0%
Basingstoke	Surrey	1,126,308	27,159	2.4%
Bath & Midsomer Norton	Bristol & Bath	905,061	135,423	15.0%
Bath & Midsomer Norton	Somerset	522,893	11,899	2.3%
Bath & Midsomer Norton	Swindon & Wiltshire	614,196	3,898	0.6%
Bedford	Herts, Beds & Bucks	2,008,567	185,659	9.2%
Berkshire north & south Oxfordshire	Oxfordshire	531,992	121,722	22.9%
Berkshire north & south Oxfordshire	Swindon & Wiltshire	614,196	109	0.0%
Biggleswade & North Hertford	Cambridge	417,895	50,764	12.1%
Biggleswade & North Hertford	Herts, Beds & Bucks	2,008,567	261,919	13.0%
Biggleswade & North Hertford	London III	10,099,018	150,141	1.5%
Blackburn, Burnley & Darwen	Bradford	934,540	4,553	0.5%
Blackburn, Burnley & Darwen	Lancashire	1,287,627	340,956	26.5%
Blackburn, Burnley & Darwen	Manchester	2,640,392	8,492	0.3%
Blackpool	Lancashire	1,287,627	261,256	20.3%
Bolton & Bury	Lancashire	1,287,627	46,397	3.6%
Bolton & Bury	Manchester	2,640,392	531,805	20.1%
Boston, Spalding & Skegness	Lincolnshire	746,575	132,906	17.8%
Boston, Spalding & Skegness	Peterborough	442,822	63,000	14.2%
Bournemouth & Boscombe	Bournemouth & Dorset	653,110	224,030	34.3%
Bradford	Bradford	934,540	306,258	32.8%
Bradford	Leeds	1,152,218	94,875	8.2%
Bridgewater	Somerset	522,893	121,000	23.1%
Brighton	Sussex	1,344,906	302,227	22.5%
Bristol - north	Bristol & Bath	905,061	114,697	12.7%
Bristol - north	Gloucestershire	497,527	26,496	5.3%
Bristol - north	Swindon & Wiltshire	614,196	89	0.0%
Bromsgrove, Kidderminster& Redditch	Birmingham	2,012,043	105,123	5.2%
Bromsgrove, Kidderminster& Redditch	Coventry	749,125	5,826	0.8%
Bromsgrove, Kidderminster& Redditch	Hereford & Worcester	626,760	208,750	33.3%
Bromsgrove, Kidderminster& Redditch	Wolverhampton & Shrewsbury	1,317,388	531	0.04%

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Burton-on-Trent & Lichfield	Birmingham	2,012,043	185,293	9.2%
Burton-on-Trent & Lichfield	Coventry	749,125	1,162	0.2%
Burton-on-Trent & Lichfield	Derbyshire	647,026	125,317	19.4%
Burton-on-Trent & Lichfield	Leicestershire	837,102	4,917	0.6%
Burton-on-Trent & Lichfield	Stoke-on-Trent	957,883	6,345	0.7%
Bury St Edmunds, Thetford & Mildenhall	Cambridge	417,895	1,020	0.2%
Bury St Edmunds, Thetford & Mildenhall	Norfolk	800,879	30,131	3.8%
Bury St Edmunds, Thetford & Mildenhall	Suffolk	588,407	105,489	17.9%
Cambridge	Cambridge	417,895	135,718	32.5%
Canterbury	Kent	1,413,090	145,530	10.3%
Carlisle & Penrith	Cumbria	539,366	128,632	23.8%
Carlisle & Penrith	Dumfries and Galloway	128,016	5,840	4.6%
Catterick, Ripon & Thirsk	North Yorkshire	670,391	103,435	15.4%
Catterick, Ripon & Thirsk	Teesside	800,600	68,921	8.6%
Central Suffolk	Norfolk	800,879	19,506	2.4%
Central Suffolk	Suffolk	588,407	64,560	11.0%
Chelmsford	Essex	1,393,887	201,966	14.5%
Chelmsford	London III	10,099,018	96	0.001%
Cheltenham & Tewksbury	Gloucestershire	497,527	138,831	27.9%
Cheltenham & Tewksbury	Hereford & Worcester	626,760	7,690	1.2%
Cheshire - east	Manchester	2,640,392	284,007	10.8%
Cheshire - east	Stoke-on-Trent	957,883	116,436	12.2%
Cheshire - mid	Liverpool	1,868,201	2,698	0.1%
Cheshire - mid	Manchester	2,640,392	85,886	3.3%
Cheshire - mid	Stoke-on-Trent	957,883	137,144	14.3%
Chesterfield	Derbyshire	647,026	69,830	10.8%
Chesterfield	Nottinghamshire	1,007,638	508	0.1%
Chesterfield	South Yorkshire	1,416,988	183,857	13.0%
Chippenham & Malmesbury	Bristol & Bath	905,061	896	0.1%
Chippenham & Malmesbury	Gloucestershire	497,527	6,107	1.2%
Chippenham & Malmesbury	Swindon & Wiltshire	614,196	90,440	14.7%
Cirencester	Gloucestershire	497,527	33,394	6.7%
Cirencester	Swindon & Wiltshire	614,196	38,567	6.3%
Clevedon, Avonmouth & Filton	Bristol & Bath	905,061	308,353	34.1%
Clitheroe	Lancashire	1,287,627	17,486	1.4%
Colchester & Clacton	Essex	1,393,887	327,953	23.5%
Colchester & Clacton	Suffolk	588,407	8,581	1.5%
Congleton & Leek	Manchester	2,640,392	858	0.0%
Congleton & Leek	Stoke-on-Trent	957,883	71,832	7.5%
Corby & Kettering	Northamptonshire	531,211	144,235	27.2%
Corby & Kettering	Peterborough	442,822	6,018	1.4%
Coventry	Coventry	749,125	278,517	37.2%
Crewe, Nantwich & Whitchurch	North east Wales & west Chesl	754,880	5,532	0.7%
Crewe, Nantwich & Whitchurch	Stoke-on-Trent	957,883	106,209	11.1%
Crewe, Nantwich & Whitchurch	Wolverhampton & Shrewsbury	1,317,388	20,020	1.5%
Darlington & Bishops Auckland	North Yorkshire	670,391	1,928	0.3%
Darlington & Bishops Auckland	Teesside	800,600	186,370	23.3%
Darlington & Bishops Auckland	Tyne & Wear	1,475,294	24,338	1.6%
Derby	Derbyshire	647,026	244,356	37.8%
Derby	Nottinghamshire	1,007,638	2,577	0.3%

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Doncaster	Humberside	777,380	7,063	0.9%
Doncaster	Leeds	1,152,218	22,177	1.9%
Doncaster	Lincolnshire	746,575	6,366	0.9%
Doncaster	North Yorkshire	670,391	1,197	0.2%
Doncaster	South Yorkshire	1,416,988	333,845	23.6%
Dudley & Stourbridge	Birmingham	2,012,043	356,926	17.7%
Dudley & Stourbridge	Wolverhampton & Shrewsbury	1,317,388	298,058	22.6%
Durham	Teesside	800,600	12,944	1.6%
Durham	Tyne & Wear	1,475,294	171,428	11.6%
East Bristol, Mangotsfield & Keynsham	Bristol & Bath	905,061	321,758	35.6%
East Cornwall	Cornwall & Plymouth	732,168	133,906	18.3%
East Cornwall	Exeter, Torbay & N Devon	704,183	8,936	1.3%
East Devon	Exeter, Torbay & N Devon	704,183	104,543	14.8%
East Devon	Somerset	522,893	31,644	6.1%
East Hull	Humberside	777,380	168,275	21.6%
Eastbourne, Newhaven & Lewes	Sussex	1,344,906	205,046	15.2%
Ely & March	Cambridge	417,895	65,864	15.8%
Ely & March	Norfolk	800,879	915	0.1%
Ely & March	Peterborough	442,822	37,524	8.5%
Ely & March	Suffolk	588,407	562	0.1%
Erewash	Derbyshire	647,026	158,248	24.5%
Erewash	Leicestershire	837,102	9,101	1.1%
Erewash	Nottinghamshire	1,007,638	242,656	24.1%
Essex SW & NE London	Essex	1,393,887	319,699	22.9%
Essex SW & NE London	London III	10,099,018	915,841	9.1%
Exeter	Exeter, Torbay & N Devon	704,183	130,161	18.5%
Exmouth & Dawlish	Exeter, Torbay & N Devon	704,183	72,571	10.3%
Falmouth, Penzance & Redruth	Cornwall & Plymouth	732,168	178,027	24.3%
Glossop & Buxton	Derbyshire	647,026	22,619	3.5%
Glossop & Buxton	Manchester	2,640,392	65,481	2.5%
Gloucester	Gloucestershire	497,527	131,796	26.5%
Grantham & Sleaford	Leicestershire	837,102	15,519	1.9%
Grantham & Sleaford	Lincolnshire	746,575	93,394	12.5%
Grantham & Sleaford	Nottinghamshire	1,007,638	11,353	1.1%
Grantham & Sleaford	Peterborough	442,822	35,925	8.1%
Great Yarmouth & Lowestoft	Norfolk	800,879	157,740	19.7%
Great Yarmouth & Lowestoft	Suffolk	588,407	105,902	18.0%
Grimsby	Humberside	777,380	146,871	18.9%
Grimsby	Lincolnshire	746,575	151,293	20.3%
Guildford, Woking	Berkshire & N Hampshire	905,496	4,364	0.5%
Guildford, Woking	London III	10,099,018	380,362	3.8%
Guildford, Woking	Surrey	1,126,308	438,405	38.9%
Halifax	Bradford	934,540	175,720	18.8%
Harlow	Essex	1,393,887	116,216	8.3%
Harlow	Herts, Beds & Bucks	2,008,567	98,610	4.9%
Harlow	London III	10,099,018	174,585	1.7%
Hastings	Sussex	1,344,906	134,348	10.0%
Haverhill & Surroundings	Cambridge	417,895	66,541	15.9%
Haverhill & Surroundings	Essex	1,393,887	104,214	7.5%
Haverhill & Surroundings	Suffolk	588,407	49,813	8.5%

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Haywards Heath, Heathfield, Uckfield	Sussex	1,344,906	155,820	11.6%
Huddersfield	Bradford	934,540	203,942	21.8%
Huddersfield	Leeds	1,152,218	9,898	0.9%
Huntingdon & Surrounds	Cambridge	417,895	88,201	21.1%
Huntingdon & Surrounds	Herts, Beds & Bucks	2,008,567	2,471	0.1%
Huntingdon & Surrounds	Northamptonshire	531,211	211	0.04%
Huntingdon & Surrounds	Peterborough	442,822	58,535	13.2%
Ipswich & Felixstowe	Essex	1,393,887	1,088	0.1%
Ipswich & Felixstowe	Suffolk	588,407	188,857	32.1%
Isle of Wight	South Hampshire	1,203,463	117,343	9.8%
Isles of Scilly	Cornwall & Plymouth	732,168	1,879	0.3%
Kendal & Windermere	Cumbria	539,366	65,665	12.2%
Kendal & Windermere	Lancashire	1,287,627	1,501	0.1%
Kendal & Windermere	Morecambe Bay	282,730	62,924	22.3%
Kings Lynn	Norfolk	800,879	130,998	16.4%
Kings Lynn	Peterborough	442,822	11,184	2.5%
Lancaster	Cumbria	539,366	117,337	21.8%
Lancaster	Lancashire	1,287,627	116,391	9.0%
Lancaster	Morecambe Bay	282,730	117,337	41.5%
Leamington Spa & Stratford-upon-Avon	Coventry	749,125	168,944	22.6%
Leamington Spa & Stratford-upon-Avon	Hereford & Worcester	626,760	670	0.1%
Leeds	Leeds	1,152,218	450,083	39.1%
Leicester	Leicestershire	837,102	322,079	38.5%
Lincoln	Lincolnshire	746,575	208,408	27.9%
Lincoln	South Yorkshire	1,416,988	4,768	0.3%
Liverpool	Liverpool	1,868,201	626,682	33.5%
Loughborough & Coalville	Derbyshire	647,026	221	0.03%
Loughborough & Coalville	Leicestershire	837,102	151,212	18.1%
Loughborough & Coalville	Nottinghamshire	1,007,638	9,535	0.9%
Ludlow, Cleobury Mortimer & Tenbury Well	Hereford & Worcester	626,760	24,849	4.0%
Ludlow, Cleobury Mortimer & Tenbury Well	Wolverhampton & Shrewsbury	1,317,388	23,831	1.8%
Luton	Herts, Beds & Bucks	2,008,567	247,015	12.3%
Luton	London III	10,099,018	173,623	1.7%
Maidstone, Tonbridge & Tunbridge	Kent	1,413,090	349,103	24.7%
Maidstone, Tonbridge & Tunbridge	London III	10,099,018	207,392	2.1%
Maidstone, Tonbridge & Tunbridge	Surrey	1,126,308	2,169	0.2%
Maidstone, Tonbridge & Tunbridge	Sussex	1,344,906	2,824	0.2%
Malton	Humberside	777,380	343	0.04%
Malton	North Yorkshire	670,391	46,993	7.0%
Manchester	Manchester	2,640,392	852,714	32.3%
Mansfield & Worksop	Nottinghamshire	1,007,638	167,900	16.7%
Mansfield & Worksop	South Yorkshire	1,416,988	109,837	7.8%
Margate, Dover & Folkestone	Kent	1,413,090	260,350	18.4%
Market Harborough	Leicestershire	837,102	34,128	4.1%
Market Harborough	Northamptonshire	531,211	21,584	4.1%
Middlesborough & Redcar	North Yorkshire	670,391	7,015	1.0%
Middlesborough & Redcar	Teesside	800,600	225,436	28.2%
Milton Keynes	Herts, Beds & Bucks	2,008,567	251,032	12.5%
Milton Keynes	Northamptonshire	531,211	9,356	1.8%
Newark-on-Trent	Lincolnshire	746,575	10,707	1.4%
Newark-on-Trent	Nottinghamshire	1,007,638	60,183	6.0%

Note: The Lancaster polygon slightly exceeds 40% of the notional Morecambe Bay local radio multiplex service area currently being advertised. We will review the polygon once that licensed area has been finalised following award of the licence.

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Newbury	Berkshire & N Hampshire	905,496	89,053	9.8%
Newbury	Swindon & Wiltshire	614,196	4,387	0.7%
Newcastle & Gateshead	Tyne & Wear	1,475,294	446,252	30.2%
Newquay, St Austell & Truro	Cornwall & Plymouth	732,168	128,450	17.5%
Norfolk - north	Norfolk	800,879	117,645	14.7%
North Birmingham	Birmingham	2,012,043	598,040	29.7%
North Birmingham	Wolverhampton & Shrewsbury	1,317,388	24,209	1.8%
North Buckinghamshire	Herts, Beds & Bucks	2,008,567	186,167	9.3%
North Buckinghamshire	Oxfordshire	531,992	17,569	3.3%
North London	Essex	1,393,887	61,979	4.4%
North London	Herts, Beds & Bucks	2,008,567	96,268	4.8%
North London	London III	10,099,018	3,636,934	36.0%
North Somerset	Bristol & Bath	905,061	14,343	1.6%
North Somerset	Somerset	522,893	101,969	19.5%
Northampton	Northamptonshire	531,211	202,538	38.1%
Norwich	Norfolk	800,879	299,519	37.4%
Nottingham	Nottinghamshire	1,007,638	384,795	38.2%
Nuneaton & Hinckley	Birmingham	2,012,043	1,791	0.1%
Nuneaton & Hinckley	Coventry	749,125	148,330	19.8%
Nuneaton & Hinckley	Leicestershire	837,102	111,864	13.4%
Oldham & Rochdale	Bradford	934,540	1,148	0.1%
Oldham & Rochdale	Lancashire	1,287,627	5,931	0.5%
Oldham & Rochdale	Manchester	2,640,392	546,275	20.7%
Oxford	Oxfordshire	531,992	170,349	32.0%
Peterborough	Peterborough	442,822	150,681	34.0%
Peterlee	Teesside	800,600	120,741	15.1%
Peterlee	Tyne & Wear	1,475,294	48,218	3.3%
Plymouth	Cornwall & Plymouth	732,168	288,655	39.4%
Poole, Purbeck & Wimborne	Bournemouth & Dorset	653,110	173,606	26.6%
Portsmouth	South Hampshire	1,203,463	444,102	36.9%
Portsmouth	Sussex	1,344,906	16,459	1.2%
Preston	Lancashire	1,287,627	370,103	28.7%
Preston	Liverpool	1,868,201	2,523	0.1%
Reading	Berkshire & N Hampshire	905,496	271,011	29.9%
Ringwood. Verwood & Fordingbridge	Bournemouth & Dorset	653,110	71,802	11.0%
Rugby & Daventry	Coventry	749,125	73,631	9.8%
Rugby & Daventry	Leicestershire	837,102	13,766	1.6%
Rugby & Daventry	Northamptonshire	531,211	34,147	6.4%
Rutland & Stamford	Leicestershire	837,102	34,728	4.1%
Rutland & Stamford	Lincolnshire	746,575	1,255	0.2%
Rutland & Stamford	Northamptonshire	531,211	654	0.1%
Rutland & Stamford	Peterborough	442,822	30,079	6.8%
Salisbury	Bournemouth & Dorset	653,110	11,963	1.8%
Salisbury	South Hampshire	1,203,463	801	0.1%
Salisbury	Swindon & Wiltshire	614,196	88,694	14.4%
Scunthorpe	Humberside	777,380	136,457	17.6%
Scunthorpe	Lincolnshire	746,575	135,999	18.2%
SE London & NE Kent	Kent	1,413,090	222,252	15.7%
SE London & NE Kent	London III	10,099,018	776,535	7.7%
Shaftesbury & Blandford Forum	Bournemouth & Dorset	653,110	57,643	8.8%
Shaftesbury & Blandford Forum	Somerset	522,893	9,154	1.8%
Shaftesbury & Blandford Forum	Swindon & Wiltshire	614,196	3,877	0.6%

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Sheffield & Rotherham	South Yorkshire	1,416,988	523,896	37.0%
Sittingbourne & The Medway Towns	Kent	1,413,090	327,369	23.2%
Sittingbourne & The Medway Towns	London III	10,099,018	138,142	1.4%
South Birmingham	Birmingham	2,012,043	535,316	26.6%
South Birmingham	Coventry	749,125	17,862	2.4%
South Buckinghamshire	Herts, Beds & Bucks	2,008,567	250,807	12.5%
South Buckinghamshire	London III	10,099,018	457,485	4.5%
South Craven, Wharfedale, Worth Valley	Bradford	934,540	148,138	15.9%
South Craven, Wharfedale, Worth Valley	Leeds	1,152,218	46,026	4.0%
South Craven, Wharfedale, Worth Valley	North Yorkshire	670,391	38,308	5.7%
South Hams	Cornwall & Plymouth	732,168	91,299	12.5%
South Hams	Exeter, Torbay & N Devon	704,183	22,364	3.2%
South Hertfordshire	Herts, Beds & Bucks	2,008,567	503,657	25.1%
South Hertfordshire	London III	10,099,018	507,549	5.0%
South London	Kent	1,413,090	858	0.06%
South London	London III	10,099,018	2,797,254	27.7%
South London	Surrey	1,126,308	172,682	15.3%
Southampton	South Hampshire	1,203,463	435,437	36.2%
Southampton	Swindon & Wiltshire	614,196	1,553	0.3%
Southend	Essex	1,393,887	276,970	19.9%
Southport	Lancashire	1,287,627	13,307	1.0%
Southport	Liverpool	1,868,201	184,991	9.9%
Stockport	Manchester	2,640,392	528,832	20.0%
Stockport	Stoke-on-Trent	957,883	14,611	1.5%
Stockton-on-Tees	North Yorkshire	670,391	635	0.1%
Stockton-on-Tees	Teesside	800,600	174,828	21.8%
Stoke & Newcastle	Stoke-on-Trent	957,883	349,389	36.5%
Stroud	Gloucestershire	497,527	57,532	11.6%
Stroud	Swindon & Wiltshire	614,196	1,391	0.2%
Sunderland	Tyne & Wear	1,475,294	221,113	15.0%
Sussex - north & Reigate	London III	10,099,018	332,926	3.3%
Sussex - north & Reigate	Surrey	1,126,308	233,804	20.8%
Sussex - north & Reigate	Sussex	1,344,906	204,928	15.2%
Sussex - south-west	South Hampshire	1,203,463	54,898	4.6%
Sussex - south-west	Sussex	1,344,906	333,849	24.8%
Swindon	Oxfordshire	531,992	2,198	0.4%
Swindon	Swindon & Wiltshire	614,196	187,436	30.5%
Taunton	Somerset	522,893	103,546	19.8%
Telford & Shrewsbury	Stoke-on-Trent	957,883	9,781	1.0%
Telford & Shrewsbury	Wolverhampton & Shrewsbury	1,317,388	300,380	22.8%
Tiverton	Exeter, Torbay & N Devon	704,183	41,095	5.8%
Tiverton	Somerset	522,893	3,246	0.6%
Torbay	Cornwall & Plymouth	732,168	20,761	2.8%
Torbay	Exeter, Torbay & N Devon	704,183	230,788	32.8%
Tynemouth & South Shields	Tyne & Wear	1,475,294	380,429	25.8%
Wakefield, Castleford & Dewsbury	Bradford	934,540	69,070	7.4%
Wakefield, Castleford & Dewsbury	Leeds	1,152,218	341,662	29.7%
Wakefield, Castleford & Dewsbury	North Yorkshire	670,391	4,466	0.7%
Wakefield, Castleford & Dewsbury	South Yorkshire	1,416,988	5,108	0.4%
Walsall	Birmingham	2,012,043	354,881	17.6%
Walsall	Wolverhampton & Shrewsbury	1,317,388	251,871	19.1%

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Warminster, Devizes & Trowbridge	Bristol & Bath	905,061	2,787	0.3%
Warminster, Devizes & Trowbridge	Somerset	522,893	27,619	5.3%
Warminster, Devizes & Trowbridge	Swindon & Wiltshire	614,196	153,677	25.0%
Warrington, Widnes & Runcorn	Liverpool	1,868,201	293,727	15.7%
Warrington, Widnes & Runcorn	Manchester	2,640,392	178,220	6.7%
Warrington, Widnes & Runcorn	Stoke-on-Trent	957,883	4,442	0.5%
Wellingborough	Herts, Beds & Bucks	2,008,567	10,497	0.5%
Wellingborough	Northamptonshire	531,211	116,425	21.9%
West Hull	Humberside	777,380	246,271	31.7%
West London	Berkshire & N Hampshire	905,496	53,122	5.9%
West London	Herts, Beds & Bucks	2,008,567	30,417	1.5%
West London	London III	10,099,018	2,267,807	22.5%
West London	Surrey	1,126,308	206,106	18.3%
West Somerset & Lynton	Exeter, Torbay & N Devon	704,183	4,655	0.7%
West Somerset & Lynton	Somerset	522,893	27,731	5.3%
Weston-Super-Mare	Bristol & Bath	905,061	112,259	12.4%
Weston-Super-Mare	Somerset	522,893	103,669	19.8%
Wetherby & Harrogate	Leeds	1,152,218	29,126	2.5%
Wetherby & Harrogate	North Yorkshire	670,391	97,305	14.5%
Weymouth, Dorchester & Bridport	Bournemouth & Dorset	653,110	98,270	15.0%
Weymouth, Dorchester & Bridport	Exeter, Torbay & N Devon	704,183	29,062	4.1%
Wigan	Lancashire	1,287,627	140,816	10.9%
Wigan	Liverpool	1,868,201	451,200	24.2%
Wigan	Manchester	2,640,392	280,280	10.6%
Winchester	Berkshire & N Hampshire	905,496	590	0.1%
Winchester	South Hampshire	1,203,463	75,327	6.3%
Winchester	Surrey	1,126,308	195	0.02%
Wirral	Liverpool	1,868,201	280,633	15.0%
Wirral	North east Wales & west Chesl	754,880	280,633	37.2%
Witney	Gloucestershire	497,527	2,996	0.6%
Witney	Oxfordshire	531,992	74,910	14.1%
Witney	Swindon & Wiltshire	614,196	10,686	1.7%
Wolverhampton	Birmingham	2,012,043	96,026	4.8%
Wolverhampton	Wolverhampton & Shrewsbury	1,317,388	383,794	29.1%
Worcester	Hereford & Worcester	626,760	100,055	16.0%
Workington & Whitehaven	Cumbria	539,366	122,738	22.8%
Workington & Whitehaven	Morecambe Bay	282,730	11,132	3.9%
Yeovil	Bournemouth & Dorset	653,110	18,457	2.8%
Yeovil	Exeter, Torbay & N Devon	704,183	3,909	0.6%
Yeovil	Somerset	522,893	83,663	16.0%
York	Humberside	777,380	9,616	1.2%
York	Leeds	1,152,218	7,657	0.7%
York	North Yorkshire	670,391	194,138	29.0%
Yorkshire Coast	Humberside	777,380	38,563	5.0%
Yorkshire Coast	North Yorkshire	670,391	95,888	14.3%
Yorkshire Coast	Teesside	800,600	18,621	2.3%

Northern Ireland

Table A1-5 Population and nominal frequency blocks for small-scale polygons: Northern Ireland

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Ards Peninsula	1,746	263,368	Yes	-
Armagh	604	43,213	Yes	-
Ballymena	1,338	85,858	Yes	-
Belfast & Lisburn	562	354,991	Yes	-
Coleraine	1,600	88,096	Yes	-
Cookstown & Dungannon	2,025	108,102	No	11C
Derry/Londonderry	1,075	106,085	Yes	-
Enniskillen	739	32,115	Yes	-
Larne, Carrickfergus & Newtown Abbey	838	153,642	Yes	-
Newry	1,004	88,209	Yes	-
Omagh	618	31,559	Yes	-
Portadown & Craigavon	624	98,402	Yes	-

Table A1-6 Polygon population overlaps with local multiplexes: Northern Ireland

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Ards Peninsula	Northern Ireland	1,448,895	263,368	18.2%
Armagh	Northern Ireland	1,448,895	43,213	3.0%
Ballymena	Northern Ireland	1,448,895	85,858	5.9%
Belfast & Lisburn	Northern Ireland	1,448,895	354,991	24.5%
Coleraine	Northern Ireland	1,448,895	88,096	6.1%
Cookstown & Dungannon	Northern Ireland	1,448,895	108,102	7.5%
Derry/Londonderry	Northern Ireland	1,448,895	106,085	7.3%
Enniskillen	Northern Ireland	1,448,895	32,115	2.2%
Larne, Carrickfergus & Newtown Abbey	Northern Ireland	1,448,895	153,642	10.6%
Newry	Northern Ireland	1,448,895	88,209	6.1%
Omagh	Northern Ireland	1,448,895	31,559	2.2%
Portadown & Craigavon	Northern Ireland	1,448,895	98,402	6.8%

Scotland

Table A1-7 Population and nominal frequency blocks for small-scale polygons: Scotland

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Arbroath, Carnoustie & Montrose	730	57,491	Yes	-
Ayr, Troon & Irvine	257	105,234	Yes	-
Cumbernauld & Coatbridge	454	327,088	Yes	-
Dundee	614	163,123	Yes	-
Dunfermline & Kinross	612	114,266	Yes	-
East Edinburgh & S Forth coast	906	84,612	Yes	-
East Fife	827	62,361	Yes	-
Edinburgh	375	439,875	Yes	-
Gairloch	1821	2,428	Yes	-
Girvan & Cumnock	1242	43,539	Yes	-
Glasgow	304	627,566	Yes	-
Glenrothes & Kirkcaldy	807	165,541	Yes	-
Inverclyde	746	142,526	Yes	-
Kilmarnock	579	88,510	Yes	-
Kintyre, Islay & Jura	5507	5,507	Yes	-
Lanarkshire	448	267,047	Yes	-
Midlothian	297	95,343	Yes	-
Moray Coast South	2400	93,959	Yes	-
N Aberdeen	255	138,821	Yes	-
North Ayrshire	619	84,447	Yes	-
Oban	886	11,859	Yes	-
Paisley & W Glasgow	332	316,880	Yes	-
Perth	1198	75,211	Yes	-
Pitlochry & Aberfeldy	734	7,459	Yes	-
S Aberdeen	436	94,205	Yes	-
Scottish Borders - eastern	1709	67,927	Yes	-
Skye & Lochalsh	5177	5,177	Yes	-
Stirling & Falkirk	832	241,627	Yes	-
Ullapool	1940	1,940	Yes	-
Western Isles	3339	3,339	Yes	-

Table A1-8 Polygon population overlaps with local multiplexes: Scotland

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Arbroath, Carnoustie & Montrose	Aberdeen	383,993	391	0.1%
Arbroath, Carnoustie & Montrose	Tayside	479,208	57,100	11.9%
Ayr, Troon & Irvine	Ayrshire	311,912	105,234	33.74%
Ayr, Troon & Irvine	Glasgow	1,888,146	36,134	1.91%
Cumbernauld & Coatbridge	Edinburgh	1,266,453	4,802	0.38%
Cumbernauld & Coatbridge	Glasgow	1,888,146	327,088	17.32%
Dundee	Edinburgh	1,266,453	528	0.04%
Dundee	Tayside	479,208	163,123	34.0%
Dunfermline & Kinross	Edinburgh	1,266,453	113,568	9.0%
Dunfermline & Kinross	Tayside	479,208	9,595	2.0%
East Edinburgh & S Forth coast	Edinburgh	1,266,453	84,612	6.7%
East Fife	Edinburgh	1,266,453	62,361	4.9%
East Fife	Tayside	479,208	62,361	13.0%
Edinburgh	Edinburgh	1,266,453	439,875	34.7%
Gairloch	No local multiplex	2,428	None	None
Girvan & Cumnock	Ayrshire	311,912	43,539	14.0%
Girvan & Cumnock	Glasgow	1,888,146	261	0.01%
Glasgow	Glasgow	1,888,146	627,566	33.24%
Glenrothes & Kirkcaldy	Edinburgh	1,266,453	165,156	13.0%
Glenrothes & Kirkcaldy	Tayside	479,208	78,312	16.3%
Inverclyde	Glasgow	1,888,146	142,292	7.54%
Kilmarnock	Ayrshire	311,912	88,510	28.4%
Kilmarnock	Glasgow	1,888,146	88,510	4.7%
Kintyre, Islay & Jura	No local multiplex	5,507	None	None
Lanarkshire	Glasgow	1,888,146	267,047	14.1%
Midlothian	Edinburgh	1,266,453	95,343	7.5%
Moray Coast South	Aberdeen	383,993	13,711	3.6%
Moray Coast South	Inverness	267,100	80,248	30.0%
N Aberdeen	Aberdeen	383,993	138,821	36.2%
North Ayrshire	Ayrshire	311,912	80,973	26.0%
North Ayrshire	Glasgow	1,888,146	84,447	4.5%
Oban	No local multiplex	11,859	None	None
Paisley & W Glasgow	Glasgow	1,888,146	316,880	16.8%
Perth	Edinburgh	1,266,453	2,490	0.2%
Perth	Tayside	479,208	75,211	15.7%
Pitlochry & Aberfeldy	Tayside	479,208	7,459	1.6%
S Aberdeen	Aberdeen	383,993	94,205	24.5%
Scottish Borders - eastern	Edinburgh	1,266,453	69	0.005%
Skye & Lochalsh	No local multiplex	5,177	None	None
Stirling & Falkirk	Edinburgh	1,266,453	240,172	19.0%
Ullapool	No local multiplex	1,940	None	None
Western Isle	No local multiplex	3,339	None	None

Wales

Table A1-9 Population and nominal frequency blocks for small-scale polygons: Wales

Small-scale DAB polygon name	Area (km^2)	Total adult population (adults 15+)	Sub-band 2 block	Sub-band 3 block
Aberystwyth	1,126	35,622	Yes	-
Anglesey & north Gwynedd	1,727	110,617	Yes	-
Brecon	1,259	93,759	Yes	-
Bridgend	920	201,894	Yes	-
Cardiff	476	420,302	No	10D
Chester & Ellesmere Port	619	235,408	Macro area	Macro area
Llandudno & Betws-y-Coed	1,336	88,640	Yes	-
Llanelli	946	143,324	Yes	-
Monmouth	188	12,042	Yes	-
Newport & Chepstow	595	223,077	Yes	-
North Pembrokeshire	2,340	58,437	Yes	-
North Powys & Wrexham	2,740	204,741	Macro area	Macro area
Rhyl, Ruthin & Mold	1,051	168,715	Macro area	Macro area
South Pembrokeshire	2,346	115,376	Yes	-
South Powys	2,776	62,316	Yes	-
Swansea	280	230,805	Yes	-
Welsh Valleys	1,414	410,007	Yes	-

See A2.42 for a description of the frequencies available within macro areas.

Table A1-10 Polygon population overlaps with local multiplexes: Wales

Small-scale DAB polygon name	Overlapping local multiplex	Total adult population (adults 15+)	Population in overlap (adults 15+)	Overlap with local multiplex (%)
Aberystwyth	Mid & West Wales	379,159	34,813	9.2%
Aberystwyth	North west Wales	362,319	809	0.2%
Anglesey & north Gwynedd	North west Wales	362,319	110,617	30.5%
Brecon	Mid & West Wales	379,159	21,863	5.8%
Brecon	SE Wales	1,154,815	71,896	6.2%
Bridgend	SE Wales	1,154,815	125,148	10.8%
Bridgend	Swansea	596,014	142,788	24.0%
Cardiff	SE Wales	1,154,815	420,302	36.4%
Chester & Ellesmere Port	Liverpool	1,868,201	202,959	10.9%
Chester & Ellesmere Port	North east Wales & west Cheshire	754,880	230,065	30.5%
Chester & Ellesmere Port	Stoke-on-Trent	957,883	238	0.02%
Llandudno & Betws-y-Coed	North west Wales	362,319	88,640	24.5%
Llanelli	Mid & West Wales	379,159	92,039	24.3%
Llanelli	Swansea	596,014	143,324	24.0%
Monmouth	Hereford & Worcester	626,760	1,142	0.2%
Monmouth	SE Wales	1,154,815	10,900	0.9%
Newport & Chepstow	Gloucestershire	497,527	4,695	0.9%
Newport & Chepstow	SE Wales	1,154,815	218,382	18.9%
North Pembrokeshire	Mid & West Wales	379,159	58,437	15.4%
North Powys & Wrexham	North east Wales & west Cheshire	754,880	124,319	16.5%
North Powys & Wrexham	North west Wales	362,319	40,794	11.3%
North Powys & Wrexham	Wolverhampton & Shrewsbury	1,317,388	39,628	3.0%
Rhyl, Ruthin & Mold	Liverpool	1,868,201	74,646	4.0%
Rhyl, Ruthin & Mold	North east Wales & west Cheshire	754,880	159,502	21.1%
Rhyl, Ruthin & Mold	North west Wales	362,319	64,829	17.9%
South Pembrokeshire	Mid & West Wales	379,159	115,376	30.4%
South Pembrokeshire	Swansea	596,014	30,365	5.1%
South Powys	Hereford & Worcester	626,760	8,176	1.3%
South Powys	Mid & West Wales	379,159	31,781	8.4%
South Powys	North west Wales	362,319	19,288	5.3%
South Powys	Wolverhampton & Shrewsbury	1,317,388	3,071	0.2%
Swansea	Swansea	596,014	230,805	38.7%
Welsh Valleys	Mid & West Wales	379,159	4,900	1.3%
Welsh Valleys	SE Wales	1,154,815	405,107	35.1%

A2. Derivation of the coverage area plan

Overview

A2.1 In this section we provide:

a) background information on how we have developed the preliminary coverage area plan for potential small-scale radio multiplex services; and

b) a summary of the current status of international frequency coordination and the likely international constraints on the use of spectrum for small-scale radio multiplex services.

Approach to developing the coverage area plan

A2.2 We have used expressions of interest and the principles described in Section 3 to develop 'polygon areas' and 'macro areas' within which we intend to advertise licences to provide small-scale radio multiplex services.

A2.3 Below we describe how we have developed the coverage area plan.

Expressions of interest

A2.4 On 27 July 2018, Ofcom published a call for expressions of interest in providing small-scale radio multiplex services and digital sound programme services. We published a summary of the expressions of interest that we received on 9 November 2018.

A2.5 We mapped all of the expressions of interest that we received based on the area descriptions provided by respondents (in numerous areas there were several expressions of interest). In developing the coverage area plan we have, as a starting point, aimed to provide one coverage area 'polygon' for a notional small-scale radio multiplex service in each location where there was an expression of interest. We have planned one polygon per area in order to make the most efficient use of the finite frequency resource, and to ensure that opportunities to provide small-scale radio multiplex services are available as widely as possible across the UK.

A2.6 For areas where there were multiple expressions of interest, our coverage area plan has sought to find arrangements that match the greatest number of those expressions of interest. Where we have received expressions of interest to provide programme services only (with no corresponding expressions of interest in providing a small-scale radio multiplex service), we have included those areas as notional polygons for frequency planning purposes.

A2.7 In some areas, we did not receive any expressions of interest. Where there are existing analogue community or commercial radio services that are not also being provided on a local radio multiplex service, we have included notional polygon 'placeholders' so that we

can assess whether there are likely to be frequencies available for those areas in the future.

A2.8 Having produced outline coverage area polygons, we have assessed where they overlap with the licensed area of a local radio multiplex service. Where necessary, we have adjusted the size of the polygon coverage area to ensure that the population contained within any overlap with the licensed area of a local radio multiplex service does not exceed 40% of the local radio multiplex service's licensed area. This is to align with the policy aims set out in the Order. A small number of expressions of interest were for very small geographical areas where it would not be possible to provide a separate very small radio multiplex service within the limited frequencies available. In most cases, these very small areas have been absorbed into larger surrounding ones, while in others they have been enlarged.

A2.9 For the purposes of our preliminary coverage plan, we have produced polygons that do not exceed the 40% limit. In a few locations, this has meant that we have had to reduce the coverage area of the polygon (with the result that it does not serve the whole of a target location) or we have had to 'split' locations into two separate coverage area polygons, each serving a part of the target location.

A2.10 For the purposes of advertising small-scale radio multiplex licences, polygon areas will be defined by the communities and geographical area within the boundaries represented on a map. We propose that small-scale radio multiplex services are defined by the areas where indoor reception of the multiplex service is predicted to be possible (i.e. expected to receive a field strength of at least 63dBµV/m).

A2.11 Applicants for a small-scale radio multiplex licence in a particular area will need to provide a technical plan including the transmitter(s) they intend to build to serve that area. Once licensed and built, the actual coverage that the small-scale radio multiplex service provides will become the multiplex service's licensed area, and the polygon will no longer have relevance from a licensing perspective. This approach differs from advertisements for local radio multiplex licences, where the licence advertisements describe the licensed area through recognised administrative boundaries (for example, to serve named counties) or specify postcode districts.

Interactions between multiplexes: coverage and interference management

A2.12 Having developed a set of polygon areas across the UK, we then carried out an assessment of the potential interference interactions between polygons. This allowed us to determine where frequencies can be re-used.

A2.13 We do not know at this stage whether we will receive applications to operate small-scale radio multiplex services for every polygon area, nor do we know exactly what technical plan applicants will propose. We have therefore used notional transmitter characteristics for each polygon area to identify which areas cannot share the same frequency (such as where the levels of mutual interference would be too high). Further details on how we

have carried out this process are given below. This information provides us with the basis upon which we can begin allocating frequencies to polygon areas.

Coverage prediction and planning level

A2.14 Ofcom proposes to base coverage calculations and assessments on a field strength of 63 dBµV/m, which is sufficient to provide 'useable indoor' coverage. This level was established in Ofcom's publication An approach to DAB coverage planning that summarises work carried out in 2011 to define planning levels for DAB.

A2.15 We propose not to consider outdoor or mobile coverage for three main reasons:

a) Band III spectrum is, and will be, used intensively both in the UK and in other countries for DAB broadcasting. This means that each of the polygon areas will be subject to a certain level of interference from other UK radio multiplex services, as well as from overseas. Although reception in vehicles and outdoors will be possible for small-scale radio multiplex services, we will be less able to ensure protection against interference in areas where mobile reception is possible, due to the lower signal strengths that have been used to define the mobile coverage area (i.e. 54 dBµV/m).

b) The size of small-scale radio multiplex coverage areas will be smaller than those of local (or national) radio multiplex services, meaning it will take less time to cross such coverage areas (e.g. in a vehicle). We therefore expect mobile reception to be less critical than for the larger scale multiplexes.

c) In-home reception in areas receiving down to 54 dBµV/m will not generally be satisfactory.

A2.16 When assessing the coverage overlap with local radio multiplex services, we will use noise limited coverage predictions (i.e. coverage that a small-scale radio multiplex service is predicted to achieve in the absence of interference from other services also using the same frequency).

Co-block protection ratio to assess interference

A2.17 When we calculate the interference potential that a transmitter network serving one polygon has to other polygons using the same frequency, we will use a protection ratio of 25dB, which is consistent with the approach used for planning local radio multiplexes.

A2.18 In practice this means that a transmitter network serving one polygon will generally be permitted to put interfering signals of no more than:

a) 38dBµV/m[17] into another polygon area using the six sub band 2 frequency blocks (7D, 8A, 8B, 9A, 9B & 9C) where the same frequency is planned to be used; or

[17] The 38dBµV/m threshold level is derived from 63dBµV/m (minimum wanted level to provide indoor coverage) minus the 25dB protection ratio

b) 29dBµV/m[18] into areas where local radio multiplex services use the same frequency (blocks 10B and above).

A2.19 In both cases, higher levels of interference may be permitted if the actual loss of coverage caused to services elsewhere is likely to be low in reality, despite the higher level of interference. Factors influencing whether this will be permissible include whether the areas predicted to receive higher levels of interference are small in comparison with the overall size of the polygon or licensed area, and/or whether the areas predicted to be affected by higher levels of interference are likely to receive high levels of wanted signal or are largely unpopulated.

A2.20 We will keep the field strengths we use to define coverage and to limit interference under review, and may revise them if we receive evidence that it would be beneficial to do so.

Time variability

A2.21 Assessment of the interference potential of a given polygon will be calculated on the basis that a small-scale radio multiplex service should not put interference into another co-block area above the threshold level for more than 1% of the time.

Transmitter characteristics

A2.22 As we do not have details of the transmitters that applicants might propose in each polygon area, we have made certain assumptions about what transmitter networks applicants might wish to build if they are seeking to cover the polygon area.

A2.23 We have based our compatibility analysis on notional transmitters in each area. These have been chosen from a list of existing broadcast sites, those that were proposed by applicants responding to our request for expressions of interest, and other potentially suitable structures. These sites are indicative only and have been used solely to help develop the coverage area plan. Applicants for a small-scale radio multiplex licence will be free to propose using alternative sites, and we cannot be certain that any of our notional sites will actually be proposed by applicants (or indeed that they would in fact be available for potential radio broadcast use). Nevertheless, they provide a way of assessing possible coverage and interference levels.

A2.24 For each notional transmitter, we have assumed a maximum radiated power of 100 W ERP, broadcast with an omni-directional antenna pattern for simplicity (except where near a polygon boundary, where a directional pattern has been assumed). We believe that this is a reasonable power to assume because:

a) Each transmitter would broadly provide coverage to a significant part of a notional polygon. We predict that a 100 W ERP will generally provide coverage over a radius of 13-15 km, although this will vary with factors such as antenna height and local terrain.

[18] The 29dBµV/m threshold level arises from the need to protect mobile coverage of the local multiplexes. The threshold is therefore 54dBµV/m (minimum wanted level for outdoor or mobile coverage) minus the 25dB protection ratio.

b) Outgoing interference is kept at manageable levels, which provides benefits in being able to re-use the frequencies within the UK, and eases issues with international coordination; and

c) The risk of punching holes in the coverage of other radio multiplex services broadcasting near the small-scale radio multiplex transmitter ('hole-punching') is reduced if transmitter powers are kept to modest levels

A2.25 To help reduce outgoing interference, any transmitter close to the edge of a polygon has been assumed to use a directional antenna with a restriction toward the nearby polygon boundary.

A2.26 From the above, we developed a compatibility matrix that sets out which polygon areas cannot share the same frequency block because they would put too much interference into each other's coverage areas. This matrix enables us to allocate notional frequencies from those available in each area, and to judge whether there are enough frequencies to allocate to all of the polygons.

A2.27 In developing our coverage area plan, we have not taken account of the potential for the small-scale radio multiplex service transmitters to cause very localised impacts on the coverage of other radio multiplexes through hole punching. There is no value in carrying out an assessment against our notional transmitter parameters as the impact is highly dependent upon transmitter locations and characteristics. We will consider the risk of hole punching when assessing licence applications, taking into consideration applicants' own evaluations.

Planning model data sets and settings

A2.28 One of the tools used by Ofcom to plan broadcast spectrum us is the ICS Telecom planning tool, together with the settings listed below. We currently expect to use this tool in relation to planning and assessing applications for small-scale radio multiplex licences.

Datasets

- Ordnance Survey terrain data – 50 metre resolution
- Infoterra clutter data – 50 metre resolution
- Adult population from the 2011 census.

ICSTelecom settings

- Model pre-set – Fresnel
- Diffraction geometry – Deygout 94
- Subpath attenuation – coarse integration
- FZ fraction 0.8
- Earth radius (sea and land)

- For wanted (50% time) coverage 8,500km
- For out-going interference (1% time) 28,500km

A2.29 We will confirm the planning model, datasets and settings when we invite applications for small-scale radio multiplex licences.

Spectrum considerations

Availability for small-scale DAB

A2.30 The frequency band used for DAB is known as VHF Band III and covers the range 174 MHz to 230 MHz. This band is split into numbered channel blocks, each of which can accommodate a single DAB multiplex. By convention, these blocks are numbered from channel 5A up to 12D.

A2.31 In the UK, existing national and local radio multiplex services are broadcast using frequency blocks 10B to 12D. Blocks below this range have historically been used by Business Radio and Programme Making, Special Events ('PMSE') and other services. Parts of this spectrum (known as sub band 2[19]) were only lightly used following agreements made at the International Telecommunications Union Regional Radio Conference held in 2006. Ofcom is revoking the few remaining Business Radio user licences using this spectrum (and offering those licensees spectrum elsewhere in Band III), meaning it is now available for use by small-scale radio multiplex services. The frequency blocks to be used are 7D, 8A, 8B, 9A, 9B and 9C. PMSE users are not affected by these changes.

A2.32 Ofcom is proposing to use these six frequency blocks as the principal spectrum to accommodate small-scale radio multiplex services. These blocks are ideally suited to DAB receivers (except for some very old types) that are designed to work across the entire range of Band III frequencies, and will therefore be able to receive DAB services broadcast on those blocks.

A2.33 The spectrum is not suitable for high power use, as the UK has no international rights agreed to use these frequencies, meaning that transmitter powers must be kept to modest levels.

A2.34 These frequency blocks are separated from the spectrum used by national and local radio multiplex services in blocks 10B and above, and therefore the risk of hole punching in the coverage of the local and national radio multiplex services by small-scale DAB transmitters is reduced.

A2.35 Although these six frequency blocks will be the principal spectrum resource used for small-scale radio multiplex services, we also expect to use frequency blocks in the 10B to 12D range in some areas where demand for small-scale radio multiplex services is likely to be high. Blocks 10B to 12D are also expected to be required in some coastal areas where the principal frequency blocks are unusable due to high levels of incoming interference from neighbouring countries.

A2.36 Some of the frequencies above 10B are used by the national radio multiplexes licensees across the UK, specifically 11A and 12B across the UK, 11D (in England, Wales and Northern

[19] Sub band 2 covers the range from approximately 193.2 MHz to 207.5 MHz

Ireland) and 12A (in Scotland). These 'national' frequencies will not be available for small-scale DAB use. The other frequency blocks are used in a 'patchwork' pattern across the UK by local radio multiplex services. This means that there are often frequencies that are unused in a particular area that could be used at modest power by small-scale radio multiplex services.

A2.37 It is worth noting that our neighbouring countries have rights to use frequency allocations in numerous locations that they have not yet made use of. It is possible that these will be put into use in the future, which could result in the levels of interference levels into small-scale DAB increasing. We will aim to take this into account in our planning to minimise the potential reduction in coverage that might occur if those countries eventually make full use of their spectrum allocations. Any such risks will be set out in advertisements of small-scale radio multiplex licences.

Allocation to polygon areas

A2.38 Having developed a series of coverage area polygons across the UK as well as the compatibility matrix mentioned above, we next examined the availability of spectrum in each of the areas. The choice of spectrum is governed by the following considerations:

a) whether all six frequency blocks are available in a given location. They may not all be available in some coastal areas and in Northern Ireland due to the presence of high-power DAB (or possibly digital television) services in neighbouring countries which would cause interference to UK small-scale DAB on certain frequency blocks;

b) the need to restrict interference to other countries to acceptable levels; and

c) whether any frequencies in the range 10B to 12D are available to be used.

A2.39 We have sought to allocate a frequency to each polygon area, firstly using the six low blocks and then using unused blocks amongst those used by the local and national radio multiplex services. Our preliminary coverage area plan is shown on the maps in Annex 1. The associated tables A1-3 to A1-10 indicate whether the frequency block notionally allocated to each polygon is one of the six used principally for small-scale radio multiplex services or is interleaved amongst those used by national and local radio multiplex services in blocks 10B to 12D.

Areas of spectrum scarcity – the macro areas

A2.40 In a small number of areas, we have not been able to identify sufficient frequencies for notional transmitters in each polygon area which provide reasonable coverage within those polygons, while also limiting interference to other areas using the same frequencies to acceptable levels. We have gathered together these polygon areas into larger 'macro areas' where our approach to allocating frequencies will differ from the polygon areas where we have been able to identify a frequency.

A2.41 We will advertise licences as a batch for each macro area, based on the polygon areas. Instead of assigning a frequency to each polygon area, we will list the frequencies that will be available to use within the macro area as well as the interference constraints to other

blocks outside the macro area. When considering applications, we will assess the coverage proposed by applicants as well as the interference that their proposed transmitter network will put into other area using the same frequency and blocks and how they can fit into the available spectrum resources.

A2.42 At present, our expectation is that macro areas will cover:

a) **The north west of England and north-east Wales (North west macro area)**: an area approximately bounded by Blackpool, Preston, Burnley, Manchester, Buxton, Stoke-on-Trent, Wrexham, Chester, Rhyl and Liverpool.

   i) Across the area all six sub-band II frequencies are available. Block 11C is available over much of the area and block 10B will be available for the most northern polygons. There may also be some opportunity to use block 11B or 12D in the northern part of the area, although this will be subject to the final configuration of the recently advertised Cumbria and south west Scotland local DAB service(s).

b) **London, the Thames Estuary and surrounding areas (South east macro area):** including the whole of Greater London and Essex along with an area approximately bounded by Bury St Edmunds, Ipswich, Canterbury, Maidstone, Redhill, Guildford, Reading, High Wycombe, Hemel Hempstead and Luton.

   i) The spectrum available across this region is limited due to proximity to mainland Europe. East of a line from Cambridge to Maidstone blocks 8A, 8B and 9C are predicted to be subject to high levels of interference, and west of a line from Stowmarket to Ashford blocks 7D and 8D are also expected to be unusable. Within sub-band III block 10B should be available over much of the area except in the north and west due to high levels of interference from Norfolk or Oxfordshire. Block 10D may be usable in the easternmost parts of the area. Block 10 frequencies are already allocated for digital TV services on the Belgian coast which may limit their usage, especially at or near the coast.

International frequency planning considerations

A2.43 The UK's small-scale digital radio multiplex network will need to be implemented within the constraints of the International Telecommunication Union's (ITU) 'Geneva 2006' or 'GE06' Agreement and Frequency Plan. Under this Plan neighbouring administrations have registered rights to implement services in the spectrum we are proposing to use for small-scale radio multiplex services in the UK. Any new services such as small-scale radio multiplex services will need to operate within the constraints conferred by the UK's rights and our neighbours' rights. This means that small-scale radio multiplex services will need to both protect these registered rights (i.e. by not causing more interference into the services in other countries) and not limit their implementation by other countries (i.e. by requiring other countries to limit their interference into our small-scale radio multiplex services).

A2.44 Consequently, there will be limited spectrum available for small-scale radio multiplex services in some areas, and the use of specific frequencies may be subject to asymmetric rights of implementation. This means that outgoing interference will need to be minimised and that outgoing interference to other countries will frequently need to be lower than incoming interference from those countries.

A2.45 Ofcom has begun to engage with our neighbours in high-level discussions about how the UK's small-scale radio multiplex network might be coordinated internationally. New bilateral agreements will need to be made with each neighbouring country when the UK's spectrum plan for small-scale DAB is finalised. It should be noted that changes to the coverage area plan (as set out in this consultation) may be necessary as a result of ongoing negotiations and final bilateral agreements on the frequency plan.

A2.46 The neighbouring countries with which the UK coordinates its broadcasting networks are Ireland, France, Belgium and the Netherlands. All of these administrations have existing rights recorded in the Geneva 2006 (GE06) Plan for implementing both digital radio and digital TV services within the proposed frequency blocks proposed for UK small-scale radio multiplex services.

A2.47 Below we summarise the current status of our co-ordination discussions with each country:

Ireland

A2.48 Discussions between the UK and Ireland have indicated that Ireland currently has no plans to license or implement television or additional DAB multiplex services in Band III. That being said, Ireland has internationally agreed rights that the UK must respect if future plans are presented to develop such networks.

A2.49 The UK plans to continue engagement with Ireland to coordinate the UK's small-scale radio multiplex services as our frequency plan becomes more mature.

France

A2.50 France currently has a relatively small number of DAB multiplex services on the air, and has recently engaged with the UK via bilateral meetings to present newly-developed plans for national, regional and local DAB multiplex services across the whole of France. This new frequency plan is made up of a mix of existing rights that France has under the GE06 agreement and some new frequency allocations that it is seeking to coordinate and agree with the UK and other neighbouring administrations.

A2.51 The UK is committed to working with France to discuss its new network requirements in parallel with the UK's new small-scale DAB requirements with the aim of coordinating mutually agreeable plans.

A2.52 Coordination meetings are planned during 2019/20 as France prepares to advertise and license its new DAB networks. Full co-ordination of UK small-scale radio multiplex services will be included in these discussions.

Belgium

A2.53 Ofcom has commenced initial co-ordination discussions with Belgium regarding small-scale DAB multiplexes in June 2019. We expect to hold subsequent bilateral meetings commencing later in 2019 to establish what plans Belgium has for future DAB networks and how these will interact with the frequencies allocated for UK small-scale DAB.

The Netherlands

A2.54 Currently the Netherlands operates several DAB networks, and has recently engaged with the UK via bilateral meetings to present plans for further developing their services. The Netherlands' current networks have been re-designed for national, regional and local services. These proposed networks differ slightly from the Netherlands' existing GE06 rights and will therefore require coordination and agreement by the UK and other neighbouring administrations.

A2.55 The Netherlands has also explored small-scale DAB technology and has conducted its own trials of the technology. The UK will continue discussions with the Netherlands to seek to coordinate mutually agreeable plans.

Limitations and assumptions

A2.56 The preliminary coverage area plan Ofcom has drawn up is based upon a number of assumed requirements as outlined in this consultation document.

A2.57 The coverage area polygons were derived from the expressions of interest responses. There were many locations where multiple expressions of interest were received, and respondents' desired coverage areas differed from each other to a greater or lesser extent in these locations. Given the limited spectrum available, it is likely that Ofcom will generally plan for only one small-scale radio multiplex licence in a given location. Consequently, the coverage area polygons in this plan may differ from the expressions of interest received. They may also be subject to change before an advertisement is published as we develop our frequency plan and progress our co-ordination discussions with neighbouring countries.

A2.58 We have sought to accommodate all analogue commercial radio stations that are not currently broadcasting on DAB within the plan. However, it is far from certain that all of these services will seek carriage on a small-scale radio multiplex service. Parties that have expressed interest may ultimately not apply for a licence, or applicants may propose to cover only a part of a coverage area polygon.

A3. Potential for additional local radio multiplex services

Overview

A3.1 In this section we provide some information on opportunities to accommodate additional local radio multiplex services alongside small-scale radio multiplex services. This assessment is built upon our preliminary coverage area plan, which in turn is based upon the response to our call for expressions of interest in 2018.

Background

A3.2 Local radio multiplex services were first licensed from 1999, with further areas progressively licensed and launched over the following years.

A3.3 The current plan has most recently been shaped by two developments:

a) work carried out as part of the Government's Digital Radio Action Plan in 2012 that led to the expansion of some areas and adjustments to other local radio multiplex services already licensed at that time. As a result of this work, local radio multiplex services were available to over 90% of UK households as of 2018; and

b) licences advertised in previously unlicensed areas in response to demand (this includes Suffolk in 2015, and the licences currently being advertised in 2019 for the Channel Islands, Morecambe Bay, North and West Cumbria and Southwest Scotland)[20].

A3.4 On completion of the current round of licensing there will remain two areas where no local radio multiplex licence has been advertised, as well as an unused allocation for the Isle of Man. A frequency block has been coordinated for each of these areas and will be reserved for future use. Additionally, the allocation planned and coordinated for east Wales during the DCMS Digital Radio Action Plan will also be protected. These allocations are as follows:

a) The Borders area of Northern England and Southern Scotland (block 10C).

b) The Highlands and Islands in the west of Scotland along with the Orkney & Shetland Islands (block 10D).

c) The Isle of Man (block 11C).

d) East Wales (block 10B).

A3.5 Ofcom currently has no plans to advertise local radio multiplex licences for any of the above areas, as we are not aware of any demand to operate local radio multiplex services in these areas. Any licence to provide a local radio multiplex service for the Isle of Man would need to be advertised by the Isle of Man Communications Commission, not Ofcom.

[20] In addition, Block 10B has been allocated to east Wales in order to complete coverage of Wales at a future date.

A3.6 Although the licensed areas of some of the local radio multiplex services overlap to some degree, Ofcom has not generally considered licensing additional local radio multiplex services covering significantly the same area as the licensed area of an existing licensed local radio multiplex service. There are, however, two areas – London and Central Scotland – where there is more than one local radio multiplex service currently broadcasting as a result of the licensing policy of one of Ofcom's predecessor regulators, the Radio Authority.[21]

Additional local radio multiplex services

A3.7 As we have developed our approach to small-scale DAB, feedback from some stakeholders has suggested that there is demand for additional local radio multiplex services, at least in some areas. We have therefore considered whether it would be feasible to accommodate additional local radio multiplex services in the spectrum available, and if so what the impact would be on our ability to license small-scale radio multiplex services.

A3.8 In assessing whether additional local radio multiplex services would be feasible, we have assumed that it would be desirable for those additional local radio multiplex services to achieve at least similar coverage to that of the existing local radio multiplex services. This is principally to maintain a clear distinction between the scale of local and small-scale radio multiplex services in any given locality.

A3.9 For each existing local radio multiplex service area, we have considered whether any sub-band 3 frequency block might be available to provide coverage similar to that of the existing local radio multiplex service.

A3.10 Where there are frequencies available amongst those used by existing national and local radio multiplex services, there are possibilities for providing additional local radio multiplex services, at least in principle.

A3.11 Where the only frequencies available are in the six blocks that have been identified for licensing small-scale radio multiplex services, opportunities to achieve coverage on the scale of the existing local radio multiplex services are limited. This is because:

a) the UK has limited ability to use the frequencies at high power or close to some coasts;

b) as a result of power limitations, a different approach to planning and building transmitters would be needed (for example, instead of using a few high-power transmitters, a larger number of low power transmitters would be needed to serve a local radio multiplex area); and

[21] The Radio Authority licensed a small number of regional or local multiplex services in different parts of the UK in anticipation of a higher level of demand for DAB services in those areas. As part of the Digital Radio Action Plan re-planning work, some of these licences were surrendered and the frequencies which had been used to support the local radio multiplex services were re-used elsewhere to improve local DAB coverage. Today the only areas where there are multiple local radio multiplex services are London, which has three local radio multiplex services, and Central Scotland, which has a regional multiplex service in addition to local radio multiplex services for each of Glasgow and Edinburgh.

c) opportunities for licensing small-scale radio multiplex services would be severely restricted if those frequencies were used instead for local radio multiplex services.

A3.12 We have therefore concentrated on identifying frequencies in sub-band 3 (i.e. block 10B and above) because these are the most suitable for supporting additional local radio multiplex services. Using the six sub-band 2 frequencies for high-power local radio multiplex services will significantly restrict our ability to deliver small-scale DAB matching our coverage area plan.

A3.13 The tables at the end of this annex set out what frequencies are available in each existing local radio multiplex service area which could potentially be used to support an additional local radio multiplex service. In addition, an assessment is provided of whether those frequencies are likely to be needed to deliver small-scale radio multiplex services in all of the areas in our coverage area plan.

Conclusions

A3.14 We expect sufficient spectrum to be available to support both small-scale and additional local radio multiplex services in the following areas:

a) most of Scotland, with the exception of the south west;

b) Northern Ireland;

c) Tyneside and Teesside in north east England; and

d) Devon and Cornwall in south west England.

A3.15 In addition, there are frequencies potentially available in south Wales, Hereford & Worcester and either Bradford, Leeds or Lancashire, although these are likely to be needed for small-scale radio multiplex services if there is demand in all of our proposed coverage areas.

A3.16 In most areas, the only spectrum available is within the six frequency blocks earmarked for use by small-scale DAB. However, it may be possible to accommodate an additional local radio multiplex service in a small number of these areas. Whether that would be possible would depend upon the actual demand for small-scale DAB, and whether it would be technically limited by international constraints on the powers at which those frequencies could be used.

A3.17 In areas of likely high demand (including Manchester and London), our planning suggests there is not sufficient spectrum to support even all of our small-scale DAB coverage area plan. Therefore, we do not expect there to be opportunities to license additional local radio multiplex services in those areas.

A3.18 It is worth noting that most local radio multiplex services are currently operating with services using the DAB (rather than DAB+) standard. Where the demand for an additional local radio multiplex service arises out of the existing local radio multiplex service being full, it would be possible for the local radio multiplex service licensee to accommodate

further services on their multiplex by moving existing programme services to DAB+, subject to the agreement of the programme service providers.

Table A3-1: Availability of spectrum in each local radio multiplex service area - England

Local DAB multiplex area	Availability of spectrum for an additional local multiplex
Birmingham	No sub-band 3 blocks available
Bournemouth	12A. May be needed for small-scale DAB
Bradford	10B. Might be useable here or Leeds or N.Yorkshire
Bristol	12D. May be needed for small-scale DAB
Cambridge	No sub-band 3 blocks available
Cornwall & Plymouth	Several sub-band 3 blocks available. Would need coordination
Coventry	No sub-band 3 blocks available
Derbyshire	No sub-band 3 blocks available
Essex	No sub-band 3 blocks available
Exeter & Torbay with north Devon	10D & 12A. Both may be needed for small-scale DAB
Gloucestershire	10D. May be needed for small-scale DAB
Herefordshire & Worcestershire	10D. May be needed for small-scale DAB
Herts, Beds & Bucks	No sub-band 3 blocks available
Humberside	11B. May be needed for small-scale DAB
Kent	No sub-band 3 blocks available
Lancashire	10B. Likely to be needed for small-scale DAB
Leeds	10B. Might be useable here or Bradford or N.Yorkshire
Leicestershire	No sub-band 3 blocks available
Lincolnshire	No sub-band 3 blocks available
Liverpool	No sub-band 3 blocks available
London	No sub-band 3 blocks available
Manchester	11C. Likely to be needed for small-scale DAB
Norfolk	No sub-band 3 blocks available
North Yorkshire	10B. Might be useable here or Bradford or Leeds
Northamptonshire	No sub-band 3 blocks available

Nottingham	No sub-band 3 blocks available
Oxfordshire	No sub-band 3 blocks available
Peterborough	No sub-band 3 blocks available
Reading & Basingstoke	No sub-band 3 blocks available
Somerset	No sub-band 3 blocks available
South Hampshire	No sub-band 3 blocks available
South Yorkshire	No sub-band 3 blocks available
Stoke-on-Trent	No sub-band 3 blocks available
Suffolk	No sub-band 3 blocks available
Surrey	No sub-band 3 blocks available
Sussex	10B. Coordination unlikely to be successful
Swindon & Wiltshire	No sub-band 3 blocks available
Teesside	Several blocks available
Tyne & Wear	Several blocks available
Wolverhampton & Shropshire	No sub-band 3 blocks available

Table A3-2: Availability of spectrum in each local radio multiplex service area – Northern Ireland

Northern Ireland

Local DAB multiplex area	Availability of spectrum for an additional local multiplex
Northern Ireland	10C. Would need international agreement and may be needed for small-scale DAB

Table A3-3: Availability of spectrum in each local radio multiplex service area - Scotland

Local DAB multiplex area	Availability of spectrum for an additional local multiplex
Aberdeen	Several blocks available
Ayr	10B and 12C available, subject to coordination
Edinburgh	10D & 12C are already internationally cleared and available
Glasgow	10D & 12C are already internationally cleared and available
Inverness	Several blocks available
Tayside	Several blocks available

Table A3-4 Availability of spectrum in each local radio multiplex service area - Wales

Local DAB multiplex area	Availability of spectrum for an additional local multiplex
Cardiff & Newport	10D. May be needed for small-scale DAB
North east Wales & west Cheshire	No sub-band 3 blocks available
North west Wales	No sub-band 3 blocks available
Swansea	10D. May be needed for small-scale DAB
West & mid Wales	10B. May be needed for small-scale DAB

Table A3-5 Availability of spectrum in local radio multiplex service areas currently being licensed

Local DAB multiplexes presently being licensed.	Availability of spectrum for an additional local multiplex
Cumbria	No sub-band 3 blocks available
Morecambe Bay	No sub-band 3 blocks available
Dumfries & Galloway	10B. Would need coordination
Channel Islands	5C (Jersey) 11C (Guernsey)

A4. Example of population information

A4.1 In this section we have provided some examples of the information we intend making available to enable applicants for small-scale radio multiplex licences to assess the amount of overlap that their proposed coverage would have with existing local radio multiplex services.

A4.2 In order for potential applicants to assess the overlap of their coverage proposals with the licensed area of a local radio multiplex service, Ofcom will provide relevant population and area data when advertising small-scale radio multiplex licences. The data will be provided in a format suitable for geographical information systems (GIS), and will be published on the Ofcom website.

A4.3 Ofcom currently uses the proprietary MapInfo GIS, and the files will be in the MapInfo interchange format. Two pairs of files (i.e. four files in total) will be produced for each local radio multiplex licensed area. The first pair will delineate the licensed area, and the second will be a set of 2011 census points of the adult (15+) population in the licensed area. Applicants can import these files directly into a proprietary GIS, such as MapInfo or ArcView, or an open source GIS such as QGIS.

A4.4 A set of four example files for the licensed area of the Bristol & Bath local radio multiplex service are provided with this consultation document in Annex 4A (published separately from this document).

A5. Technical information to be provided by applicants

A5.1 In this section we provide some guidance on the format in which applicants for small-scale radio multiplex licences should submit details of their proposed transmitters.

A5.2 Ofcom will require applicants to provide transmitter information submitted as part of their Technical Plan in a consistent format. The exact format of the information we require will be confirmed when we advertise licences. We have provided a spreadsheet as an example of the format in which we will expect to receive transmitter information in separate annex (Annex 5A) to this consultation. The format is provided for guidance only, and may be subject to change as we refine the systems and processes we will use.

A6. Proposed amendments to digital radio technical codes and guidance

Technical quality

A6.1 Small-scale radio multiplex services will be subject to different statutory requirements with regard to technical quality than national and local radio multiplex services.

A6.2 Section 12(1)(g) of the 1996 Act requires that national and local radio multiplex service licensees ensure "*that the signals carrying the multiplex service attain high standards in terms of technical quality and reliability throughout so much of the area for which the service is provided as is for the time being reasonably practicable".*

A6.3 For small-scale radio multiplex services, the Order amends that requirement and instead requires licensees to attain "reasonable standards". Consequently, we intend amending the Digital Radio Technical Code and Technical Policy Guidance Note for DAB multiplex licensees, as detailed below.

Technical Code amendments

A6.4 We propose to amend the Technical Code paragraph 3.3 (Technical quality: channel capacity) as below. Changes from current wording are shown in red.

> **3.3** For national and local multiplexes, ~~T~~ the attribution of channel capacity to individual programme services on the multiplex must be consistent with the provision of generally high standards of technical quality across the audio services carried by the multiplex, taken as a whole. For small-scale multiplexes, the attribution of channel capacity to individual programme services on the multiplex must be consistent with the provision of reasonably high standards of technical quality across the audio services carried by the multiplex, taken as a whole.

Technical Policy Guidance amendments

A6.5 We propose to amend our Technical Policy Guidance paragraph 2.5 (Audio characteristics) as below:

> **2.5** ~~The policy for the audio characteristics of future small scale DAB services is yet to be determined, as the detailed legislation enabling the establishment of a small scale licensing framework has not yet been passed.~~ Small-scale radio multiplexes are subject to some different requirements in legislation to national and local multiplexes, being required to achieve reasonable standards of technical quality. Consequently, Ofcom does not regulate the audio characteristics of the services on small-scale radio multiplexes.

Requirement to operate with DAB+

A6.6 As set out in paragraph 3.66 above, we are proposing to amend our Digital Radio Technical Code to include a condition that requires that small-scale radio multiplex services should operate using DAB+ only.

Technical Code amendments

A6.7 To enact the above , we propose to amend paragraph 3.7 of the Technical Code as below:

3.7 Audio encoding shall conform to either:

- the MPEG 1 Layer II model as described in ISO/IEC 11172-3, ISO/IEC 13818-3 and EN 300 401 or
- the subset of the MPEG-4 High Efficiency Advanced Audio Coding v2 (HE AAC v2) Layer2 profile described in ISO/IEC 14496-3 and TS 102 563.

3.8 In cases where ~~it is proposed~~ a national or local radio multiplex licensee proposes to migrate an existing service from MPEG Layer II to HE AAC v2, ~~multiplex licensees~~ that licensee must liaise with the relevant Digital Sound Programme licensee(s) with the aim of providing timely and appropriate advice to listeners (for example in the form of alerting them to the forthcoming change, and advising on how listeners can continue receiving the service (e.g. by using a DAB+-capable receiver).

3.9 Small-scale radio multiplexes shall adopt only HE-AAC v2 encoding for audio services.

A7. Responding to this consultation

How to respond

A7.1 Ofcom would like to receive views and comments on the issues raised in this document, by 5pm on **Friday 4 October 2019**.

A7.2 You can download a response form from https://www.ofcom.org.uk/consultations-and-statements/category-1/licensing-small-scale-dab-new-powers-and-duties-proposed-by-government. You can return this by email or post to the address provided in the response form.

A7.3 If your response is a large file, or has supporting charts, tables or other data, please email it to smallscaleDAB@ofcom.org.uk, as an attachment in Microsoft Word format, together with the cover sheet (https://www.ofcom.org.uk/consultations-and-statements/consultation-response-coversheet). This email address is for this consultation only, and will not be valid after 4 October 2019.

A7.4 Responses may alternatively be posted to the address below, marked with the title of the consultation:

Jon Heasman
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA

A7.5 We welcome responses in formats other than print, for example an audio recording or a British Sign Language video. To respond in BSL:

- Send us a recording of you signing your response. This should be no longer than 5 minutes. Suitable file formats are DVDs, wmv or QuickTime files. Or
- Upload a video of you signing your response directly to YouTube (or another hosting site) and send us the link.

A7.6 We will publish a transcript of any audio or video responses we receive (unless your response is confidential)

A7.7 We do not need a paper copy of your response as well as an electronic version. We will acknowledge receipt if your response is submitted via the online web form, but not otherwise.

A7.8 You do not have to answer all the questions in the consultation if you do not have a view; a short response on just one point is fine. We also welcome joint responses.

A7.9 It would be helpful if your response could include direct answers to the questions asked in the consultation document. The questions are listed at Annex 10. It would also help if you

could explain why you hold your views, and what you think the effect of Ofcom's proposals would be.

A7.10 If you want to discuss the issues and questions raised in this consultation, please contact Jon Heasman on 020 7783 4509, or by email to jon.heasman@ofcom.org.uk

Confidentiality

A7.11 Consultations are more effective if we publish the responses before the consultation period closes. In particular, this can help people and organisations with limited resources or familiarity with the issues to respond in a more informed way. So, in the interests of transparency and good regulatory practice, and because we believe it is important that everyone who is interested in an issue can see other respondents' views, we usually publish all responses on our website, www.ofcom.org.uk, as soon as we receive them.

A7.12 If you think your response should be kept confidential, please specify which part(s) this applies to, and explain why. Please send any confidential sections as a separate annex. If you want your name, address, other contact details or job title to remain confidential, please provide them only in the cover sheet, so that we don't have to edit your response.

A7.13 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and try to respect it. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.

A7.14 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's intellectual property rights are explained further at https://www.ofcom.org.uk/about-ofcom/website/terms-of-use.

Next steps

A7.15 Following this consultation period, Ofcom plans to publish a statement early in 2020.

A7.16 If you wish, you can register to receive mail updates alerting you to new Ofcom publications; for more details please see https://www.ofcom.org.uk/about-ofcom/latest/email-updates

Ofcom's consultation processes

A7.17 Ofcom aims to make responding to a consultation as easy as possible. For more information, please see our consultation principles at Annex 8.

A7.18 If you have any comments or suggestions on how we manage our consultations, please email us at consult@ofcom.org.uk. We particularly welcome ideas on how Ofcom could more effectively seek the views of groups or individuals, such as small businesses and residential consumers, who are less likely to give their opinions through a formal consultation.

A7.19 If you would like to discuss these issues, or Ofcom's consultation processes more generally, please contact the corporation secretary:

Corporation Secretary
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA
Email: corporationsecretary@ofcom.org.uk

A8. Ofcom's consultation principles

Ofcom has seven principles that it follows for every public written consultation:

Before the consultation

A8.1 Wherever possible, we will hold informal talks with people and organisations before announcing a big consultation, to find out whether we are thinking along the right lines. 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

A8.2 We will be clear about whom we are consulting, why, on what questions and for how long.

A8.3 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 for people to give us a written response. If the consultation is complicated, we may provide a short Plain English / Cymraeg Clir guide, to help smaller organisations or individuals who would not otherwise be able to spare the time to share their views.

A8.4 We will consult for up to ten weeks, depending on the potential impact of our proposals.

A8.5 A person within Ofcom will be in charge of making sure we follow our own guidelines and aim to reach the largest possible number of people and organisations who may be interested in the outcome of our decisions. Ofcom's Consultation Champion is the main person to contact if you have views on the way we run our consultations.

A8.6 If we are not able to follow any of these seven principles, we will explain why.

After the consultation

A8.7 We think it is important that everyone who is interested in an issue can see other people's views, so we usually publish all the responses on our website as soon as we receive them. After the consultation we will make our decisions and publish a statement explaining what we are going to do, and why, showing how respondents' views helped to shape these decisions.

A9. Consultation coversheet

BASIC DETAILS

Consultation title: Licensing small-scale DAB

To (Ofcom contact): Jon Heasman, Senior Broadcast Licensing Executive

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

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

Nothing ☐

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

DECLARATION

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

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

Name Signed (if hard copy)

A10. Consultation questions

Question 1: Do you agree with the planning principles and methodologies that we will use in our work to refine the coverage area plan for small-scale DAB?

Question 2: Do you agree with our proposed approach to the required technical licence conditions for small-scale radio multiplex services, and the proposed amendments to the Digital Radio Technical Code?

Question 3: Do you agree with Ofcom's proposed approach to setting the level of reserved capacity for C-DSP services on small-scale radio multiplex services?

Question 4: Do you agree with the factors we are proposing to take into account of in deciding the order and timescale in which Ofcom will advertise small-scale radio multiplex licences?

Question 5: Do you agree with our proposed approach for assessing the technical plans submitted in small-scale radio multiplex licence applications?

Question 6: Do you agree with our proposed approach for assessing the ability of applicants to establish their proposed small-scale radio multiplex service?

Question 7: Should Ofcom require that the studio of a C-DSP licensee be located within the coverage area of the small-scale radio multiplex service it plans to broadcast on? Please explain the reasons for your view.

Question 8: We propose that holders of corresponding analogue community radio and DSP licences apportion their income equally across their licences, unless there are compelling reasons why a different apportionment is reasonable. Do you agree with our suggested approach?

Question 9: Do you agree with our proposal that a prospective C-DSP service provider will be able to apply for a C-DSP licence once we have invited applications for the small-scale radio multiplex licence upon which their proposed C-DSP service is intended to be provided?