Arqiva submission to Ofcom's consultation, *Licensing small-scale DAB*

About Arqiva

Arqiva is a communications infrastructure and media services company, operating at the heart of the broadcast and mobile communications industry. Arqiva provides much of the infrastructure behind television, radio, mobile and other wireless communications in the UK and we are at the forefront of network solutions and services in an increasingly digital world.

Arqiva operates more than 1,500 transmission sites for broadcasting, providing coverage to over 99% of the population for terrestrial broadcasting in the UK. We are a shareholder and operator for both commercial national DAB radio multiplexes and service provider for the BBC national DAB radio multiplex. We also work with independent radio groups, such as Bauer Media and Global Radio.

Through our wholly owned subsidiaries, Now Digital Ltd and Now Digital (Southern) Ltd, and our joint ventures Now Digital (East Midlands) and South West Digital Radio, Arqiva operates 23 DAB digital radio multiplexes. These multiplexes cover a number of regions of the UK, predominantly in the Midlands, South West and the south of England.

Arqiva is a founder member and shareholder of DRUK, Freeview, YouView and Digital UK. Freeview is the largest TV platform in the UK delivering over 60 digital TV channels, including 15 HD channels, and 24 radio stations free to the UK public. Arqiva owns and operates the networks for all of the Freeview multiplex licence holders and is the licence holder for four of the DTT multiplexes. DRUK works to promote digital radio via liaison with the UK supply chain, business-to-business and consumer marketing.

Our major customers include the BBC, Bauer Media, Global Radio, Wireless, ITV, Channel 4, Five, BSkyB, UKTV, Sony, AMC, Ideal World, QVC, Russia Today, Al Jazeera Networks, BT and the four UK mobile operators.

Arqiva is owned by a consortium of infrastructure investors and has its headquarters in Hampshire, with major UK offices in London, Buckinghamshire and Yorkshire and operational centres in Greater Manchester, West Midlands and Scotland.

Overview and Recommendations

We are grateful, once more, for the opportunity to provide views on the introduction and implementation of small-scale DAB. As ever, we wish to re-iterate our support for this new layer of radio services and recognise the potential significant benefits that they could bring to listeners. In particular, we continue to believe that any measures which facilitate access to digital radio for community and not-for-profit services, enhancing social engagement at a genuinely local level are of importance to the UK-wide communities. This is the case with the smallest commercial stations, usually serving populations covering only a small fraction of the area covered by an existing local DAB multiplex. This was clearly the policy intent of the small-scale DAB initiative.

While we have some significant misgivings over the general policy direction of small-scale DAB, our key concerns at this stage of implementation are technical. It is regrettable that a number of fundamental technical issues remain unresolved at this relatively late stage in the implementation process. However, this consultation is the first point at which Ofcom is formally consulting on relevant spectrum planning principles and methodology.

Our concerns are threefold, but all relate to Ofcom's proposal to favour awarding a small-scale multiplex licence to the applicant able to deliver the highest population coverage in each spectrum planning polygon. They are:

- Risks of adjacent channel interference (ACI) into existing multiplexes are now, we consider, significant with emerging concern from field work over "hole punching" occurring between trial small-scale DAB services and local multiplexes;
- Concerns over how any co-channel interference will be managed between small-scale DAB multiplexes and existing neighbouring multiplexes; and
- The proposed approach to protecting adjacent small-scale DAB multiplexes is likely to involve much higher levels of interference between multiplexes.

What this could mean in practice is of crucial importance for DAB as a radio ecosystem. Industry, listeners, government and regulator are setting down a path of establishing DAB as the long term means of delivering radio. But Ofcom is setting in train a process which could undermine listeners' experience of DAB provided by small-scale and existing DAB multiplexes. There is a risk that some listeners currently enjoying Classic FM, The Archers, LBC or their favourite local presenters on DAB could suddenly lose stations they have been listening to digitally for years. Ofcom must not undermine the move toward a digital radio future and needs to take greater care in how it implements this policy.

We set out further detail – and in particular with our response to Question 1 of this consultation - the basis of our concerns. In each case there is a clear mitigation available to minimise the risks involved which builds on the processes used in Ofcom's successful small-scale trials. That is to move away from an approach where higher power levels and, by consequence, maximum population coverages within a relevant polygon are actively encouraged during the licence award process. We believe this can be done without undermining the key aims of MPs and the legislation i.e. to provide a good route to digital radio for community radio and smaller local commercial stations.

Ofcom's proposal (as set out in paragraph 5.29) in this respect states that it will favour higher population coverage levels over smaller ones for spectrum efficiency reasons. However, as we set out in our response to Question 1, this approach is significantly increasing the risks of interference on a number of levels. Given that context, our view is that this is not the optimal outcome for the use of spectrum for citizens and consumers.

On the other hand, Ofcom appears to contradict that proposed approach by its statement on paragraphs 3.31 and 3.32. This sets out a more measured approach to determining the size of small-scale services, more closely aligned with government policy. In particular, paragraph 3.31 and 3.32 refers to "ensuring that an area is of a size which is suitable to support smaller services…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".

Clearly, given the evidence set out in our consultation response, we would urge Ofcom to err on the side of paragraphs 3.31 and 3.32 over the approach to (supposed) spectrum efficiency as outlined in paragraph 5.29. This represents our first suggestion to Ofcom as a way of ensuring its approach to small-scale DAB implementation achieves the policy objective of the wider initiative.

Recommendation: Removal of the proposed award approach which actively favours wider populations and confirming a policy in line with paragraphs 3.31-3.32 of the consultation which took a more balanced view of the requirements of community and not-for-profit services.

One consequence of the above would be that Ofcom should reassess whether it should be guided solely by the parameters set out in the consultation when it comes to maximum multiplex population and/or power levels. As the proposals stand, there are polygon areas where services could reach adult populations in the millions and Ofcom would actively encourage and favour applicant small-scale multiplexes which would strive to reach those maximums.

As we set out in our previous consultation response, we have concerns on the risk of harmful interference. This is particularly the case with ACI from small-scale DAB to existing multiplexes and is based on field tests by Arqiva engineers on one of the trial small-scale DAB multiplexes. This demonstrates a level of interference – and resultant loss of service - into existing multiplexes which would be unacceptable for listeners and industry. Accordingly, Ofcom should not be looking to exceed the maximum 100W ERP at this stage (i.e. retaining Ofcom's general guidance for the trials that has limited all but a few test sites to a maximum of 100W ERP). It should also be considering whether each service area should be limited to one transmitter until more is known about the potential levels of interference.

There are also sound public policy reasons why Ofcom's current proposed approach is undesirable. Our own view is, from a policy perspective, no small-scale DAB should serve a greater population than (for example) the average size UK local DAB multiplex. If these new multiplexes were similar to or greater in population size to existing local DAB multiplexes then they should be subject to the same, or equivalent, regulatory obligations. Those regulatory obligations would inevitably introduce complexity and barriers to entry to the market for prospective new entrants.

Recommendation: A 100W ERP cap on the power levels of any future small-scale multiplex until more is known about interference into existing services

It is in not in the interest of any stakeholder that the introduction of small-scale DAB should become unduly frustrated by technical and interference problems. New small-scale operators will want to get to market as quickly and as smoothly as possible. Existing multiplex operators will not want to be spend undue resources measuring, addressing and resolving ACI problems. Government and Ofcom will want to deliver on their own commitments. Above all, the interests of listeners must be at the centre of these proposals. We believe these aims are best achieved by a careful and cautious implementation process.

With that in mind, we are suggesting that there should be a relatively short period of pause-and-review to ensure that any issues with the licence award process – in particular that of the development of a technical plan – are properly understood and addressed. We suggest that this should occur after the initial twenty small-scale DAB licences have been awarded. Such a pause need not take longer than three months - immediately after the planning and licensing phase but ahead of the build phase. This would allow a relatively short period of time for Ofcom and industry to identify issues that have arisen and to secure agreement on how best to resolve those issues in the future licensing process. The twenty licences could represent the ten trial areas with an additional ten licences in new areas where issues with, for example, new technical plans are likely to arise under the current proposals.

Recommendation: A process of pause and review on the first 20 awarded licences, lasting no more than three months, allowing the opportunity to ensure that the most effective process is being applied to licensing of small-scale DAB, giving reassurance to Licensees, Ofcom and Multiplex Operators.

Should the concerns we have with interference from new small-scale services into existing multiplexes prove to be well-founded, Ofcom would have the opportunity to assess the scale of the problem and propose mitigations to minimise the impact for listeners. In such circumstance, we suggest a further pause between the actual introduction of services to listeners in the first 20 licensed areas and introduction of services thereafter. This pause, again, need not be more than three months and would allow a proper assessment and measurement of any interference issues in those 20 service areas.

Recommendation: A process of pause and review on the first 20 awarded licences launched services, lasting no more than three months to evaluate the deployed service against the technical plan. This will enable a check on ACI or blocking issues and allow adjustments to be made either by the licensee or to the prediction model if consistent anomalies are identified

Potential policy benefits of this approach

The policy of implementing and licensing small-scale DAB has evolved far beyond what was envisaged during the passage of the relevant legislation and is somewhat removed from the core policy intent expressed at that time. The proposals are of much greater scale and more commercially orientated, for example, than was said to be the case during the Second Reading Debate when the Bill's sponsor stated:

> "My intention is that such multiplexes will mainly focus on community radio and will be the main focus of Ofcom licensing, although I emphasise that if the Bill were to become law there would need to be detailed consultation with the industry on its operation. It is possible to provide very Small-scale services through such multiplexes but, fundamentally, we are looking at non-commercial services."

Similarly, the notion that these multiplexes would be "small-scale" at all, providing a community resource as their core purpose has now been overtaken by Ofcom's proposal that could see service areas with populations in the millions. If Ofcom confirms these draft proposals, we could be in the unusual linguistic position where many so-called small-scale multiplexes will serve significantly larger populations than existing local multiplexes.

With that in mind, we are conscious that the proposals we have put forward above could offer an advantage of more closely aligning the approach to implementation with the policy intent behind small-scale DAB. In particular our proposals would:

- Reduce costs of accessing DAB for community and not-for-profit services;
- Remove the disincentive for multiplex operators seeking to serve particular communities with smaller populations to apply for a multiplex licence by having comfort that Ofcom would not favour greater population coverages of broader polygons as a matter of course during an award process;
- Minimise the risk of poor listener experience at a time when the future of the wider DAB network is being discussed by key industry and government players; and
- Simplify the process of awarding licences and promoting roll-out of services as a result of reducing the complexity of technical plans and making it easier to address ACI issues.

Responses to 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?

General points

We welcome the opportunity to comment upon the comprehensive nature of Ofcom's work to this stage on the coverage area plan for small-scale DAB. It is clear that technical planning requirements are likely to be complex, and a detailed knowledge of spectrum planning and access to a planning tool would be required for a successful application.

The complexity increases with Ofcom's preference to "cover a larger proportion of the population area covered by the advertised polygon over those who propose to cover less of it, whilst minimising overspill" (paragraph 5.29), whilst assessing the 40% limit against existing local DAB population coverage, assessing co-channel interference to other polygons and Local DAB, and providing a hole punching assessment. There is also an apparent contradiction between paragraph 5.29 which requires the minimising of overspill and paragraph 5.28 which states

> *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.*

In any event, allowing 30% overspill appears excessive, especially in the case of polygons exceeding 500,000 population. In our view, 10% would be more appropriate.

We agree with the proposal that only Ofcom itself can propose an overlap exceeding 40% (paragraph 3.25 and elsewhere). We note that in the initial planning, this target has not been exceeded (paragraph 3.26). However, we are concerned to note that Ofcom have chosen to combine certain licensed areas in order to meet this limit. This is notable for the Plymouth small-scale DAB polygon which is assessed as having an overlap of 39.42% against the combined licensed area of Plymouth and Cornwall Local DAB licensed areas. When Plymouth small-scale DAB polygon is compared against the existing Plymouth multiplex where South West Digital Radio is the licensee, the overlap is greater than 60%. A similar outcome arises in the case of Swindon, which has been compared against Swindon and West Wiltshire local DAB licensed areas combined. Torbay, similarly, has been compared with North Devon and Exeter & Torbay local DAB licensed areas combined.

As a result, we do not believe that the Plymouth, Swindon and Torbay small-scale DAB polygons are compliant with the target small-scale licensed area sizes. Ofcom should undertake its own analysis to determine whether there are other examples of this anomaly.

We are concerned that the level of spectrum and engineering expertise required to submit a complex licence bid could lead to applications which have not had the required level of technical input. In some cases, it may be unclear if bids are compliant at the point of application. We believe that this will lead to a significant burden on both Ofcom and existing licensees to review and may, in turn, leave bidders frustrated.

We set out below our concerns on the risks of harmful ACI into existing multiplexes and suggest changes in Ofcom's approach which would mitigate this, namely:

- Removal of the proposed award approach which actively favours wider populations and confirming a policy in line with paragraphs 3.31-3.32 of the consultation which

take a more balanced view of the requirements of community and not-for-profit services; and
- Formalise the assumed maximum radiated power limit of 100W ERP, as specified in paragraph A2.23, into a maximum allowable ERP for small-scale DAB transmitters.

We also note that the level of complexity for applicants in drafting and agreeing their Technical Plan with existing multiplex licensees is likely to be significantly reduced by adopting this approach.

We are concerned with regards to the potential for co-channel interference, and believe further clarity is still needed for the process of assessing and consulting with existing licensees about potential areas of interference. We are particularly concerned regarding paragraph A2.19, where it is stated "*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."* We would like to understand the process by which this higher level of interference is assessed and agreed, and the requirement which might be placed on existing licensees. Until now, Ofcom has regulated to protect coverage for listeners once they are able to receive their favourite DAB radio stations and we believe this approach should be extended equally to small-scale licensees to protect the interests of listeners.

In the following bullet points, we make comments which aim to help reduce potential ambiguity in Ofcom's proposed planning approach:

- We are not clear as to how the process of converting the polygon area into the licensed coverage area will work, particularly with regards to the future assessment of interference into that coverage area from future small-scale or local DAB licences. Clarity needs to be provided as to whether these areas are defined using noise limited or interference limited coverage. The experience of Local TV shows that many complexities are introduced when network changes are considered if services are licensed using their predicted coverage area;
- In order to ensure that the databases of all stakeholders are kept up to date and to help assess interference and coverage, we seek clarity from Ofcom that accurate databases of transmitter characteristics will be maintained by Ofcom and are available to all licensees; and
- We are not clear about how Ofcom plan to assign frequencies to polygons within the two defined macro areas. However, we support the provision in paragraph 5.31 that within the macro areas the advertised polygons will not be batched together, and that all coverage limits are maintained.

Finally, on a matter of process, we are unclear on what basis Ofcom has decided *not* to assess other potential uses of spectrum apart from that of small-scale DAB. Paragraph 3.50 states that this decision "reflects our policy priority of providing a path to terrestrial digital transmission for smaller community and analogue commercial and community radio services, and aligns with the Government's policy intentions". However, there is a significant difference between small-scale DAB being a policy priority and it being a priority to the extent that it precludes an assessment of possible alternative uses of spectrum.

There is nothing in DCMS's policy statement on small-scale DAB, Ofcom's previous documents on small-scale DAB or in the secondary legislation which suggests that Ofcom must take this approach. On the other hand, Ofcom has a statutory duty to secure a wide

range of radio services – which would include all tiers of UK radio (i.e. community, local commercial, national commercial, BBC) along with other potential uses.

The increased risk of ACI to existing national and local multiplexes

The criteria for addressing ACI is set out in the Radio Technical Code. Although the liaison process only starts post award (paragraph 5.19), an applicant is required to "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" in order to "avoid the situation where other licensees and/or Ofcom object to transmitter coming on air". Therefore, although the code timescales would exist only post award, existing licensees might be asked to comment on multiple applications or for information about their existing coverage in the polygon area.

We do not believe this is feasible pre-licence award as it is very unlikely that potential applicants would wish to share with a third party (i.e. existing Ofcom licensees) details of their technical plan, given its stated importance to the overall application for a local DAB licence. In addition, in areas where there are competing bids existing licensees might be overwhelmed by requests from different consortia. We are unclear how Ofcom will be able to select the strongest bid without confidence that its transmitter plan can be implemented in accordance with the Radio Technical Code.

In recent months, Arqiva engineers have investigated the potential ACI impact of small-scale DAB on existing DAB services by measurements around the small-scale trial site at Woking. Measurements showed that ACI from the 100W ERP transmitter can cause audio drop-outs to the local DAB service on roads near the transmitter site, over distances of 60 to 100 metres. This represents audio loss for 10 seconds in free-flowing traffic, but would be longer in slow moving traffic during busy times of the day. Operating small scale DAB transmitters at higher power than this 100W would risk interference over larger areas with a significant impact on the listener. The potential for interference from any DAB transmitter needs to be carefully evaluated on a site-specific basis, taking into account the field strength of the existing service and the location of roads and buildings relative to the small-scale transmitter site.

This is a key issue for listeners, and has a potential impact for consumers' impressions of DAB digital radio as a reliable technology for listening to their favourite stations. Given the timing of implementing this policy, we would suggest Ofcom addresses this risk as a matter of urgency.

Mitigating the risks of interference

These field tests suggest that there may be an unacceptable risk of harmful interference from small-scale DAB into existing multiplex services at current allowed power levels. The impact for listeners may be greater in areas where the field strengths of existing multiplex services are lower than that in Woking. In that respect, we would argue that this is precisely the reason why trials of this kind were set up. They have helped to highlight this and other potential issues before formal launch of licensed small-scale DAB services.

However, the correct response to this evidence is to proceed with caution on establishing small-scale DAB multiplexes. In particular, it would be counter-intuitive to allow *greater* power levels than the 100W ERP currently being trialled in Woking. We would further argue that Ofcom should, in the first instance, limit deployment in each service area to a single transmitter until more is known about the actual ACI impact on existing services.

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?

We have particular concerns over Ofcom's proposal to introduce "macro areas" in areas of high demand but relatively low spectrum availability. This is due to the issues we have raised above on spectrum planning challenges and the increased risks of interference into existing multiplexes. The most effective way of mitigating those risks is by limiting the allowed power levels until more is known about the actual impact into existing multiplexes. As we set out above, this has the additional policy benefit of more closely aligning with the original policy intent behind small-scale DAB.

For that reason, we question whether any proposals which allow for higher power levels (thereby extending coverage) *even further* than the very significant populations being proposed by Ofcom is the correct approach at this stage. Instead, initial licensing should be less permissive to protect the interests of listeners and existing licensees and stakeholders.

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 multiplexes services?

Given this approach is now well-established, we do not offer a view on this question.

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?

In terms of prioritisation, we have a concern over the proposed approach whereby Ofcom will prioritise areas with greatest populations. As we set out above in our response to Question 1, there are likely to be greater challenges in agreeing a technical plan for applicants than Ofcom are, perhaps accounting for.

We consider it desirable also to include some smaller populations in the initial phase from both a technical and policy perspective. These may present their own challenges from a process perspective where potentially less well funded applicants seek to provide services.

Our proposal to initiate a review of the licensing process after the first 20 licences have been awarded would be more meaningful if there was a cross-representative spread of award areas as part of that review. This would expose any challenges inherent in different types of areas and with different types of applicants.

More broadly, we have some general points on the timetable of awards. Ofcom does not give any indication of what overall timetable it will work to but there are three factors which will clearly be important for Ofcom taking this forward. These are:

- Ofcom's ability to deploy its own finite resources in what will we believe will be a challenging administrative task;
- Industry's ability to respond to the proposed strict timetable, given the requirement on applicants to prepare robust and technically sophisticated deployment plans; and
- The response to our suggestion that there should be a pause-and-review after the first 20 awards have taken place.

The decision on timing and award sequencing is crucial for a number of stakeholders and we would urge Ofcom to discuss the timetable further with stakeholders before publishing its timetable for licensing.

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

We have a significant concern over the proposed approach set out in paragraph 5.29:

> "We will prefer applicants that propose that propose to cover a larger proportion of the population covered by the advertised polygon over those who propose to cover less of it"

As we note above, this represents a contradiction within the consultation on how it will approach proposed multiplex populations. In paragraph 3.31-3.32, Ofcom sets out a measured policy position on how it will balance the requirements of community services against the efficiencies of wider population coverage. It then goes on to state, in paragraph 5.29 that it will, *as a matter of policy*, give preference to small-scale DAB licence multiplex applicants who seek to deliver services to the widest possible population. The former position is more in keeping with the original goals of the small-scale initiative to give affordable access to digital radio for smaller commercial, community and not-for-profit radio stations.

Given the need to minimise the risks of interference into existing DAB multiplexes, our view is that Ofcom should be cautious on power levels (thereby, by implication, moving towards smaller coverage sizes than those currently envisaged.) This aligns more closely with the original policy intent for small-scale DAB multiplexes. Ofcom states that larger populations are desirable on spectrum efficiency grounds. In contrast, our view is that setting multiplex coverage areas in a way which minimises the risk of harmful interference between services is more spectrally efficient. This is particularly the case where frequency re-use within polygons can be secured.

With that in mind, we would urge Ofcom to remove the preference for larger populations in awarding licences *as a matter of policy.* Instead, the policy and regulation should be shaped by the principles set out in paragraphs 3.31 and 3.32 as well as consider more restrictive parameters for planning small-scale DAB multiplexes. This, of course, does not prevent Ofcom from favouring larger populations where specific listener-focussed issues lead to that conclusion.

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

In para 5.18, the importance of the technical plan is stressed, with the comment "we would encourage applicants to ensure they take advice from a competent engineer to assist them in putting together their technical plan". However, based on the recent Channel Islands licence application process, it was clear that some applicants were concerned regarding the cost and technical expertise required to provide a detailed and compliant coverage prediction and assessment, beyond that provided by Arqiva through the Reference Offer process.

For the Cumbria award, Arqiva again provided a significant level of technical support alongside the well-resourced Reference Offer process. The constraints on both the Channel Islands and Cumbria licenses would, we note, appear to be *simpler* than those placed on Small-Scale DAB applications.

These observations support our suggestion that Ofcom should have a pause and review this element built into the process once a cross-representative sample of licences have been awarded. As we have detailed above, we believe this could be after the first 20 awards.

As we noted in our response to Ofcom's consultation on revisions to the Radio Technical Code, it remains unclear to us what Ofcom will deem to be sufficient expertise and experience when assessing applicants. Indeed, this may be hard to assess until the first bids have been submitted to Ofcom. It would be helpful if Ofcom ensured that the technical plans of the selected licensees were always made public in full.

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?

Arqiva operates in several of the industry sectors regulated by Ofcom. These questions ask for a judgement about how the interests of stakeholders and users or C-DSP should be balance with the interests of broadcast radio stakeholders and radio listeners. Given our involvement in both C-DSP and DAB digital radio we have decided not to express a view on this question but to leave this important judgement to Ofcom.