

Opinion: The Future of AM Radio

England, Scotland, Wales and Northern Ireland

Summary

AM radio in the British Isles is now in terminal decline with audiences dropping and more than half of the transmitters already closed. In 2023, Bauer became the first major broadcaster to cease all AM broadcasting and Global closed most of their AM transmitters. Over the next few years, the BBC and the remaining commercial broadcasters will be looking to minimise their AM transmission costs by reducing transmission powers at the high-power sites and closing some of the low-power transmitters serving small audiences. The BBC has announced its intention to cease AM broadcasting by the end of 2027. Talk Sport is also likely to cease AM broadcasting by the end of 2027, though many independent broadcasters are likely to continue using AM beyond this. This article explores these issues in more detail.

Background

AM was the dominant listening medium for radio in the British Isles until the mid 1980s, when it was overtaken by FM. In the early 1990s, with improvements in FM coverage and wide access to FM radios, it was decided to mostly abandon simulcasting in the UK and launch new stations on AM. In general, the most popular stations have broadcast on FM since the 1990s, while AM has been used for more specialist services. Five Live, Talk Sport and many of the minority stations have remained successful. However, most of the music stations have lost more than half of their audience as more commercial stations have launched on higher quality FM and Radio 2 has broadened its appeal.

With the widespread adoption of digital radio in the UK, the decline in listening to 'AM' stations has halted and their audience has stabilised. However, the proportion of that audience that is still using AM is declining. AM listening hours halved between 2013 and 2020 and the UK government 2021 Digital Radio and Audio Review predicts that AM listening will halve again between 2020 and 2025, at which point it will become "commercially unsustainable".

Within Europe, many countries, such as Austria, Belgium, Germany, Sweden and Switzerland, have closed AM radio completely. Most other countries have substantially reduced the number of transmitters in use. Only Romania and Spain have maintained the vast majority of their AM transmitters. In the UK, more than a third of the AM transmitters closed between 2018 and 2021. The UK government has asked the BBC, Bauer and News Broadcasting to develop plans for the closure of the national AM services and migration of their audiences to digital platforms "at some point in the mid-2020s", but has no current plans to mandate closures. The AM closure process then accelerated in 2023 with Absolute Radio becoming the first national AM network to close in January and more than 30 local commercial radio transmitters closing.

The Problem

Clearly, AM radio is in decline and audiences will continue to drop. AM transmitters are more expensive to run than FM and DAB transmitters (though hilly areas can be served by fewer transmitters on AM). The electricity costs are around ten times higher than FM and DAB because high-gain transmit antennas are not practical at the wavelengths AM radio operates on. Recent increases in energy costs have exacerbated this problem. AM radio generally uses separate transmission sites, whereas FM and DAB radio share transmission masts with each other, with television and with mobile communications services. AM transmitter sites also require more land (see Appendix A).

Without changes, the transmission cost per AM listener will get higher and higher until it is no longer sustainable. Particular problems can occur when investment in new transmission equipment is needed or a site lease has expired, requiring relocation of the transmitter in order to continue broadcasting. At some point, stations will have to close down AM and expect the remaining AM listeners to switch to digital radio. The government anticipates this will be in the mid 2020s, but it could be later if the decline in AM listening slows.

In practice, different stations will reach the limit of economic viability at different times. Typically, Five Live and Talksport have a lower cost per AM listener, while the music stations have a higher cost per listener. In terms of alternatives, DAB coverage is now sufficient for many commercial stations, though not necessarily for the BBC, which is obliged to provide close to universal coverage. For home listening, switching from AM to digital platforms is relatively straightforward, with television and internet listening providing an alternative to DAB. Outdoor listening using DAB is possible in most places, though battery life can be poor, particularly on older receivers. The problem is in-car listening, where it is difficult to replace radios that are typically integrated into the car dashboard. A stand-alone DAB radio can connect to the car using the jack connection provided for music players or a low-power FM

transmitter, but providing an adequate aerial can be problematic. Many listeners will simply switch to another station instead. Norway kindly volunteered to act as a test-bed for in-car DAB installation by switching off its national FM transmitters in 2017. A few months after the switch off, only a third of cars without DAB before the switch off had DAB receivers installed with the result that nearly half of Norwegian cars were unable to receive national radio.

The fundamental problem that stations face is that if they switch off AM early, they will lose a significant proportion of their audience, whereas if they keep it going for several more years, they will be spending money broadcasting to a shrinking audience.

The Solution

The best approach for the next 5 years or so is therefore to follow the example of many other countries by reducing the cost of AM transmission, whilst trying to minimise the number of listeners lost as a result. If coverage is reduced gradually, sudden drops in the overall audience (i.e., across all platforms) will be avoided. A good strategy could be to try to keep the transmission cost proportional to the number of AM listening hours as the latter declines.

For high-power AM transmitters, electricity costs form a large proportion of the operating costs. Therefore, simply halving the power of these transmitters would significantly reduce transmission costs without completely cutting off any listeners. Some would simply experience more background noise. Arqiva revenue would not be affected by this as electricity costs are “passed through” from the electricity suppliers to the broadcasters. Absolute Radio halved the powers from its main sites in 2018. Talk Sport have also reduced some powers and the BBC is likely to follow at some point.

For low-power transmitters, the cost of distributing the audio to the transmission site by landline is significant. For national FM networks, distribution costs are minimized by using the high-power transmitters to feed the low-power transmitters. This works because good reception of at least one high-power transmitter is usually available on top of a relay station tower with a good aerial. This doesn't work for AM because reception of other AM transmitters carrying the same programme is generally poor at transmission sites. The major broadcasters now use a combination of satellite distribution and feeding from the corresponding DAB service, substantially reducing the cost.

Transmission costs can, of course, be reduced by closing transmitters. This also provides a source of spare parts for the remaining transmitters. In general, those transmitters with the smallest audiences should be closed first, noting that audiences do not necessarily correspond to coverage areas. However, sites requiring extensive maintenance work are also likely to be closed earlier. Also, transmitters typically cost less to operate where the site is shared with other broadcasters, particularly other AM transmitters, but also FM, DAB and TV transmitters. Thus, it can be more cost effective to shut down solo transmission sites even if the affected audience is slightly larger. Conversely, closure of a transmitter at a shared site increases the costs for the remaining users of that site. The government (in the 2021 radio review) therefore encouraged broadcasters to coordinate site closures where possible. However, there is not much sign of this happening.

Another driver of transmission closures is land value. Some AM transmission sites have substantial redevelopment value and it is no longer cost effective to relocate the transmitter(s). Several AM transmitters have already closed to enable redevelopment of the transmission site. This is explored in Appendix A.

A further option to close high-power AM transmitters overnight to save electricity costs. There is a precedent for this; Radio 1 closed its AM transmitters from midnight to 06:00 between 1991 and 1994 after introducing 24 hour broadcasting on FM. Radio 5 Live is currently available on FM between 01:00 and 05:00, via the BBC's local and regional radio stations, so does not need to be available on AM during these hours. Talksport would need permission from Ofcom to do this.

The remainder of this article considers each service in turn.

Absolute Radio

Absolute Radio ceased broadcasting on AM on 19 January 2023 with the transmitters closing the following week. It had already substantially reduced its AM network to minimise costs. The Gatwick transmitter closed in 2003 and the Reading transmitter closed in 2015 when the site was sold. In May-June 2018, a further 12 transmitters closed. These were at Redmoss (Aberdeen), Dundee, Wallasey (Merseyside and North Wales), Sheffield, Hull, Cambridge, Hoo (Kent and Essex), Guildford, Swindon, Torbay, Plymouth and Redruth (Cornwall). Aberdeen, Plymouth and Cornwall lost AM coverage altogether, while the remaining areas have degraded reception.

Power reductions of 50% also took place at the five high-power sites: Westerglen, serving Central Scotland; Moorside Edge, serving Northern England; Droitwich, serving the Midlands; Washford serving South Wales, Avon, Somerset

and Wiltshire; and Brookmans Park, serving London and the surrounding counties. These changes were motivated by Arqiva quoting a much higher price for continuing operation of Absolute's AM network in the pre-2018 configuration beyond April 2018 because much of the transmission equipment needed replacing. Closing sites thus reduces the amount of new equipment needed and, together with the power reductions, offsets the cost of procuring the remaining new equipment. Daytime population coverage from was reduced from 90.5% to 85.4%, but the loss of night-time coverage was proportionately much larger, impacting commuting hours during winter.

In its 2017 request to Ofcom to reduce coverage, Bauer stated that it expected the new AM network configuration to become unprofitable by 2022. However, Absolute's AM listening actually increased between 2017 and 2021 due to Absolute losing its FM frequencies in London and the West Midlands to Greatest Hits Radio and several other FM rock music stations changing format. Absolute's AM network might have remained viable if transmission costs did not significantly increase. However, there was a large increase in electricity costs during 2022. A further reduction in transmission powers at the main sites and further transmitter closures may have been an option. However, Bauer made the decision to close the whole network in January 2023.

Talksport

In the third quarter of 2022, 31% of listening to Talksport was via AM. Overall listening is likely lower in Scotland and Northern Ireland, which have their own sporting cultures.

At the beginning of 2020, with Ofcom's permission, Talksport closed the Exeter, Londonderry, Ocombe (Torbay), Plymouth, Redmoss (Aberdeen), Redruth (Cornwall) and Rosemarkie (for Inverness) transmitters, all of which served relatively small populations. Exeter also receives daytime coverage from the Washford transmitter. These closures were likely motivated by transmitters becoming life expired and the broadcaster being reluctant to replace them, noting that transmitters (but not antennas) can easily be moved from one site to another.

There have also been power reductions at some of the high-power sites, with Washford and Westerglen now operating at lower power all of the time, while Droitwich and Moorside Edge operate at low power during daylight hours, increasing to the original power at dusk and in the evenings when there is greater interference due to skywave propagation of co-channel transmissions. Given the recent increase in energy costs, further power reductions are possible, particularly at Brookmans Park, which appeared to be operating at the original power at the time of writing.

A second batch of low-power transmitters were closed on 31 May 2023: Bournemouth, Dumfries, Dundee and Hull. In its application to Ofcom for permission, Talksport indicated that it planned to close all of its low-power transmitters in batches ahead of the closure of its five high-power transmitters, possibly in 2026.

The seven low-power sites that are now used only by Talksport, which are at Boston (Lincolnshire), Clipstone (Nottinghamshire), Duxhurst (Sussex & Surrey), Lydd (SE Kent), Rusthall (SW Kent), Stockton-on-Tees and Wallasey (Merseyside) are likely to close next, possibly in 2024. Apart from Boston, these provide night-time coverage to areas that can receive daytime-only reception from a high-power transmitter. However, with a lot of live sports coverage occurring in the evening, night-time reception is more important for Talksport than for a music station.

The low-power transmitters at Brighton, Fareham, Lisnagarvey and Postwick, which are at sites shared with Radio Five Live, and the Newcastle Wrekenton transmitter, which serves a large population, are more likely to survive the next round of closures. Apart from Brighton, these serve areas with poor reception from the high-power transmitters.

BBC Radio Five Live

In the third quarter of 2022, 30% of listening to BBC Radio Five Live was via AM. On 26 May 2022, the BBC announced that "5Live on Medium Wave will also close no later than December 2027, in line with a proposed industry-wide exit from the platform." At the time of writing, there have been no changes to Radio Five Live's AM transmitter network. Most likely, the closure of the Five Live AM network will be done in two (or more) stages with an initial coverage reduction to minimise costs followed by a full closure some time later.

The transmitters likely to be retained initially will include those at sites shared with Talksport: Brighton, Brookmans Park, Droitwich, Fareham, Lisnagarvey, Moorside Edge, Postwick and Westerglen. Coverage is also likely to be maintained in other areas where Talksport is still on AM:

- North East England and North Cumbria using either the current Stagshaw transmitter or the Newcastle Wrekenton and Carlisle transmitters currently used by Radio 4 (see below).
- South Wales and the West of England using either the current Clevedon transmitter or the Washford transmitter currently used by Radio Wales, either on 882 kHz as at present or moved to 909.

- The East Sussex and South Kent coasts using the Bexhill and Folkestone transmitters (if Talksport retains its Lydd transmitter).

In addition, the Start Point transmitter serving most of Devon, Cornwall and Dorset is likely to be retained due to its high population coverage. Power is likely to be reduced at all of the high-power sites.

The remaining Five Live AM transmitters serve areas where Talksport is not available on AM and are not shared with other broadcasters. Some of the sites are shared with other BBC services, but these are likely to close soon. Therefore, the Barrow (S Cumbria), Bournemouth, Burghead (North Scotland), Enniskillen, Exeter, Londonderry, Redmoss (Aberdeen), Redruth (Cornwall), Tywyn (Cardigan Bay) and Whitehaven (W Cumbria) transmitters are likely to close in the initial phase. Some of these areas receive adequate daytime coverage from other transmitters.

BBC Radio 4 Long Wave

For the past few years, an increasing proportion of the BBC's long wave transmission costs (but not those of the Radio 4 MW transmitters) have been funded by the electricity industry. This uses phase information in the long wave transmissions to provide the Radio Teleswitch Service which switches 'Economy 7' electricity meters between day and night modes. This was originally due to end in 2020. However, due to delays in smart meter installation, the contract has been extended several times. It is currently due to end on 31 March 2024 and is unlikely to be extended beyond the end of 2025.

On 29 May 2023, the BBC announced that the scheduling separate content on Radio 4 Long Wave would end in March 2024. From the end of March, the long wave transmitters may switch to the main Radio 4 service, may carry the Radio Teleswitch Service signals without any audio or may close. It is likely that Radio 4's medium wave transmitters will close at this point. However, the BBC has yet to confirm plans for any of these transmitters after March.

BBC Local and Regional Radio

In 2012, the BBC announced plans to close down most of its local radio AM transmitters in England, noting that 10 were closed down in the 1990s to make way for commercial radio expansion. Initially, several transmitters were temporarily closed to determine how many listeners relied on them. Radio Nan Gaidheal's AM transmitter in Aberdeen was then closed in November 2015 and Radio Bristol's AM transmitter in February 2016, the latter to enable redevelopment of the transmission site. However, the main closure programme, extended to regional radio, did not begin until 2018, following improvements in local DAB coverage and the addition of BBC local radio to digital terrestrial television. 13 transmitters were closed in 2018, 17 closed in 2020 and 17 closed in 2021.

Following these closures, several areas were left with inadequate FM reception of BBC local or regional radio. DAB coverage was provided for some of these areas, but not others. Most areas left with no FM or DAB reception would have required transmitters serving fewer than 2000 people to fill the gaps. Full details are given in Appendix B.

The BBC's 2022-23 Annual Plan states that "we will begin developing plans for the closure of Medium Wave over the coming years." Therefore, the remaining 11 radio transmitters will be closed over the next few years, with the next round potentially coinciding with the Radio 4 medium wave closures. Appendix C lists the gaps in FM/DAB coverage served by these transmitters. There are no plans within the next few years to improve DAB coverage in any places where BBC local and regional radio are only available via AM. Improvements to FM coverage are possible, but not likely due to BBC funding constraints. The individual transmitters are discussed below.

- The Radio Guernsey and Radio Jersey AM transmitters were originally retained to provide opt-outs from the main service covering the island assemblies. These opt-out services are now available on DAB, so these transmitters are likely to be switched off in the BBC's next closure round.
- The Radio Cumbria (North and South), Radio Derby, Radio Norfolk (West) and Radio Somerset transmitters serve similar FM and DAB coverage gaps to the AM transmitters that have already been switched off. Consequently, they are also likely to be closed in the next round.
- The Radio Gloucestershire (West) transmitter serves areas with very poor FM and DAB coverage. This area is the most likely candidate for additional FM transmitters, in which case AM would be retained until they are installed. If no improvements to FM coverage are planned, the AM transmitter could be closed in the next round or it could be retained until the final Five Live AM transmitters are switched off.
- The original Radio Wales (South) transmitter was replaced by a new lower power transmitter in 2021. This makes it unlikely that the transmitter will be switched off in the near future. However, it could be transferred to Five Live, enabling closure of the Clevedon transmitter. The BBC might consider an additional FM

transmitter to serve Monmouth. Alternatively, Radio Wales could be added to the BBC National DAB multiplex (probably using DAB+), plugging both the Monmouth and Garth coverage gaps.

- The Radio Scotland transmitter at Westerglen serves significant FM coverage gaps in the road network, so may be retained until the final Five Live AM transmitters are switched off, potentially with a power reduction. The FM coverage gaps served by the Burghead transmitter have much lower traffic/population levels, so Burghead is more likely to close in the near future. However, Burghead does provide coverage of sports opt-outs in places unserved by DAB.

Local Commercial Radio

Since 2015, AM transmitters in Aberdeen, Bedford, Bristol, Cardiff and Reading have closed due to site redevelopment. The broadcasters also chose to close transmitters in Luton, Newport and West Berkshire that were covered by the same licences instead of asking Ofcom to amend the relevant licences.

In 2020 and 2021, Bauer closed AM transmitters in areas where Greatest Hits Radio (GHR) had moved to FM on the basis that replacement AM services were not cost-effective. These were in Birmingham, Coventry, Humberside, Lancashire, Leeds, Manchester, Merseyside, Shropshire, Wolverhampton. In Lancashire and Greater Manchester, the replacement FM coverage was less than that of the AM service that closed. GHR Swansea closed in mid 2022, likely due to a technical issue.

In 2023, both Bauer and Global determined that broadcasting oldies music on AM was no longer profitable, in other words the operating costs were exceeding the additional advertising revenue brought in by AM listening. Bauer closed 4 GHR transmitters in January 2023 with the remaining 10 transmitters closing in November 2023. Four Gold and ten Smooth AM transmitters were closed in June 2023, with two more Smooth transmitters and Gold London closing at the end of September. Gold London was a high-power transmitter, making it more expensive to operate, although the population covered was very large. The remaining five Smooth AM transmitters are reported to be closing in the near future. The future of the remaining Gold AM transmitter in Manchester was unconfirmed at the time of writing, but it is unlikely to survive for long. Thus, the broadcasting of oldies music on AM has now effectively ended.

Two further AM transmitters broadcasting a mixture of oldies and adult contemporary music were also due to close by the end of 2023: Bauer's Downtown Radio in Northern Ireland and Sunshine Radio, an independent station serving the area around Ludlow. Both stations are available on FM, but with AM filling gaps in FM coverage.

Nine AM transmitters are used to broadcast seven commercial Asian stations. These stations have a much higher proportion of their audience listening on AM and a lower proportion on DAB than other radio services, so most of them are likely to continue broadcasting on AM after the BBC ceases AM broadcasting in 2027. Asian Sound and Radio XL also have relatively poor DAB coverage. Sabras Sound is more likely to leave AM earlier as it is now also available on FM, albeit with lower coverage, and shares its AM transmission site with the BBC. Lyca Radio on 1458 currently broadcasts from Brookmans Park, sharing an antenna with Talksport. Arqiva will want to sell the site for redevelopment once the last national station leaves AM, so Lyca would have to relocate to another site if they want to continue on AM beyond that.

Two other commercial stations broadcast on AM:

- LBC News London shared transmission facilities with Gold London, so the latter closing will have increased the former's transmission costs. LBC News has a similar sized audience to Gold in London and would likely have had a similar proportion of that audience using AM. However, the LBC News transmitter runs at less than a third of the power of the former Gold transmitter, so is much cheaper to operate. The AM transmitter will close at some point before the end of 2027, but it is difficult to predict when.
- Premier Christian Radio is a national digital station that also broadcasts to the London area on AM. As a niche service with a loyal audience, it would be unlikely to lose many listeners if it ceased broadcasting on AM. However, it leases some of its airtime to American religious broadcasters who have no idea what DAB is, but are familiar with AM. Thus, it has a strong incentive to retain some AM broadcasting, but coverage is less important. Premier now owns and operates most of its own transmitters and replaced them in 2014. Thus, its operating costs will be very low, but it faces a large bill if something fails. Therefore, it did not replace its Bow transmitter, serving central London, when its power supply was cut in July 2019. The Guildford transmitter is probably still operated by Arqiva, so is a candidate for closure. The remaining 4 AM transmitters may continue beyond 2027 unless they fail.

Other Services

The BBC Asian Network, a national digital service, broadcasts on AM in parts of the Midlands only because it began as an opt-out service from BBC local radio there. Despite the limited coverage, more than half of listening to the service was on AM as recently as 2017. Closures are likely to occur sometime between March 2024 (when the Radio 4 MW transmitters are likely to close) and December 2027 (the latest date for Five Live AM closure). However, the exact timing is difficult to predict. The Peterborough and Wolverhampton transmitters, which serve fewer people, may close before the Birmingham and Leicester transmitters,

Eleven community stations broadcast on AM. Eight of these, including six Asian services, are on AM due to lack of FM frequencies at the time of licensing. Some of them could potentially move to FM (*see Opinion: The Future of AM Radio*). Dales Radio uses AM to supplement FM coverage in a very hilly area and Radio Caroline and Carillon Wellbeing Radio uses AM to serve larger areas than Ofcom are willing to licence on FM with Caroline reaching most of Eastern England. Most of these services will be able to join small-scale DAB multiplexes over the next few years. However, many of the Asian stations may retain AM beyond the closure of the national AM networks if they are not able to switch to FM as their audiences seem to prefer AM to DAB. Radio Caroline is also likely to continue to broadcast on AM for as long as it can as it is part of the UK's heritage sector, like steam railways.

The final group of AM transmitters are those on low-power AM (LPAM) restricted service licences (RSLs). About half of these broadcast BFBS Gurkha radio to military bases, while most of the rest are hospital radio stations. Ofcom is now making FM frequencies available for these stations, so most will likely move to FM over the next few years. However, two of these stations are using LPAM as a way of serving a larger area, which low-power FM licences would not allow as they have more restricted coverage.

Paul Groves. August 2015; Last updated: 12 November 2023.

Appendix A: Land Value

An issue affecting the viability of some AM transmission stations is land value. Medium-wave antennas normally incorporate a conductive ground mat of at least 40m in diameter per mast, which must be kept clear, and some antenna systems use two or more masts. Consequently, they require substantially more land than FM and DAB transmitters. Most AM transmitters are located in rural areas or on flood plains so the sites have limited alternative use. However, some sites are within towns and cities and could be sold for housing, retail or light industrial development, which would be considerably more profitable for the land owner than maintaining them as transmission sites. Where a site is also used for FM and/or DAB, just the part of the site used for the AM antenna could be sold.

The following AM transmission sites have already been closed for redevelopment:

- Manor Farm, Reading – *closed*;
- Mangotsfield, Bristol – *closed*;
- Nigg, Aberdeen – *closed*;
- Kempston, Bedford – *closed*;
- Hadfield Road, Cardiff – *closed*;

The following AM transmission sites have high potential for redevelopment:

- Lewsey Farm, Luton – *closed*;
- Bebington, Merseyside – *closed*;
- Colinswell, near Edinburgh, carrying Greatest Hits Radio – *closing*;
- North Looe near Epsom, carrying Premier;
- Tywyn, Wales, carrying Radio Five Live;
- Ashton Moss, Manchester, carrying Asian Sound.
- Ashton Moss (NGW), Manchester, carrying Gold.

The following AM transmission sites have some potential for redevelopment:

- Farnley, West Yorkshire – *closed*;
- Fulford, York – *closed*;
- Sheffield MF – *closed*;
- Bow, London, carrying Premier – *closed due to redevelopment of an adjacent site*;
- Little Shurdington, Gloucestershire – *closed*;
- Trowell – *closed*;
- Hull – *closed*;
- Perth Friarton Road, carrying Greatest Hits Radio – *closing*;
- Crimpsal, Doncaster, carrying Greatest Hits Radio – *closing*;
- Hoo St Werburgh, Kent, carrying Smooth;
- Clipstone, Nottinghamshire, carrying Talksport;
- Folkestone, carrying Radio Five Live;
- Whitehaven, Cumbria, carrying Radio Five Live;
- West Lynn, Norfolk, carrying Radio Norfolk;
- Bexhill, carrying Radio Five Live;
- Gunthorpe, Peterborough, carrying BBC Asian Network;
- Rohais, Guernsey, carrying Radio Guernsey;
- Southwick, Brighton, carrying Radio Five Live and Talksport;
- Fareham, carrying Radio Five Live and Talksport;
- Fern Barrow, Bournemouth, carrying Radio Five Live;
- Redmoss, Aberdeen, carrying R Five Live and R4 LW;
- Wallasey, Merseyside, carrying Talksport;
- Stockton, carrying Talksport;
- Wrekenton, Tyneside, carrying Talksport and Radio 4 LW;
- Brookmans Park, Hertfordshire, carrying Radio Five Live, Talksport and Lyca Radio;
- Droitwich, Worcestershire, carrying Radio Five Live, Talksport and Radio 4 LW;
- Lisnagarvey, Northern Ireland, carrying Radio Five Live, Talksport and Radio 4 LW.

Appendix B: FM/DAB Coverage in Areas where BBC Local and Regional Radio AM Transmitters have been Switched Off

The following areas have been left with poor coverage of BBC local or regional radio following switch-offs of the AM transmitters. The term “small population” refers to 2000 people or fewer. The closure dates given are for the end of programming. Transmitters were switched off several weeks later after transmitting retuning information.

Radio Bristol (1548, *Closed February 2016*): Generally good FM and DAB coverage.

Radio Cambridgeshire (1026, *Closed 10 May 2021*): Although DAB coverage is good, Ely, Godmanchester, Littleport and St Neots have poor FM reception.

Radio Cornwall (West Cornwall, 630, *Closed 2 March 2020*): Generally good FM and DAB coverage.

Radio Cornwall (Mid Cornwall, 657, *Closed 2 March 2020*): Parts of the Boscastle area (technically outside the AM coverage area) and Port Isaac (both small populations) have been left unserved. There are also areas where FM coverage is weak, but DAB coverage is very good.

Radio Cumbria (Whitehaven, 1548, *Closed 9 March 2020*): Generally good FM coverage. DAB was added after the AM closure.

Radio Devon (Barnstaple, 801, *Closed 20 August 2021*): The North Devon coast from Woolacombe to Lynton is unserved on FM and only the Ilfracombe area is served on DAB. More than 10,000 people will be left without a service. However, several transmitters would be needed to serve them on FM or DAB.

Radio Devon (Exeter, 990, *Closed 20 August 2021*): FM coverage of East Devon is poor, though DAB coverage is generally better. For example, Sidmouth and Seaton are served on DAB but not FM. However, Beer and parts of Cullompton have neither FM nor DAB coverage, leaving more than 15,000 people without a service.

Radio Devon (Torbay, 1458, *Closed 9 January 2018*): Generally good FM and DAB coverage.

BBC Essex (Main, 765, *Closed 20 May 2021*): FM reception in the far west of Essex is poor. Harlow has good DAB reception of BBC Essex. South West Essex has good FM and DAB reception of BBC Radio London and the Saffron Walden area has good DAB reception of BBC Radio Cambridgeshire

BBC Essex (North East, 729, *Closed 20 May 2021*): Both FM and DAB reception are poor in Harwich and Walton-on-the-Naze. Harwich is served by BBC Radio Suffolk on both FM and DAB.

BBC Essex (South East, 1530, *Closed 15 January 2018*): Generally good FM and DAB coverage.

Radio Foyle (792, *Closed 6 May 2021*): Generally good FM and DAB coverage.

Radio Gloucestershire (East, 1413, *Closed 23 June 2021*): FM and DAB reception in Winchcombe is very poor, affecting 9,000 people. In addition, Bourton-on-Water, Moreton-in-Marsh and Stow-on-Wold have good DAB coverage, but poor FM coverage.

BBC Hereford and Worcester (North, 1584, *Closed 13 May 2021*): There is no FM or DAB coverage in the Tenbury Wells area, so closing this transmitter leaves more than 5,000 people without a BBC local radio service.

BBC Hereford and Worcester (Worcester, 738, *Closed 13 May 2021*): Bromsgrove has poor FM reception, but a good DAB signal. Both FM and DAB reception are poor around Evesham, however, BBC CWR is available on FM there.

Radio Humberside (1485, *Closed 11 January 2018*): Generally good FM and DAB coverage.

Radio Kent (East, 744, *Closed 8 January 2018*): FM coverage is poor in parts of Canterbury and along parts of the A28. However, these areas have good DAB coverage. FM and DAB coverage are both weak in Hamstreet, which has a small population and was on the edge of the AM coverage area.

Radio Kent (Tunbridge Wells area, 1602, *Closed 8 January 2018*): Generally good FM and DAB coverage.

Radio Lancashire (855, *Closed 17 May 2021*): Barnoldswick, has very weak FM coverage, but is outside the AM service area.

Radio Lancashire (North, 1557, *Closed 15 January 2018*): Generally good FM coverage, but poor DAB.

Radio Leeds (774, *Closed 1 June 2021*): Parts of Bradford have weak FM reception, but good DAB coverage. Hebden Bridge and Todmorden have poor FM and DAB coverage, but are just outside the AM service area.

Radio Lincolnshire (1368, *Closed 4 January 2018*): Generally good FM and DAB coverage.

Radio Merseyside (1485, *Closed 11 March 2020*): There are a few areas where FM coverage is weak, but DAB coverage is very good.

Radio nan Gaidheal (Aberdeen, 990, *Closed November 2015*): Generally good FM and DAB coverage.

Radio Newcastle (1458, *Closed 26 February 2020*): Generally good FM and DAB coverage.

Radio Norfolk (East, 855, *Closed 16 March 2020*): FM coverage of Thetford is very poor, but this area receives a good DAB service. Wells has weak FM reception in places and no DAB reception, but was on the edge of the AM coverage area.

Radio Nottingham (1584, *Closed 10 January 2018*): FM coverage is relatively poor, but DAB coverage is much better. Egmanton and parts of the East Markham area have very weak reception on both FM and DAB. However, these were on the edge of the AM coverage area and has good reception of Radio Lincolnshire.

Radio Scotland (Dumfries, 585, *Closed 10 June 2020*): Generally good FM coverage, but no DAB, so sports opt-outs were lost.

Radio Scotland (Aberdeen, 810, *Closed 10 June 2020*): Generally good FM and DAB coverage.

Radio Sheffield (1035, *Closed 27 May 2021*): FM and DAB reception in Hathersage is very weak, but this has a small population and is on the edge of the AM service area.

Radio Solent (S Hampshire, 999, *Closed 4 March 2020*): The Petersfield area has been left unserved, though it does receive BBC Sussex on FM and DAB. Winchester has poor FM reception (very poor in places), but good DAB reception. Ventnor is left with no FM reception, but a good DAB service. Several other parts of mid Hampshire have weak reception on both FM and DAB, but the affected populations are small.

Radio Solent (E Dorset and SW Hampshire, 1359, *Closed 4 March 2020*): FM coverage of Poole is very poor, but this area receives a good DAB service.

Radio Stoke-on-Trent (1503, *Closed 24 May 2021*): FM coverage is weak in parts of Cheadle, Congleton and Leek, and very weak in Uttoxeter. Congleton has a good DAB service, while Uttoxeter can currently receive BBC Radio Derby on AM.

BBC Surrey (1368, *Closed 3 January 2018*): Generally good FM and DAB coverage.

BBC Sussex (Brighton, 1485, *Closed 3 January 2018*): The Upper Beeding area has very poor FM reception, but is mostly served on DAB.

BBC Sussex (East, 1161, *Closed 3 January 2018*): Generally good DAB coverage with weak FM coverage in parts of Hastings.

Three Counties Radio (Main, 630, *Closed 17 February 2020*): Parts of Amersham, Chesham and Great Missenden have weak FM and DAB reception. However, they were on the border of the AM service area.

Three Counties Radio (Bedford, 1161, *Closed 17 February 2020*): Some villages to the north of Bedford have poor FM reception, but DAB coverage should be sufficient there. Some of these were on the edge of the AM coverage area

Radio Ulster (Main, 1341, *Closed 6 May 2021*): Bellair (Antrim), Cushendall (Antrim), Glenariff (Antrim) and Glenelly Valley (Tyrone) (all small populations) are unserved on DAB and have very poor FM reception

Radio Ulster (Enniskillen, 873, *Closed 6 May 2021*): Belcoo (Fermanagh, small population) is unserved on DAB and has very poor FM reception.

Radio Wales (North Powys, 882, *Closed 1 April 2020*): FM coverage matches BBC national radio. No DAB coverage.

Radio Wales (Mid Powys, 1125, *Closed 18 March 2020*): Knighton, Presteigne and New Radnor (small population) have very poor reception of Radio Wales. There were on the edge of the AM coverage area. Reception from the main Washford AM transmitter was available until the 2021 power reduction. No DAB coverage.

Radio Wales (North, 882, *Closed 23 June 2021*): FM or DAB reception the far west of the Llyn peninsula is weak due to a much lower power to the north from the Radio Wales transmitter at Blaenplwyf compared with national FM.

The Radio Wales signal from Llanddona is also weaker here. In addition, Abergele, Meliden and Talysarn have poor FM reception, but are served by DAB.

Radio Wales (West, 882, *Closed 2 April 2020*): There are gaps in FM coverage along the A470 (noting that national FM is not available here either). Very limited DAB coverage.

Radio Wales (Wrexham, 657, *Closed 9 June 2021*): FM and DAB reception is weak in parts of the Holywell area.

Radio Wiltshire (West, 1323, *Closed 10 January 2018*): Box (small population) has weak FM reception and is unserved on DAB.

Radio Wiltshire (Swindon, 1368, *Closed 10 January 2018*): Generally good FM and DAB coverage.

Radio York (Main, 666, *Closed 24 February 2020*): The Pateley Bridge area (small population) is unserved on FM and DAB, though very weak FM reception of Radio Leeds may be possible. This was on the edge of the AM coverage area

Radio York (Scarborough, 1260, *Closed 24 February 2020*): The Ravenscar, Flyingthorpe and Robin Hood's Bay area (small population) is unserved on FM and DAB, though very weak FM reception of Radio Tees may be possible. This was on the edge of the AM coverage area

Appendix C: FM/DAB Coverage in Areas where BBC Local and Regional Radio AM Transmitters Continue

This appendix provides details of areas served by the BBC's remaining local and regional radio AM transmitters. Some areas where FM is poor, but DAB is good are also discussed. Some of these areas may receive improvements to either FM or DAB coverage before the AM transmitters are switched off. However, the BBC is likely to decide that FM or DAB coverage of smaller populations, particularly 2000 people or fewer, is not financially justifiable.

Radio Cumbria (North, 756): FM and DAB coverage is non-existent in Alston and poor in Kirkby Stephen and Lorton (all small populations). Kirkby Stephen is just outside the AM service area and Alston just inside the AM boundary. If BBC national DAB transmitters were installed at these sites, Radio Cumbria could acquire much better FM coverage by swapping FM transmitters with Radio 3.

Radio Cumbria (South, 837): Most areas of South Cumbria with poor FM and projected DAB coverage are also outside the AM coverage area. Coniston and Gosforth are on the border, but have small populations. Sedbergh is larger, but outside the AM service area.

Radio Derby (1116): Ashbourne has poor FM reception and is unserved on DAB. Parts of the Dove Valley (small population served by Grange Farm site) area are unserved on both FM and DAB, but this is on the border of the AM coverage area. Long Eaton, Swadlincote, Wirksworth and parts of Burton have poor FM coverage, but good DAB reception.

Radio Gloucestershire (West, 1413): Both FM and DAB coverage is very poor. New DAB or FM transmitters would be needed at Chalford, Cinderford, Coleford, Dursley and Nailsworth to fill the gap.

Radio Guernsey (1116): FM coverage should be adequate. AM was retained for opt-out programming, but this has been available on DAB since autumn 2021.

Radio Jersey (1026): FM coverage should be adequate. AM was retained for opt-out programming, but this has been available on DAB since autumn 2021.

Radio Norfolk (West, 873): This area is not currently served by local DAB. North West Norfolk, including Burnham, Hunstanton and Wells-next-the-sea has areas of weak FM reception. It may be possible to improve coverage of this area with a single new FM transmitter at Burnham or by increasing the power to the north of the existing FM transmitter at Great Massingham. South West Downham Market and Mundford (small population) also have poor FM reception. Most of these areas are on the edge of the AM service area.

Radio Scotland (Central, 810): The Arrochar area (Argyll) and Crianlarich (Stirlingshire) (both small populations) are unserved on FM or DAB by any radio service. However, the AM transmitter also provides significant road coverage, such as along the A82, A84 and A85 in West Stirlingshire, and along the A74(M) from Moffat to Elvanfoot.

Radio Scotland (North, 810): Durness and Tongue in NW Highland are unserved on FM or DAB by any radio service, though it is not known if these areas are served on AM either. The Lairg and Balblair Wood area (Highland)

and Tomintoul (Moray) have weak FM reception. All of these areas have small populations. However, the AM transmitter also provides significant road coverage and provides sports opt-outs to significant areas without DAB coverage.

BBC Somerset (1566): The Vale of Taunton has no FM or DAB reception, leaving about 10,000 people served only on AM. An FM or DAB transmitter at Washford would be needed to fill this gap.

Radio Wales (South, 882): The power of this AM transmitter was reduced from 100 kW to 12 kW in 2021. Radio Wales FM reception in South East Wales is poorer than that of Radios 1, 2, 4 and Cymru due to the power of the Wenvoe transmitter being 6 times lower for this service. New FM or DAB transmitters may be needed at Abergwynfi, Garth (district of Maesteg), Glyn Corrwg, Knighton, Monmouth, New Radnor (small population), Presteigne and Sennybridge. Of these, Monmouth and possibly Maesteg are more likely to receive coverage improvements as they have larger populations and already have BBC national DAB transmitters. There are also coverage of gaps along the A40 and A470, however, national FM is not available here. In addition, Hirwaun and Penywaun have poor FM reception, but they are served by DAB.