

DAB digital radio

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More information section at bbc.co.uk/reception

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What is DAB digital radio?

DAB stands for digital audio broadcasting, which is the name of the system. Digital means that the sound is converted into computerised 'bits' of information before being transmitted. Digital radio takes up less bandwidth than FM/AM radio, so there is room for more stations.

To receive the signal, you need a DAB digital radio – you can't listen on a traditional FM/AM set (see page 5).

Some of the advantages of DAB:

- no hissing or fading, and far fewer problems with interference
- more stations, some of them digital-only
- once-only autoscan to find all the stations available and easy tuning to the station you want
- a display screen with information about what you're listening to

Coverage

Currently, around 85% of the UK can receive DAB digital radio. To find out if your area is covered, you can use the postcode checker on the front page of bbc.co.uk/reception.

The checker gives a prediction of DAB coverage in your area, but note that it doesn't allow for factors that may affect reception, such as whether you live in a built-up area or in a basement flat.

If the checker says you are in a coverage area, the list of stations may be divided between those you are "very likely to receive" and those you "may receive". This is because different groups of stations are broadcast from transmitters in different location so the signals may not be the same strength. With those you "may receive", you may find you need an external aerial (see page 4).

The BBC is committed to improving its DAB coverage to reach 90% of the UK population. Information about new transmitters is given in the **Latest news and queries** section of bbc.co.uk/reception, and also at bbc.co.uk/digitalradio.

If you can't receive DAB in your area, there are other ways to listen to digital radio:

- via digital TV – terrestrial (Freeview), satellite, cable or broadband
- on the internet – all the BBC stations are available everywhere, including all local radio stations

For more information, go to bbc.co.uk/digital.

Reception problems

DAB digital radio is less prone to reception problems than FM/AM radio and does not suffer from the same kind of hissing, fading, crackling or station overlap. However, you may sometimes get 'bubbly' or 'underwater' noises, or the sound may break up or cut out altogether. These are usually caused by a weak signal.

There are several things you can do to try to strengthen the signal your radio is receiving.

- Make sure the aerial on your radio is fully extended. If it is the wire or ribbon cable type, make sure it is fixed in the correct orientation – see your radio's manual for details.
- If you sometimes have trouble tuning to a particular station that you know is on the air (getting a "Station not available" message), try touching the aerial as you select the station, thus using yourself as an aerial booster.
- If you are using a personal/handheld radio, the aerial is often in the headphone lead, so make sure this is not coiled up or twisted.
- Signal strength can be reduced in very built-up areas, in basements, and inside buildings with walls made of materials such as thick stone or reinforced concrete. Try moving the radio to a different position – place it somewhere higher up and/or on a window-sill, and keep it away from metal surfaces such as fridges.

Many DAB radios can display the signal strength on the screen, which can help you to see if adjusting the aerial or moving the radio is having an effect. Press the 'Display' or 'Info' button to see the signal strength – it may say "Signal error". See your radio's manual for details.

If these things don't help, the best solution is to use an external aerial (see page 4).

Transmitters

Transmitter faults are rare, but if you experience a sudden problem with reception, you could check **This week's transmitter work** at bbc.co.uk/reception to see if your local transmitter is affected.

Not all digital stations are broadcast from the same transmitters, so there may be differences in the signal strength and therefore reception quality. For instance, BBC national radio stations are broadcast from one set of transmitters, but its local radio stations come from a variety of other transmitters (see page 4).

Interference

DAB reception can be affected by very strong interference which may cause 'pops' followed by short silences. If you have an FM radio as well, listen to it for crackling or clicks – this will confirm that there is electrical interference. It may be caused by a domestic appliance, a faulty central heating or fridge thermostat, or a faulty fluorescent light. Try to pinpoint the source of the interference by turning off these appliances one at a time to see if reception improves.

If you think you are experiencing interference from something outside your property, you can report it to Ofcom, the broadcasting regulatory body, and ask them to investigate. They will ask for an assurance that your aerial system has been checked and there may be a charge for the investigation service. See the Ofcom website, www.ofcom.org.uk/complain, or phone 020 7981 3040 (9am–5pm); textphone (for deaf or hard of hearing) 020 7981 3043.

External aerials

DAB uses different frequencies from television and FM radio, so you need a proper DAB (Band III) aerial.

Check that your radio can take an external aerial. Usually you can simply unscrew the fixed (telescopic) aerial and attach the cable from an external aerial in its place. Please see your user manual or consult the manufacturer for more information.

You may find that an indoor aerial is enough. This will usually be a thin vertical metal rod on a heavy base – it is a good idea to place it high up and/or near a window.

For the best results, you can install an outdoor aerial. There are two types:

- Dipole (vertical rod) – this is omnidirectional so will pick up stations from all local DAB transmitters.
- Yagi (like a standard TV aerial but with fewer elements) – this is directional and must be pointed directly at the transmitter, with the elements vertical. It will pick up weak signals better than a dipole, but only from one transmitter.

External aerials

We suggest that installation is carried out by a professional aerial installer, either one registered with the CAI (Confederation of Aerial Industries), www.cai.org.uk, or a Registered Digital Installer, www.rdi-lb.tv.

You can also have an outdoor aerial installed in the loft, though the results may not be quite as good because the incoming signal may be weakened by such things as roof tiles, loft insulation, water tanks, electrical cable and even the gables of the house. On the other hand, the aerial will be protected from atmospheric corrosion and so will not need to be checked as often as an outdoor aerial.

A professional aerial installer will be able to advise you on which type is best for you.

The BBC on DAB

The BBC has one national DAB multiplex (or ensemble), which contains all of its national digital radio stations:

- Radio 1, 1Xtra, Radio 2, Radio 3, Radio 4, Radio 5 Live, 6 Music, BBC 7, BBC Asian Network
- Secondary (part-time) services: Radio 4 LW, 5 Live Sports Extra

The other national multiplex contains a variety of commercial stations.

The BBC only has capacity to broadcast its own national services. This means that its local radio stations, and nations' stations in Wales, Scotland and Northern Ireland, are broadcast on other multiplexes run by commercial operators. These stations are only available in their local area. In some areas, the BBC local radio station is not yet available on DAB because a commercial licence has not been awarded.

For transmitter details, see the **More information** section of bbc.co.uk/reception.

Part-time secondary services

BBC 5 Live Sports Extra and Radio 4 LW are 'secondary' services that operate alongside the main 'primary' station. BBC 5 Live Sports Extra broadcasts live sports commentary, including *Test Match Special*. Radio 4 LW is mainly used for *Yesterday in Parliament* and the *Daily Service*. When one of these services is transmitting, you will find it listed immediately after the primary station. On the screen there may be an arrow next to the name of primary station, e.g. BBC5Live>. Some radios have a light that comes on when you tune to the primary station – you then press a button for the secondary. If you try to tune to the station when it is not broadcasting, the screen may show a question mark, "Station off air" or "Station not available".

Please see your radio's manual for more information.

Equipment for receiving DAB digital radio

When buying a DAB radio, look for the DAB logo. Some radios advertised as 'digital' are actually analogue (FM/AM) radios with a digital display showing the station frequency rather than a tuning dial or bar.

The range of radios available is growing all the time, and includes portables, clock radios, hi-fi tuners, DAB adapters, personal/handheld radios, car radios and combined radios and MP3 players. Some radios allow you to pause, rewind and even record live radio.

You can also get a DAB receiver that plugs directly into your computer or a PCI card that goes inside it, so you can listen to DAB radio on your PC or laptop. (This is not the same as internet radio.)

The first service allowing you to receive DAB radio on a mobile phone began in 2006.

Other digital radio questions

What is the display screen on my DAB radio for?

The screen displays various pieces of information, and there is usually a 'Display' or 'Info' button you can press to switch from one to another. Typically you can see the name of the station, the type of station (e.g. Pop, News), the time and date, and information about the programme or station you're listening to – news headlines and the weather forecast, or the name and artist of a music track. You may also get technical information, such as the name of the multiplex/ensemble, the channel and frequency, the signal error (signal strength), and the bit rate (bandwidth used) and mode (stereo or mono).

Do DAB radios use more power than analogue (FM/AM) radios?

DAB radios are more complex so they do use more power. With a battery-powered radio, for example, the batteries won't last as long. However, as the technology is developed, and as DAB receivers are starting to be included in mobile phones and other handheld devices, the amount of power needed is being reduced.

Why is there a time delay of a second or two between digital and analogue radio broadcasts?

This is because digital and analogue signals are sent in different ways. Analogue signals are transmitted direct, but digital signals are compressed before being transmitted and are then uncompressed by your radio and turned back into sound. This takes a second or two longer. If you want to be accurate when setting your clock by the radio 'pips', you should use the analogue broadcast.

Why are Radio 3 and Radio 4 quieter than other stations on DAB?

This is not a fault but a characteristic of the stations. Many stations process their signal before transmitting it, in order to boost quiet passages and give a louder overall sound. This reduces the contrast between loud and soft passages (the dynamic range). Radio 3 and Radio 4 do not process their signal in this way so, if you are listening in a quiet room, you can enjoy the full dynamic range of, for example, classical music. If you are in a noisy environment, most DAB radios have a Dynamic Range Control (DRC) feature that you can turn on to increase the overall loudness.

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