

## Radio reception on the move and RDS (Radio Data System)

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## FM radio

If you listen to FM while travelling around the country, you will need to retune your radio from time to time. This is because FM signals do not travel long distances, so many transmitters are needed to give good coverage across the UK. Neighbouring transmitters use different FM frequencies to avoid interference. Most car radios nowadays have RDS (Radio Data System), which automatically switches to the strongest signal for the station you are listening to, so you don't need to retune manually. See page 5 for more about RDS.

FM signals travel in almost straight lines, but they cannot pass over or through large obstructions such as hills, which means that reception can be affected in built-up areas and deep valleys, causing distortion of S and Z sounds, for example. This interference – known as multipath distortion – happens when the radio receives one signal direct from transmitter and another signal that is reflected off tall buildings or hills.

As you travel around, you may also find that the strength of the signal varies depending on how far you are from a transmitter. A good aerial can help minimise distortion and maximise the strength of the signal – see page 4.

## AM radio: medium wave (MW) and long wave (LW)

Most AM radio stations in the UK broadcast on MW, with only BBC Radio 4 also transmitting on LW, so your car radio may not have LW available.

AM signals can travel long distances, which means that fewer transmitters are needed and most stations need only one frequency – or two in the case of BBC Radio Five Live. However, signals can be weakened by obstructions such as large buildings or hills. Reception quality can vary from place to place, and also – because of differences in the atmosphere – from day to night. You may get good, clear reception during the day, but after sunset the signal may fade or become distorted. Signals travel further at night, so you may also get interference from other AM transmitters further away. In addition, AM signals can be affected by electrical interference from sources such as street lamps, flashing signs and power lines. This will produce crackling noises.

A good FM aerial should also provide good AM reception (see page 4). However, most stations also broadcast on FM and/or DAB digital radio, which both give better sound quality. In particular, if you regularly listen to Radio Five Live on MW, or to *Test Match Special* or other broadcasts on Radio 4 LW, all of these are also available on DAB digital radio.

## DAB digital radio

For listening on the move, there are now many DAB car radios and also personal/handheld radios. Many new cars have a DAB radio as an optional extra or even as a standard fitting.

DAB frequencies are the same all over the country, so there is no need to retune your radio when you are travelling around. However, at present DAB does not cover the whole of the UK – around 85% is covered – so in some areas you can only listen on FM or AM.

DAB does not suffer from the kind of reception problems that affect FM/AM radio (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 effects are usually caused by a weak signal. Some DAB car radios now have the ability to switch automatically to an FM transmission of the station you are listening to if the DAB signal becomes very weak or you travel out of the DAB coverage area.

# Aerials

## Car aerials

There are several different types of aerial available for cars:

- Short, flexible, plastic-encased aerial mounted on the roof – this type usually performs well and requires no maintenance. It should be as high on the car and as far away from the engine as possible. For the best FM reception it should be around 80 cm (32 inches) long, and this will also provide good AM reception.
- Telescopic rod – this should always be fully extended. It should also be cleaned periodically to remove dirt or corrosion from the joints: use light oil on an absorbent cloth to do this.
- Heated rear-window aerial – this type is rarely as effective as an external aerial and reception is likely to vary depending on the direction the car is travelling in.

For DAB digital radio, you may need a separate aerial. Please consult your car dealer.

In some cars the aerial must be matched to the radio for good MW and LW reception. You can do this by tuning the radio to a weak MW station and adjusting the radio's aerial trimmer. Consult the manufacturer's manual to find the location of the aerial trimmer.

## Personal/handheld radios

Personal radios usually use a thin wire or the headphone lead as an aerial. Make sure this is not coiled up and is extended as far as possible. On a train, the metal of the carriage will affect reception, so it will help to sit next to the window.

## Electrical interference

If you get interference on your car radio in the form of crackling or whining, it may be caused by the ignition or other electrical systems such as the heater or wipers. The electrician at your garage should be able to cure the problem quite easily.

# RDS (Radio Data System)

Most car radios have RDS – it is often fitted as standard in new cars – and so do some portable and personal/handheld radios, and also hi-fi systems. All BBC national and local radio services, and most of the commercial stations, carry RDS information. RDS is also standard across Europe.

RDS works with FM radio and automatically selects the strongest signal available for the station you want to listen to, so you don't have to retune your radio as you drive around.

A useful feature if you are on a long car journey is that RDS can automatically detect travel announcements broadcast by local radio stations. Whether you are listening to a radio station, CD or cassette, RDS will alert you to the travel announcement by raising the volume and/or switching to the local radio station.

RDS also displays information such as the name of the station, the time and date, and, with some radios, short messages transmitted by the station.

Below are some of the acronyms you will see on the radio and what they stand for.

**PS (Programme Service)** – the name of the radio station, abbreviated to fit into eight characters, such as BBC R.4 for BBC Radio 4. This makes presetting stations easier, especially if the radio has push buttons. For example, you can set button 4 for BBC Radio 4 and RDS will automatically tune to the best frequency for Radio 4 when you press the button.

**PTY (Programme Type)** – shows the type of programme, e.g. sport, news, classical music. Some radios allow you to select the type of programme as well as the station.

**AF (Alternative Frequency)** – shows that RDS is tuning to the strongest signal for the station you have selected. It retunes to a different frequency when you move into another area.

**TA or TP (Travel Announcement or Travel Program)** – automatically detects travel announcements on the nearest local radio station. This facility will raise the volume of the radio or interrupt a CD or cassette to alert you to a travel announcement. You can turn the facility on or off, as required.

**REG (Regional links)** – some local radio stations are linked together by region because they offer only limited coverage from a small number of transmitters. If, as you are travelling around, the signal from one station becomes weak, RDS can switch to another local station in the region with a stronger signal. You can turn the facility on or off, as required.

**EON (Enhanced Other Networks)** – most commonly used by the BBC, this allows RDS to switch automatically from a national radio station to a local station for a travel bulletin and then, when the bulletin has finished, back to the national station.

**RT (Radio Text)** – allows a radio station to transmit short messages, such as the programme title or details of a music track being played.

**CT (Clock Time)** – shows the time and date, which is adjusted automatically for different time zones, leap years and when the clocks go back and forward.