

Improved radio coverage obtainable with a base station

The quality of radio coverage or the service area which any radio system can achieve is determined by a small number of key items, which are described here.

To achieve good reliable coverage a fixed transmitter-receiver or Base Station is often used and this can support a number of handportable or vehicle mounted radios.

The equipment

A Base Station needs to be located in a secure, clean, dry area with a reliable dedicated mains supply. The unit needs to be as close to its associated aerial as possible so that the connecting cable between the Base Station and the Aerial is of the shortest practical length, so as to minimize loss of signal.

An Aerial System is usually installed where it has the best view of the area to be covered. This may be on the top of a building or other prominent location. The type of aerial and the mechanical mounting hardware are vital to obtaining the required result. The type and quality of the cable between the base station and the aerial is selected depending on the length of the cable and the frequency band used.

The facilities

A Base Station can be configured for an automatic facility known as 'Talk-through' which will allow any two hand portable radio handsets to communicate using the Base Station as a relay unit. This enhances communication over greater distance or can provide better penetration in obstructed areas, such as buildings.

The loss of the mains supply would disable the system and this can be overcome by using an Automatic Mains Fail Battery Backup which will switch in a standby battery when the mains supply fails. When the mains supply is restored the battery is recharged for future use.

A fixed system control point can be valuable for co-ordinating the handset users. This can be connected either by a telecom circuit or a radio link. It is common to provide a control point by installing a fixed mobile radio with a small directional aerial. This is very effective and provides a reliable radio link to the system for supervisory or team management purposes.

The licence

A Technically Assigned Licence is required for the use of a Base Station in the UK and this licence can be obtained from Ofcom. The application is made on Form OFW21 which comprises ten pages. Due to the nature of the technical information requested by Ofcom we offer to complete this document on behalf of the applicant. We have a very high success rate, achieved over many years, in obtaining licensed radio channels for our customers.

The result

A correctly installed and maintained Base Station will provide over ten, and often up to twenty years of service. The coverage will be substantially more stable and reliable than can be achieved with handsets alone. It is the preferred method of operation where it is required to improve an existing communication system, or provide a new service of good quality.