Cornerstone Community Information Sheet

How it Works

An introduction to how a network of mobile phone base stations operate.

Mobile phone base stations are needed in areas where people work and live to ensure that they can access digital services, keep in contact with friends, family and work colleagues as well as new connectivity solutions such as Internet of Things. Without ongoing improvements to connectivity which includes measures such as upgrading existing base stations, areas will become digital black spots where lack of connectivity prevents economic development, hinders local services and frustrates efforts to keep vulnerable members of the community healthy and safe.

Base stations are made up of three main elements. The cabin which contains the equipment used to generate the radio signal. A supporting structure such as a mast which holds the antennas in the air and the antennas themselves. Only the antennas emit radio signals.

Many other everyday items also use radio signals to send and receive information, such as television and radio broadcasting equipment and two-way radio communications.

Base stations are connected to each other and telephone exchanges by cables or wireless technology, such as microwave dishes, to create a network. The area each base station covers is called a cell.

Each cell overlaps with its neighbouring cells to create a continuous network. The size and shape of each cell is determined by the features of the surrounding area, such as buildings, trees and hills, which can block signals. When people travel between cells, the signal is transferred between base stations without a break in service. However, each base station can cover a certain area only and can only handle a limited number of calls at once. As mobile phones and devices become more popular more base stations are needed to ensure continuous coverage.

All UK mobile phone base stations are designed to comply with the stringent International Commission on Non-Ionizing Radiation Protection (ICNIRP) General Public Exposure guidelines recommended by the UK government and the European Union. These guidelines also have the formal backing of the World Health Organisation.

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