

The MOA logo consists of the lowercase letters 'moa' in a white, sans-serif font, positioned inside a dark blue, teardrop-shaped graphic that points towards the top right.

moa

mobile
operators
association

responsible
network
development

Third Generation – 3G

In the UK, five mobile phone operators – 3, O2, Orange, T-Mobile and Vodafone – were granted licences to provide third generation services (3G) in 2000. All five operators have an obligation under their licences to provide 3G services to at least 80 per cent of the population by 31 December 2007.

What is 3G?

The telecommunications world is continuing to change, and 3G technology represents the next stage in mobile communications. 3G is an evolution in terms of services and data speeds from second generation (2G) mobile networks.

There are now more than 62.5 million mobile phones in use in the UK. Today's mobile customers have already demonstrated a demand for "non-voice" and other new services. On average, 99 million text messages are sent every day across the UK¹. Proof of customer demand has also been indicated by the use of increased data services, such as instant e-mail and picture messaging, on 2G systems with GPRS (General Packet Radio Services).

3G broadband mobile communications makes access to sophisticated workplace technology inside your phone (3G handset compatibility required) even faster, making working life more flexible and developing still further the "virtual office" complete with emails, video conferencing and high speed access to services without the daily commute.

Mobile phones cannot work without a network of base stations in places where people want to use them.

No less than 30 scientific reviews worldwide in the past five years have not found adverse health effects caused by mobile phone base stations operating within the international health and safety guidelines used in the UK.

¹ Mobile Data Association Feb 2006



How does 3G work?

3G-enabled devices – including phones and laptops – work by sending and receiving radio signals to and from base stations (sometimes known as ‘masts’). Base stations link individual phones into the rest of the mobile and landline networks.

Base stations are low power radio transmitters and need to be located in the areas they are intended to serve. They provide coverage to a geographical area known as a cell. These cells need to overlap to enable seamless coverage and to ensure a user does not lose connection to the network when on the move.

Radio waves used in mobile telecommunications form part of the electromagnetic spectrum. Radio waves used to deliver 3G services are transmitted at a slightly higher frequency than for 2G and travel a shorter distance. As a result the coverage area or cell size for a 3G base station is smaller than for a 2G site. Furthermore, as user demand increases in a particular cell, the size of that cell shrinks making overlap even more essential.

Due to the advanced technology, the location of cell sites is even more critical with 3G networks to avoid interference between adjacent cells.

Will 3G mean more masts?

The cell sizes for 3G networks are smaller than for 2G and so more base stations are required to cover the same area. In line with planning guidance, wherever possible, operators seek to upgrade their existing base stations or share sites used by other operators. At present there are about 47,000 base station sites in the UK. Additional mobile phone base stations will need to be built to support 3G services. It is possible that the number of base station sites will rise to 50,000 by the end of 2007 to meet licence requirements, but the final number will depend on customer use. New installations that require planning consent will be subject to the appropriate planning process.

What about health guidelines for 3G base stations?

International health guidelines set by the International Commission on Non-ionizing Radiation Protection (ICNIRP) are in place to limit public exposure to radio waves from all base stations and mobile phones. These guidelines are based on an analysis of all relevant scientific literature, including both thermal and non-thermal studies, and are designed to protect everyone in the population. The additional radio waves used in the new networks, even when combined with existing levels, will still be well within guidelines.

ICNIRP is an independent international scientific organisation that provides guidance and advice on the health hazards of non-ionizing radiation exposure. The World Health Organisation (WHO) endorses its guidelines, which apply to both 2G and 3G, and the guidelines are also recommended by the UK Government and EU. Network operators ensure all their base stations comply with the ICNIRP public exposure guidelines and provide Local Planning Authorities with a certificate of compliance with each planning application.

The Mobile Operators Association represents the interests of the UK’s five mobile phone network operators - 3, O2, Orange, T-Mobile and Vodafone - on radiofrequency health and associated planning issues.

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