

Cornerstone Community Information Sheet

Safety Guidelines on electromagnetic fields from antennas

Radio frequency fields are a type of electromagnetic field. Virtually everyone in the modern world is exposed to electromagnetic fields generated by man-made sources. These include TV and radio transmissions, communications by the emergency services, medical and factory equipment, electronic car keys, baby-listening devices, WiFi and any household appliance that uses electricity.

Various regulations and guidelines apply to the construction and operation of radio base stations, including those that serve to protect health and safety.

All installations are designed to comply with the precautionary International Commission on Non-Ionizing Radiation Protection (ICNIRP) public exposure guidelines as adopted in a European Union recommendation. The UK Government and the UK Health Security Agency support this view.


Mobile phone base stations are generally composed of a cabin or cabinet, which houses the electrical equipment that generates the radio signal, a supporting structure such as a tower or pole and a set of antennas. Only the antennas emit radio waves. As one moves away from the antenna, the strength of the radio wave falls off very rapidly and as the strength decreases, so does the radiofrequency exposure level. Closer to the antennas, there is an area, or volume, where it is possible that ICNIRP guidelines for the public may be exceeded. This is known as the ICNIRP Public Zone and measures are taken, in the form of antenna positioning, signage and physical barriers, to prevent inadvertent access to this area by the public.

The extent of the zone will vary from site to site and is dependent on power input, distribution of the radiofrequency fields and the frequency range.

Clear signage at mobile phone operator sites will indicate restrictions on access and these restrictions should always be observed. The signage provides the relevant contact details for further advice.

How the guidelines are established

Many countries have adopted international guidelines suggested by ICNIRP. These guidelines, which have the formal backing of the World Health Organisation, were developed following a thorough review of the science and took into consideration **both thermal and non-thermal effects**. They are designed to protect all sectors of the population, 24 hours a day, wherever they are in relation to a radio base station. The guidelines are made up of two parts: the first is based on established and proven science; the second part incorporates a safety factor. In this way, the guidelines come with a built-in precautionary element.

 Cornerstone, Hive 2
1530 Arlington Business Park
Theale, Berkshire, RG7 4SA

Registered Address:
Cornerstone Telecommunications
Infrastructure Limited, Hive 2, 1530 Arlington
Business Park, Theale, Berkshire, RG7 4SA.
Registered in England & Wales No. 08087551.
VAT No. GB142 8555 06

In 2020 the ICNIRP updated their safety guidelines, Dr Eric van Rongen stated 'When we revised the guidelines, we looked at the adequacy of the ones we published in 1998. We found that the previous ones were conservative in most cases, and they'd still provide adequate protection for current technologies...However, the new guidelines provide better and more detailed exposure guidance in particular for the higher frequency range, above 6 GHz, which is of importance to 5G and future technologies using these higher frequencies'.

https://www.icnirp.org/cms/upload/presentations/ICNIRP_Media_Release_110320.pdf


For further information please contact:

Community, Cornerstone

The Hive 2, 1530 Arlington Business Park, Theale, Berks, RG7 4SA

Tel. 01753 564306, community@cornerstone.network



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