EMF ADVISORY UNIT
FACT SHEET SERIES

HEALTH SUMMARY
An explanation of the health issues related to radio base stations.

Radio base stations (and handsets) use electromagnetic fields (or EMFs) to transfer information and make mobile phone communications possible. EMFs are used for television and radio transmissions, by the police, fire and ambulance services, by taxi firms and public utilities and for a wide range of personal and commercial equipment from electronic car keys, WiFi equipment and baby monitoring devices to shop security tag systems. They are also produced by household electrical appliances like the fridge, vacuum cleaner or electric shaver.

The mobile phone operators hold only a small proportion of the 250,000 licenses issued for radio communications.

Both mobile phones and their base stations are low–powered devices. Handsets operate at less than 1 watt and a base station between 2 and 200 watts per operator depending on the area covered. In addition, radio base stations and the handsets that communicate with them are designed to reduce power to the lowest levels possible whilst maintaining efficient operation. EMF emissions from a handset will be lower when there is a good signal from a nearby base station. A handset simply will not work if the base station is too far away, or has reached capacity.

Mobile phones and devices are new but the technology is not and research has been going on in this area for almost 75 years. After a thorough review of the available scientific findings, the World Health Organisation reported: "To date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature (> 1 °C) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increases are insignificant and do not affect human health" [Source: World Health Organisation, Fact Sheet 304, Base stations and wireless technologies, 2006]. In addition, the WHO notes that “Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields". http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html
Radio base stations are designed to comply with stringent, precautionary public exposure guidelines set out by ICNIRP (International Commission on Non-Ionizing Radiation Protection). These guidelines have been developed following a thorough review of the science including both thermal and non-thermal effects. UK radio base station installations have been surveyed by independent bodies and found to be hundreds and sometimes thousands of times below these guidelines. ICNIRP reviewed these guidelines in 2009 and concluded “ICNIRP reconfirms the 1998 basic restrictions in the frequency range 100 kHz–300 GHz until further notice.” ICNIRP statement on the “Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz)”.

The report “Recent Research on EMF and Health Risk. Seventh annual report from SSM's Independent Expert Group on Electromagnetic Fields, 2010” notes that recent and previous studies of cancer around transmitters indicate that “one can not exclude the existence of cancer risks with certainty, but so far no scientific data indicate the existence of such a risk”

In addition, the Advisory Group on Non-ionising Radiation (AGNIR) summarised that “although a substantial amount of research has been conducted in this area, there is no convincing evidence that RF field exposure below guideline levels causes health effects in adults or children.” “Health Effects from Radiofrequency Electromagnetic Fields – RCE 20”, 2012

The World Health Organisation (WHO) noted that “To date, no adverse health effects have been established as being caused by mobile phone use” WHO factsheet 193: Electromagnetic fields and public health: mobile telephones, 2014.

For further information please contact:

EMF Enquiries, CTIL
The Exchange, Arlington Business Park, Theale, Berks, RG7 4SA
Tel. 01753 564306, emf.enquiries@ctil.co.uk