



# Digital Cordless Phones (DECT)

Cordless phones have been steadily growing in popularity over the last few years and are now in millions of homes, shops, offices and other places throughout the UK.

They are found in living rooms, desktops and by the bedside.

They are taken for granted as an everyday item and barely even considered beyond that.

## Problems

One of the most worrying problems about most cordless phones is that part of the DECT\* specification they use calls for the base cradle to communicate with the handset(s) continuously which means that pulsed microwave radiation is emitted constantly regardless of whether you are making a phone call or not.

DECT phones and base cradles have a range of up to 300 meters or so using microwave signals which can penetrate solid brick walls and flesh 24 hours a day, seven days a week whilst powered. As well as cordless phones DECT is used by home hubs and some baby monitors.

Unlike mobile phones, most DECT cordless phones work at a fixed power output. Mobile phone handsets turn their power down to the lowest level possible, so when you are near a base station this can be much lower than a DECT cordless. DECT pulses are far more aggressive than for mobile phones.

In tests carried out by a Mast Sanity volunteer the DECT base cradle was shown to be constantly transmitting, even when the handset was in the cradle (i.e. when the phone itself was not being used), giving a COM meter reading of **60 times** the suggested Precautionary Maximum\* (sPM) or more close up, with a still highly significant reading of **25 times** sPM at a distance of 1 metre or so.

The DECT handset, when activated, also gave a COM\* meter reading of **60 times** sPM or more close up – towards the maximum reading on the meter of 6 V/m – not good news especially if you use cordless phones for any period of time.

With DECT systems, anyone may be sitting, playing, working or sleeping with their heads or bodies for hours at a time in the maximum or medium electromagnetic field (EMF) receiving a continuous dose of microwave radiation. So may their neighbours if your device or base station is near to their house. And, even though the extreme and very high readings were recorded very near both the above devices, all throughout your house and garden – for up to 300m - and your neighbours' house and garden too (unless they are a long way away), you and your neighbours will be constantly receiving lower but continuous emissions from these devices – when, without the devices, you would be receiving none. Wherever you use your DECT phone, you, any neighbours, workers and shoppers, etc. will be receiving microwave radiation - whether or not the phone is being used. This is a significant health hazard to all of you in your house, and to your neighbours and friends, and also in those other situations mentioned above.

We know that the Industry say that this technology is all safe – they have a vested interest, of course. Since when should we listen and give so much weight to those with vested interests amounting to billions of pounds and more in their products? When else does this happen, that we listen most to those who make and gain from the product, instead of those independent of it? If nothing else, please look into the facts for yourself - start looking at the Research section below and its references to Independent Research.

# Solutions

By far the best solution is to use traditional 'corded' phones. You can easily obtain telephone extension kits from DIY stores or from Maplin etc. for just a few pounds, and can put the wires near-invisibly on skirting boards and under carpets. You can use a single extension kit to run a phone line up the stairs to a bedroom with little effort.



Wire<sup>[10,11]</sup> some extra telephone sockets into the house (and even up the garden into shed or garage) and buy a few more wired phones (you can get some for less than 10 pounds each).

If you really, really can not do without a cordless phone there is the option of 'low radiation' DECT phones. In the UK these are only manufactured by Orchid<sup>[12]</sup>.



With these 'low radiation' DECT phones, there are no microwave emissions when the phone is not being used. There will be the usual amount of radiation when the phone is being used, of course. When a call is ended both the handset and the base station go into 'sleep mode' (no microwave radiation) until either a call is received or made. There is no need to return the handset back to the base station for 'sleep mode' to become operative (N.B. only for the Orchid LR4610, other Orchid models require the handset to be returned to the base cradle to be switched off). The handset/base cradle adjust their power output (microwave emissions) depending on how far away the base is from the handset. So, if you make a phone call within a few metres of the base cradle rather than, say, from 100 metres away, then the microwave radiation you will receive while making the phone call will be far less - reduced by as much as 75%.

However, whilst in use the Orchid handset and base cradle do emit microwave radiation, so all calls should be kept to a minimum to reduce exposure.

## Glossary

**COM** – Microwave Monitor/Meter - measures microwave fields from DECT etc.

**DECT**<sup>[8,9]</sup> - Digital Enhanced Cordless Telecommunications- DECT is a cellular system like GSM/2G or UTMS/3G mobile telephones. A major difference between the types of system is the cell radius. DECT cells have a radius of 25 to 100 meters, while GSM/2G cells are 2 to 10 km. UTMS/3G cells are smaller than GSM cells. DECT uses a frequency of 1880-1900MHz whilst GSM/2G uses 1800MHz and 900MHz and UTMS/3G uses 2100MHz.

**EMF** - Electromagnetic Field - The electromagnetic field is a physical field produced by electrically charged objects. It affects the behaviour of charged objects in the vicinity of the field. The field can be viewed as the combination of an electric field and a magnetic field.

**GSM** - Global System for Mobile communications is the most popular standard for 2G mobile phones.

**HPA** – UK Health Protection Agency – The Government Agency charged with protecting health.

**PCN** - Personal Communications Network is the European digital cellular mobile telephone network, developed in accordance with GSM standards.

**Powerwatch** – Knowledgeable group central to the Electromagnetic Field and Microwave Radiation health debate in the UK.

**Precautionary Maximum** - The Regional Government in Salzburg, Austria have set the acceptable limit for emissions in homes, under advice from Independent scientists, to just under 0.1 V/m – also referred to as “the suggested 0.1 V/m precautionary maximum”. Assuming a standard impedance of 377 Ohms in air, 6 V/m (60 times sPM) equates to a Power Density of approximately  $0.95 \text{ mW/m}^2$ , 2.5 V/m (25 times sPM) equates to  $0.166 \text{ mW/m}^2$  and 1 V/m (10 times sPM) equates to  $0.026 \text{ mW/m}^2$ , 0.1V/m (1 sPM) equates to  $0.0265 \text{ mW/m}^2$ .

**TETRAWatch** – knowledgeable group opposing the UK Police TETRA network on health grounds.

# Research

DECT phones give off mobile phone type microwave radiation and you can now get mobile phones that will log onto your DECT base-unit (your very own GSM/PCN internal house base station) and use your land line when at home but the operator's GSM base station when you are away from home - automatically. That is how similar the signals, and the devices, are.

In 2008, Dr V G Khurana, an Australian brain surgeon, published research findings<sup>[17]</sup> saying "*It is anticipated that this danger has far broader public health ramifications than asbestos and smoking, and directly concerns all of us, particularly the younger generation, including very young children,*" and that "*there is currently enough evidence...available to warrant Industry and Governments alike taking immediate steps to reduce exposure [to microwaves]...and to make consumers clearly aware of potential dangers and how to use this technology sensibly and safely.*"

A number of studies have found between about a 2 and 4 fold increase in the risk of developing a malignant brain tumour on the same side of the head as the preferred side for mobile or cordless phone use<sup>[16]</sup>. The study was based on the analysis of 1,600 brain tumour victims who had been using mobile phones for up to 10 years before being diagnosed. Professor Kjell Mild<sup>[13]</sup>, a Swedish biophysicist, who has produced a number of many leading mobile-phone health effects papers, now states: "*The evidence for a connection between phone use and cancer is clear and convincing. The more you use [mobile or cordless] phones and the greater the number of years you have them, the greater the risk of brain tumours.*"

In late 2007 an international group of 14 scientists, researchers and public health policy professionals released a report<sup>[2]</sup> – The BioInitiative Report - concerning microwave exposure and concluded that "*The body of evidence at hand suggests that bio-effects and health impacts can and do occur at exquisitely low exposure levels: levels that can be thousands of times below public safety limits*". Additionally the report concluded that it is the information carried by electromagnetic radiation (microwaves) (rather than heat) that causes biological changes. This echoed the findings of the earlier Ecolog Report<sup>[1]</sup> a counterpart of the better-known Stewart Report<sup>[4,5]</sup>. In 2007 in Australia the Democrat Party, the 3<sup>rd</sup> largest political party there commissioned its own report<sup>[3]</sup> which backed up the findings of the BioInitiative Report.

Europe's top environmental watchdog, the EEA, is similarly concerned<sup>[6]</sup>- calling for immediate action to reduce exposure to radiation from Wi-Fi, mobile phones and their masts. It suggests that delay could lead to a health crisis similar to those caused by asbestos, smoking and lead in petrol.

Professor Jacqueline McGlade, the EEA's executive director, said: "*Recent research and reviews on the long-term effects of radiations from mobile telecommunications suggest that it would be prudent for health authorities to recommend actions to reduce exposures, especially to vulnerable groups, such as children.*"

In 2006 The German Radiation Protection Authority (Bundesamt für Strahlenschutz – BfS) issued a warning against the indiscriminate use of DECT phones.<sup>[7]</sup>

Ending in 2004 the EU backed REFLEX<sup>[15]</sup> study (12 research teams in 7 countries) researched the effects of electromagnetic fields on human cells in vitro. This study also found evidence for single and double DNA strand breaks and other cell damage which could lead to cancer.

The most likely Damage Mechanisms within the body <sup>[19]</sup> that appear to cause the health issues associated with Mobile Phone Masts are the reduction in night-time melatonin levels, (melatonin protects the DNA and assists the immune system), the effects upon nitric oxide (NO) production (too much NO can lead to Multiple Sclerosis, diabetes and cancer, whilst too little can cause high blood pressure and damage the arteries), the removal of calcium ions (calcium ions are linked to communication within and between cells, if they leak they stimulate cell growth but also promote cancer growth, if too much calcium enters cells toxins are kept in whilst nutrients are kept out – damaging the cell) and DNA fragmentation (which causes loss of fertility and damage to future generations) .<sup>[14]</sup>

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