



# Making Us Sick: The True Health Costs of the Mobile/Wireless 'Revolution'



There IS Research and Evidence to show that the technology used in the above is NOT safe. Don't let anyone tell you otherwise. This leaflet is not to scare you; it is to Inform You.

Various Devices in our Homes work in a similar way to Mobile Telephone Masts, using microwaves, as do Mobile Telephone Masts: Mobile Phones, Wireless Networking (Wi-fi / WLAN), Digital Cordless Telephones (DECT), Bluetooth, Wireless (Interactive) Whiteboards, Baby Monitors etc.

Coming soon, or already here, are Town and City-wide Wi-fi "Clouds"/"Hot Spots", Wi-fi enabled games consoles, Wireless Entertainment Systems and WiMAX (Wide-area Broadband).

The health risks associated with Mobile Telephone Masts come with the above devices and technologies too – although no doubt no one has told you this.

Don't let others test their new devices out on you, your family and friends. Remember you cannot buy your health or life back if you get seriously ill from harmful emissions.



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## Introduction

Why are we so concerned about Mobile Telephone Masts and devices that use the same microwave transmitters, such as Wi-fi, WiMAX, WLAN and DECT? Because we are totally convinced that they **DO** cause us harm. The Government only takes notice of thermal (heating) effects from microwaves. It is the non-thermal effects which cause ill-health and the Government is ignoring these in the name of profit and tax revenue – much in the same way as they did with smoking (amongst others). There is lots of evidence of these non-thermal effects from Independent Scientists. This is contained in the section “**Summary of Current Independent Scientific Research**” (below).

The easiest way to explain the problem with us being exposed to more and more microwaves in our environment is to think of them as being like a very powerful, very penetrating form of artificial sunlight. This analogy is valid.

With sunlight we know that our bodies have a certain amount of natural protection in our skin to minimize the damage, but with more and more exposure our skin becomes damaged and we are likely to get skin cancer. With microwaves, as from Mobile Telephone Masts etc., we have no natural protection and as they are able to penetrate deep inside us our whole body is vulnerable to damage - including cancer and many other serious conditions.

As with sunlight where people have different skin types and can tolerate more or less tanning, so people have different tolerance to microwaves - some 3-4% are said to be "electro sensitive" and become effected easily by a small amount of microwaves, whilst up to a third of people are said to be intolerant of microwaves - suffering from headaches, nausea and other symptoms of mild radiation poisoning.

More and more studies every week provide evidence of the damage that microwave emissions do to us. The longer that the communications, computing and electronics industries stay in denial the worse the damage becomes to the Public at large - i.e. You and I. If they put their effort into designing safe alternatives to microwave transmitters we might end up with genuinely useful mobile devices which are also genuinely safe.

The current situation, where we are being increasingly surrounded by significant quantities of microwaves outside our houses and inside our homes too, is a matter for grave concern. We are aware of it, and so should you be.

Like many people, we never realised the full extent of the health issues around Mobile Telephones, nor the official wall of silence that exists, until circumstances led us to spend a large amount of time and effort looking into the whole issue, initially looking just at the new 3G Mobile Telephones and their Masts. We were shocked, and we expect you will be too.

Do you have a **Digital Cordless Phone (DECT**, as most now are), **Wireless Networking (Wi-fi)** or **BT Home Hub** in your house? If you do, or know someone who does or who is thinking about buying these types of device, it is vital that you realise that they work upon the same principles as Mobile Telephones and their Masts, using microwaves. (Since shops now sell virtually only Digital Cordless Phones (DECT), your cordless phone will most likely be a DECT phone, even if you were not aware of this). You should also be aware that **Bluetooth Devices** (such as wireless headphones), **Interactive Whiteboards** (already in many schools), some **Burglar Alarms** and many digital **Baby Monitors [20]** also work along similar lines to Mobile Telephones and their Masts using microwave radiation. **Wi-fi “Clouds” or “Hot Spots”** carry the same problems. The latest generation of **Games Consoles**, often used by young children, are being Wi-fi enabled. A new generation of **Wireless Entertainment Systems, Wireless Music Systems, Digital Wireless Streamers, Wireless Stereo Headphones** and **Wi-fi Radios** use either Wi-fi or “class 1” Bluetooth for distances up to 100m. **Whole Towns and Cities** are being targeted by Wi-fi providers for **Blanket Coverage e.g.** via boxes attached to **Street Lamps**. Please note that networking systems which **Piggy-Back** mains wiring via plug-in adapters actually make use of microwave frequencies, so are no safer than Wi-fi. **Microwave Ovens** unbeknown to most people do emit significant quantities of microwaves through their shielding – especially the doors. This does not show up on cheap “microwave leak detectors” which are set for even higher levels.

Just as Mobile Telephones and their masts come with many serious health risks, so do all of the above products (and we seem to discover more each month) since they use the same microwave frequencies, although we are told nothing about this when we buy these devices. DECT and Wi-fi are the devices that we have personally checked and have found comparable, and in some ways worse, emissions to Mobile Telephone Masts. See our readings in our updated leaflet. [N.B. Analogue cordless phones work at lower power and are non-microwave, hence they do not have the same associated health risks. These analogue

phones are harder to find in the shops, but can be bought on-line. An example is the BT Quartet 1100 (now in short supply - try eBay). Safer still, use a traditional phone with wires].

If you are people who don't want a Mobile Telephone Mast in your area, you certainly do not want any of the above digital devices in your home, since you will be exposing anyone inside your home (and outside, including your nearest neighbours (unless they are far away from you)) to these dangerous emissions.

You do not have to take our word for it. You can see for yourselves the amount of microwave emissions that these devices give off. Why not hire or buy a meter from EM Fields [44] and see for yourself?

We would recommend hiring or buying "The Acousti-COM Monitor (A-COM)" listed on <http://www.emfields.org/equipment/overview.asp>. We have been extremely disappointed by the "MW1 Electromog Detector" since we discovered that it does not always indicate that you are receiving microwaves when it is in comparison to the more sensitive A-COM. Another meter, "The COM Meter" gives actual readings of the microwave emissions given. (It is not good enough to only have the COM Meter since it also does not always fully pick up 3G signals, so having no reading from it does not necessarily mean 'no signal', i.e. Both the Electromog Detector and the COM Meter can be somewhat misleading). So we no longer recommend these now.

The above "Acousti-COM Monitor (A-COM)", however, seems to pick everything up. It is recently available for sale again, after some time of only available only for hire, so we have yet to check if this new 'version' matches the old version. The old version of the A-COM is the one we now use and take around with us. Carry it around with you as you travel around – it will be a real eye-opener to the microwaves you are being bombarded by.

We have been shocked at what we have found out since we started to research the whole Health Issue surrounding Mobile Telephone Masts – leading to the discovery that even some household items emit microwaves as Mobile Telephone Masts do, but inside our very homes – without us being told anything about them.

Government and the Telecommunication Industry would prefer you to read and hear about their scientists' 'research' - but with their huge financial gains (amounting to billions of pounds every year) reliant on 'safe results' can you blame anyone for being sceptical about how trustworthy their research actually is?

Please read the section "**Summary of Current Independent Scientific Research**" (below) - information that, we believe, the government and the industry are trying to suppress. This research is carried out by **Independent** scientists whose careers are often put at risk because they dare to question the safety of these Mobile Telephone Masts and oppose the government view by saying that these masts may well cause much harm to people.

If the **Independent Scientific Research** now available to us were to have been presented at the beginning of the introduction of Mobile Telephones and similar technology in the 1980s it is unlikely that it would have been permitted. If medicines or food stuffs are found to have just a fraction of the number of associated problems that Mobile Telephones etc. appear to have they are not allowed to be sold or licensed.

*'The reality of such a risk to public health is not yet officially recognised, however, and those who dare to depart from the 'official' line, by warning of potential dangers to human health posed by non-thermal influences of the radiation used in mobile telephony, are subject to immediate criticism and derision – particularly by those with a vested interest in maintaining the growth of mobile telephony. A good example of this is the ferocious attack by the committee of COST281 on my report for the EU Parliament (commissioned by STOA).'- Dr G J Hyland, in his December 2003 Paper, "The inadequacy of the ICNIRP Guidelines governing human exposure to the microwave emissions of GSM/TETRA Base-stations."*

The head of the UK's Health Protection Agency Professor Sir William Stewart's recent plea to the Government for a "timely" review into Wi-fi is indicative of the severity of the situation in the UK, which should no longer carry on unchecked.

Recent investigations into "**Cancer Clusters**" in the UK where several people in specific localities have developed rare forms of cancer at the same time have each been shown to **correspond with areas receiving the highest microwave emissions from a nearby Mobile Telephone Mast**. This has been the case in Devon, Lincolnshire and Staffordshire. There is no reason to believe that the situation is any different here. We fully believe that "Cancer Clusters" could be in existence or starting to appear here. Groups of people with similar ill health conditions may be appearing near to Mobile Telephone Masts which have been erected in the last few years. It is likely that symptoms such as recurring headaches, sleep disorders, itchy burning skin and various types of cancer etc. are becoming more commonplace here. Periods spent away

from home when the symptoms disappear are usually indicative of ill-health being caused by environmental factors – such as a Mobile Telephone Mast.

**It is only by assessing independent, good quality information that you or we can make up our own minds about the Mobile Telephone and Microwave Health issue – Why don't YOU investigate the Independent Research for yourself?**

***Please Read it.***

***(on the next page)***

# Summary of Current Independent Scientific Research - Proves Masts & Devices Working Similarly Are Not Safe

*All of the Examples Below are Non-Thermal Effects (See Appendix A) from Mobile Telephone Mast emissions that are not covered by the UK Government / ICNIRP Guidelines. (See Appendix C).*

## 1. Genetic Damage in Blood Cells and Other Cells

Drs Ray Tice and Graham Hook found human blood cell changes following exposure to four different types of cell phone signals. Genetic damage was seen in the form of micronuclei present in blood cells exposed to mobile phone radiation. [1] Also seen with Dr.Lai and Singh [2]

A recent 4-year EU-backed study by twelve partners in seven countries, EU Reflex, repeatedly showed irrefutable evidence of mobile phone emissions, at levels within ICNIRP, and hence UK, guidelines, causing double-strand DNA breaks of the sort that lead to cancer. [3]

Many environmental factors, including sunlight, cause DNA strands to break. However, it is the amount and type of DNA breaks that occur that may or may not lead to cell mutations and therefore cancer. It is possible for the cell to make mistakes when repairing single-strand breaks, but the likelihood of serious mistakes (mutations) increases substantially with double-strand breaks - the type seen from exposure to mobile phone radiation.

Where this type of DNA damage occurs in the blood cancers such as **Breast cancer** and **Testicular cancer** can result.

It has been reported that, in Paris, Orange dismantled a Mobile Telephone Mast that it had placed on a school's roof after 8 school children contracted cancer. This surely is quite damning - indicating that the industry/company knows that these Mobile Telephone Masts DO or MAY WELL cause ill health - why else would they dismantle their mast from the school?

## 2. Electrical Hypersensitivity (EHS), Chronic Fatigue Syndrome and Sleep Disorders etc.

The most commonly reported adverse effect of Mobile Telephone Mast radiation, is EHS. The symptoms are wide ranging, including **headaches** and **nausea, dizziness, recurrent nosebleeds, skin irritations and rashes, sleep disorders, hearing problems, high blood pressure, fatigue, irritability and depression**. Some people with epilepsy report increased incidence of seizures, people with chronic fatigue syndrome and multiple sclerosis report increased debilitation, as do those with or developing fibromyalgia. Further down the time line, reports of localised clusters of thyroid problems, motor neurone disease and cancers require full and proper investigation. Where such studies have been made, especially with regard to cancer, the correlation with Mobile Telephone Mast emissions is strong enough now to warrant more formal verification.

The common cause of the above effects is the increase in the production of nitric oxide – triggered by Mobile Telephone Mast Radiation. [15] and [16]

Nitric oxide is a dilator of blood vessels and a regulator of dream sleep. It also affects the blood-brain barrier and prevents the body's normal formation of melatonin from serotonin. Several studies have noted the reduction in Melatonin levels when the body is subjected to Mobile Telephone Mast radiation [4].

A knock-on effect is the overproduction of peroxynitrite, which is toxic at a cellular level. This leads directly to Motor Neuron Disease (MND) and Lou Gehrig's disease (ALS).

Such is the broad role of nitric oxide in the body, that disturbance of its production creates an avalanche of negative effects. Many "modern" trends in disorders from Multiple Sclerosis to Autism and ADHD, Alzheimer's to Motor Neuron Disease may stem directly from the over-production of nitric oxide. That Mobile Telephone Mast radiation has been shown to alter the production of nitric oxide in living beings is therefore a significant and serious factor in the evaluation of current and growing environmental levels. It is the long-term low level exposure that is predicted as creating cumulative effects and long-latency illness.

### **3. Weakening of the Blood-Brain Barrier**

Many laboratory studies, such as [5], have looked at the effect of pulsed microwave radiation on animals, revealing a wide range of biological changes to tissue structure or function such as the opening of the Blood Brain Barrier, allowing the protein albumen, amongst other substances, to enter the brain, and raising questions about, for example, **Multiple Sclerosis** and **Alzheimer's**, which are linked to proteins being found in the brain. Similarly, the weakening of the Blood Brain Barrier allows toxins in the bloodstream to pass into brain cells, leading to headaches and nausea (as commonly observed around Mobile Telephone Masts) - and, potentially, large-scale brain damage in the longer term.

### **4. Increased Incidence of Epilepsy**

When noting the reports of an increased number of seizures in some epileptic children when exposed to the emissions of Mobile Telephone Mast radiation, it should be remembered that exposure to a light (such as that from a stroboscope) flashing at a rate somewhere between 15-20 times per second (Hz) can provoke seizures in the 5% minority of epileptics who suffer from photosensitive epilepsy.

Visible light and microwaves are both different kinds of electromagnetic radiation, and the microwave radiation used in GSM mobile phone telephony similarly 'flashes' (pulses) – in the case of TETRA at 17.6Hz, which is within the 15-20 times per second (Hz) range [9] and is a rate that the brain is able to recognise. Also, unlike visible light, pulsed microwaves are not reliant on the eye and optic nerve to access the brain, since they can penetrate the skull directly, leading to epilepsy risk from Mobile Telephone Mast radiation.

A familiar piece of misinformation quoted by mobile phone operators is that the emissions of a Mobile Telephone Mast are comparable to that of only a 60W light bulb, and thus equally harmless. Quite apart from the fact that the light from a 60W light bulb *can be* harmful to a person with photo-sensitive epilepsy, if it is flashed at an appropriate rate, the comparison is solely based on intensities and neglects three important points:-

1. The fact that *more* than one carrier signal is usually transmitted from the mast. Thus, the figure of 60W must be multiplied by the number of carriers that are actually transmitted in any particular case; in order to minimise inter-carrier interference, however, this number is restricted typically to 4 at the most, so the total output wattage can be as high as 240W.
2. Beams from the mast, however, are not emitted uniformly in all directions (as happens with light from a light-bulb), but are instead concentrated in specific directions, the degree of directional focusing being quantified through the so-called 'gain' (G) of the antenna, even omni-directional types, typical values of which, in the case of GSM, range from about 40 to 60. If we use an optimistic figure of 30 the so-called 'effective isotropic radiated power (EIRP), given by the multiplying Power by Gain – is 1800W, which is further increased to 7.2kW if 4 carriers are transmitted – a value that is 120 times higher than the 60W quoted! The maximum EIRP value permitted by law is 1500W per carrier, whilst the maximum number of carrier signals is 16 (at 1800MHz) and 10 (at 900MHz); in practice, however, the number of carriers is usually restricted to 4 at the most, for the reason mentioned above.
3. The comparison neglects the all important frequency dimension, in particular the difference in the frequency that characterises the visible light from the light bulb from that which defines the radiation to be (invisible) microwave radiation. For whilst the output from such a bulb is, during the day, completely negligible in comparison with visible light of natural origin – i.e. that from the Sun – this is not so in the case of the microwave radiation emitted by a Mobile Telephone Mast day and night, which, several hundred of metres away, is typically 100 million million ( $10^{13}$ ) times higher than the microwave radiation that is emitted by the Sun at the same frequency. Accordingly, the emissions of Mobile Telephone Masts have caused an enormous (and relatively sudden) alteration in the natural environment (at this frequency) from that in which life on Earth has, over a very much longer time, evolved. The impact of this altered environment on biology is further enhanced by the high coherence of the mobile phone radiation. [11]

### **5. Naila: 10-year Study of Residents near Mobile Telephone Mast Shows Cancer Link**

Following a call by Wolfram König, President of the Bundesamt für Strahlenschutz (Federal Agency for Radiation Protection), to all doctors of medicine to actively collaborate in the assessment of the risk posed by Mobile Telephone Mast radiation, the aim of this study was to examine whether people living close to Mobile Telephone Masts were exposed to an increased risk of becoming ill with malignant tumors (i.e. cancer). [12]

The basis of the data used for the survey were PC files of the case histories of patients between the years 1994 and 2004. While adhering to data protection, the personal data of almost 1,000 patients was evaluated for this study, which was completed without any external financial support. It is intended to continue the project in the form of a register.

The result of the study shows that the proportion of newly diagnosed cancer cases was significantly higher among those patients who had lived for the past ten years at a distance of up to 400 metres from the Mobile Telephone Mast, which has been in operation since 1993, compared to those patients living further away, and that the patients fell ill on average 8 years earlier.

In the years 1999-2004, *i.e.* after five years' operation of the transmitter installation, the relative risk of getting cancer had trebled for the residents of the area in the proximity of the installation compared to the inhabitants of Naila outside the area.

*(N.B. Naila is a town halfway between Berlin and Munich, near the German border with the Czech Republic)*

Previously, Santini and Santini (2001) and Santini et al (2002) [7] surveyed people living up to 300m from Mobile Telephone Masts. There was a statistical match between distance from Mobile Telephone Masts and health problems: tiredness up to 300m; headache, sleep disruption, 'discomfort' up to 200m; depression, memory loss, dizziness, visual disturbances up to 100m. Women were more susceptible than men.

## **6. International Medical Appeals: Freiburger, IDEA, Lichtenfelser, Hofer, Bamberger, and Helsinki**

In the Freiburger Appeal [6], initially 50 doctors in Germany reported reduced therapeutic efficiency of prescribed drugs correlated with the use of pulsed microwaves, such as those from Mobile Telephone Masts. Some 40,000 signatories have now supported the appeal, including 1,200 doctors. Alongside the Freiburger Appeal there are now similar appeals from Lichtenfelser, Hofer, Bamberger and Helsinki.

In the Irish Republic, the IDEA group of Doctors has its own reports relating to Mobile Telephone Masts [10] which confirm the findings of the Freiburger Appeal doctors.

## **7. Three Research Groups find Increased Danger of Tumours**

In early September 2005 the press widely and incorrectly reported that the largest ever study into mobile phone use and brain cancer showed no increase in the first 10 years of use. In fact, this only applied to a rare form of benign tumour, Acoustic Neuroma, and the study did in fact find an increased risk after 10 years of use of 1.8-fold - *i.e.* almost a doubling in tumour risk. [23]

The researchers compared a group of 966 brain tumour patients with a group of 1,716 healthy patients who had not used cell phones. They found a 20 percent increase in cancers among long-term users.

The study, funded largely by the cell phone industry and published on-line by the British Medical Journal, found a significantly increased risk for tumours that developed on the same side of the head where patients said they most often held the phone. But lead researcher Patricia McKinney said that finding probably was due to "many patients not accurately recalling which ear they'd used most of the time".

Many critics said conclusions drawn by the researchers were "highly misleading" and might give cell phone users a false sense of security. Alasdair Philips, director of Powerwatch, said the claim of no association of risk is unjustified because the study excluded half the people who developed gliomas because they died before they could be interviewed.

In all, three European research groups involved in separate studies have found an increased risk of brain tumours in people who have used mobile phones for 10 years or more. Two of the studies found a correlation between the tumour's location and the side of the head where people reported they held the phone. One also suggests the greatest risk is in people who began using the phones before age 20.

Two of the studies, one in England and one in Germany, are part of the 13-nation Interphone Study, [24] an effort sanctioned by the World Health Organization to assess possible health risks from the radiation emitted by cell phones. Both studies found an increased risk of glioma, an often deadly brain cancer, in people who had used mobile phones 10 years or more.

An earlier Interphone study, reported in October 2004 by researchers at the Karolinska Institute in Sweden, [25] found an increased risk for a non-cancerous brain tumour called acoustic neuroma after 10 years of mobile phone use, but not for glioma.

"When you put the three large Interphone results together -- the German, English and Swedish -- they tell a story, and it begs for attention," said Louis Slesin, publisher of Microwave News, who has been reporting on the health effects of such radiation for two decades.

The German study, conducted by Joachim Schuz and colleagues at the University of Mainz, was published on-line by the American Journal of Epidemiology. The researchers compared a group of 749 brain tumour patients with 1,494 similar people who had not used cell phones and found a doubling of the risk of gliomas after 10 years of use. They said numbers of people in the study who had used the phones for 10 years was small, and the findings need to be confirmed by other studies.

George Carlo, who headed the American cell phone industry's 1990s research program, [26] said the findings indicate a 24 percent increase in tumours among people who used the phone on the same side as the tumour.

A third study [27], in the February edition of International Journal of Oncology, found an increased risk of acoustic neuromas in long-term users. Dr. Lennart Hardell and colleagues at Orebro University in Sweden analysed the cases of 1,254 people diagnosed with benign brain tumours between 1997 and 2003, and compared them with a similar group of 2,162 people who had not used cell phones. They found that people who used analog cell phones starting 15 years before diagnosis developed acoustic neuromas at a rate almost four times higher than the comparison group. In conclusion they state that "*Exposure to ionizing radiation, work in laboratories, and work in the chemical industry increased the risk of brain tumors. Use of a cellular telephone was associated with an increased risk in the anatomic area with highest exposure.*"

An analysis in late 2005 by Dr. Henry Lai, head of the Bioelectromagnetics Research Laboratory at the University of Washington in Seattle, said of 271 laboratory or clinical studies done in recent years, about 60% have shown a biological effect in cells or animals exposed to radio frequency radiation.

## **8. Other Recent Scientific Research Findings**

[34] **Even after one minute of exposure to cell phones, anti-oxidant levels in the blood had dropped significantly.** "*The aim of the study was to assess in vitro the effect of electromagnetic field produced by mobile phones on the activity of superoxide dismutase (SOD-1) and the level of malonyldialdehyde (MDA) in human blood platelets. The suspension of blood platelets was exposed to the electromagnetic field with the frequency of 900 MHz for 1, 3, 5, and 7 min. Our studies demonstrated that microwaves produced by mobile phones significantly depleted SOD-1 activity after 1, 5, and 7 min of exposure and increased after 3 min in comparison with the control test. There was a significant increase in the concentration of MDA after 1, 5, and 7 min and decrease after 3 min of exposure as compared with the control test.*"

[35] Study: "*Effect of electromagnetic field produced by mobile phones on the activity of superoxide dismutase (SOD-1) and the level of malonyldialdehyde (MDA) -- in vitro study*" Conclusion: **Microwaves produce DNA damage in brain cells.**

[36] Study: "*Nonlinear wave mechanisms in interactions between excitable tissue and electromagnetic fields*" Conclusion: **Microwave radiation or EMFs can disrupt cell signaling, resulting in a broad range of tissue functions. These can present as poor wound healing, malformations of the fetus(unborn), nervous system disruption.** "*It is now well established that intrinsic electromagnetic fields play a key role in a broad range of tissue functions, including embryonic morphogenesis, wound healing, and information transmission in the nervous system. These same processes may be profoundly influenced by electromagnetic fields induced by an external force.*"

[37] Study: "*Mobile telephones and cancer -- a review of epidemiological evidence.*" Conclusion: "*There is considerable public concern about possible long-term adverse health effects of mobile phones. While there is scientific controversy about long-term health effects of high-frequency electromagnetic fields lasting for at least 50 yr, the rise and success of mobile telecommunication made it necessary to investigate the problem more comprehensively and assess the possible risk cautiously because never before in history has a substantial proportion of the population been exposed to microwaves in the near field and at comparably high levels. Because the mostly localized exposure target region is the head, most epidemiological studies focus on brain tumors. Overall nine epidemiological studies have been published, four from the United States, two from Sweden, and one each from Denmark, Finland, and Germany. Seven studies were mainly on brain tumors, with one investigating in addition to brain tumors salivary gland cancer and another cancer of the hematopoietic and lymphatic tissues, and one examining intraocular melanoma. All studies have some*

*methodological deficiencies: (1) too short duration of mobile phone use to be helpful in risk assessment, (2) exposure was not rigorously determined, and (3) there is a possibility of recall and response error in some studies. Nevertheless, all studies approaching reasonable latencies found an increased cancer risk associated with mobile phone use. Estimates of relative risk in these studies vary between 1.3 and 4.6 with highest overall risk for acoustic neuroma (3.5) and uveal melanoma (4.2), and there is evidence for enhanced cancer risk with increasing latency and duration of mobile phone use."*

## **9. Cancer Clusters Around Mobile Telephone Masts**

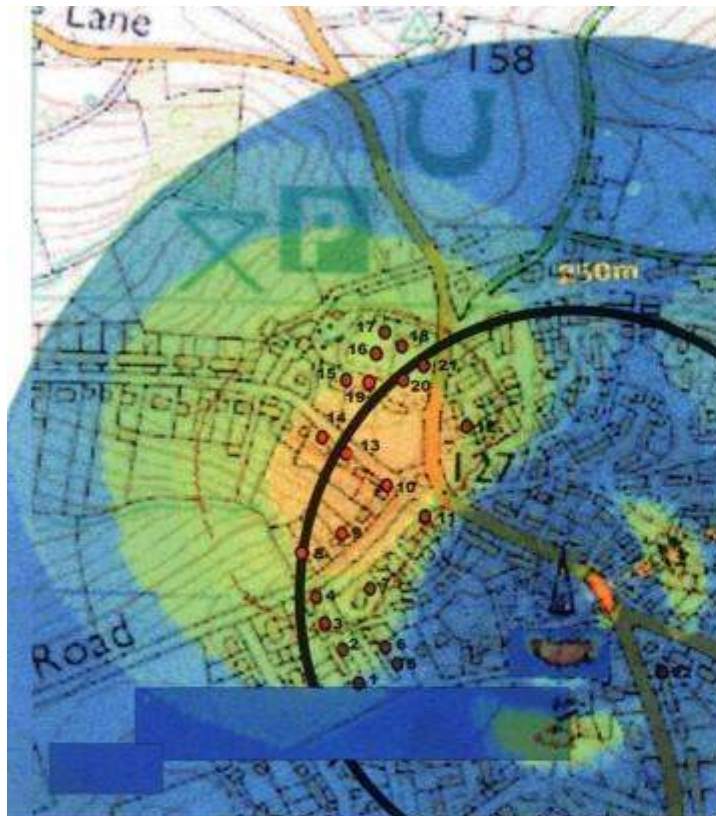
Dr John Walker of Sutton Coldfield [17] has been conducting research into the distribution of ill-health in clusters around masts. He spent over 40 years in statistical research for Dunlop, identifying causative factors, pinning down the extent to which certain effects were due to various causes. 'Causative factors' are what the mast health issue is all about - to what extent are masts responsible for health effects around them? In this respect Dr Walker's background makes him an ideal person to undertake this study.

Not just one mast, but many of them all around the UK, are playing host to a variety of ailments that destroy people's lives, destroy families, in some cases destroy communities. Cancer (various types), Thyroid disorders, Motor Neurone Disease, Parkinsons Disease, etc, etc. The statistical probability of such a 'repeatable experiment' being pure chance reduces with every such cluster that occurs. I.e. if the odds of one such cluster are one in a thousand then the odds of two such clusters are one in a million. The odds of three such clusters are one in a billion - and so it goes on. In fact, the likelihood of just one cluster of the sort we're seeing now is very much lower, since they include abnormal numbers of what naturally were very rare conditions like Motor Neurone Disease.

In conjunction with Eileen O'Connor of The Radiation Research Trust, using data collected by a Mast Sanity worker from ill-health clusters around masts, Dr. Walker has produced maps of some of those clusters. He has superimposed on those maps approximate plots of the field intensity from the mast in question in each case. These are based on observations as to the type of antenna, its height and direction.

It must be noted that Dr. Walker's work has been a good starter in this area, but really needs delving into fully now by properly funded epidemiology studies. Enough evidence has been obtained by Dr. Walker to justify full-scale studies within the UK and/or Europe (and, indeed, to put the current proliferation of microwave radiation that we are all subjected to on hold). It is only through the most robust work and self-criticism that we will obtain the true picture and the extent of the health issues that we face. We need to research in the "controversial areas" i.e. the health areas which currently have to be avoided by those Scientists funded by the Government and or Industry.

The Questions posed by Dr. Walker, which are classed as "controversial" and therefore must not be 'officially' researched are:- *"Is there any effect of mobile telephone base station [i.e. mast] radiation on living beings e.g. human and animal health? Are "illness patches" merely "Isolated Random Cases" or are they "Typical and Universal" and "Is the incidence of ill health related to the strength of the radiation?"* Dr. Walker believes that he has shown illness patches to be "Typical and Universal" and that the incidence of ill health (symptoms) is related to the strength of the radiation. Peer-reviewed research papers should be published on these Questions with their associated answers – it should not be down to unpaid members of the Public to voluntarily, out of desperation, do the work of the Health Protection Agency just because it is unable or unwilling to accept unpalatable facts or its failings thus far.

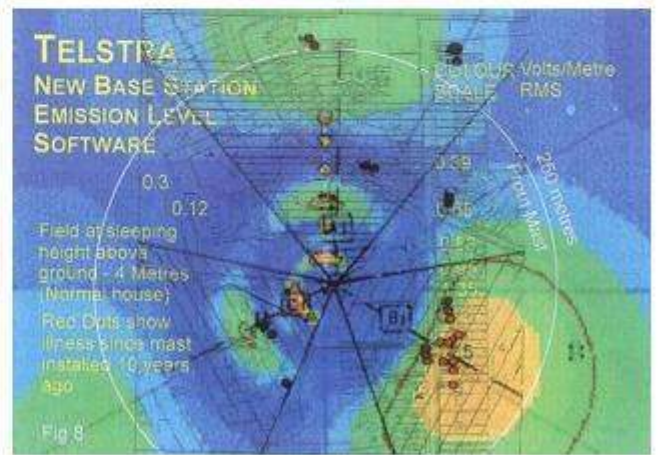
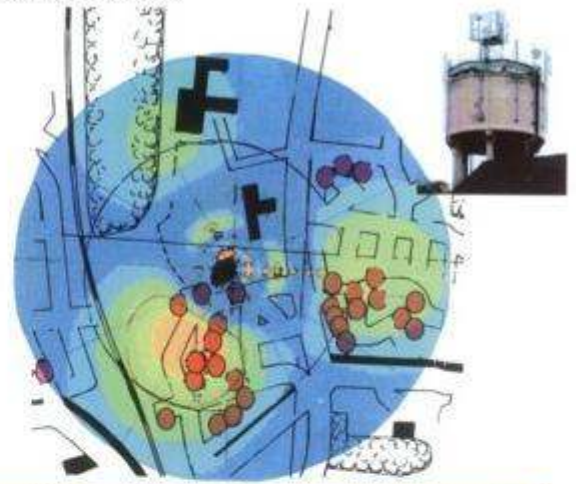


Key:

- maximum intensity areas
- medium intensity areas
- lower intensity areas
- ill-health cases

Devon

Lincolnshire



Staffordshire

The exact coverage plots as produced by the operators are not available, so these approximate plots have had to be used. It's likely that those actual coverage charts would give a much more accurate picture of the degree of correlation of health effects with beam intensity. Despite this, the evidence here is fairly conclusive. Note how the red dots, representing ill-health cases lie in, and in a few cases very close to, the maximum intensity areas (coloured orange, then lime-green), thinning out in the areas of slightly lesser intensity (paler green), and are almost totally absent from the least intense areas (pale blue then darker blue). The circles (or part circles) in the diagrams are centred on the mast in question.

### 10. Credible Models

Several highly "credible model"s exist to explain how relatively low power microwave emissions are able to cause damage and one such "credible model" has most recently been explained by Dr. Andrew Goldworthy [45], Honorary Lecturer in Biology from Imperial College, London. Weak Electromagnetic Fields are precisely what are created when microwave transmitters such as Mobile Phone Masts or Wi-Fi start emitting.

He said (on-line) "Next time someone says that there are no known mechanisms by which weak electromagnetic fields can have biological effects, ask them to visit [the Electrosensitivity UK website]. You will find in it an article that I wrote recently explaining in non-mathematical but science-based terms just how such effects arise. It contains many references to work published in peer reviewed journals and explains most of the known biological effects from risks to fertility to interference with brain function. I don't ask you to believe it; just read it and make up your own mind. Andrew Goldworthy BSc PhD Honorary Lecturer in Biology Imperial College London"

In his paper entitled "The Biological Effects of Weak Electromagnetic Fields" [46] he explains in simple terms how such a credible model works. In the conclusion of this document he states "In the latter part of this

*article, I have explained how weak electromagnetic fields can interact with cell membranes to weaken them and make them more permeable. As with all theories, it will be subject to modification and refinement as time goes by, but some facts are already inescapable. There is undeniable experimental proof that weak electromagnetic fields can remove bound calcium ions from cell membranes. There is also no doubt that bound calcium ions are essential for the stability of these membranes. Consequently, their loss will increase temporary pore formation under the mechanical stresses from pressure differences within the cell and abrasion by its moving contents. This very simple conclusion can account for virtually all of the known biological effects of electromagnetic fields, including changes in metabolism, the promotion of cancer, genetic damage, loss of fertility, deleterious [harmful] effects on brain function and the unpleasant symptoms experienced by electrosensitive [ES/EHS] individuals."*

## **11. Emerging Patterns in Microwave Research - from the Industry's own ex-Head of Research**

Dr. George Carlo is an American Epidemiologist, Author, and Lawyer. He is a Fellow of the American College of Epidemiology, and has worked in the medical faculties of several American Universities. From 1993 to 1999 he headed Wireless Technologies Research (WTR), the American 28 million dollar research program, funded by the mobile phone industry, that investigated the possible health effects of mobile phones.

The research was instigated in 1993 after millions of people were already using mobile phones in the USA and around the world. There had been no pre-market safety testing carried out for mobile phones. Around this time there was a law suit from a widow whose husband - a mobile phone user - had died from a brain tumour. In exchange for mobile phones not being regulated, it was decided by the US Government's Food and Drug Administration (FDA) that research was to be carried out, in the Industry's words, 'to assure the public that cell [mobile] phones were safe.'

In 1999, Dr. Carlo presented his research findings to the Industry and the FDA. The research had found many 'red-flag' instances of where and how mobile phone technology could harm people's health. Dr. Carlo strongly suggested that the public be alerted to these health concerns. The FDA replied, '.... the data isn't strong enough to warrant a public warning, thank you for your work, we'll take it from here'. Funding for the WTR research program was stopped by the Industry. Dr. Carlo, with colleagues, went public with the findings on their own and they continue to inform the public of the dangers of mobile phone technology.

He is the founder and chairman of the Science and Public Policy Institute and its sub-project, the Safe Wireless Initiative.

Dr. George Carlo delivered an impressive presentation covering the patterns emerging in microwave research in Portcullis House at the UK Parliament in Westminster in February 2007. It can be viewed on-line via Google Video [47].

After listing and describing the way that symptoms are caused by three main 'windows' of the electromagnetic spectrum he focused on microwaves which are modulated (i.e. used) to carry information. It is this part which presents by far the greatest risk to health – particularly so, given the explosive increase in the number of Mobile Phone Masts and Wi-fi installations.

He explained how microwaves interact with our bodies. Information-carrying microwaves trigger the 'protein receptors' on the cell wall. The receptors mistake this radiation for a foreign invasion (as for a virus or bacteria) and a series of biochemical reactions takes place (within 30 seconds). The cell wall becomes less permeable leading to a loss of communication between cells. Cell food cannot get in, waste cannot get out. Free radical [50] levels within the cell rise. This increase in free radicals upsets the DNA repair process (involving micronuclei) and affects the cell's 'power plant' (mitochondrial dysfunction) causing the cell to malfunction. The next time the cell undergoes division (mitosis), the affected DNA is copied and the new cells act as if they are under stress even if the original stressor (the microwave radiation) is no longer present (which could well be a basis for electrosensitivity). When affected cells undergo programmed cell death (apoptosis), which is nature's way of eliminating damaged cells, the micronuclei formed from the disrupted DNA repair are released into the nutrient-rich (intracellular) fluid and are free to increase in numbers. This is the most likely cancer mechanism. The loss of communication between cells caused by the compromised cell wall in turn damages body tissue, organs and body function; this is the basis for the severe and long-term symptoms associated with electrosensitive patients. **These interactions occur with any i.e. ALL levels of microwave exposure, regardless of how small.**

Dr. Carlo emphasised the need for safe deployment technologies based on the use of fibre optic telecommunication cable 'spines' with the associated reduction in the use of wireless signalling.

Dr. Carlo also mentioned that research with autistic children indicated that their condition improved significantly when purged of mercury via detoxification (chelation) [51] in an EMF-free (i.e. microwave free) environment.

It was discovered that a natural genetic susceptibility and heavy metals (mercury) in brain cells combined with exposure to electro-magnetic radiation, especially from Mobile Phones and Masts, can lead to autistic spectrum disorders. The mechanism is linked to the cell damage explained earlier (the disruption of cell communication with high levels of heavy metals trapped in the nutrient deficient cell). Dr Carlo announced that a study is to be published outlining the link between EMFs, mercury poisoning and autism [48]. He raised the issue of Wi-fi, particularly its use in schools, and was at pains to express his disgust that children should be the subject of, what he called, a 'mass experiment'.

## **12.ECOLOG 2000**

In 2000, the same year the Stewart Report was commissioned by the UK Government, T-Mobil in Germany (the parent company of T-Mobile) commissioned a highly-rated independent research institute, the ECOLOG Institute in Hanover, to review all relevant available research to date with regard to the health risks from mobile telecommunications. [49]

This review of over 220 peer-reviewed and published papers found strong indications for the cancer-initiating and cancer-promoting effects of high frequency electromagnetic fields used by mobile telephone technology. Experiments on cell cultures at power levels much lower than the legally permitted levels, yielded strong indications for cancer-forming effects of these fields, like single and double stranded DNA breaks (i.e. genetic damage) and damage to chromosomes. The findings that high frequency electromagnetic fields influence cell transformation, cell growth promotion and cell communication also point to a carcinogenic (i.e. cancer-causing) potential of the fields used for mobile telephony. The study also found teratogenic effects (i.e. birth defects) and loss of fertility in animal studies. Moreover, disruptions of other cellular processes, like the production of proteins and the control of cell functions by enzymes, have been demonstrated.

Numerous experiments on humans as well as on animals proved effects on the central nervous system, which go from neuro-chemical effects to changes in brain commands and the damage or weakening of certain brain functions. Loss of memory, understanding, perception and problem solving skills, for instance, have been demonstrated by animal experiments. From experiments with volunteers, who were exposed to the fields of Mobile Telephones, there is clear evidence of changes to certain cognitive (brain and understanding) functions. Possible risks for the brain also arise from an increased permeability of the blood-brain barrier to potentially harmful substances, observed in several experiments on animals exposed to mobile telephone fields.

The ECOLOG report also found indications of disruptions to the hormone and immune systems. High frequency electromagnetic fields cause stress reactions, showing up in an increased production of stress hormones in experimental animals and they lead to a reduction of the concentration of the hormone melatonin in the blood of exposed animals and humans. Melatonin has a central control function for the hormone system and the the body's biological rhythms and it is able to slow down the development of certain tumours.

A common observation in many of the studies was the importance of pulse modulation (i.e. digital signals with "square wave" patterns). Pulse modulated fields seemed to have a stronger effect than continuous fields and that in some cases, it was the pulse of a certain frequency which triggered the reaction, and the absence of a pulse, or pulse of a different frequency, led to less significant effects or no effect at all.

In summary, the ECOLOG report came to dramatically different conclusions to the somewhat inconclusive Stewart Report and called for an immediate reduction of the permitted legal exposure limits by a factor of 1,000.

### **13.Conclusion**

“On the basis of many inter-consistent reports of adverse health effects in the vicinity of GSM Base-stations [Mobile Telephone Masts], it must be concluded that such installations pose a **real risk** to the health of people resident nearby. It is to be stressed that this conclusion is not purely personal, but is one that is shared by many eminent scientists of international standing and medical doctors worldwide.” Dr. G J Hyland [11]

And, a warning about government and industry ignoring these health issues, and the conflict of interest between research and revenue earning:

“... The reality of such a risk to public health is not yet officially recognised, however, and those who dare to depart from the ‘official’ line, by warning of potential dangers to human health posed by *non-thermal influences* of the radiation used in mobile telephony, are subject to immediate criticism and derision – particularly by those with a vested interest in maintaining the growth of mobile telephony.” Dr. G J Hyland [11]

## Other Information

### UK's Health Protection Agency acknowledges Electrosensitivity

A report has recently been published by the UK's Health Protection Agency which acknowledges for the first time that people can suffer nausea, headaches and muscle pains when exposed to electromagnetic fields, which include microwave emissions. [22] The condition known as electrosensitivity, a heightened reaction to electrical energy, will be recognised as a physical impairment. Increasing numbers of British people are suffering from the syndrome. While the total figure is not known, thousands are believed to be affected to some extent. Britain will follow Sweden where electrosensitivity was recognised as a physical impairment in 2000. About 300,000 Swedish men and women are sufferers. Disappointingly, although the original draft of the report was said to acknowledge the link between Mobile Telephones, Masts and other similar sources to electrosensitivity, this was removed in the final version of the report. This is likely to have been down to pressure from Mobile Phone Operators who fear legal action will be taken against them by sufferers who claim Mobile Telephone Masts have made them ill.

### Sweden's Experience with WiMax

On 23rd February 2006 Wireless Broadband, or WiMAX, started transmissions in the Götene area of West Götland, Sweden. [31]

That same morning Christina Johnson and Birgitta Söderquist were both affected by nearly identical acute throat conditions, breathing difficulties, feelings of suffocation and heart palpitations.

Birgitta's face swelled up, she became dizzy and her skin itched and stung. Christina felt like her face was burning, she was affected by coughing and had bouts of dizziness.

"I never thought I would be affected like this, and this badly" said Birgitta. "Our farm lies protected and there are 6 kilometers, or 1 Swedish mile, to the nearest broadband [WiMAX] masts".

Birgitta has since obtained maps outlining the WiMAX coverage area and with the help of these she has been able to establish that she lies in the crossbeam of two WiMAX masts.

At least 8 residents in a small area suffered serious health effects as soon as the WiMAX system went live on the 23rd February 2006. Of these 5 have been forced to leave their homes and families, says Birgitta.

Residents and the Swedish Health Protection Agency are now attempting to have the WiMAX transmitters shut down.

### Microwave Radiation – An Emerging Healthcare Crisis

In the newly published book "Would You Put Your Head in a Microwave" [32]\* the author, Gerald Goldberg, MD makes a compelling case for us requiring a great deal of concern over the steep rise in many kinds of cancer during the late 1990s (1994-1999) – a period of massive take-up in the use of Mobile Telephones, and the erection of Mobile Telephone Masts. The Cancer Atlas of the United Kingdom and Ireland 1991-2000 [33] shows us that Brain cancer and Lymphomas have gone up all across the UK, whilst leukaemia, testicular, laryngeal, prostate and uterine cancer rates have gone up nearly exponentially. The tissue in the larynx is particularly sensitive to microwave radiation. The statistics do not discount other factors, but the increase in the use of microwave devices has been uniform across the UK in the period covered. Is this a coincidence? Hmm. The book indicates that the pattern is roughly the same across the USA as well.

*"Regardless of the type of exposure the effects of the radiation are cumulative. That is if you received a large exposure over a short period of time or if you received a low dose exposure over a longer period of time the results are the same. The total exposure is cumulative; in essence there is no safe dose."*

The book tells us to look out for patterns in symptoms which may indicate damage due to microwaves and not to dwell on the name that doctors may give to specific illnesses.

*"Regardless of what the doctor calls it the pattern of burn injury and response of the body is the same. The pattern looks the same:"*



1. *Blood flow diminishes*
2. *Organ function deteriorates*
3. *The body breaks down*
4. *The body starts to lose the ability to repair or heal itself*
5. *Body metabolism is profoundly affected with the inability to stay warm in a cold climate or the inability to cool off in a warm climate.*
6. *The individual suffers from profound fatigue*
7. *The individual can note a prompt drop-off in functionality, for example a decrease in eyesight or mental acuity that starts abruptly without any discernible cause.*
8. *Frequent and unremitting colds, infections or not feeling well all the time, associate with muscle aches, arthralgias and other manifestations.”*

The author goes on to ask a very good question, which it would be as well for us all to consider. *“one should ask oneself, how could everyone across different regions of the country be getting sick at the same time? Also how is it that the number of ill people seems to be increasing in numbers! Focus on the common link. There are not many things in nature that can affect individuals across broad geographic areas. Microwave radiation exposure is the singular unifying link till proven otherwise. There should be no debate. Apart from all the other environmental toxins and pollutants that we are exposed to microwave radiation will act as accelerant of illness.”*

\* An important point to note about the book “Would You Put Your Head in a Microwave” is that the author, Gerald Goldberg, MD (Doctor of Medicine) has attempted to make his own interpretation of the way that microwaves trigger the symptoms that people suffer. He suggests that microwave energy accumulates as heat retained deep in the body, and that it is the heat which causes the problems. However, Independent Scientists have shown that these symptoms do not need heating to cause them. Certainly higher frequencies do not penetrate deeply, especially at power levels from masts. The oven analogy is in some ways unfortunate since it contradicts the non-thermal (i.e. non-heating) effects that campaigners and Independent Scientists constantly argue is the true problem. This should not diminish the overall message of the book which is to highlight a very real increase in cancers and other symptoms since the mid 1990s which bear the hallmark of radiation sickness – just in the same time frame as we have been increasingly exposed to microwave radiation from mobile and wireless technology.

A key point to remember has to be that "frequency matters, perhaps more than energy (power)". Engineers call the mobile/wireless microwave part of the Electro Magnetic Spectrum the "sweet spot", because it balances voice/data carrying capacity against range/distance. Too high a frequency and the distance covered decreases, too low a frequency and voice/data carrying capacity decreases. The biological effects on living things are rarely, if ever, considered by the engineers and physicists who build the mobile/wireless devices and set so-called safety limits.

## **Irresponsible selling of Mobile Phones to Children**

There is ample independent research evidence in existence to prove to any sane adult that Mobile Phone technology can and does cause harm to people in the form of cancer, sleep disorders, depression and other potentially life-threatening conditions.

Companies such as TeddyFones [30] are ignoring well-founded advice to children and parents warning of the dangers of exposing developing nervous systems to Mobile Telephone microwave radiation.

Below, are quotes from Sir William Stewart (from the Stewart Reports), the Department of Health and even from the Mobile Operators' Association. They all agree that marketing phones specifically aimed at children is totally irresponsible.

### **Sir William Stewart, Chairman of the UK's Health Protection Agency [28]**

"Sir William, the Government's leading adviser on radiation, said in January 2005 that children under nine should not use mobiles and that those aged nine to 14 should make only short, essential calls.

He said: "When it comes to suggesting that mobile phones should be available to three- to eight-year-olds, I can't believe for a moment that can be justified.

"My advice is that they should not have them because children's skulls are not fully thickened, their nervous systems are not fully developed and the radiation penetrates further into their brains."

"Published research suggests that a child's brain absorbs 50-70 per cent more of the emissions from a mobile phone than an adult's."

### **Department of Health Advice [29]**

#### **Children and young people under 16**

Mobile phones are very popular with young people and have obvious attractions for personal security and keeping in touch with others. Parents and young people should make their own informed choices about the use of mobile phones. The current balance of evidence does not show health problems caused by using mobile phones. However the research does show that using mobile phones affects brain activity. There are also significant gaps in our scientific knowledge.

Because the head and nervous system are still developing into the teenage years, the expert group considered that if there are any unrecognised health risks from mobile phone use, then children and young people might be more vulnerable than adults.

The expert group has therefore recommended that in line with a precautionary approach, the widespread use of mobile phones by children (under the age of 16) should be discouraged for non-essential calls. In the light of this recommendation the UK Chief Medical Officers strongly advise that where children and young people do use mobile phones, they should be encouraged to:

- \* use mobile phones for essential purposes only
- \* keep all calls short - talking for long periods prolongs exposure and should be discouraged

The UK CMOs recommend that if parents want to avoid their children being subject to any possible risk that might be identified in the future, the way to do so is to exercise their choice not to let their children use mobile phones."

Even the **Mobile Operators' Association** said:-

"The companies we represent don't market their products to under-16s, as recommended by Sir William Stewart. We believe that is a responsible policy and is in line with the advice on health."

## Appendix A - What are the Non-Thermal Effects detailed in the research by Independent Scientists?

Here are some examples:

- DNA damage potentially leading to cancers such as **Breast cancer** and **Testicular cancer**,
- Signal pulsing, similar to rapidly flashing lights, causing or worsening Epilepsy,
- Reduction in Melatonin levels - and increase in nitric oxide (NO) levels - resulting in: reduced cancer fighting cells in our bodies, **sleeping disorders**, increased cholesterol levels leading to greater risk of **atherosclerosis** and **coronary heart disease**, increased blood pressure giving greater risk of blood clots and strokes. Also increasing chances of serious disorders such as **Alzheimer's disease**, **Lou Gehrig's disease**, **Multiple Sclerosis** and **Parkinson's**,
- **Tinnitus** and **Hearing problems**, **Headaches**, **Reduced drug effectiveness**.

These effects are increasingly being found to occur in reality within the population at large who are exposed to Mobile Telephone Mast radiation. Many German and European doctors (equivalent to our GPs) are so concerned that they have signed up to the "Freiburger Appeal" to demand that health concerns over Mobile Telephone Masts are taken seriously. Other similar appeals exist across Europe [6]. The Doctors note many symptoms increasingly seen by them in the vicinity of Mobile Telephone Masts.

They are:-

- Learning, concentration, and behavioural disorders (e.g. attention deficit disorder, ADD)
- Extreme fluctuations in blood pressure, ever harder to influence with medications
- Heart rhythm disorders
- Heart attacks and strokes among an increasingly younger population
- Brain-degenerative diseases (e.g. Alzheimer's) and Epilepsy [14]
- Cancerous afflictions: leukemia, brain tumors
- Headaches, migraines
- Chronic exhaustion
- Inner agitation
- Sleeplessness, daytime sleepiness
- Tinnitus
- Susceptibility to infection
- Nervous and connective tissue pains, for which the usual causes do not explain even the most conspicuous symptoms

Additionally we have found multiple examples of the following to add to the above list:-

- Pineal dysfunction which may contribute to the onset of depression or may exacerbate existing depressive disorders, possibly leading to suicide.
- Miscarriages

## Appendix B - DECT, Wi-fi and Microwave Oven COM Meter Readings

### **DECT (Digital Enhanced Cordless Telecommunications) Cordless Phones**

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. (See [40] for more technical details.)

In our tests the DECT base station was **CONSTANTLY** transmitting, even when the handset was in the cradle (i.e. when the phone itself was not being used), giving us a COM meter reading of **60 times** the “the suggested Precautionary Maximum” (P.Max) (\*) or more close up, with a still highly significant reading of 25 times P.Max at a distance of 1 metre or so.

The DECT handset, when activated, gave a a COM meter reading of **60 times** P.Max or more close up – towards the maximum reading on our meter – not good news especially if you use cordless phones for any period of time.

### **Wi-Fi Wireless Networking**

Wi-fi, commonly based upon either IEEE 802.11b (5.9 Mbit/s ) or the faster 802.11g (54 Mbit/s) standard, uses an unlicensed microwave frequency of 2400MHz (2.4 GHz). This is the same part of the spectrum as used by microwave ovens, Bluetooth devices and analogue cordless phones. (See [41] for more information). The new 802.11n Wi-fi will operate in the higher-powered, longer distance 5GHz microwave band.

In our tests the Wi-fi router box was transmitting in pulses, even when no devices were connecting to it, giving us a significant COM meter reading of 30 times P.Max (\*) or more close up, with a reading of 15 times P.Max at a distance of 1 metre or so.

More significantly, a laptop with a Wi-fi network card inside it gave a COM meter reading of **60 times** P.Max or more close up whilst it was connected to the network. This reading was also found **UNDERNEATH** the laptop, i.e. where your lap would be. Consequently if you were surfing the Internet for any length of time your legs and abdomen would be in close proximity to a very significant amount of microwaves.

Before connecting to the network, and therefore at rest, the Wi-fi network card gave out a “heartbeat” pulse every 10 seconds or so – again at a value of **60 times** P.Max Moving 1 metre or so away from the laptop, a still significant COM meter reading of 25 times P.Max was registered.

[For these tests, the laptop was positioned two rooms away from the router, a common scenario for others using this type of set-up].

**Please Note:** For both DECT and Wi-fi systems, anyone may be sitting, playing or sleeping with their heads or bodies for hours at a time in the maximum or medium field receiving a 'dosage' of the radiation. So may their neighbours if your device or router is near to their house. And, even though the extreme and very high readings come from very near both the above devices, all throughout your house and garden, 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. This is a massive health hazard to all of you in your house, and to your neighbours and friends.

### **Microwave Ovens**

We also decided to check our microwave oven. This works on approximately 2450MHz, much like Wi-fi, and indeed is known to disrupt wireless networks.

We discovered that close up the oven produced a reading of 60 times P.Max (\*) or more, cycling down to about 25 times P.Max as the microwave “stirrer” moved around. Worryingly if you stood in front of a microwave oven for any length of time – or were a frequent user – the readings some 30 cm away were still peaking near to 30 times P.Max. At 1m the readings were peaking at 10 times P.Max, tailing off beyond this. The sides of the microwave oven didn't appear to leak in the way that the oven door did. The model in tested was a 3 ½ year old Sharp microwave with a rotating base. This model “passed” the “microwave safety” indicator borrowed from a friend – supposedly indicating that no leaks were present. (For more information see [42] )

**(\*) Key: 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". Hence all readings are now expressed as "times P.Max"s – where 0.7 V/m = 7 times P.Max. Hence 1 P.Max can be considered for the most part "safe", whilst any more is too high to be considered safe at all. Much less than 1 P.Max would be better still, however.**

7 to 20 times P.Max - 'Low' is "the sort of precautionary levels found in other European countries".

20 to 40 times P.Max - 'Medium and 'High' may 'have serious health consequences for those exposed'.

60 times P.Max - also described by the meter manufacturers as a cause for concern, and advise that a professional comes to check the area.

**Assuming a standard impedance of 377 Ohms in air, 6 V/m (60 times P.Max) equates to a Power Density of approximately  $0.95 \text{ mW/m}^2$ , 2.5 V/m (25 times P.Max) equates to  $0.166 \text{ mW/m}^2$  and 1 V/m (10 times P.Max) equates to  $0.026 \text{ mW/m}^2$ , 0.1V/m (1 P.Max) equates to  $0.0265 \text{ mW/m}^2$ .**

## Appendix C – How the Inadequacy of the ICNIRP Guidelines Do Not Protect Us from Non-Thermal Health Effects

Government and Telecommunication Companies quote the 'ICNIRP Guidelines' as assurances of safety for any mast/s saying, 'The mast has an ICNIRP [safety] Certificate' or, 'The mast's emissions fall well below the ICNIRP Guidelines', etc.

However, the ICNIRP Guidelines **ONLY** cover the Thermal (i.e. heating) effects of Mobile Telephone Mast emissions. Hence all that an ICNIRP certificate means is that the mast won't cook you!

When the guidelines were made in 1998 it was generally thought that the only effects of the Mobile Telephone Mast emissions would be thermal, hence the ICNIRP Guidelines as they currently stand.

However, it is now widely accepted that NON-Thermal effects do occur but, vitally and to our minds, negligently, these guidelines have NOT been updated to include NON-Thermal effects.

The Thermal (heating) effects are accepted to be negligible - however, NON-Thermal effects are now known to affect the make-up of our bodies and how our bodies work, posing real risks to our health and to our lives.

This summary details some of the NON-Thermal effects.

From studying independent research it is clear that, although the ICNIRP Guidelines are always quoted to assure the public of the safety of a Mobile Telephone Mast, these assurances are completely **FALSE** since the ICNIRP Guidelines **DO NOT PROTECT US** against the NON-Thermal effects, which are being negligently and completely ignored.

Many people believe that the reason that the ICNIRP Guidelines have not been updated with guidelines for NON-Thermal effects is because there is still no "dose-response equation" for no risk (or acceptable risk). Dr. Neil Cherry [13] said, the safe level for microwaves is nil. Additionally, the ICNIRP Guidelines ignore long-term low-level exposure to microwaves.

The Government tell us "If a proposed mobile phone base station meets the ICNIRP guidelines for public exposure it should not be necessary for a local planning authority, in processing an application for planning permission or prior approval, to consider further the health aspects and concerns about them".

However, the view of Dr. Hyland from Warwick University is that these regulations are completely inadequate:

"... It must thus be concluded that GSM/TETRA telecommunication technology, as currently regulated by the ICNIRP safety guidelines, is less than safe, and constitutes a risk to public health because these guidelines afford **absolutely no protection** against **non-thermal** biological influences exerted by the kind of radiation emitted by the associated Base-stations." [19]

Dr. Hyland [19] has carried out a lot of research on Mobile Telephone Mast emissions. Relevant research shows how the current ICNIRP Guidelines, as adopted in the UK, are woefully inadequate since they only protect against thermal effects and, vitally, not against NON-Thermal effects, which are far more relevant.

Since it is accepted that, at the levels given off by the Mobile Telephone Masts, thermal effects on people are negligible, ICNIRP Guidelines are therefore not protecting people at all.

The government as well as the telecommunication industry and other interested parties appear to be deliberately ignoring the NON-Thermal effects of the radiation from Mobile Telephone Masts, claiming that there is no research to say that Mobile Telephone Masts are not safe. This is quite untrue. There is plenty of evidence from independent scientists that warn us of grave dangers to our health from the radiation from Mobile Telephone Masts.

It must also be noted that other countries have adopted much stricter guidelines than Britain has, and there are moves in some European cities for much, much lower limits on Mobile Telephone Mast emissions of microwave radiation.

## Appendix D - Health Issues, Dangers and 'Spin'

Several Mobile Phone Operators have recently started quoting the **World Health Organisation's** statement [18] that *“None of the recent reviews have concluded that exposure to the RF fields from mobile phones or their base stations causes any adverse health consequence. However, there are gaps in knowledge that have been identified for further research to better assess health risks.”* Unfortunately, the World Health Organisation was seemingly being manipulated into putting out such a statement by Dr. Repacholi, (now former) Coordinator of the Radiation and Environmental Health Unit at the World Health Organisation, a physicist who at least once has appeared as an expert witness for the Mobile Telephone Industry and previously worked on research for Australia's Telstra, the major Australian Mobile Telephone Operator [See Appendix E].

The **Mobile Telephone Operators** all proudly boast that all of their equipment operates within international exposure limits developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Unfortunately, Dr. Repacholi was also a founding member of ICNIRP, was its Chairman at its inception in 1992 and has been “Chairman Emeritus” there since May 1996. [See Appendix E]. The ICNIRP limits, as laid down in 1999 under Dr. Repacholi's Chairmanship, are widely regarded by Independent Scientists as vastly too high, and ignore the Non-Thermal effects which are becoming increasingly important. [See Appendix C].

The bias towards the Wireless and Mobile Phone Operators' positions shown by the World Health Organisation due to Dr. Repacholi has been blocking real debate and positive action against potentially dangerous devices. Consequently there was at least one petition to have Dr. Repacholi removed from his post at the World Health Organisation. He left at the end of July 2006. [38]

The Mobile Telephone Industry is often found quoting small “soundbites” from reports, which appear to support their claims. The Independent Expert group on Mobile Phones (IEGMP), led by Sir William Stewart, which in 1999 investigated the possible health effects of **mobile phone technology** is one such report. The quote used by the industry is *“The balance of evidence to date suggests that exposures to RF radiation below NRPB and ICNIRP guidelines do not cause adverse health effects to the general population”*.

What they do NOT quote are the subsequent parts of the report which go on to state that *“There is now scientific evidence, however, which suggests that there **may be biological effects occurring at exposures below these guidelines.... This does not necessarily mean that these effects lead to disease or injury, but it is potentially important information and we consider the implications below.... There are additional factors that need to be taken into account in assessing any possible health effects. Populations as a whole are not genetically homogeneous and people can vary in their susceptibility to environmental hazards. There are well-established examples in the literature of the genetic predisposition of some groups, which could influence sensitivity to disease. There could also be a dependence on age. We conclude therefore that it is not possible at present to say that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects, and that the gaps in knowledge are sufficient to justify a precautionary approach”***. [21]. This paints a less rosy picture.

One Mobile Telephone Operator's leaflet states *“Radio waves in the non-ionising part of the electromagnetic spectrum cannot break atomic bonds or change cellular structures within the body in the way that ionising waves can”*. It goes on to say that *“We continually come into contact with natural sources of non-ionising radio waves in the form of sunlight”*. What it doesn't make clear is that non-ionising radiation **can** and **does** cause **changes in cells** within our bodies. Our bodies have evolved to deal with a certain amount of cell damage caused by sunlight. As we should well know exposure to too much sunlight can cause potentially fatal skin diseases. Our bodies tan as a form of natural defence to excessive sunlight exposure. We often apply sun cream and sun block to cut down on our exposure to sunlight. Should we not also be ensuring that we cut down on our exposure to **microwaves**, for which our bodies have **NOT** evolved natural protection?

## **Appendix E - Prof Goldsmith about Dr. Repacholi, (now former) Coordinator of the Radiation and Environmental Health Unit, World Health Organisation**

"After the death of Prof Goldsmith, I followed the wise advice of Don Maisch and got his publications that were left in Ben Gurion university in Beer Sheva (Israel) where Prof Goldsmith had worked. This was in 2002.

There were about 5 articles left, and one of them contains a description of Dr. Michael Repacholi's history with regard to the radiation for which he is responsible until this day [until end of July 2006], as the World Health Organization's head of the radiation department and ICNIRP member at the same time. I've just copied the specific part from the article "From sanitation to cellphones: Participants and principles involved in environmental health protection" which appeared in 1997 in the Public Health Rev. 25: 123-149. I do not know of an online source for the full article but I think that the information that was given there is not known to many people who fight the WHO/Electrosmog and is very important to our context, such an info mustn't be lost. It is also a court document for those who consider a lawsuit." [43]

page 141-3:- "It turned out that an Australian physicist, Dr. Michael Repacholi, played almost every role in the subsequent developments. The ICNIRP was originally chaired by Dr. Repacholi, who was also a staff member of the World Health Organization, seeking money from Health Ministries and others for an international effort to better understand and deal with health risks from non-ionizing radiation. When a community group in New Zealand brought a legal action to prevent locating a cell broadcast facility within 50 meters of a preschool play area, Repacholi was the expert witness for Bellsouth Corp., the operator of the facility. The planning tribunal hearing the complaint decided to allow the facility to operate provided it never exceeded 2 microwatts/cm<sup>2</sup> in a school or dwelling.

In November 1996, as an Officer of the ICNIRP, he convened a group of scientists to evaluate the non-thermal health risks of microwave radiation. He prepared and distributed a report of the meeting before it convened. Among other statements it contained was the allegation that since microwave radiation was not mutagenic, it could not be carcinogenic. This is both a non-sequitur and untrue, and despite objections with abundant evidence it persisted in subsequent drafts. Successive drafts had less and less epidemiological evidence, and the summary of such evidence which was cited was always said to be inconsistent and difficult to understand.

Only the most strenuous objections and threats to publish opposed views to those of the report brought some accommodation (31).

But in December 1996 a report of excess cancer in the vicinity of broadcast towers for TV and FM (not microwave cell broadcast facilities, which have much smaller output of power) in North Sydney Australia was published (32). The next month two reports of the same kind of effect (adult leukemia, which showed a gradient with distance from the towers) in the U.K were published (33,34). These articles made it clear that there was a carcinogenic potential from radiofrequency exposures. Estimated exposures were 2-8 microwatts/cm<sup>2</sup>.

Up to this time, experimental animals exposed did not show increased malignancies, although and Singh had shown that microwave exposures to rats did lead to single and double-strand DNA lesions(35).

In April 1997, in Radiation Research there appeared an article on a two-year study in Australia of transgenic mice who spontaneously showed increase in lymphoma (36). When exposed to RF radiation similar in timing and energy to that of users of cellphones, they developed twice as many lymphomas as did a sham-treated animals, a quite significant excess. This probably under-estimated the risk to humans since the animals were exposed to RF midfield rather than at the site of generation, as are humans using cellphones.

The authorship of the article and sponsorship of the research were even more surprising. Michael Repacholi was the senior author and the work was supported by Telstra, the major Australian cellphone company. Furthermore, the findings had been kept secret for about two years at the request of the company. A parallel study of ELF at the same institution (Royal Adelaide Hospital, Sydney) has not been released either (personal communication from Stewart Fist). So all of the time as Editor of the ICNIRP Seminar report Dr. Repacholi had been insisting that RF could not be a carcinogenic, he had been withholding information, at his industrial sponsors behest, that in fact it was an animal carcinogen, finding for which he himself was responsible."

*31 Repacholi MH, ed) Low-level exposure to radio-frequency fields: Health effects and research needs. Submitted for publication to Bioelectromagnetics.*

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## Appendix G - Other Sources of Information and Further Reading

GRAM website - [www.nomasts.org.uk](http://www.nomasts.org.uk)      EM Radiation Research Trust – [www.radiationresearch.org](http://www.radiationresearch.org)  
Powerwatch – [www.powerwatch.org](http://www.powerwatch.org)      Mast Action UK – [www.mastaction.co.uk](http://www.mastaction.co.uk)  
TETRAwatch – [www.tetrawatch.net](http://www.tetrawatch.net)      Sitefinder - [www.sitefinder.radio.gov.uk](http://www.sitefinder.radio.gov.uk)  
Mast Sanity – [www.mastsanity.org](http://www.mastsanity.org)      Planning Sanity – [www.planningsanity.co.uk](http://www.planningsanity.co.uk)  
SCRAM - [www.scram.uk.com](http://www.scram.uk.com)      EMF Health - [www.emf-health.com](http://www.emf-health.com)  
Mast Victims – [www.mast-victims.org](http://www.mast-victims.org)      Safe Wireless Initiative [www.safewireless.org](http://www.safewireless.org)  
Electrosensitivity UK - [www.electrosensitivity.org.uk](http://www.electrosensitivity.org.uk)      Microwave News - [www.microwavenews.com](http://www.microwavenews.com)  
HESE-UK Project - [www.hese-project.org/hese-uk](http://www.hese-project.org/hese-uk)

“Electromagnetic Fields: A Consumer's Guide to the Issues and How to Protect Ourselves” by Blake B. Levitt – ISBN 0156281007 – (1995)

“Cell Towers: Wireless Convenience? or Environmental Hazard?” edited by B. Blake Levitt – ISBN 188482062X (Dec 2000)

“The Powerwatch Handbook – Simple Ways to Make You and Your Family Safer” by Alasdair & Jean Philips – ISBN 0749926864 (Jun 2006) – Available from [www.EMFields.org.uk](http://www.EMFields.org.uk)

**[see also book references 26 and 32 (above) ]**

DVD - "Public Exposure: Democracy, DNA, and the "Wireless Revolution." (2001) Available at <http://www.eon3.net/pages/navigation/mediatools/pubexdoc/pubexpg.html>

DVD - Making Waves – Microwave Pollution. The political and corporate abuse of humanity and the eco-system. A film of the national 'TETRA and Phone Mast Forum' in March 2005. Available at <http://www.mastsanity.org/documents/makingwaves.pdf>

DVD - "Cell Phone War". 55 minute documentary first shown on French television in 2005. The truth of cell phones has been buried by the industry, the health officials and governments. Health effects from radiation exposure is being allowed to continue. The English translated version is available from <http://www.safewireless.org/ShopSafeWireless/tabid/204/CatalogItemID/24/CatalogID/3/psnavcmd/CatalogItemDetails/psmid/622/Default.aspx> . (See trailer at [http://youtube.com/watch?v=sEqCkwPmQ\\_w](http://youtube.com/watch?v=sEqCkwPmQ_w) )

On-line Film - BBC's Panorama "Wifi - A Warning Signal" broadcast 20:30 hours 21st May 2007 on BBC1 UK prime-time Television channel. See <http://news.bbc.co.uk/1/hi/programmes/panorama/6674675.stm> for transcript, details and to view online.

On-line Film - Dr John Walker Presentation and Powerpoint Slides Film 3rd July 2007 in Woking) <http://video.google.co.uk/videoplay?docid=-3798625998294228384>

Other On-line Film resources can be found via

[http://www.mastsanity.org/index.php?option=com\\_content&task=category&sectionid=15&id=29&Itemid=128](http://www.mastsanity.org/index.php?option=com_content&task=category&sectionid=15&id=29&Itemid=128)

On-line Radio Interview - Dr. George Carlo "Your Cell Phone is Dangerous" at <http://www.emf-health.com/bioprnews-drcarlo-interview.htm> .

\*\* Forthcoming Movie/Documentary "The Boiling Frog Principle" by Dr. George Carlo to be released in Summer 2007 (believed to be in a similar style to “Fahrenheit 911” and “Supersize Me”) and made by the same director as "Cell Phone War".

## Conclusion

**Remember, There Is A Choice:**

**Put Health First, NOT the profits of the telecommunication and consumer electronics industries.**

**They will not pay for you to get well again, so do not give them the money to make you sick in the first place.**

**If you really do care about your friends, your family, yourself and the world you live in, please do the following:**

- Get rid of your DECT phone system. Get a safer analogue device instead. (An example of a cordless analogue phone is BT Quartet 1100 ). Or, better still, stick to a wired phone.
- Get rid of Wi-fi wireless networks and use WIRES instead. Beware of network systems that piggy-back the mains – they are not safe either.
- Don't buy ANY of the wireless devices listed at the beginning of this leaflet. If you already have any get rid of them. If you can, replace them with safer wired or analogue alternatives. If you can't, do without.
- Cancel Your Mobile Phone Contract ASAP if you have one.\*
- Tell Everyone about this leaflet and where to get it from.
- Become informed by reading the Referenced sources and inform others.
- Write to your MP and local Councillors to tell them that you too are concerned.
- Take action by joining support groups such as Mast Sanity or the Electro Magnetic (EM) Radiation Research Trust.

You cannot buy your health or your life back, nor those of your children or family, if they are cruelly taken away.

Such devices as detailed in this leaflet come with clear and serious health risks.

## **DO NOT TAKE THE RISK.**

- *If you are concerned about emergencies swap to “pay as you go” until you are happy to do without. You must realise that every user demands a mast, and that demand ensures a mast (or several) outside someone's home.*