

# MICROWAVE COMMUNICATIONS

## Base-station emissions and health concerns

**Eileen O'Connor**

**EM-Radiation Research Trust**

**[www.radiationresearch.org](http://www.radiationresearch.org)**

**HPA-RPD EMF Discussion Group, 16th October 2006**

# Thank you

A Special thank you to family and friends, The RRT, SCRAM, h.e.s.e. uk, campaigners throughout the world, independent scientists, the media and some politicians. Special thanks to Alasdair Philips from Powerwatch UK.

Thank you to Sir William Stewart for chairing the EMF Discussion Group together I hope we can find out the

Truth!

# Radiation Research Trust

**Mike Bell**      Chair of the Trust      A Devon based lawyer

**Dr Ian Gibson**      Labour MP      Originally a senior academic research biologist

**Dr Gerard Hyland**      Associate Fellow of Warwick University

**Dr Caroline Lucas**      Green Party MEP for South-East England

**Andrew Mitchell**      Conservative MP and  
Shadow Secretary of State for International Development

**Mark Oaten**      Liberal Democrat MP, concerned with Health and Environment issues

**Eileen O'Connor**      Founder of the Trust  
She contracted cancer while living within 100m of a phone mast

**Brian Stein**      Chief Executive Samworth Brothers Ltd. He suffers from EHS

# Radiation Research Trust

Trustees have presented evidence at the UK and European Parliaments

They have attended private meetings with Director Generals and many MPs including:

European DG for Health and Consumer Products - Mr John Ryan

UK Health Secretary – Rt Hon Patricia Hewitt MP

UK Shadow Home Secretary - Rt Hon David Davis MP

UK Solicitor General - Rt Hon Mike O'Brien MP

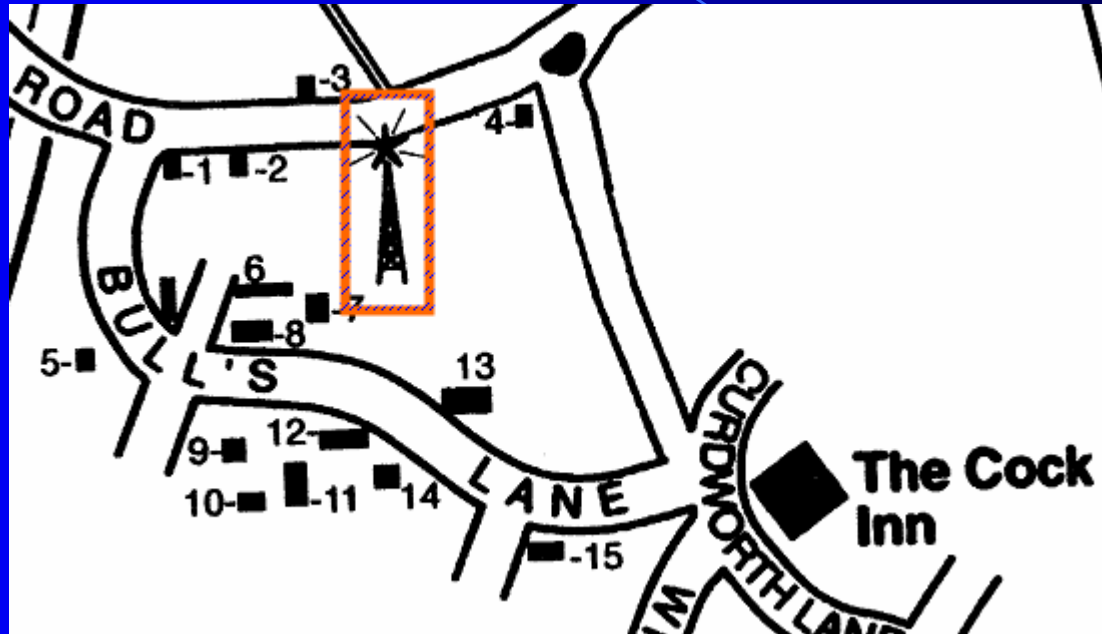
The RRT has presented at and attended many conferences/public meetings

National and International including the Benevento Conference

Networked worldwide with scientists, doctors and campaigners.

# Why I became involved

## The T-Mobile Wishaw mast 1994-2003



I am a company Director and business woman. In 2001 I was diagnosed with breast cancer age 38 after living 100m from a phone mast for over 7 years. The mast was also associated with health problems in many other people living in most of the other houses in the village.

I am a founder member of SCRAM, the EM Radiation Trust and [h.e.s.e.uk](http://h.e.s.e.uk)

# WISHAW T-Mobile mast after 7 years by 2001 the story unfolds

- Five ladies developed breast cancer
- One case of prostate cancer
- One bladder cancer
- One lung cancer
- Three cases of pre-cancer cervical cells
- One motor neurone disease, age 51, who also had massive spinal tumour
- People have developed benign lumps
- Electro-sensitivity
- Three cases of severe skin rashes
- Many villagers suffering with sleep problems, headaches, dizziness and low immune system problems.
- Horse with blood problems, continuous treatment needed by the vet.

# WALES VOTES YES TO PHONE MAST PLANNING SHAKE-UP

- *MEDIA RELEASE - 13th Oct 2006*
- WALES VOTES YES TO PHONE MAST PLANNING SHAKE-UP
- The National Assembly for Wales has accepted by a unanimous vote (41 to 0) the principle of full planning for phone masts, leaving England isolated as the only part of the UK where full planning for phone masts will not be required.

The report which was the subject of the vote put forward if fully implemented would give the people of Wales the greatest say on phone masts siting than anywhere else in the UK.

# International Association of Fire Fighters

IAFF oppose the use of fire stations as transmitter sites, because of the health problems of its members



# **The ECOLOG study T-Mobile Germany 2000 same year as Stewart Report**

The ECOLOG review of over 220 peer reviewed and published papers found evidence for:

- Effects on central nervous system
- Cancer initiating and promoting effects
- Impairments of certain brain functions.
- Loss of memory and cognitive function

**Ecolog called for an immediate downward regulation for the ICNIRP guidelines**

# Israel riots

- 14 March 2000 – residents rioted in Druse town of Usfiyeh . They claimed clusters of over 200 cancers related to antennas.

All masts destroyed by burning them, knocking them down and ripping out cables ICNIRP accused of peddling corrupt science paid by the mobile phone companies.

- 27 September 2006 - 200 residents took their health and the law into their own hands, destroying the phone mast equipment. Saying "It was about our children's lives."

# Taiwan

- Taiwan - nearly 900 masts were finally demolished in 2005. The operators spent a total of more than (US\$30.8 million) in dealing with such issues. This year, the total cost incurred is likely to rise to (US\$61.7 million), the operators estimate.

# Court delivers blow against mobile masts

## Ruling cites public health risk

- Ten mobile telephone antennas must be removed as they pose a threat to public health, the Athens Appeals Court ruled on 18/7/2006.
- In justifying its ruling, the court cited “*urgent concerns regarding the protection of public health.*”

# Dr John Walker's work

After careful examination of scientific research, physicist Dr John Walker announced that after six months people will get their immune system reduced by 90% many suffering with headaches, rashes, forgetfulness and perhaps EHS. After five years the cancer rate increases.

He has visited many sites and found significant patterns of cancers around base station masts – one example is shown here:



# **Germany**

**7 fold increase in breast cancer in an area with cellular antennas.**

**A report on 21/9/2006 the head of cancer registry in Berlin, Roland Stabenow informed the residents that there is an increase of 7 fold in breast cancer in their area (an area with cellular antennas). The attention was drawn after a map was prepared by the residents and the cancer cases are near the antennas.**

# The REFLEX studies (2004)

*The REFLEX project was set up to investigate the effects of low-levels of RF radiation on cellular systems; cost of approximately \$3 million. The work was carried out by 12 research groups in seven European countries.*

*They concluded that in-vitro damage is real and that it is important to carry out much more research, especially monitoring the long-term health of people.*

*One thing demonstrated was that low-power RF radiation could increase the number of DNA breaks in exposed cells and could also activate a stress response with the production of heat-shock proteins.*

*The REFLEX report also highlights RF-induced DNA breaks as the following slide shows:*

*Ref: QLK4-CT-1999-01574 / REFLEX / Final Report*

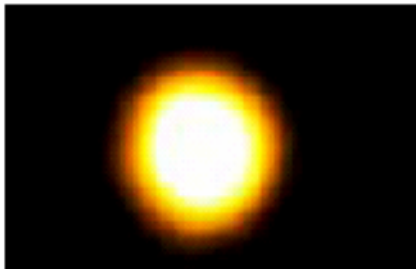


# REFLEX (example result)

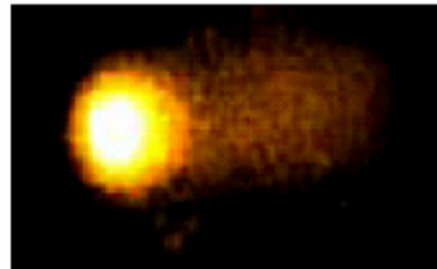
REFLEX

## Comet-Assay

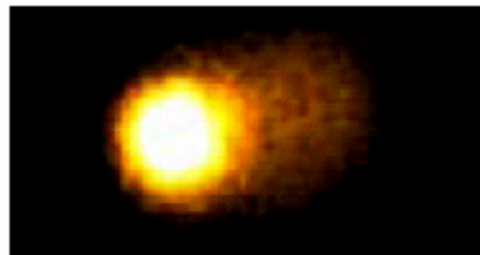
Ein typisches Bild nach RF-EMF-Exposition von HL60 Zellen



sham



$\gamma$ irradiation, 0.5 Gy



RF-EMF, 1800 MHz, SAR 1.3 W/kg, 24h, continuous wave

1600 chest x-rays

24 h mobile phone  
SAR=1.3 W/kg

ICNIRP/WHO = 2 W/kg



# The Naila study (2004)

A German study by a team of local medical doctors with data from over 10 years, discovered a **threefold** increase in new malignancies in people living up to 400m from a mast after five years exposure when compared to people living further away in the same town.

GP records of c.1000 patients over the period 1994-2004  
Cellular transmitting site first started operating in 1993.

In the period 1999-2004, the RR=3.1 adjusted for age and gender for newly diagnosed tumours.

*Eger H, et al, 2004, The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer, Umwelt-Medizin-Gesellschaft 17.4.2004*

# Kaplan, Israel, study (2004)

A small study by GPs at the Kaplan Medical Centre, Israel, discovered a fourfold increase in cancer within 350m after long term exposure to a phone mast and a **TENFOLD** increase specifically in women.

*Wolf D & Wolf D, 2004, Increased Incidence of Cancer near a Cell-Phone Transmitter Station, International Journal of Cancer Prevention 1-2, April 2004.*

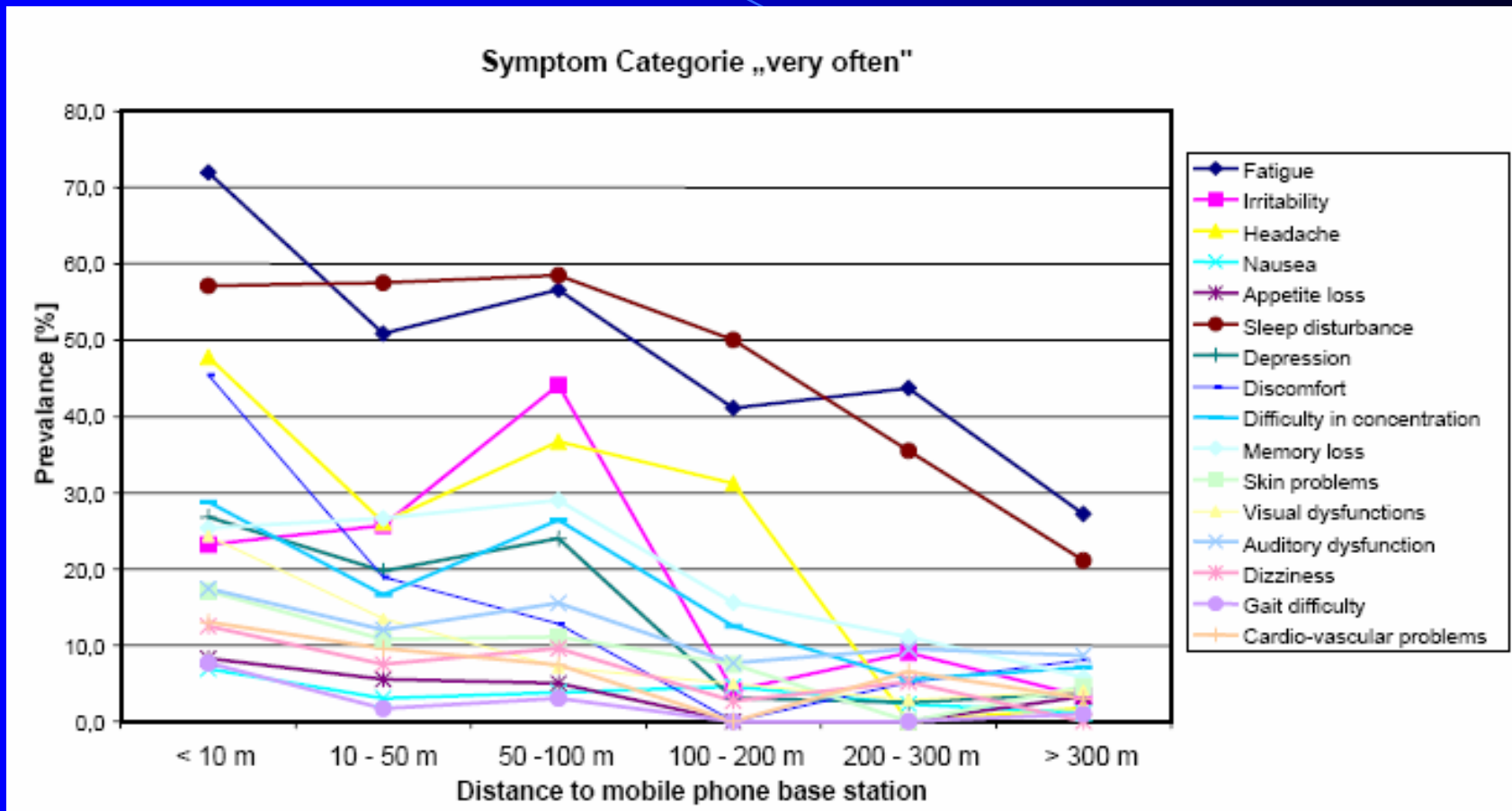
# The Freiburger Appeal (2002)

An important appeal from several hundred German doctors and other health professionals, reporting an increase in observed cases of:

- Learning, concentration, and behavioural disorders
- Headaches, migraines, nervous and connective tissue pains
- Sleeplessness, daytime sleepiness, chronic exhaustion
- Extreme fluctuations in blood pressure, hard to influence with medication
- Heart rhythm disorders
- Brain-degenerative diseases and epilepsy
- Cancerous afflictions: leukemia, brain tumors

After carefully-directed inquiry they found a clear temporal and spatial correlation between the appearance of disease and exposure to pulsed high-frequency microwave radiation from mobile phone masts, mobile and DECT phone use.

# The Santini study (2002)



This questionnaire study had a number of vocal critics, but the trends in fall off of reported symptoms from masts ties in well with newer studies

# La Ñora, Mercia, Spain (2004)

Age, sex and distance adjusted model - c.f. controls in less than 0.05 V/m					
	0.05-0.22 V/m		0.25-1.29 V/m		trend
	OR	(p)	OR	(p)	(p)
Depressive tendency	39.4	0.002	59.4	0.0003	0.0016
Fatigue	28.5	0.003	40.1	0.0009	0.0039
Sleeping disorder	10.4	0.002	10.6	0.0004	0.0008
Concentration problems	8.3	0.003	19.2	0.0000	0.0001
Headaches	6.0	0.01	6.1	0.004	0.0050
Unusual discomfort	4.3	0.03	10.9	0.0002	0.0007
Irritability	3.1	0.07	9.2	0.0002	0.0009
Memory problems	2.4	0.21	7.8	0.001	0.0031
Loss of appetite	6.7	0.12	27.5	0.003	0.0030
Nausea	5.9	0.13	12.8	0.021	0.0499
Visual disorder	2.5	0.18	5.8	0.005	0.0186
Dizziness	3.0	0.17	8.4	0.004	0.0117
Cardiovascular problems	9.4	0.06	17.9	0.011	0.0333

94 participants, (47m 47f) aged 14 to 81

*Navarro E A, et al, 2003, The microwave syndrome: a preliminary study in Spain, Electromagnetic Biology & Medicine 22 (2 & 3) 161-169*

*Also: Oberfeld G, et al, 2004, The microwave syndrome – Further Aspect of a Spanish Study – International Conference Proceedings, Kos, Greece 2004*

# The Bamberg report 2005 (357 GP patients)

## Description of symptom groups

**Group 1** no symptoms

**Group 2** sleep disturbance, tiredness, depressive mood

**Group 3** headaches, restlessness, dazed state, irritability, disturbance of concentration, forgetfulness, learning difficulties, difficulty finding words

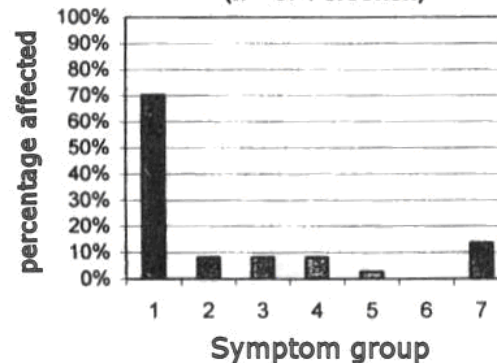
**Group 4** frequent infections, sinusitis, lymph node swellings, joint and limb pains, nerve and soft tissue pains, numbness or tingling, allergies

**Group 5** tinnitus, hearing loss, sudden hearing loss, giddiness, impaired balance, visual disturbances, eye inflammation, dry eyes

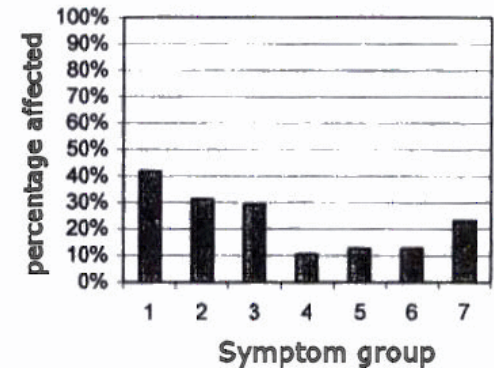
**Group 6** tachycardia, episodic hypertension, collapse

**Group 7** Other symptoms: hormonal disturbances, thyroid disease, night sweats, frequent urge to urinate, weight increase, nausea, loss of appetite, nose bleeds, skin complaints, tumours, diabetes

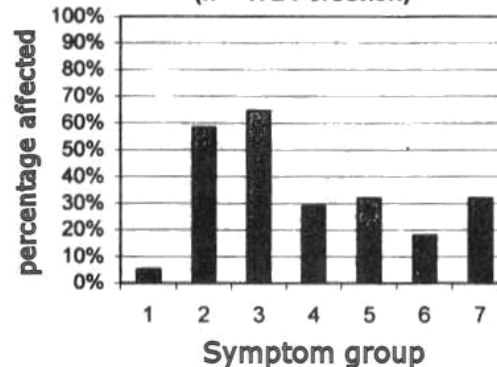
Average signal strength < 0.06 V/m  
Power flux density < 10 $\mu$ W/m<sup>2</sup>  
(n = 37 Personen)



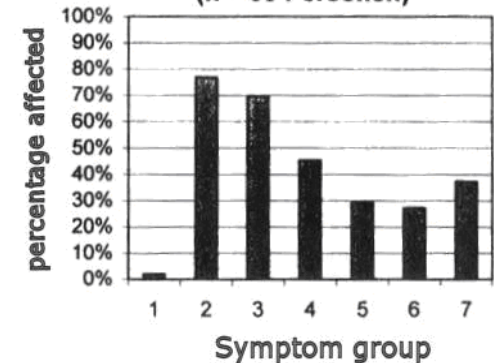
Average signal 0.06 to 0.2 V/m  
Power flux density 10-100 $\mu$ W/m<sup>2</sup>  
(n = 48 Personen)



Average signal strength 0.2 - 0.6 V/m  
Power flux density 100-1000 $\mu$ W/m<sup>2</sup>  
(n = 172 Personen)



Average signal strength over 0.6 V/m  
Power flux density > 1000 $\mu$ W/m<sup>2</sup>  
(n = 99 Personen)





# It is not just humans who are affected - Valladoid, Spain, White Storks Study 2005

Number of young per couple for nests within 200m of the antenna was 0.86 (0.7 - 1.02)  $p=0.001$   
whereas productivity for nests further than 300m away was 1.6 (1.46 - 1.74)  $p = 0.001$

40% of those nesting within 200m had no chicks, whereas only 3.3% of those further than 300m did not have chicks

The white stork behavior recorded within 200m included:

- *The couple frequently fight over the sticks*
- *The sticks fall to the ground when trying to build the nest*
- *The most affected nests never get built*
- *Frequent death of young chicks in their early stages*

*Balmori A, 2005, Possible Effects of Electromagnetic Fields from Phone Masts on a Population of White Stork, Electromagnetic Biology and Medicine, 24:109–119.*

# Hutter et al (2006)

365 participants in urban & rural areas near to 10 selected base stations (primarily 900 MHz GSM). Field strength was measured in 336 households. *The control threshold of 0.2 V/m seems rather high and a high % of control participants reported symptoms.*

Average power density W/m <sup>2</sup>	<0.1	0.1-0.5	>0.5	
Average signal strength V/m	<0.2	0.2-0.44	>0.44	<b>p</b>
Headaches	1.0	1.36	3.06	0.017
Difficulty to concentrate	1.0	1.32	2.55	0.035
cold hands or feet	1.0	1.03	2.57	0.019
tremor	1.0	0.68	2.37	0.062
loss of appetite	1.0	1.24	2.40	0.069

**Conclusion:** *As a precautionary measure, siting of base stations should be such as to minimise exposure of neighbours.*

*Hutter H-P et al, 2006, Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations, Occup Environ Med 2006;63:307-313*



# Egypt (Abdel-Rassoul 2006)

Exposed (N = 85) c.f. Controls (N = 80)		
Neurological complaints	RR	p
Headache	2.77 [1.06–7.4]	<0.05
Memory changes	7.48 [2.29–26.98]	<0.001
Tremors	8 (* no controls)	<0.01–
Dizziness	4.41 [1.29–16.46]	<0.01
Depressive symptoms	2.8 [1.02–7.94]	<0.05
Blurred vision	1.63 [0.69–3.91]	>0.05
Sleep disturbance	2.77 [1.06–7.4]	<0.05
Irritability	1.48 [0.68–3.27]	>0.05
Lack of concentration	1.77 [0.65–4.97]	>0.05

## Conclusions and recommendations:

Inhabitants living nearby mobile phone base stations are at risk for developing neuro-psychiatric problems and some changes in the performance of neurobehavioral functions either by facilitation or inhibition.

Revision of standard guidelines for public exposure to RFR from mobile phone base station antennas and using regular assessments for the early detection of biological effects among inhabitants around the stations are recommended.

*Abdel-Rassoul G et al, 2006, Neurobehavioral effects among inhabitants around mobile phone base stations, NeuroToxicology (in press; e-version available)*

# Cyprus (Preece 2005)

Residents of Akrotiri, Asomatos and Pano Kyvides were included in this survey which measured RF exposure from all sources including military signals. In the two 'exposed' villages most areas GSM mobile phone mast signals dominated (up to 1.4 V/m) while the 17.6 MHz military signals were up to 0.3 V/m. Average readings were less than half these values. The corresponding readings in the control village were  $<0.01$  V/m.

There was no excess of cancer, birth defects or obstetric problems. There was heightened risk perception and a considerable excess of migraine, headache and dizziness, which appears to share a gradient with RF exposure. The increased Odds Ratios are shown below.

Condition	Akrotiri		Asomatos		Pano Kyvides		P value
	(%)	OR	(%)	OR	(%)	OR	
Migraine	23.1	2.73	14.8	(2.73)	9.9	1.0	.000
Headache	51.3	3.69	35.1	1.89	22.2	1.0	.000
Dizziness	35.7	5.7	20.9	2.47	10.2	1.0	.000
Depression	10.2	2.95	9.7	2.5	3.9	1.0	.002

The estimates of the numbers of people living in each village were: 800 in Akrotiri, 350 in Asomatos and 1000 in Pano Kyvides. Questionnaires were distributed to all households, with an overall response rate of 87%.

*Preece AW, et al, 2005, The Akrotiri Military Antennae Survey Report.  
Updated figures and paper are now submitted for a new publication*

# Current Guidance levels

1800 MHz Public Exposure Guidelines		Equivalent
	uW/m <sup>2</sup>	V/m
NRPB prior to IEGMP (Stewart) Report	100 000 000	194
ICNIRP (1998), WHO	9 000 000	58
Belgium (ex Wallonia)	1 115 000	21
Italy (sum of frequencies)	100 000	6
Russia, <u>PRChina</u>	100 000	6
Switzerland, Lichtenstein, Luxembourg	95 000	6
Belgium Wallonia	24 000	3
Wien (sum GSM)	10 000	1.9
Italy (single frequency)	1 000	0.6
Salzburg 1998 (sum GSM)	1 000	0.6
EU-Parl, <u>GD Wissenschaft</u> , <u>STOA GSM (2001)</u>	100	0.2
Salzburg GSM/3G outside houses (2002)	10	0.06
Salzburg GSM/3G inside houses (2002)	1	0.02
<u>Bürgerforum BRD proposal</u> , waking areas (1999)	1	0.02
<u>Bürgerforum BRD proposal</u> , sleeping areas (1999)	0.01	0.002
Mobile phone handsets can work down to about	0.000 002	0.000 03

# Benevento Resolution 2006

The International Commission for Electromagnetic Safety (ICEMS) held an international conference entitled “The Precautionary EMF Approach: Rationale, Legislation and Implementation”, hosted by the City of Benevento, Italy, in February 2006. The meeting was dedicated to W. Ross Adey, M.D. (1922-2004). The scientists at the conference endorsed and extended the 2002 Catania Resolution and resolved that, among other things:

More evidence has accumulated suggesting that there are adverse health effects from occupational and public exposures to electric, magnetic and electromagnetic fields at current exposure levels. What is needed is a comprehensive, independent and transparent examination of the evidence pointing to this emerging, potential public health issue.

Resources for such an assessment are grossly inadequate despite the explosive growth of technologies for wireless communications as well as the huge ongoing investment in power transmission.

Arguments that weak (low intensity) EMF cannot affect biological systems do not represent the current spectrum of scientific opinion.

To encourage governments to adopt a framework of guidelines for public and occupational EMF exposure that reflect the Precautionary Principle - as some nations have already done.

# Children Act 1989 Part 3

## Section 17

Places a legal obligation on Local Authorities to protect children in their area against significant harm and or abuse or the risk of. The Children Act stands apart from other legislation in so much as the risk of harm does not have to be proven or to have taken place, but could be a likelihood or perceived risk.

# UK and EU precautionary understanding

## The EC and UK Precautionary Principle

*“The precautionary principle covers cases where the scientific evidence is insufficient, inconclusive or uncertain, but where there is some indication of reasonable grounds for concern of adverse effects on the environment or health. The precautionary principle provides a basis for action when science is unable to give a clear answer.”*

# Accountability?

- In the UK all agencies refer back to the HPA.
- We urgently request that the HPA advise Government and Authority to adopt the precautionary principle for mobile phones/ phone masts, DECT phones, microwave baby and security alarms and not to install wireless computers networks until safety is ‘proved.’



## **Urgent Government Funding Request**

The Government receives 10 billion a year in revenue from the mobile phone industry. Emergency Government funds should be released. Starting with at least £50 million in order to deal with translation of German and Russian research, an education programme, media campaign and funding released to Independent scientists to carry out further research.

The funds could be given to the EMF Discussion Group - Chaired by Sir William Stewart as it has a mixed group of experts with different views and opinions which leads to a healthy debate and should help avoid the continued criticism and mistrust from the public who have lost faith in the democratic process and blame discrepancy of funding for research.



# Dr Robert O. Becker, M.D.

twice nominated for the Nobel Prize for his research.

*“ I have no doubt in my mind that at the present time, the greatest polluting element in the earth’s environment is the proliferation of electromagnetic fields.*

*I consider that to be far greater on a global scale, than warming, and the increase in chemical elements in the environment.”*

**Thank you for listening**