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Electromagnetic Radiation

The Modern Dilemma

Version 2.1

A review of the history,
hidden dangers, untested
technologies and
alternative solutions

One never goes so far as when one doesn't know where one is going.

GOETHE,

DEDICATION

This review is dedicated to the memory of Alexandra, who tragically died from a rare illness at the age of five years, during a time when I was very occupied in researching materials for this review. May she rest in peace and may God comfort her family and friends until we are all reunited in the next life.

FOREWORD

Rarely does a piece of information addressing a complex issue touch, in a measured way, all of the issues relating to the topic in a succinct, understandable way.

The issue of health effects of electromagnetic radiation is occluded and highly complex, not least because the military-industrial complex requires secrecy for reasons of defence and patent law.

As a product of the universal principles governing Physics, microwave radiation affects all living things. As an unseen universal application of these principles, much of humanity remains unaware of the dangers associated with microwave radiation.

The following article by health professional Anthony Hughes, is a wide-ranging compendium of information from a large collection of resources which explains what ordinary people and their political leaders need to ensure that adequate protection is put in place.

Mr. Hughes is a long time successful health practitioner with a large client base. A man of his stature does not jeopardize his practice and his reputation by distributing false information. Here, Mr. Hughes, exhibits his intelligence, dedication, and concern for humanity by producing a work and warning people without charge.

Not only is the work of great merit, it is a testament to a unique man who deserves our admiration, respect and gratitude.

Mr. Hughes approves of posting the article online as both an introduction to the subject and as a reference work as well.

Please circulate as widely as possible.

John Weigel

Ireland

PREFACE TO VERSION 1

The writing of this review has been challenging for the following reasons:

1. The topic is technically difficult
2. The subject matter encompasses many aspects.
3. It is difficult to convey the seriousness of the topic with brevity.

4. The main message is difficult to convey because of the obfuscation and cover-ups of the past.

I have therefore written this report in two parts, with a Summary and Body text.

I encourage everybody to read the Summary as soon as possible- the information could help prevent illness for you and your children.

The main body of the text is intended to be a resource for reference purposes and is intended to be read while connected online, so that the on-line links are accessible, but I am suggesting the use of equipment which is connected by LAN (Local Area Network) cable and avoiding WiFi. A second-best option is to connect your computer through a Power-Line adapter (available in computer shops) and instructions for connecting an iPad to a local area network can be found under "protection and alternatives" in the references at the end.

The purpose of this report is to inform the public of the possible health effects of Electromagnetic Radiation, and the alternatives that can be adopted to maintain communications. It is not the intention of this review to promote or encourage the abandonment of digital electronic communications.

PREFACE TO VERSION 2.1

The layout and content of the document has been reorganised into more logical sections, and a table of contents has been added. In the 2016 version of Word it is possible to select the section of interest by guiding the cursor over the topic and press Ctrl and left click

This update includes a section about important up-to-date studies on physiological effects of the electromagnetic radiation by Canadians for Safe Technology C4ST.- Section 2.1

An important analysis by Steve Weller comparing the publications of research by ORSAA - Oceania Radiofrequency Scientific Advisory Association Inc. compared to ARPANSA - Australian Radiation Protection and Nuclear Safety Agency. Sec. 2.2.1

A published study showing the steeply increasing levels of urban radiation in Belgium. sec. 3.1

The Brain Drain Effect, sec. 3.4

Smart Meter radiation effects compared to official standards. Sec.3.6.4

Also, a safer alternative to the cordless DECT phone- the Siemens 540. – Sec. 3.6.3

Smart Meter billing errors. Sec. 3.7.1

More Focus on Disease. Sec 4

Nocebo effect of EMF debunked sec. 8.1.4

Leading the way- Official studies from France sec. 8.1.6

More information on the dangers of 5G sec. 10.2.2 and Millimeter wave technology sec. 10.2.3

A range of new Gadgets, including wireless recharging of devices, Zigbee light bulbs, smart water bottles, smart pillows and the Amazon Echo Smart Speaker. Section - Appendix 2, sec. 10.2 and wireless charging of devices -sec. 10.2.2 - 10.2.4

A contribution on the theory of polarised light by Dr. Leendert Vriens has also been added – sec. 10.1.7

ACKNOWLEDGEMENTS

I wish to thank the following for technical assistance, advice and guidance in the writing of this review: Mr Kieran Egar C. Eng., FIEI.MIET

Mr John Weigel, Researcher, Writer

Ms Ethna Monks, CQSW, C.Com Ed, BA Hons, MA.(ACW)

Finally, I thank my wife, Mary for her patience forbearance and support during the many months of preparation of this review.

SUMMARY

- **The Dilemma** of expedience versus danger, can be moderated into a judicious development of safer uses of wireless technology. We must do this for the sake of our children and all of humanity
- The **Environment** is a pre-eminent factor in Health Maintenance
- **Electric Power** Generation and Transmission in the 20th century was the beginning of Electromagnetic pollution.
- The spread of Electric Power Transmission has been shown to have **unforeseen or disregarded adverse consequences** and **epidemiological research** has shown that the spread of electric power is actually a factor in the spread of degenerative disease.
- The proliferation of **microwave technology for communications** in this century has raised the levels of radiation to untenable levels for health maintenance.
- The **complex mix of** Electric Power, Microwave Communications Propagation, Ground Currents and Geomagnetic stress is causing increasing health problems.
- The phenomenon of **Distorted Electric Power**, caused by characteristics of the machinery and equipment, its effect on the causation of ground currents, damage to electric equipment and economic losses has not been adequately addressed. Recent research has shown that some types of the new smart meters grossly overestimate the usage of electric power.
- The IEEE (Institute of Electrical and Electronics Engineers) published a report in 1992 indicating that due to the distortion of electric power, the Neutral cable capacity of power supplies should be **2.25 times greater** than the Live cable. Since that time, the distortion of electric power is increasing but Utility Companies have not made changes.
- **Research from 1929** has shown that the use of Microwaves for Communications causes harm. The National Toxicology Program in the US is currently researching the health effects of Mobile phones. Final results are expected end of 2017.
- The **Precautionary Principle** is not being applied, and a massive experiment on radiation exposure is being conducted without our express consent.
- **Children, our future**, the most vulnerable in Society are being subjected to harmful radiation in schools and elsewhere.
- Wi-Fi and similar technology is being introduced into schools, even for **special needs children**, without consideration of the dangers.
- **Latest figures** for the Prevalence of special needs children in Irish Schools is 27.8% and increasing. In **January 2017**, the **Education Minister** announced that 900 teachers will be added to the 12,000 Special education teachers, in up to 1,000 schools. Resources are strained while causes are still officially unknown.

- Unknown to parents, and apparently to school authorities, Insurance underwriters have **denied insurance** policies for health effects of EMR (Electromagnetic Radiation).
- **Safety standards-Guidelines** for for EMF/RF/Wi-Fi (microwave radiation) continue to be based on **thermal and short-term effects only**, assuming the power of the radiation was insufficient to cause biological or chemical effects.
- Modern research has demonstrated and explained the mechanisms of **biological effects** of non-thermal Microwave Radiation
- The 2012 "Bio-initiative Report" indicated that **new safety limits** must be established. Current outdated limits do not take into consideration the **variability** of the population's sensitivity to Microwave Radiation.
- The approval and location of Microwave equipment such as cell-phone towers are based on the **outdated standards**.
- The researched dangers and proven biological effects are extensive with about **25,000 published studies** (some relate to insects, plants and animals), and is being **suppressed** or ignored. The **Biological effects** include a wide range of symptoms.
- There is **evidence** that EMF/RFR can cause cancer, genetic defects, neurological disease, autism, diabetes and other diseases.
- Politically, it appears that **regulatory authorities** and politicians are favouring the communications industry and not the suffering public.
- A US army report from 1976, despite showing biological effects from EMF, decided that military superiority was more important than health and safety considerations
- The Communications Industry **spends more** than Pharmaceutical companies on the lobbying of Governments and authorities to approve the use of the technology.
- The Technology has never been proven to be safe and could be described as "**The largest Biological Experiment ever**"
- **Scientists** such as Professor Olle Johansson and Dr George Carlo have had their research curtailed for exposing the truth.
- Lack of consensus among scientists and academics is **confusing the judgement** of the layperson as in so many areas of medicine, science and technology.
- Some countries have wisely **banned** the use of WiFi in places such as schools and are opting for safer broadcasting technology such as Optic Fibre.

- The publication of large Reports and Reviews provides **conflicting messages**, or defers to a call for even more research, without consideration of the precautionary principle.
- There is even less awareness among the public of the **greater dangers** of DECT phones (cordless domestic phones) and Tetra broadcast frequencies (used by police and emergency services).
- **5G (5th Generation)** Microwave technology, including at least 15 home appliances) will be introduced in the USA in 2017. It will proceed without further safety testing. Enniscorthy, County Wexford has been chosen as a testing location by Virgin Media. 5G technology will enable the microwave and internet connection of up to **7 trillion devices** (The Internet of Things).
- Microwave technology is being developed for a wide range of applications, meaning a **rapidly increasing** spread of microwave radiation.
- The spawning of mind boggling varieties of applications using wireless applications will cause ever-increasing **Electro-smog**
- The issue of **Human Rights** with respect to wireless radiation is being disregarded.
- This **proliferation** of harmful wireless electromagnetic energy may engender strife and intolerance between the Electro-hypersensitive, Electro-sensitive, and non-sensitive people of the planet.
- The **sensitive people** may be the more fortunate section of society. They will be forced to seek safer locations. Less sensitive individuals could quite suddenly succumb to illness because their autonomic nervous systems will not initially react to the insult (hypothesis).
- To achieve a balanced regard for our rights it will be necessary for us to be active in informing others. **Governments and Non-Governmental Organisations are NOT serving our interests.**
- In Section 11 in References and Resources there are several links to **Protection and Alternatives websites**

CONTENTS

SUMMARY	3
Contents	7
1 ELECTROMAGNETIC RADIATION – THE MODERN DILEMMA	10
Acronyms:	10
1.1 Introduction	11
1.2 The Dilemma	11
1.2.1 Our Life-Blood- A Sobering Video	12
1.2.2 Historical evidence that Electrification caused the 20th century epidemic of "diseases of civilization"	12
1.3 My Observations- Background to this Report	13
1.3.1 Dirty Electricity	13
1.3.2 Enter the IEEE (Institute of Electrical and Electronics Engineers)	14
1.3.3 The Multiple Whammy	14
2 IMPORTANT RESEARCH & REPORTS	15
2.1 Canadians for Safe Technology (C4ST)	15
2.2 Pivotal Reports on important research	16
2.2.1 RADIO FREQUENCY (RF) BIO-EFFECTS DO WE HAVE A PROBLEM?	16
2.2.2 RESONANCE - Beings of Frequency.....	17
2.2.3 EMF Research-The Forgotten Story	17
2.2.4 A Recent Study	18
3 EMERGING CONSEQUENCES OF EMR	18
3.1 Increasing Average power of artificial High Frequency (900 MHz – 2.5 GHz) radiation observed in an urban area of Belgium	18
3.2 The Most Vulnerable in our Society	19
3.2.1 Susceptibility of Children	20
3.3 The Special Needs Class	21
3.3.1 The Prevalence of Special Needs Children in Schools.....	22
3.3.2 NCSE Press Release 15th July 2016	22
3.3.3 Extra Resources	23
3.3.4 Reports from NCSE.....	23
3.3.4.1 Childhood Disability Research in Ireland	23
3.3.5 Evidence for EMF/RF as a causal factor in special needs and learning disabilities	24
3.3.6 Working for Safe Technologies for Nurseries, Schools and Colleges.....	25

3.4	The Brain Drain Effect	25
3.5	An Extensive Experiment Ignoring the Precautionary Principle	25
3.5.1	Arthur Firstenberg	25
3.6	Sources of EMR – the principal culprits	25
3.6.1	Mobile Phones.....	25
3.6.1.1	Major Cell Phone Radiation Study Reignites Cancer Questions	26
3.6.1.2	National Cancer Institute (USA).....	26
3.6.1.3	American Cancer Society	27
3.6.1.4	The Bottom Line- what can be gleaned from the research.....	27
3.6.2	WiFi at Home, Work, in Schools and Everywhere	27
3.6.2.1	WiFi Enabled TV	28
3.6.3	DECT Phones and Tetra Masts.....	28
3.6.3.1	The Microwave Hearing or “Hum” problem	29
3.6.4	Smart Meters.....	29
3.7	Smart Meters- The Stealth Hub of Global Cyber Connectivity	31
3.7.1	Smart Meter Errors.....	31
3.7.2	Smart Meters in Ireland	32
4	FOCUS ON DISEASE	32
4.1	Autism	32
4.1.1	Wireless: A Key Piece of the Autism Puzzle	33
4.2	Osteoporosis	33
4.3	Thyroid dysfunction	33
4.4	Insomnia	33
4.4.1	f.lux- software to make your life better	34
5	SUPPRESSED SCIENCE	35
5.1.1	Stephen Cleary (1936-2016)	35
5.1.2	Dr George Carlo –	35
5.1.3	Prof Olle Johansson	35
5.1.4	Industry and Military Experts	36
5.1.5	Matti Niemelä: Nokia's Technology Director	36
5.1.6	Jerry Flynn, Microwave warfare expert.....	36
5.1.7	Barrie Trower.....	36
5.1.8	The Inadequate Outdated Standards.....	36
5.1.9	Three Davids, One Goliath.....	37
5.1.10	The one-size-fits-all expedient	37
5.1.11	Aggravating Factors for Electro-Sensitive People	37
6	BIO-INITIATIVE REPORT 2012	38
6.1.1	Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure	38

6.2	The headings of the conclusions form the Bio-initiative Report are:	38
6.2.1	Chart of reported Biological Effects from RF Radiation in each of the 67 studies referenced in the Bioinitiative 2012 report, by Ronald M Powell Ph.D.	39
6.2.2	The Protagonist View	39
7	PROTECTION AND ALTERNATIVES	40
7.1.1	The Blue Tube headset.....	41
7.1.2	The Beautiful Alternative	41
8	POLITICAL PERSPECTIVE.....	41
8.1.1	United States of America, 1976.....	41
8.1.2	Dietrich Klinghardt MD	42
8.1.3	Ireland.....	42
8.1.4	Attitude to Electro-hypersensitivity sufferers.....	43
8.1.5	Electro-hypersensitivity conference debunks 'nocebo effect' theory	43
8.1.6	Wi-Fi Refugees - documentary from RT (Russia Today)	44
8.1.7	Irish Electromagnetic Radiation Victims Network (IERVN)	45
8.1.8	France	45
8.1.9	Activism	46
9	SOCIO-ECONOMIC ASPECTS OF EMR.....	47
9.1.1	Human Rights.....	47
9.1.2	European Economic and Social Committee.....	47
9.1.3	Screen Addiction- a Serious Social Phenomenon?	48
9.2	Cyber Espionage- New Frontiers of Commercialism	48
9.2.1	Messenger Applications	48
9.2.2	The Amazon Echo Smart Speaker.....	48
9.2.3	Microwave Planet -The Legacy	49
9.2.4	Autonomic Nervous System and EMF Sensitivity.....	49
9.2.5	Hypothesis	49
9.2.6	Conclusions	50
10	APPENDICES	50
10.1	Appendix 1: Technical Notes.....	50
10.1.1	Electric Power Transmission.....	50
10.1.2	Ground Current.....	51
10.1.3	An interesting Case History.....	51
10.1.4	Dirty Electricity-The Problem Illustrated	52
10.1.5	Hidden Costs	53
10.1.6	Polarization- an Important Distinction	54
10.1.7	BioGeometry	55
10.1.8	Microwave Frequency and Pulsing.....	55
10.1.9	Physiological Mayhem	56
10.1.10	Impairment of Spatial Memory	57
10.2	Appendix 2: The Future- Rampant Proliferation	57
10.2.1	5th Generation Technology announced.....	58

- 10.2.2 Dangers of 5G 58
 - 10.2.2.1 5G Radiation Dangers – 11 Reasons to Be Concerned..... 58
 - 10.2.2.2 New 5G Cell Towers and Smart Meters to Increase Microwave Radiation . 59
- 10.2.3 Human Sweat glands and antenna-like behaviour..... 59
- 10.2.4 Active Denial System 59
- 10.2.5 The Spectrum- The last Frontier of Planetary Ecology 59
 - 10.2.5.1 Smart Appliances..... 60
 - 10.2.5.2 Wireless recharging of Devices 60
 - 10.2.5.3 V2V (Vehicle to vehicle) Technology 61
 - 10.2.5.4 LiFi 61
 - 10.2.5.5 ZigBee Light link..... 62
 - 10.2.5.6 Smart Water Bottles..... 62
 - 10.2.5.7 Wireless Baby Monitors..... 62
 - 10.2.5.8 Trackers 62
 - 10.2.5.9 Virtual Reality Headsets..... 63
 - 10.2.5.10 Body Sensors 63
 - 10.2.5.11 Sunrise Smart Pillow 63
 - 10.2.5.12 The Loon Project..... 63
 - 10.2.5.13 Wi-Fi enabled Power Plugs 64

10.3 Appendix 3: The Decline of the Scientific Process 64

11 REFERENCES AND RESOURCES 65

- 11.1.1 Information from Experts 65
- 11.1.2 Children and School Exposure 67
- 11.1.3 Education 67
- 11.1.4 Smart Meters..... 67
- 11.1.5 Smart Meter Errors..... 68
- 11.1.6 Tetra Masts 68
- 11.1.7 Earth’s Magnetic Field and Schumann Resonance 68
- 11.1.8 Ground Currents 68
- 11.1.9 Reports and Studies 68
- 11.1.10 The Protagonist’s View 68
- 11.1.11 Informative Websites 69
- 11.1.12 Global EMF Websites 69
- 11.1.13 EMF resources..... 69
- 11.1.14 Books 70
- 11.1.15 Protection and Alternatives 71
- 11.1.16 Activism 71
- 11.1.17 Health Issues 71
- 11.1.18 Surveys..... 72

1 ELECTROMAGNETIC RADIATION – THE MODERN DILEMMA

ACRONYMS:

EMF	Electromagnetic Field
EMR	Electromagnetic Radiation
Wi-Fi	Wireless-Fi, sometimes considered a pun on High Fidelity
RF	Radio Frequency
RFR	Radio Frequency Radiation

1.1 INTRODUCTION

"The health of the environment is a determining factor in the health of all life within that environment. An important environmental change, and one that has escalated since its inception over a century ago, is the addition of EM (Electromagnetic) energies to the environment. The extensive use of the earth to carry electric current is the most dramatic and least understood of these additions. Even though the earth has been used for all these years as a sink for electrical current, little is known about the paths of these currents or the effects of the currents on either the animate or inanimate world. In fact, shock-effect models still dominate the regulatory agencies' concept of how EM energies interact with life. Even in decisions regarding research directions, these inadequate models are still applied. Research from around the world has shown the need to recognize new models that are consistent with the electrical nature of living organisms and the complexity of our environment. Stray voltage research and the ground current connection have provided valuable insights into the relationship between exposure to EM (ElectroMagnetic) energies and effects in humans and animals."

[Duane A. Dahlberg, Ph.D](#)

The above quotation is an apt introduction to the story of recent developments in the use of Electrical Power Transmission for energy, and Electromagnetic Radiation for telecommunications purposes. The two technologies are inextricably linked in a manner which, it is now being recognised, poses a serious threat to the well-being of all the planet's creatures.

1.2 THE DILEMMA

We, individually and collectively have benefitted from the development of electrical power and the machines and equipment which have changed our lives in so many ways. Similarly, the development of digital electronics for automation and communications and entertainment has brought immense convenience and pleasure to many.

These modern developments have raced ahead at an accelerating pace without adequate consideration for the dangers and negative consequences involved.

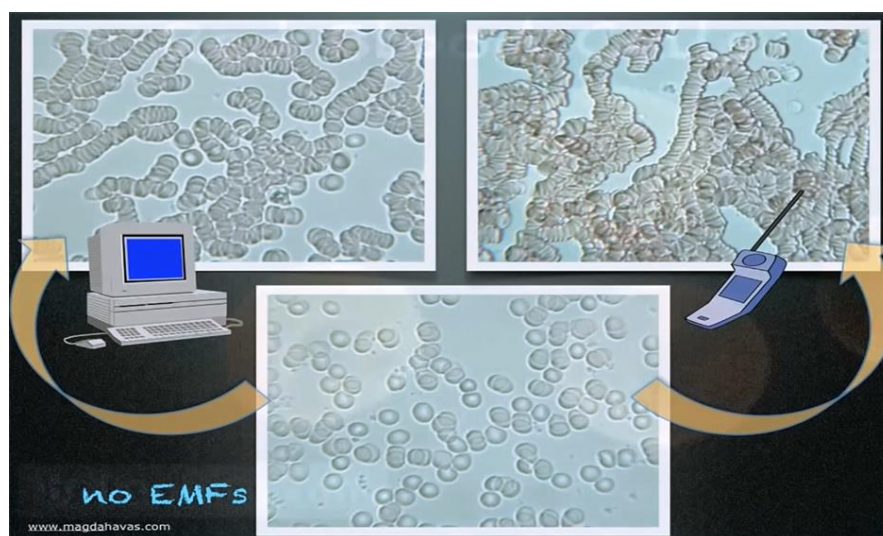
The intention of this review is to raise awareness of the complexity of these dangers, of possible safer alternatives, and especially to expose the attempts of the Communications and Information Technology industry and other vested interests to ignore the known and unknown problems associated with these technologies.

By enhancing awareness of all the issues, it should be possible to moderate the dilemma of expedience versus danger, into a judicious development of safer uses of the technology.

1.2.1 OUR LIFE-BLOOD- A SOBERING VIDEO

Our blood is a life-maintaining vital fluid. This video is a startling illustration of the effect of EMF (Electromagnetic Fields) on blood and its functions

<https://www.youtube.com/watch?v=L7E36zGHxRw>



The above collection of microscopic photographs is from the video and depicts the clear separation of healthy red blood cells in the absence of EMF. The upper two micrographs show the clumping of the cells after exposure to a computer monitor (left) and a mobile phone (right). The clumping of the cells causes inefficient exchange of blood gases (carbon dioxide and oxygen) and affects the flow of blood in the smaller blood vessels.

Other research with similar findings can be found here-

<https://www.westonaprice.org/health-topics/does-short-term-exposure-to-cell-phone-radiation-affect-the-blood/> which refers to the publication Clinical Hemorheology and

Microcirculation, 2002, 2, 99-106

Also-

<http://www.fisherclinic.com/articles/Fisher%20Gauvin%20Live%20Blood%20MRET%20Experiment%20Complete%20March%201%202009.pdf>

1.2.2 HISTORICAL EVIDENCE THAT ELECTRIFICATION CAUSED THE 20TH CENTURY EPIDEMIC OF "DISEASES OF CIVILIZATION"

By analysing US vital statistics tabulations and census records for 1920-1960 and comparing death rates, Dr Samuel Milham hypothesised that the 20th century

epidemic of the so-called diseases of civilization including cardiovascular disease, cancer and diabetes and suicide was caused by electrification not by lifestyle. This is much more complex today- see "Multiple Whammy" below

<https://www.ncbi.nlm.nih.gov/pubmed/19748187>

1.3 MY OBSERVATIONS- BACKGROUND TO THIS REPORT

For nearly thirty years I have been working full time in the investigation of environmental causes of disease, at the Natural Medicine Clinic.

Sometime around October 2015, a number of long-term patients came to me with a combination of new puzzling symptoms. Initially I did not find the usual common causes of these problems and could not identify the sources. With further testing and investigation, I realised that the problem was coming from Cell Phones, [WiFi](#) and related equipment.

My patients had been exposed to this kind of equipment for many years- so what had changed?

The mobile phone standards of performance had changed from 3G (Third Generation) to 4G (Fourth Generation) during 2015. This means that there is a significantly greater amount of data, measured in gigabits per second being transmitted. A communication from Professor Martin Pall, a researcher in this area, suggested that the increased use of pulsing of the signal could also be partly to blame for people's increasing reactivity. DJ Hyland PhD has written an article on this intended for physicians, originally Published in the Lancet. See http://timleitch.net.nz/bioenergy/research/phys_biol_mobtel_hyland.htm

1.3.1 DIRTY ELECTRICITY

Deteriorating power quality is becoming increasingly common in developed countries. Poor

power quality, also known as [Dirty Electricity](#), refers primarily to a combination of harmonics and frequencies generated primarily by electronic devices and by [non-linear loads](#), which is polluting the electric power supply. It was assumed, until recently, that this form of energy has no biological effect. However, when Graham/Stetzer™ (G/S) filters were installed in homes and schools, symptoms associated with electrical hypersensitivity (such as chronic fatigue, depression, headaches, body aches and pains, ringing in the ears, dizziness, impaired sleep, memory loss, and confusion) were reduced. Case studies detailing these effects are published by Havas and Stetzer. http://www.electricalpollution.com/documents/Havas&Stetzer_WHO.pdf

A comprehensive review of these topics by Duane Dahlberg can be found here. <http://www.electricalpollution.com/intro.html>

For more information see Appendix 1- Sec. 10.1.4 – Dirty Electricity, the problem illustrated

1.3.2 ENTER THE IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)

The significance of this pollution and distortion of the power supply can be understood when it is realised that according to **IEEE Standard 519-1992, modern electrical loads require a neutral wire to be 225% of the capacity of the live wire.** This is because the resistance to flow of the neutral current is much greater due to the distortion of what should be a clean sine-wave alternating voltage (see next section). The lack of neutral wiring to carry this distorted current could be a major cause of the problem of diversion of this return flow into the ground

<http://www.electricalpollution.com/intro.html>

Note For more technical details see the following headings in Appendix 1:

Electric Power Transmission – Sec. 10.1.1

Dirty Electricity – the Problem Illustrated- Sec. 10.1.4

Hidden Costs – Sec. 10.1.5

Polarization – an Unrecognised Phenomenon – Sec. 10.1.6

Biogeometry - Sec. 10.1.7

Physiological Mayhem – Sec. 10.1.9

1.3.3 THE MULTIPLE WHAMMY

By definition, radiation reaches us by travelling through the air, and buildings (which diminish the strength of the signals). The power supply cables, which are also used to drive our electric appliances and equipment also pick up the radiation. So, the use of these appliances can transfer this high frequency with its harmful energy to foods and liquids, and is in the electromagnetic fields surrounding transformers and motors. This means that such basic appliances as pumps, liquidisers and cookers can be polluted. Lighting especially [CFL bulbs](#), in addition, create their own problems, as described in the link and LED's (Light Emitting Diodes) can be tainted with high frequency microwaves. Traditional incandescent bulbs and Halogen bulbs are a healthier option.

The other consequence is the fact that the springs in a mattress can behave as antennae, so a common furnishing which we use for about one third of our lifetime can now be problematic because of the proliferation of the microwave radiation. Solutions to this problem, apart from changing to a completely organic bed, can be found on <http://www.yshield.org> and www.groundology.com.

Another dimension to this complex matrix of perverse energies is the phenomenon of [Geopathic Stress](#), where aberrations in the Earth's Magnetic Field can affect Electromagnetic Radiation. Recent [research](#) has shown that Geopathic Stress is real and can interfere with the energy of light photons. If it can interfere with the energy of light it is plausible to consider that it can interfere with other electromagnetic frequencies. I have observed and measured this effect of the energy from mobile phone masts being influenced by a Geopathic Stress line. This phenomenon requires more research

The combination of the

- 1) High Frequency Microwaves from Phones, masts and Wi-Fi,
- 2) Low Frequency Electromagnetic fields of the power grid, and
- 3) the Static Magnetic Fields of Geopathic Stress

-with their complex and additive interactions pose considerable risks to human and animal health.

2 IMPORTANT RESEARCH & REPORTS

2.1 CANADIANS FOR SAFE TECHNOLOGY (C4ST)

Canadians for Safe Technology has compiled a list of over 200 studies from three recent C4ST reports that demonstrate potential harm at non-heating (non-thermal or a-thermal) levels of radiofrequency/microwave radiation at or below Safety Code 6 (2015) levels.

See <http://c4st.org/wp-content/uploads/2017/04/original-references-of-over-200-scientific-studies-showing-potential-harm-at-levels-below-safety-code-6.pdf>

and <http://momswhocare.ca/wp-content/uploads/2016/07/Over-60-pdf-studies-2016-showing-harm-below-Safety-Code-6-18April-2016.pdf>

This research included studies, a lot performed in animals, showing the following

- Disturbance to the production of melatonin and antioxidant enzymes.
- Neurodegenerative disease
- Effects on male reproductive function
- Cognitive impairment
- Pathological changes in cell morphology in the thymic and splenic tissues of newborn rats
- Tumours of the lungs and livers in exposed animals were significantly higher

- Triggers sperm apoptosis
- Use of mobile phones can be related to the early spontaneous abortions.”
- ROS [reactive oxygen species] level significantly increased after 10 min of exposure
- Significant reduction in levels of DA [dopamine], NE [norepinephrine], E [epinephrine] and 5-HT [serotonin] in the hippocampus
- Morphological changes in the thyroid tissue
- Pathological changes in kidney tissue in 21-day-old male rats owing to oxidative stress
- Increase of the DNA damage in rat testes tissue was significant

A critique of Canadian Safety Code 6 can be found here: <http://c4st.org/safety-code-6/>

See also **The Inadequate Outdated Standards, see sec. 5.1.4**

This code depends on the concept of Thermal effects only, and for comparison China, Russia, Italy and Switzerland have exposure limits 100 times safer than Canada.

2.2 PIVOTAL REPORTS ON IMPORTANT RESEARCH

2.2.1 RADIO FREQUENCY (RF) BIO-EFFECTS DO WE HAVE A PROBLEM?

Contents of this report by Steve Weller B.Sc. Monash, MORSAA

- Early radiofrequency electromagnetic radiation (RF-EMR) bioeffect findings – 1970’s and earlier
- RF-EMR bio-effect findings – 2000 to 2012 (TR-164 vs ORSAA DB)
- Health issues that plague modern society – The potential role of RF-EMR
- ORSAA in vivo/in vitro comparison with TR-164 findings
- How funding source and country of origin appears to distort outcomes
Lack of precaution and failure to adequately communicate and manage risk
-

Glossary of terms in this report:

ORSAA - Oceania Radiofrequency Scientific Advisory Association Inc.

ARPANSA -Australian Radiation Protection and Nuclear Safety Agency

TR-164 – Technical Report form ARPANSA

http://www.orsaa.org/uploads/6/7/7/9/67791943/bio-effect_findings_full_version.pdf

2.2.2 RESONANCE - BEINGS OF FREQUENCY

— An Award- winning Documentary Film - a real Eye Opener - A MUST SEE for everyone - especially the medical profession!! [RESONANCE - Beings of Frequency](#) [90min]

The Facts: in this video

- 02:30 ~ 10:15 **Circadian Rhythm:**
- 10:15 ~ 14:30 **All Life comes from Life - DNA:**
- 14:30 ~ 21:30 **Bees are dying - "Colony Collapse Disorder":**
- 21:39 ~ 25:20 **(Human) Cryptochromes are sensitive to Magnetism:**
- 25:30 ~ 25:20 **25 Years 109 Species lost:**
- 30:35 **Electromagnetic Sensitivity:** ([3G](#), [4G-LTE](#), [DECT Phones](#), [Insomnia](#), ...)
- 47:00 ~ **Cell Phone Towers** — ([Cell-Towers](#), [Cancer](#)) !!!
- 50:00 ~ **Strict Levels** — ([ICNIRP](#)) !!!
- 54:24 ~ 1:02:45 **Metabolism of Glucose in the Brain:**
- Dr. [Nora Volkow](#) — (Chemical Imbalances in the Brain, [ADHD](#), [Bipolar Disorder](#), [Metabolism of Glucose in the Brain due to Cellphone Radiation](#))
- 1:02:45 ~ 1:07:47 **Melatonin** [Lennart Hardell](#) — [Mobile phone use increases Cancer](#) !!!

2.2.3 EMF RESEARCH-THE FORGOTTEN STORY

Research on Electromagnetic Radiation goes back to the 1926. The US Navy and the Soviet Military and others were interested in research on biological effects of microwaves, and the US Navy assigned to Dr Zory Glaser the task of creating a bibliography of all this research. He compiled over 6,000 studies, and from this, the US military knows the potential for negative health effects from microwaves- even at low power levels- for over 50 years. So, what has transpired after the introduction of mobile phones around 1989?

Many studies were done since then up to the present time, some showed that microwaves were problematic, others failed to show any links to health effects. This is quite a lengthy story, peppered with controversy, obfuscation of facts, funding related bias, conflict of interest, questionable study designs and industry influence. It is very important to know why there are inadequate safeguards today. A good review of this sorry saga can be found in Dr Martin Blank's excellent book- [Overpowered](#).

In the conclusion to his chapter "The Business of EMF Science" Blank wrote in August 2014 – *While there are many dedicated scientists who are searching for the truth in*

regard to the dangers of EMF, they are an endangered species in the United States. The Government no longer funds this research. The wireless industry funds studies that produce results in line with their interests, and attacks and defunds those scientists who produce results contrary to their interests.

2.2.4 A RECENT STUDY

Quote from Microwave News. May 25, 2016-

Cell Phone Radiation Boosts Cancer Rates in Animals; \$25 Million NTP Study Finds Brain Tumours.

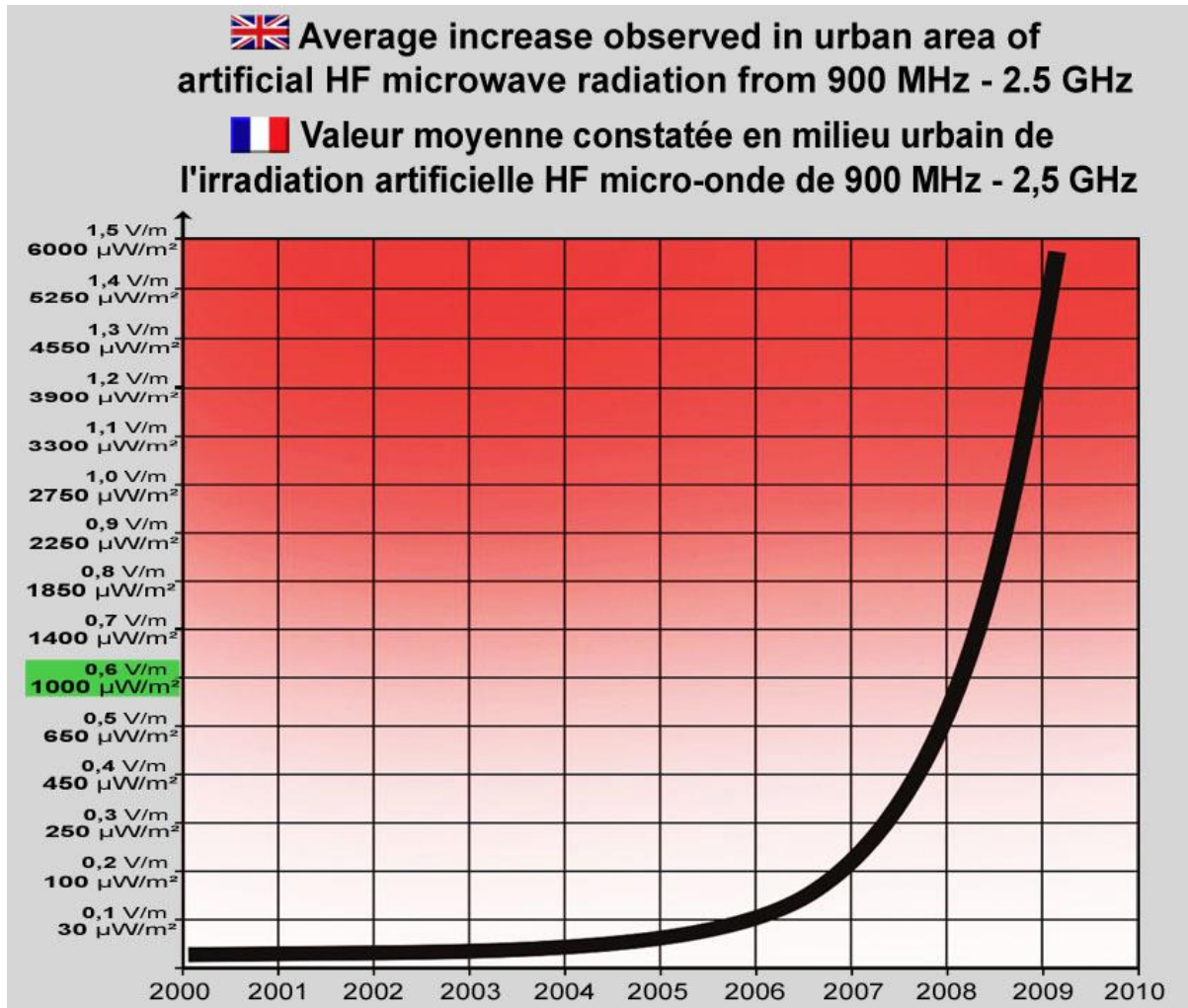
U.S. Government Expected to Advise Public of Health Risk:

"The cell phone cancer controversy will never be the same again. The U.S. [National Toxicology Program](#) (NTP) is expected to issue a public announcement that cell phone radiation presents a cancer risk for humans. The move comes soon after its recently completed study showed statistically significant increases in cancer among rats that had been exposed to GSM (Global System for Mobile Communication) or CDMA (Code Division Multiple Access) signals for two-years." Final results of this study are expected to be published at the end of 2017. <http://microwavenews.com/news-center/ntp-cancer-results>

3 EMERGING CONSEQUENCES OF EMR

3.1 INCREASING AVERAGE POWER OF ARTIFICIAL HIGH FREQUENCY (900 MHZ – 2.5 GHZ) RADIATION OBSERVED IN AN URBAN AREA OF BELGIUM

This chart is from a Belgian website illustrating the asymptotic increase of average power densities up to the year 2009. The figure of 0.6 Volts per meter is a guideline "tolerable" level chosen in this instance. (a Volt per meter means field strength with a drop of one Volt over a distance of one meter).



<http://www.retrouversonord.be/pollutionselectromagnetiques.htm>

In a 2015 study Electromagnetic field exposure was assessed in Europe for radiofrequency fields (10 MHz–6 GHz)

A comparative analysis of the results of spot or long-term RF EMF measurements in the EU indicated that mean electric field strengths were between 0.08 V/m and 1.8 V/m. The overwhelming majority of measured mean electric field strengths were <1 V/m. It is estimated that <1% were above 6 V/m and <0.1% were above 20 V/m.

<http://www.nature.com/jes/journal/v25/n1/full/jes201340a.html>

3.2 THE MOST VULNERABLE IN OUR SOCIETY

There is no more vulnerable and defenceless individual in our society than our children. Yet we expose them to these untested radiations from mobile phones and [Wi-Fi](#). There is unbridled proliferation of WiFi and [Wireless Interactive Whiteboards](#) in schools. This situation is exacerbated by the fact that the manufacturers of the most popular tablet computers do not provide a LAN (Local Area Network) socket for connection by cable.

It is informative to peruse the Irish website of PDST (Professional Development Service for teachers) entitled "[Presenting in the Classroom](#)" and also their document "[Guidelines for Wireless Networks in Schools](#)". PDST is funded by the Teacher Education Section (TES) of the Department of Education and Skills (DES) The service is managed by Dublin West Education Centre.

Nowhere in either of these documents could I find mention of the word "safety" or "health". Nor is there a mention in either document of "electro-hypersensitivity" – a condition that is estimated to affect at least 3% of the population. This is in stark contrast to the information on the website "[Citizens for Safe Technology](#)" (<http://citizensforsafetechnology.org/>)

Probably the best source of information on this vital topic is the site "[Safe Schools Information Technology Alliance](#)" (<http://ssita.org.uk>)

For Information from an Australian site, see <http://www.wifi-in-schools-australia.org/>

If a child becomes ill due to exposure to radiation in school, the Principal of the school is responsible, unless the parents have expressed their consent to the use of wireless technology. Culpability of school authorities would of course depend on court decisions and proof of such links to Wi-Fi radiation would be difficult to establish. However, this situation could change with the emergence of more research and a probable increase in illnesses attributable to exposure.

3.2.1 SUSCEPTIBILITY OF CHILDREN

Children are more susceptible to the effects of microwave radiation than adults, smaller size and less bone protection being one of the reasons. A review of the evidence can be found here:

<http://www.sciencedirect.com/science/article/pii/S2213879X14000583>

Note Very Well- Insurance

Lloyd's insurance waiver: Parents and teachers have a right to know that the Wi-Fi being installed in schools throughout the province (even those with wired internet access) emits microwave radiation that has the potential to do great harm. "School Districts, School Boards and School Medical Health Officers should know that Lloyd's of London has now excluded any liability coverage for injuries, "Directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise." (Exclusion 32) This would include the microwave radiation emitting from the Commercial Wi-Fi Transmitters and Wireless Devices in our schools. Lloyd's of London is one of the largest insurers in the world and often leads the way in protection, taking on risks that no one else will. See the recent A&E renewal policy, which, as of Feb. 7, 2015, excludes any coverage associated with exposure to non-ionizing radiation. <http://citizensforsafetechnology.org/Lloyds-of-London-excludes-coverage-for-RFEMR-claims,15,4168>

For parents who are concerned about this danger to their children I would suggest that they ask the school principal for the school insurance policy details on Wi-Fi and EMF. The lack of such indemnity should immediately spur those responsible to take action. For

those who are not convinced of the problem, I would suggest a study of the published information (references at end).

The problems associated with the use of Wi-Fi in schools also applies to the home and place of work and now, in public transport vehicles. There is also a problem in crowded places because so many people have Smart or iPhones, and they have their Data, Wi-Fi and Bluetooth settings on continuously, also through the night even though they are not using them. It is not generally understood that when these options are on, they are emitting a constant signal which is seeking a base station to connect with.

3.3 THE SPECIAL NEEDS CLASS

When I was in school in Dublin in the late 50's up to 1966, I recall that in my year of 60 pupils there was one student who appeared to have some form of intellectual disability who lagged behind the bulk of the class in performance. Now when I meet my teacher patients, I am astonished to hear of the numbers of "special needs" pupils in the schools.

Table 2.5 is from the National Council for Special Education (NCSE)

Table 2.5. Distribution of SEN by detailed 12-group categorisation

Category	N	% of all children (N=8568)	% of children with SENs (N=2381)
Medium risk SEBD only	619	7.2	26.0
High risk SEBD only	371	4.3	15.6
GLD only	246	2.9	10.3
GLD with medium or high risk SEBD	125	1.5	5.2
Dyslexia (including 15 cases with another specific SEN)	187	2.2	7.9
Dyslexia with medium or high risk SEBD	100	1.2	4.2
Speech and language disorder (including 24 cases with another specific SEN)	101	1.2	4.2
Speech and language disorder with medium or high risk SEBD	91	1.1	3.8
Autistic spectrum disorder or Asperger's syndrome (66 of these also having another SEN or SENs)	69	0.8	2.9
Physical or sensory disability only	68	0.8	2.9
Physical or sensory disability with medium or high risk SEBD and / or other general or specific SEN	158	1.8	6.6
Other SEN	246	2.9	10.3
Any SEN	2381	27.8	100.0
No SEN	6187	72.2	

Glossary: **SEN** = Special Educational Need **SEBD** = Social, Emotional or Behavioural Difficulty **GLD** = General Learning Disability **N**= Number

From: Educational Experiences and Outcomes for Children with Special Educational Needs (NCSE 2014) <http://ncse.ie/wp-content/uploads/2014/11/NCSE-Educational-Outcomes-Children-with-SEN.pdf>

3.3.1 THE PREVALENCE OF SPECIAL NEEDS CHILDREN IN SCHOOLS

The figures in the above table are harrowing. The fact that 27.8% of all school-going children have special educational needs should be setting off alarms. I do not hear them and this is not because of a lack of Governmental awareness of this problem. On the contrary, The National Council for Special Education (NCSE) was set up to improve the delivery of education services to persons with special educational needs arising from disabilities, with particular emphasis on children. The Council was first established as an independent statutory body by order of the Minister for Education and Science in December 2003. <http://ncse.ie/about-us>

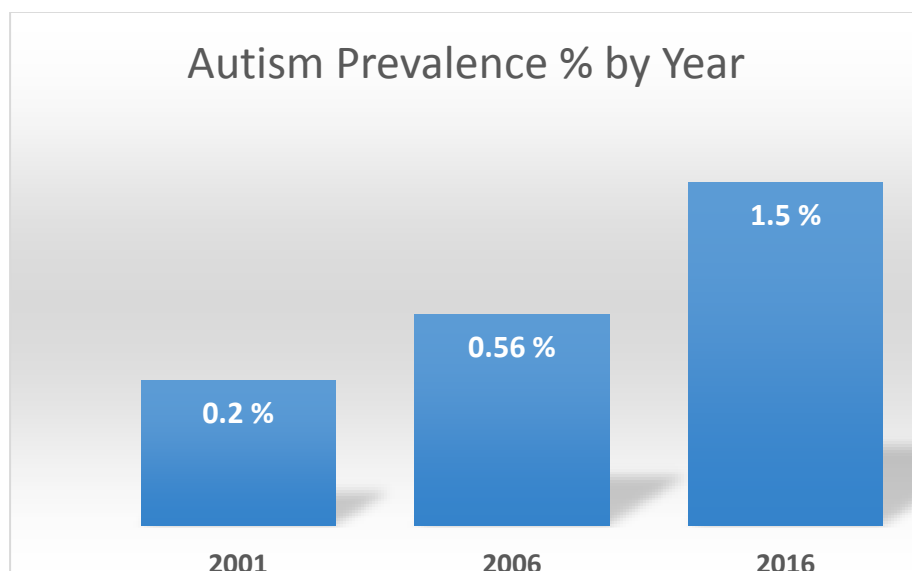
3.3.2 NCSE PRESS RELEASE 15TH JULY 2016

NCSE Press Release 15th July 2016 Major education report finds 14,000 students have autism diagnosis The National Council for Special Education (NCSE) today published the first major report on the education of students with autism in almost 14 years. This report follows an extensive research and consultation process. **The report found that one in every 65 students or 1.5% of the schools' population has a diagnosis of autism.** http://ncse.ie/wp-content/uploads/2016/07/6_Press_release_ASD.pdf

This equates to approximately 14,000 students and is much higher than the estimate of 0.2% in the year 2001

<http://www.sess.ie/sites/default/files/Autism%20Task%20Force%20Report.pdf> ,

and the estimate of 0.56% in 2006 http://ncse.ie/wp-content/uploads/2014/10/Prevalence_of_SEN_10_09_12.pdf



Note) In the above-mentioned reports, the terms Autism and Autism Spectrum Disorder are used interchangeably.

3.3.3 EXTRA RESOURCES

In January 2017, it has been announced by the Minister for Education that 900 extra teachers will be added to the current 12, 000 special needs teachers. This entails €18 million extra funding per annum. Information on research into causes of the problems is sparse or absent

<http://www.education.ie/en/Press-Events/Press-Releases/2017-Press-Releases/PR2017-01-18.html>

3.3.4 REPORTS FROM NCSE

Since 2009, very comprehensive and detailed reports amounting to **4877 pages**, covering every aspect of special needs in education have been published, including Table 2.5 above. I could not find any mention of the causes of these Special Educational Needs conditions listed above. This is par for the course, in the sphere of medical Investigation. Research mostly concentrates on treatments, and causes attract scant attention. Most of the medical research is funded by Pharmaceutical companies, and their mission is not to identify the causes of disease. But what about other sources of research in Ireland?

UCD and Trinity College are involved in the Global Autism Genome Project research project on genetics in autism. This parallels the oft repeated medical establishment dictum that Autism is a genetic disease and clinicians are now better at recognising autism. This research has identified some genes that may be causal for autism but very importantly, they have discovered that some genetic defects in autistic offspring, are new and not inherited. **This adds significant evidence to the belief that Epigenetic Effects (Environmental influence on the expression of genes) is more important than genetic inheritance alone.**

http://www.ucd.ie/news/2010/06JUN10/100610_autism.html

3.3.4.1 Childhood Disability Research in Ireland

It is very difficult to find any state -sponsored investigation of the causes of childhood disability in Ireland, as can be seen from the following official websites.

Early Childhood Ireland <https://www.earlychildhoodireland.ie/>

AIM (Access Inclusion Model) <http://aim.gov.ie/ecce-sample/>

Early Childhood Care and Education (ECCE) Programme- Department of Children and Youth Affairs

<https://www.dcy.gov.ie/viewdoc.asp?DocID=1143>

National Review of Autism Services

<http://www.hse.ie/eng/services/publications/Disability/autismreview2012.pdf>

This lack of urgency to investigate causes is seen in the spread of other degenerative diseases. Could this be due to a lack of political will to tackle or even consider the environmental factors, in deference to the economic consideration of business corporation profits?

3.3.5 EVIDENCE FOR EMF/RF AS A CAUSAL FACTOR IN SPECIAL NEEDS AND LEARNING DISABILITIES

NADD (The National Association for the Dually Diagnosed) is recognized as the world's leading organization in providing educational services, training materials and conferences. NADD has been influential in the development of appropriate community based policies, programs and opportunities in addressing the mental health needs of persons with Intellectual and Developmental Disabilities. They produced a report "**NADD Bulletin Volume XII Number 5 Article 3**" titled "**Wireless Health Issues for Children and Young People with Learning Disabilities and Special Health Needs**" <http://thenadd.org/modal/bulletins/v12n5a3~.htm>

An extract from the report- "Chronic exposure to even very low levels of radiofrequency/microwave exposure (the typical wireless environment) can lead to impaired concentration, attention and memory, retarded learning, fatigue, and adverse changes in behaviour and sleep patterns (Sage & Carpenter, in press; Bioinitiative Working Group, 2007). Changes in brainwave activity are reported from even short duration exposures to cell phone radiofrequency radiation, and are associated with sleep disruption (changes in sleep architecture, particularly REM sleep) (Sage & Carpenter, in press; Bioinitiative Working Group, 2007).

"To place wireless technologies in environments that are intended to provide for those with learning disabilities is counter-productive for learning, and potentially harmful to health for both students and teachers." *By Cindy Sage, M.A., Sage Associates, Research Fellow, School of Health and Medical Sciences, Orebro University Hospital, Orebro, Sweden, Co-Editor, BioInitiative Report*

Report - Autism and EMF? Plausibility of a Pathophysiological link - Part I.
Herbert MR, Sage C.

Extract "With dramatic increases in reported Autism Spectrum Conditions (ASC) that are coincident in time with the deployment of wireless technologies, we need aggressive investigation of potential ASC - EMF/RF links. The evidence is sufficient to warrant new public exposure standards benchmarked to low-intensity (non-thermal) exposure levels now known to be biologically disruptive, and strong, interim precautionary practices are advocated." <https://www.ncbi.nlm.nih.gov/pubmed/24095003>

With evidence pointing to EMF as a possible cause of Autism and other disabilities it is surely a travesty derived from ignorance to place such children in a situation of WiFi and EMF exposure. This is being done by persons of authority in schools who unfortunately are unaware of the dangers. The problem also extends to the home and the unsuspecting parents.

See Section 4.1 for more detailed information on EMF and autism

3.3.6 WORKING FOR SAFE TECHNOLOGIES FOR NURSERIES, SCHOOLS AND COLLEGES

A most informative website detailing research, reports, international news

<http://wifiinschools.org.uk/index.html>

3.4 THE BRAIN DRAIN EFFECT

The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity and causes distraction, thus reducing the efficiency of daily tasks. Research can be found here- <http://www.journals.uchicago.edu/doi/pdfplus/10.1086/691462>

3.5 AN EXTENSIVE EXPERIMENT IGNORING THE PRECAUTIONARY PRINCIPLE

3.5.1 Arthur Firstenberg

is founder and director of the Cellular Phone Taskforce, a non-profit organization that disseminates information about electromagnetic radiation and advocates for electrically sensitive people. He is editor of the Taskforce's publication, *No Place to Hide*, and the author of [Microwaving Our Planet: The Environmental Impact of the Wireless Revolution](#). [Also see [Killing Fields](#) – Arthur Firstenberg / The Ecologist v.34, n.5, 1jun04]

<http://www.electrosensitivesociety.com/2010/06/20/the-largest-biological-experiment-ever/>

His description of the worldwide deployment of a new technology as **The Largest Biological Experiment Ever** is very apt, when you consider that a vast amount of research is required before the release of chemicals and drugs for general use.

3.6 SOURCES OF EMR – THE PRINCIPAL CULPRITS

3.6.1 MOBILE PHONES

3.6.1.1 Major Cell Phone Radiation Study Reignites Cancer Questions

SCIENTIFIC AMERICAN reports major cell phone study linking radiation to brain tumours in rats. <https://www.scientificamerican.com/article/major-cell-phone-radiation-study-reignites-cancer-questions/>

"The findings, which chronicle an unprecedented number of rodents subjected to a lifetime of electromagnetic radiation starting in utero, present some of the strongest evidence to date that such exposure is associated with the formation of rare cancers in at least two cell types in the brains and hearts of rats. "

The response from the CTIA (Cellular Telecommunications Industry Association) is the following

"Numerous international and U.S. organizations including the U.S. Food and Drug Administration, World Health Organization and American Cancer Society have determined that the already existing body of peer-reviewed and published studies shows that there are no established health effects from radio frequency signals used in cell-phones," the CTIA statement said.

3.6.1.2 National Cancer Institute (USA)

The NCI has published a document "Cell Phones and Cancer Risk"

<https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet>

This report includes the following

What do expert organizations conclude about the cancer risk from cell phone use?

Excerpts from the reply-

In 2011, the [International Agency for Research on Cancer \(IARC\)](#), a component of the World Health Organization, appointed an expert Working Group to review all available evidence on the use of cell phones. The Working Group classified cell phone use as "possibly carcinogenic to humans," based on limited evidence from human studies, limited evidence from studies of radiofrequency energy and cancer in rodents, and inconsistent evidence from mechanistic studies.

The [American Cancer Society \(ACS\)](#) states that the IARC classification means that there could be some cancer risk associated with radiofrequency energy, but the evidence is not strong enough to be considered causal and needs to be investigated further. Individuals who are concerned about radiofrequency energy exposure can limit their exposure, including using an ear piece and limiting cell phone use, particularly among children.

The [National Institute of Environmental Health Sciences \(NIEHS\)](#) states that the weight of the current scientific evidence has not conclusively linked cell phone use with any adverse health problems, but more research is needed.

The [U.S. Food and Drug Administration](#) (FDA) notes that studies reporting biological changes associated with radiofrequency energy have failed to be replicated and that the majority of human epidemiologic studies have failed to show a relationship between exposure to radiofrequency energy from cell phones and health problems.

The [U.S. Centers for Disease Control and Prevention](#) (CDC) states that no scientific evidence definitively answers whether cell phone use causes cancer.

The [Federal Communications Commission](#) (FCC) concludes that no scientific evidence establishes a causal link between wireless device use and cancer or other illnesses.

In 2015 the [European Commission Scientific Committee](#) on Emerging and Newly Identified Health Risks concluded that, overall, the epidemiologic studies on cell phone radiofrequency electromagnetic radiation exposure do not show an increased risk of brain tumors or of other cancers of the head and neck region ([1](#)). The Committee also stated that epidemiologic studies do not indicate increased risk for other malignant diseases, including childhood cancer ([1](#)).

3.6.1.3 American Cancer Society

This report repeats a lot of the content of the above reports

<https://www.cancer.org/cancer/cancer-causes/radiation-exposure/cellular-phones.html>

3.6.1.4 The Bottom Line- what can be gleaned from the research

In my opinion, the above studies fudge the issue by unsubstantiated or implausible explanations of the findings, supported by the fact that the lay person is hindered from making definitive interpretations, and the common expedient of calling for "more studies" is endangering the future generations.

It is very clear that the [Precautionary Principle](#) is being brazenly flouted. What else can we expect when the mobile phone subscribers for 2016 are reckoned to number nearly five billion. <https://www.gsma.com/mobileeconomy/>

The Big Corporations are in control, and as we can see, we cannot depend on Governments and Regulatory Authorities to protect us. It is up to the consumer to become informed and use the influence of their spending power.

3.6.2 WIFI AT HOME, WORK, IN SCHOOLS AND EVERYWHERE

The ideal method of distributing an internet signal from point to point within a building is to connect the internet router or Local Area Network by cable under the floors to the computer or other internet dependent device.

Another method of distribution is to use a Powerline Adapter, which distributes the signal through the electric power supply. However, this can result in an increase in dirty electricity. This will depend on whether or not you live in a built-up area. With many users of this technology in close proximity, the result could be a transfer of the high frequency signals to the wiring and appliances in a house. A Stetzer meter and Stetzerizer filters could help to alleviate this but there is a limitation because the filters only suppress frequencies from 10 to 100 megahertz. For more detailed and technical information see geovital.com. It would be highly desirable if optical fibre cables were installed in all new and renovated buildings. In some cities, such as Caen in France, the WiFi is being replaced with this technology. See "The Beautiful Alternative", below.

Unfortunately, the manufacturers of some notebooks and computer pads have excluded a LAN (Local Area Network) socket, thus necessitating a WiFi signal. Obviously, if WiFi must be used, it makes sense to switch it on only when needed, and not leave it on day and night.

3.6.2.1 WiFi Enabled TV

I have had some of my electro-sensitive patients feeling unwell after getting a new TV set- often a "smart" TV. If you do not need to connect the signal to the TV by cable then it is WiFi enabled, and very likely can emit as well as receive WiFi radiation. Some people have reported up to 400 milliVolts per Metre. See <http://www.altermedicine.org/all-new-smart-tv-emmits-high-radiation-wifi-blasts-all-day-long/>

Warning

Many of the new "smart" TV's have a WiFi transmitter which cannot be disabled without opening the monitor and thus invalidating the warranty. I could not rely on shop staff to provide this information. You should ask the manufacturers. A well-established Japanese brand allows disabling of the WiFi on setup.

3.6.3 DECT PHONES AND TETRA MASTS

DECT (Digital Electronic Cordless Telephones), are commonly connected to landlines and are **particularly harmful** because of the frequency of the pulses. The use of microwave frequencies (about 1.8 GHz (GigaHz-Billion cycles per second), similar to GSM (Global System for Mobile Communication). The Pulse frequency is common about 100 Hz

If you have a DECT phone installed it should be immediately exchanged for a corded telephone set. See <http://electromagnetichealth.org/electromagnetic-health-blog/electrosensitivity-series-arrythmia-connection-with-electrosmog/>

Alternatively, purchase a new generation DECT phone such as the "Siemens Gigaset 540", which allows for an "Eco Plus" operation mode, which does not emit any radiation when not in use and when the handset is attached to the base. See http://www.gigaset.com/hq_en/gigaset-a540-anthracite-black/

TETRA (Terrestrial Trunked Radio), is the police radio communications system, also used by other emergency services and transport companies. This signal has a frequency of 380 MHz (MegaHertz- Million cycles per second), and pulses at 17.65 Hz. which is close to a key frequency of the human brain at 16 Hz. The operating frequency is 380 MHz, which is far more penetrative to buildings and tissues, than 900MHz GSM(Global System for Mobile communication) or up to 2.4GHz 3G (UMTS- Universal Mobile Telecommunications system). This problem is commonly affecting those living near to police stations. Barrie Trower has reported extensively on this. See Sec 5.1.7

See <http://www.tetrawatch.net/main/index.php>

Both technologies have been shown to be a health hazard.

Airwaves and the ethics of doubt

An informative Powerpoint presentation can be found here

<http://www.slideserve.com/bart/airwave-and-the-ethics-of-doubt>

3.6.3.1 The Microwave Hearing or "Hum" problem

Some people suffer a distressing sound in their ears similar to a motor running constantly. They relate its inception to the time when they first experienced electro-hypersensitivity. This is a problem distinct from Tinnitus, and the cause has a theoretical explanation. See

<https://iervn.com/2017/01/09/the-hummicrowave-hearing/>

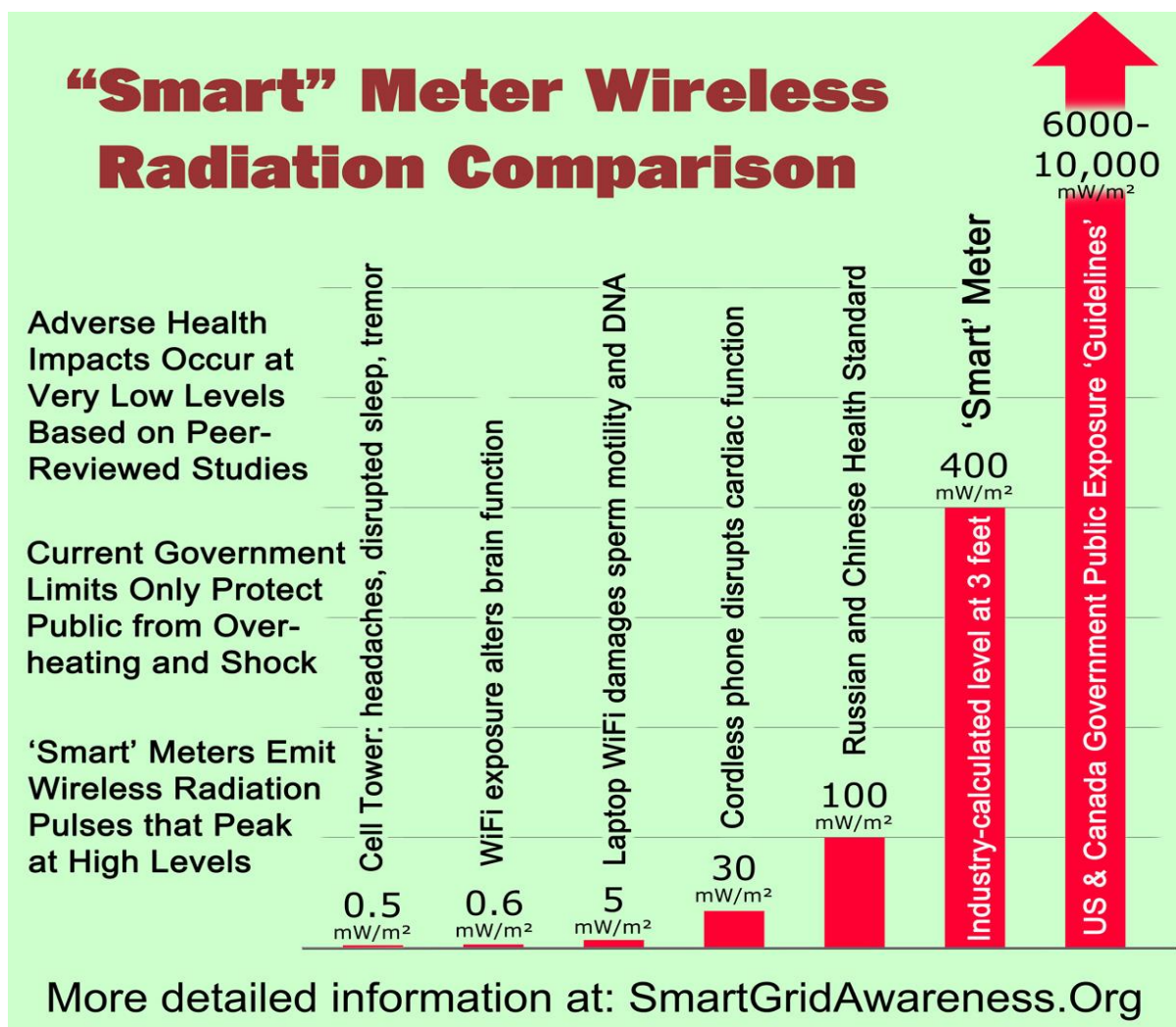
3.6.4 SMART METERS

For an informative introduction to smart meters, see the following site

<http://www.naturalblaze.com/2016/11/nerve-disrupting-frequencies-radiating-smart-meters-information-perspective.html> which includes a video showing the disturbance to the power supply (dirty electricity) in addition to creating harmful air waves. Also on YouTube <https://www.youtube.com/watch?v=4NTSejgsjTc>

Note- The term [transient](#) is used in the video. A **transient** (oscillation) event is a short-lived burst of energy in a system caused by a sudden change of state. It can be caused by electrical switching devices and are also called Electromagnetic Pulses (EMP's)

For a very comprehensive link to multiple reports on smart meters, see <https://smartgridawareness.org/>



Note the discrepancy between the Asian and North American Standards. This would seem to be incongruous with the regular accusations about human rights levelled at China and Russia. Note the level of Smart Meter power density at a distance of 3 ft.

For a full explanation and references to the above chart see

<https://smartgridawareness.org/rf-health-effects/comparison-values/>

A smart meter is a new kind of gas and electricity meter that can digitally send meter readings to your energy supplier. It is an expensive wireless system installed on our homes, businesses, and in our environment. It is being installed without informed consent and without full disclosure of how they work, and what they can do with the personal data they collect.

The Smart Meter can receive wireless signals and relay them to a central module and eventually to the internet grid. So, this meter can act as the hub for signals from all manner of appliances in the house, in addition to reading the gas, water and electricity consumption. This means the possibility of “data mining” of all manner of personal information as explained in “Smart Appliances” above.

Customers and the media [report](#) serious complaints about Smart Meters for the following reasons:

Former CIA director James Woolsey says the hacking vulnerabilities of the Smart Grid render it "a really stupid grid". Cyber security expert [David Chalk](#) says: "There is not a power meter or device on the grid that is protected from hacking – if not already infected – with some kind of Trojan horse that can cause the grid to be shut down or completely annihilated."

Military studies [here](#) and [here](#) show that pulsed signals such as that radiated from smart meters can cause serious health problems, including tinnitus, memory loss and seizures. [Thousands of studies](#) link biological effects to RF radiation exposure, including increased cancer risk, damage to the nervous system, adverse reproductive effects, DNA damage, and more. The top public health official in Santa Cruz County California prepared [this report](#), confirming Smart Meters pose a health risk. The American Academy of Environmental Medicine (AAEM) sent [this letter](#) to the CPUC calling for a halt to wireless smart meters. See also this letter from (California Public Utilities Commission), endorsed by more than 50 experts.

see <http://emfsafetynetwork.org/smart-meters/> for more information.

And <http://stopsmartmeters.org/2013/12/03/dirty-electricity-from-smart-meters-answers-from-the-experts/> for an interesting discussion on the effect of the interaction of identical smart meters in an area of homes.

And <https://anticorruptionsociety.com/lawfully-yours/> for Videos by experts.

3.7 SMART METERS- THE STEALTH HUB OF GLOBAL CYBER CONNECTIVITY

With the development of WiFi transmission from all kinds of "Smart" appliances, all connecting to a central Hub which could be the electricity smart meter, and a wireless connection to other smart meters, and to our mobile phones, with eventual connection to the world via the internet, we will end up in a "sea" of harmful electromagnetic radiation. See <http://www.globalsmartgridfederation.org/> to follow global developments.

3.7.1 SMART METER ERRORS

Smart Meters are being introduced with the claim of cost effectiveness for the consumer. However, serious doubts have been raised concerning the veracity of this "selling point". Research from the University of applied sciences in Amsterdam has shown that some smart meters for three-phase supplies can give an erroneous extra consumption reading of up 582%, whereas errors for single phase meters were not found to be significant. It

has also been estimated that potentially inaccurate meters have been installed in the meter cabinets of at least 750,000 Dutch households. See <https://www.sciencedaily.com/releases/2017/03/170303180139.htm>

Single Phase power is used mostly in residential installations, and triple phase power is used in commercial and manufacturing settings. For more details see "**Hidden Costs**" in sec 1.1.5

3.7.2 SMART METERS IN IRELAND

According to the [National Smart Metering Programme](#) (NSMP) report, it is planned to introduce smart meters in Ireland between 2017 and 2020. If you perform a search on this report, you will find "safety" mentioned only once, in relation to an estimate of 5% refusal rate by households for **GAS Meters**. I assume that this consideration concerns the possibility of smart meter failure igniting gas (a very real fear), and does not concern the question of Radio Frequencies from the Meters.

The CER (Commission for Energy Regulation) has issued a document <http://www.cer.ie/electricity-gas/smart-metering> with an overview of Smart Meters. It is probably more expedient to read a review from The Journal <http://www.thejournal.ie/smart-meters-2532282-Jan2016/>

http://www.seai.ie/News_Events/Press_Releases/2012/Full_Data_from_National_Smart_Meter_Trial_Published.html

4 FOCUS ON DISEASE

4.1 AUTISM

There is much research linking the rise of autism to the proliferation of EMF. Dr Martha Herbert explains the connection

<https://www.youtube.com/watch?v=rRcx12YtUvQ&index=2&list=PLhEP48SlnzKqVN6x5Ev4nhfs4GRzhloWV>

For a comprehensive review of EMF and environmental factors causing autism, see

<http://eatgenius.com/electromagnetic-radiation-and-environmental-factors-in-autism/> by Jamie Ann Montiel, RN, BSN

Prof Martin Pall gives an in-depth lecture linking EMF and other environmental pollutants to autism

Video

<https://www.youtube.com/watch?v=LaseiYfvAQ&index=3&list=PLhEP48SlnzKqVN6x5Ev4nhfs4GRzhloWV>

4.1.1 WIRELESS: A KEY PIECE OF THE AUTISM PUZZLE

This is a highly recommended lecture by Peter Sullivan MS

<https://www.youtube.com/watch?v=kDyR14UcM8A&index=7&list=PLhEP48SlnzKqVN6x5Ev4nhfs4GRzhloWV>

4.2 OSTEOPOROSIS

About 300,000 people in Ireland suffer from this very pernicious disease, and many causal factors are listed for osteoporosis. There is a factor which is not mentioned and it derives from Prof Pall's research. see sec. 10.1.9

With the EMF radiation disturbing the function of the Voltage-gated Calcium channels, excess calcium enters the body's cells. This causes a decrease of calcium concentration in the blood circulation which disturbs many vital physiological functions.

This induces a defence response in the body involving activation of the parathyroid gland. The parathyroid produces a hormone which releases calcium from the bones to replenish the concentration in the blood.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243874/titles/PMC4758783/>

I know of a lady living very near to a communications mast in a provincial town. She was suffering very badly and she had her parathyroid glands removed on the suggestion of her physicians. Symptoms improved but she is still suffering

4.3 THYROID DYSFUNCTION

I have had several patients presenting with thyroid dysfunction. I have identified EMF as a factor in this problem. Research done by Mortavazi and others supports my findings

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243874/>

4.4 INSOMNIA

Insomnia, the inability to have natural restful sleep is very important for many aspects of our health.

A key to this nocturnal recuperation of our mental and physiological functioning is the hormone Melatonin, which is produced by the Pineal gland in the centre of the brain. This is controlled by a nerve connecting the retina in the eye to the gland. During the day, Melatonin production is suppressed and at night it is activated.

Research has shown that Electromagnetic radiation, which has the same physical nature as light, but does not need to be incident on a retina because it can penetrate the eyelid and skull, and suppresses melatonin production day and night. This can have very harmful effects when you consider the properties of melatonin-

- Melatonin has a modulating effect on all the steroid hormones (including the stress hormones cortisol and noradrenalin). It helps reduce high levels of these hormones and also helps modulate levels of neurotransmitters. which affect mood such as serotonin and dopamine. This is the reason why a good night's sleep helps to solve a lot of problems!
- Immune modulation – immune cells have been found to have specific sites on which melatonin can connect to exert its affects. This can help boost our immune systems capacity to fight invaders and also produce an appropriate inflammatory response.
- It is a powerful antioxidant, so it metabolises toxic cellular species.
- Weight maintenance – Studies have shown that the decline in melatonin that occurs with aging causes an increase in body fat, particularly in belly fat. This is probably due to its modulating effects on cortisol levels- as high levels of cortisol cause us to deposit fat around the middle.
- Regulation of body temperature – Melatonin's effect on body temperature may be one of the keys of its ability to enhance sleep. Body temperature follows a circadian rhythm, rising during the day and falling at night. In general, a falling body temperature induces sleep, while a rising body temperature provokes wakefulness.
- Regulation of female hormones – new research is demonstrating that melatonin may influence hormone cycles and be the reason why many mammals go into 'heat' at certain times of the year. This effect on hormones has prompted research investigating whether melatonin could reduce the risk of female disorders associated with elevated oestrogen levels such as breast and uterine cancer.

<http://instituteofhealthsciences.com/melatonin-more-than-just-a-sleep-hormone/>

See also sections 2.1; 10.1.9 and 10.2.5.10

4.4.1 F.LUX- SOFTWARE TO MAKE YOUR LIFE BETTER

This is a useful software program to change the hue of your device screens, from blue to orange at sundown and reverts at sunrise. This mimics the change from the bright light of midday to the soft orange glow of sunset which accompanied our species throughout our evolution. It can help to relax us before bedtime by stimulating Melatonin production.

<https://fluxometer.com/rainbow/#!id=iPad%20Pro/6500K-iPad%20Pro>

5 SUPPRESSED SCIENCE

As in many other global businesses, profit is king and where inconvenient truth threatens the bottom line, research and studies unfavourable to the industry are suppressed or manipulated.

5.1.1 STEPHEN CLEARY (1936-2016)

- An Insider unafraid to challenge the microwave orthodoxy. His studies showing health effects (brain tumours) were not accepted.

<http://microwavenews.com/news-center/stephen-cleary>

Onetime leader of the CTIA (Cellular Telecommunications Industry Association) and former chairman of the Federal Communications Commission, Tom Wheeler, promised research to assuage fears of tumour risks. However:

5.1.2 Dr George Carlo -

- was hired by the cell phone industry in 1993 to study the safety of its product. In 1999 funds for Dr Carlo's research were not renewed when it was realised that the research results were unfavourable, and the industry sought to discredit him. Undeterred, Carlo now brings his case to the public with a powerful assessment of the dangers posed by the microwave radiation from cell phone antennas in his book "Cell Phones: Invisible Hazards in the Wireless Age: An Insider's Alarming Discoveries about Cancer and Genetic Damage"

<https://www.amazon.com/Cell-Phones-Invisible-Wireless-Discoveries/dp/078670960X>

5.1.3 PROF OLLE JOHANSSON

Perhaps the most disturbing case is that of the Brilliant researcher Olle Johansson, who reported very important research (over 500 studies) on EMF dangers in the Karolinska Institute in Sweden. He lost his position in the laboratory and was moved to a small office. See <https://www.facebook.com/Support-Prof-Olle-Johansson-137594306315704/info>

He engaged legal counsel to prevent dismissal or early forced retirement, which failed. He must leave his offices in November 2017 under Swedish law.

5.1.4 INDUSTRY AND MILITARY EXPERTS

5.1.5 MATTI NIEMELÄ: NOKIA'S TECHNOLOGY DIRECTOR

Has said -"Mobile Radiation Destroyed My Health"

<http://mieuxprevenir.blogspot.ie/2016/09/nokias-technology-director-matti.html>

5.1.6 JERRY FLYNN, MICROWAVE WARFARE EXPERT

and retired Canadian Naval Officer written:

"Of the specific frequencies the Soviets in particular experimented with and whose lethality they now fully understand, one stands out: 2.4 GHz! as this is the very same frequency used in today's wi-fi routers, DECT phones and the ZigBee radios inside every Smart Meter. Significantly, also, the Soviets' effective radiated power (ERP) was estimated to be lower than that currently permitted by both Health Canada's or the FCC's (Federal Communications Commission- USA) Guidelines! "

<https://takebackyourpower.net/former-canadian-navy-captain-engineer-are-smart-meters-microwave-weapons/>

5.1.7 BARRIE TROWER

Dr Barrie Trower is a former Royal Navy Microwave Weapons Expert and former cold-war captured spy debriefer for the UK Intelligence Services. Mr Trower is a conscientious whistle-blower who lectures around the world on hidden dangers from microwave weapons and every-day microwave technologies such as mobile-phones and Wi-Fi. Mr Trower has also repeatedly assisted the UK Police Federation in their struggle to protect police officers from Tetra/Air-Band radio-communications systems that are harmful to health. See <http://geopathology-za.wikidot.com/barrie-trower>

For a detailed informative lecture see https://www.youtube.com/watch?v=9M-Tj_o0p6M

5.1.8 THE INADEQUATE OUTDATED STANDARDS

Where there is a question of harm or safety raised about the use of microwave equipment, the reliance on standards as they are currently applied is inappropriate.

The SAR (Specific Absorption Rate) has been used for some time to assess the EMF effects of cell phones. In a review by Johansson and others it was concluded that this method which measured thermal effects, was not adequate to measure non-thermal, non-ionising effects and should not be used as a primary dosimetric quantity. See FCC (Federal Communications Commission) Consumer Guide

<http://transition.fcc.gov/cgb/consumerfacts/sar.pdf>

<http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0062663.PDF>

5.1.9 THREE DAVIDS, ONE GOLIATH.

Scientists collaborate to tell the world why microwave guidelines are inappropriate- a review by John Weigel of the findings of three experts: Dr Dimitris Panagopoulos, Prof Olle Johansson and Dr George Carlo.

<https://ecfsapi.fcc.gov/file/7520942053.pdf>

5.1.10 THE ONE-SIZE-FITS-ALL EXPEDIENT

There are two important issues to be considered here

- 1) In the sphere of any aspect of human research there is a universal tendency to treat the whole population of the world as clones, that is, as being identical in their metabolism, physiology and inherited factors. It is the application of this belief that allows the approval of new drugs and the blanket prescribing of pharmaceuticals for everybody, without knowledge of individual variation (one size fits all). This applies to electro-sensitivity. It is estimated that 3-5% of the population is severely electro-sensitive, and another 35% is sensitive to some degree. In this situation, it is not possible to derive safety standards that can be applied to everybody
- 2) The derivation and application of various safety standards in different countries, are not universally accepted and there is experimental evidence that they are outdated.

5.1.11 AGGRAVATING FACTORS FOR ELECTRO-SENSITIVE PEOPLE

Metal Toxicity enhances sensitivity to EMF and RF

http://www.wellnesscenter.net/resources/Heavy_Metal_Toxicity.htm

I have observed with some patients that if there are sufficient levels of radiation in the bedroom, metal springs in the bed can resonate with the frequencies and cause problems, such as back pain.

Inherited factors such as defects in the [CACNA1C](#) gene also increase EMF susceptibility. From genetic testing of my patients I have seen changes in this gene in those who are suffering from electro-sensitivity. See "Physiological Mayhem"-see sec. 10.1.9 below for more on this.

Keeping in mind these considerations, the various regulations currently used should be reviewed.

Probably the most comprehensive information has been published in the

6 BIO-INITIATIVE REPORT 2012.

Section 4 deals with the inadequacy of the standards. <http://www.bioinitiative.org/>

6.1.1 REPORTED BIOLOGICAL EFFECTS FROM RADIOFREQUENCY RADIATION AT LOW-INTENSITY EXPOSURE

This is a detailed table of effects reported from a wide range of researchers.

<http://www.bioinitiative.org/report/wp-content/uploads/pdfs/BioInitiativeReport-RF-Color-Charts.pdf>

The Bio-initiative report is very detailed, in 28 sections, so it is more convenient to read the conclusions about EMF/RFR which can be found here.

<http://www.bioinitiative.org/conclusions/>

6.2 THE HEADINGS OF THE CONCLUSIONS FROM THE BIO-INITIATIVE REPORT ARE:

- BIOEFFECTS ARE CLEARLY ESTABLISHED
- BIOEFFECTS WITH CHRONIC EXPOSURES CAN REASONABLY BE PRESUMED TO RESULT IN ADVERSE HEALTH EFFECTS
- LOW EXPOSURE LEVELS ARE ASSOCIATED WITH BIOEFFECTS AND ADVERSE HEALTH EFFECTS AT CELL TOWER RFR EXPOSURE LEVELS
- EVIDENCE FOR FERTILITY AND REPRODUCTION EFFECTS: HUMAN SPERM AND THEIR DNA ARE DAMAGED
- EVIDENCE THAT CHILDREN ARE MORE VULNERABLE
- FETAL AND NEONATAL EFFECTS OF EMF
- EMF/RFR AS A PLAUSIBLE BIOLOGICAL MECHANISM FOR AUTISM (ASD)
- THE BLOOD-BRAIN BARRIER IS AT RISK

- EPIDEMIOLOGICAL STUDIES CONSISTENTLY SHOW ELEVATIONS IN RISK OF BRAIN CANCERS
- EVIDENCE FOR GENETIC EFFECTS
- EVIDENCE FOR NEUROLOGICAL EFFECTS
- EVIDENCE FOR CHILDHOOD CANCERS (LEUKEMIA)
- MELATONIN, BREAST CANCER AND ALZHEIMER'S DISEASE
- STRESS PROTEINS AND DNA AS A FRACTAL ANTENNA FOR RFR
- EVIDENCE FOR DISRUPTION OF THE MODULATING SIGNAL HUMAN STEM CELL DNA DOES NOT ADAPT OR REPAIR
- EFFECTS OF WEAK-FIELD INTERACTIONS ON NON-LINEAR BIOLOGICAL OSCILLATORS AND SYNCHRONIZED NEURAL ACTIVITY
- EMF AND RFR MAKE CHEMICAL TOXINS MORE HARMFUL
- EMF IS SUCCESSFULLY USED IN HEALING AND DISEASE TREATMENTS
- ELF-EMF AND RFR ARE CLASSIFIED AS POSSIBLE CANCER-CAUSING AGENTS – WHY ARE GOVERNMENTS NOT ACTING?
- NEW SAFETY LIMITS MUST BE ESTABLISHED – HEALTH AGENCIES SHOULD ACT NOW
- SCIENTIFIC BENCHMARKS FOR HARM PLUS SAFETY MARGIN = NEW SAFETY LIMITS THAT ARE VALID
- SENSITIVE POPULATIONS MUST BE PROTECTED
- PROTECTING NEW LIFE – INFANTS AND CHILDREN
- STANDARD OF EVIDENCE FOR JUDGING THE SCIENCE
- WIRELESS WARNINGS FOR ALL
- EMF AND RFR ARE PREVENTABLE TOXIC EXPOSURES
- DEFINING A NEW 'EFFECT LEVEL' FOR RFR

6.2.1 CHART OF REPORTED BIOLOGICAL EFFECTS FROM RF RADIATION IN EACH OF THE 67 STUDIES REFERENCED IN THE BIOINITIATIVE 2012 REPORT, BY RONALD M POWELL PH.D.

A useful summary chart of measured power levels from WiFi, CellTower, Wireless Laptop and smart meters, including the various proposed exposure limits

<https://www.emfanalysis.com/wp-content/uploads/2014/07/Smart-Meter-Chart-with-studies-Robert-Powell-better.jpg>

6.2.2 THE PROTAGONIST VIEW

A refutation of the above report can be found here.

<https://www.sciencebasedmedicine.org/picking-cherries-in-science-the-bio-initiative-report/>

This is the perennial problem with the application of science to commercial enterprise. Protagonists and Antagonists select information according to their point of view, and the lay person is bewildered and confused. This is actually the kernel of the issue- see Appendix 3 entitled "Decline of the Scientific Process".

Another report was commissioned in 2012 by AGNIR (Advisory Group on Non-ionising Radiation)

<https://www.gov.uk/government/publications/radiofrequency-electromagnetic-fields-health-effects>

The conclusion of this report is that there is no conclusive proof of danger to health.

However, Mobilewise.org has posted a very comprehensive critique of this report, citing the biased selection of data and fact that the Executive Summary of the AGNIR report do not follow from the actual report. <http://www.mobilewise.org/wordpress/wp-content/uploads/HPA-AGNIR-MobileWise-letter-260612-f.pdf>

David Robert Grimes, a cancer researcher in Oxford University has published an article in the Guardian titled - **Household electromagnetic radiation doesn't make you ill or give you cancer. Here's why.**

<https://www.theguardian.com/science/blog/2016/feb/17/electromagnetic-radiation-doesnt-make-you-ill-or-give-you-cancer-heres-why>

See References for More on the Protagonist view

7 PROTECTION AND ALTERNATIVES

It is not necessary to abandon the use of the new microwave technology. There are many ways of approaching this.

Much of the equipment can be switched on or off as needed. Many people do not realise that applications on Smart phones such as Blue Tooth and WiFi are on continuously, and they do not switch them off even when not in use. The salesman in the store often turns on these applications, and does not explain that these applications are broadcasting a microwave signal which increases in strength according to the distance from the base station. Some countries are opting for more cable and optical fibre communications.

The proliferation of masts and microwave equipment is driven not only by the need for improved communication but by the agenda to collect data by connecting every appliance in the world, and eventually everybody who is witless enough to have an RFID (Radio Frequency Identification) chip implanted into their bodies. The long-term purpose is commercial exploitation and control.

There are many suppliers of protective materials, clothing, bed fabrics and equipment- etc. The need for this protection will of course depend on the sensitivity and the exposure of the person. Test meters, from the simple to the very sophisticated are now available to enable a sufferer to check their environment for the source of problems, and undoubtedly, as demand grows, these products will reduce in price.

Home appliances are already being sold with Radio Frequency transmitter technology (see **Smart Appliances** Below. Customer selection will be the driving force that will stop this trend. That is why education and influence by spreading the word is so important.

7.1.1 THE BLUE TUBE HEADSET

There is one safety product that everybody who uses a cell-phone should have. It is a set of headphones which work through air tubes instead of wires to the head.

One product can be found here. http://products.mercola.com/blue-tube-headset/?utm_source=dnl&utm_medium=email&utm_content=ypr1&utm_campaign=20170701Z2&et_cid=DM148728&et rid=2063666243

7.1.2 THE BEAUTIFUL ALTERNATIVE

Fibre Optic Technology offers high-speed, reliable, safe and interference free internet access which is superior to wired or wireless (Wi-Fi) connections. Orange (France) planned 100 % fibre optic deployment in nine more French cities in addition to its pilot project in Palasieau(Paris) by the end of 2016. <http://www.fibre-systems.com/news/story/orange-plans-full-fibre-coverage-9-french-cities-2016>

They plan to provide coverage to 12 million households by 2018, and 20 million household by 2022. Fibre optics could be installed throughout a building so that Wi-Fi could be discarded for the superior service. This development should encourage the installation of Fibre optic cables during construction of buildings and allow for the interconnection of all "smart" appliances in a home if desired, and obviate the need for proposed wireless connectivity. Wireless Smart Meters would also become obsolete.

See the Section "**Protection and Alternatives**" in the references at the end, which includes information on connecting an iPad and iPod wirelessly to the internet.

8 POLITICAL PERSPECTIVE

8.1.1 UNITED STATES OF AMERICA, 1976

An important report – "BIOLOGICAL EFFECTS OF ELECTROMAGNETIC RADIATION - EURASIAN COMMUNIST COUNTRIES" was written in 1976 by Dr R.A. Williams and Ronald L Adams, for the US Army Medical Intelligence and Information Agency Office of the Surgeon General.

In the Preface, it is stated: *The purpose of this review is to provide information necessary to assess human vulnerability, protection materials, and methods applicable to military operations. This study provides and insight on the current research*

capabilities of these countries. The study discusses the effects of electromagnetic radiation in the radio and microwave ranges"

This 35-page review concluded that radiation had important effects on many aspects of human physiology. This could have been a very worthy starting point for further study on the question of the safety of electromagnetic radiation, but instead the report concluded:

"If the more advanced nations of the West are strict in the enforcement of stringent exposure standards, there could be unfavourable effects on industrial output and military function.

The Eurasian Communist countries could, on the other hand, give lip service to strict standards, but allow their military to operate without restriction and thereby gain the advantage in electronic warfare techniques and the development of antipersonnel applications.

Should subsequent research result in adoption of the Soviet standard by other countries, industries whose practices are based on less stringent safety regulations, could be required to make costly modifications in order to protect workers. Recognition of the 0.01 mW/cm² (milliwatts per square centimetre) [stringent]standard could also limit the application of new technology by making the commercial exploitation of some products unattractive because of increased cost, imposed by the need for additional safeguards".

This encapsulates the attitude of the time, to look after military superiority and commercial considerations, and disregard health and safety. It is no better today.

http://www.magdahavas.com/wordpress/wp-content/uploads/2011/02/BIOLOGICAL_EFFECTS_OF_ELECTROMAGNETIC_RADIATION-RADIOWAVES_AND_MICROWAVES-EURASIAN_COMMUNIST_COUNTRIES.pdf

8.1.2 DIETRICH KLINGHARDT MD

<http://www.klinghardtacademy.com/BioData/Dr-Dietrich-Klinghardt.html>

Has done some research on the lobbying of Government and Regulatory authorities by the Communications industry. He has reported that the Communications industry spends four times more than the Pharmaceutical industry on such lobbying.

8.1.3 IRELAND

In Ireland, the Department of Housing, Planning, Community and Local Government claims to have overall responsibility for the regulation of all kinds of Radiation.

<http://www.housing.gov.ie/environment/environmental-radiation/other/irelands-nuclear-policy>

There is no clear indication here that the possible problems of EMF/RF are taken very seriously. The Department of Communications, Climate Action and Environment also has

a role, but in their recent report by the "Mobile Phone and Broadband Taskforce" there is not a mention of safety or health.

<http://www.dccae.gov.ie/communications/Lists/Publications%20Documents/Taskforce%20Report.pdf>

There was an earlier report by the Expert Group on Health Effects of Electromagnetic Fields (2007). The Expert Group have concluded that:

"So far no adverse short or long-term health effects have been found from exposure to the radiofrequency (RF) signals produced by mobile phones and base station transmitters. RF signals have not been found to cause cancer."

<http://www.dccae.gov.ie/communications/Lists/Publications%20Document>

The Conclusions of this report differ to those of the later Bio-Initiative Report 2012 (see Sec. 6 above)

Interestingly, the Irish Government has commissioned a report from the National Institute for Public Health and the Environment (RIVM- The Netherlands, 2015) titled **Electromagnetic Fields in the Irish Context**. The Report states- *"the existence of a relationship between exposure to RF fields from long-term mobile phone use and tumours in the head cannot be confirmed, but it can also not be entirely dismissed"*.

8.1.4 ATTITUDE TO ELECTRO-HYPERSENSITIVITY SUFFERERS

A long-suffering citizen badly affected by EMF/RF wrote to the Minister for Health, and received a reply from his private secretary at the Department of Health. Referring to selected research which tested the subjective symptoms of sufferers exposed to switchable radiation sources (without knowing the on/off status), he stated- *"the majority of provocation trials to date have found that self-described sufferers of electric hypersensitivity are unable to distinguish between exposure and non- exposure to electromagnetic fields, and it is not recognised as a medical condition by the medical or scientific communities"*.

This unhelpful comment, espousing the "nocebo effect" theory, ignores the fact that it could take days or weeks for a person to recover from the exposure (as I have observed with patients) and also ignores much published research, as listed in the References section, under **information from Experts, Children and School Exposure, informative Websites and others**.

8.1.5 ELECTRO-HYPERSENSITIVITY CONFERENCE DEBUNKS 'NOCEBO EFFECT' THEORY

A conference held in Brussels in 2015 featured many international experts who effectively dismissed this theory. At this conference, Dr Dominique Belpomme presented

his survey results on 1,213 of his patients. Belpomme found many of his patients have abnormally high levels of histamine (a marker of inflammation), IgE antibodies (a sign of allergy), heat shock proteins HSP27 and/or HSP70 (cellular stress), S100B protein (cerebral suffering) as well as anti-O-myelin antibodies (cellular stress), and lower levels of vitamin D (metabolic anomaly) and urinary melatonin (EMFs halt production of this vital tumor-fighting hormone which regulates our biological clock). A chart summarising increases or decreases in Biological Markers in his patients is here-

Biological profile

<u>Biological markers</u>		<u>Interpretation</u>
Vitamine D	↘	<u>Metabolical anomalies?</u>
Histamine	↗	<u>Inflammation (mastocytes)</u> <u>Cerebral hypoperfusion</u> <u>BBB opening</u>
<u>IgE antibodies</u>	↗	<u>Humoral allergy?</u>
<u>Anti-HSP27 and/or anti-HSP70 (heat shock protein) antibodies</u>	↗	<u>Autoimmune response to an oxidizing stress</u>
<u>Anti-O myelin antibodies</u>	↗	<u>Autoimmune response to an oxidizing stress</u>
<u>S100B blood protein</u>	↗	<u>Cerebral hypoperfusion</u> <u>Cerebral hypoxia</u> <u>BBB opening</u>
NTT	↗	<u>BBB opening</u>
<u>Urinary melatonin</u>	↘	<u>Reduced synthesis</u>



See <https://maisonsaine.ca/english/electrohypersensitivity-conference-debunks-nocebo-effect-theory.html> for an excellent review of the conference by ANDRÉ FAUTEUX

There is a very comprehensive list of references at the end of Dr Erica Mallery-Blythe's excellent report, including charts and 201 references.

<http://www.iemfa.org/wp-content/pdf/Mallery-Blythe-v1-EESC.pdf>

8.1.6 WI-FI REFUGEES - DOCUMENTARY FROM RT (RUSSIA TODAY)

This documentary, published on July 19, 2017, is a compelling investigation of the effect of the wireless technology, especially for sensitive people. With the spread of more powerful wireless equipment and the introduction of 5G technology, we can expect to see more people suffering, and initially being ignored by regulatory authorities.

<https://www.youtube.com/watch?v=KWMNTuIZqKo>

8.1.7 IRISH ELECTROMAGNETIC RADIATION VICTIMS NETWORK (IERVN)

<https://iervn.com>

Ethna Monks, a member of IEVRN is an electro-sensitive sufferer and campaigner on this issue. See Written Appeals Departments and Submissions to the EU and UN on <https://iervn.com> (Latest news section). In particular, see a detailed submission to the Radiation Policy Section of the Department of Environment in March 2016:

<https://iervn.com/2016/03/31/mar-2016-letter-to-mr-e-fahy-dept-environment-re-electromagneticradio-frequencywi-fi/>

To date there has been no response.

Hyper-sensitive people need our support. Write to MEPs and Irish members of the European Economic and Social Committee and local county councils.

<http://memberspage.eesc.europa.eu/#/?mandate=mem&language=en&v=1484331563341>

8.1.8 FRANCE

Leading the Way

On January 29, 2015, the French National Assembly made history by passing a new national law to reduce exposures to wireless radiation electromagnetic fields. Regulations implemented by this law include the following-

- WIFI Banned in Nursery Schools.
- National Radiofrequency Agency Established.
- Cell Phones Labeled with SAR Values and Ways to Lower Radiation.
- WiFi Routers Turned Off in Elementary Schools Except When Needed.
- Cell Phone Ads Must Recommend Phones be Held Away From the Head.
- Location of Wireless Routers Must be Posted.
- Government Report To Be Prepared on Electro-hypersensitivity.

Professor Annie Sasco, MD, DSc former Cancer Prevention Chief of the International Agency for Research on Cancer and a distinguished science adviser to Environmental Health Trust publishes her report about France's new national law regulating electromagnetic field exposure on Environmental Health Trust Website.

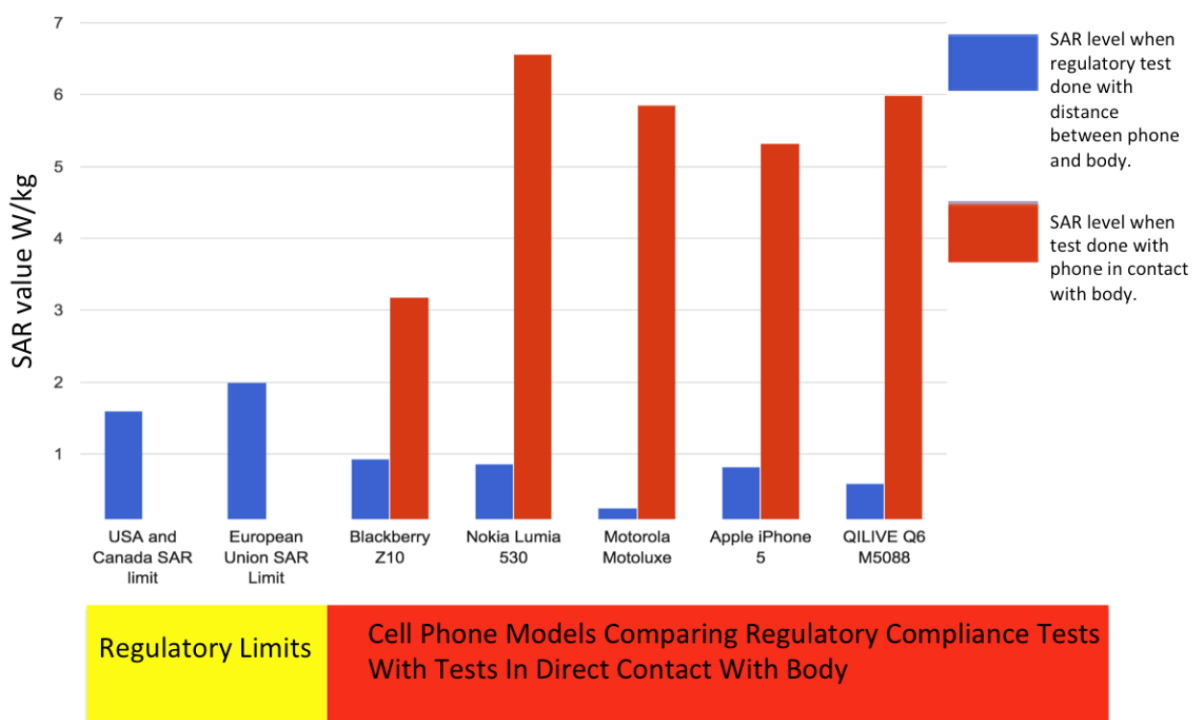
<https://ehtrust.org/france-new-national-law-bans-wifi-nursery-school/>

ANFR test results on mobile phones

France is one country which is showing some semblance of concern for the health effects of EMF/ER (see Sec.8.1.5). The following chart produced by the ANFR (Agence Nationale des Fréquences) shows SAR (Specific Absorption Rates) of thermal energy of a selection

of mobile phones comparing manufacturer's recommendations with the regular usage of the phone contacting the body. It should be remembered that the often-quoted SAR rating does not account for the non-ionising radiation effects of all wireless devices (see Sec. 5.1.4)

Cell Phone Radiation SAR Levels Released by the French National Frequency Agency June 1, 2017



For commentary from Digital Journal and full references see <http://www.digitaljournal.com/pr/3368955#ixzz4jFxiVWvE>

8.1.9 ACTIVISM

Thankfully, there are many Scientists, Physicians and Sufferers who are active in their attempts to raise awareness of this growing problem.

The IEVRN website has a lot of information on the attempts and successes of activists over the years.

See <https://iervn.com>

The FCC website has actually published an interesting set of objections and submissions from individuals.

https://apps.fcc.gov/oetcf/els/reports/ViewExhibitReport.cfm?id_file_num=0747-EX-PL-2015&application_seq=68637

See Objection 13, which is a comprehensive detailed report by physicians, with references, and Objection 17, which is a research article "*Increasing incidence of burnout due to magnetic and electromagnetic fields of cell phone networks and other wireless communication technologies*". It includes a useful summary of effects on the cellular level caused by electromagnetic fields of varying frequencies.

To achieve a change in direction which could prevent health problems in the years to come, we must all be activists, by spreading this information to as many people as possible, and I encourage you to forward this report to others.

9 SOCIO-ECONOMIC ASPECTS OF EMR

9.1.1 HUMAN RIGHTS

In the rush to employ expedience and speed and the desire to create "economic activity", it would appear that the Principles of Human Rights have been ignored.

In a commentary to the European Economic and Social Committee, **Dr Isaac Jamieson** has made very coherent arguments concerning Human Rights with regard to EMF Exposure

http://www.radiationresearch.org/images/rrt_articles/IAJ_EHS_Human_Rights_0141204.pdf

9.1.2 EUROPEAN ECONOMIC AND SOCIAL COMMITTEE

A DRAFT OPINION of the Section for Transport, Energy, Infrastructure and the Information Society on Electromagnetic hypersensitivity (TEN/559) was published in December 2014

<http://www.stopumts.nl/pdf/EESC-2014-05117-00-00-PA-TRA-EN.pdf>

The Conclusions and recommendations were very much in support of people suffer from electromagnetic hypersensitivity syndrome due to exposure to electromagnetic fields, and critical of doctors who do not deal with this syndrome professionally.

An exhortation by the Committee to vote favour of the proposals is detailed here with references. <http://www.iemfa.org/wp-content/pdf/Why-Vote-Yes.pdf>

The vote in January 2015 was in favour of the precautionary principals of the draft proposals. **136 votes for, 100 against and 19 abstentions -**
<http://www.eesc.europa.eu/?i=portal.en.press-releases.34545>

For details see

http://www.peccem.org/DocumentacionDescarga/Campanas/EHS-CESE/Votes_of_the_EESC_Members-TEN-559.pdf

Ethna Monks has made a very informative and elegant submission, emphasising the principle of human rights, concerning **The European Commission's proposal for a European Gigabit Society/Digital Single Market/Trans-European Telecom Network**

See <https://iervn.com/2016/12/07/nov-2016-submission-re-the-european-commissions-proposal-for-a-european-gigabit-societydigital-single-markettrans-european-telecom-network/>

9.1.3 SCREEN ADDICTION- A SERIOUS SOCIAL PHENOMENON?

The proliferation of screen games and online media is increasingly posing questions about the negative effects of this phenomenon on our children. Dr Nicholas Kardaras has written an important book- "Glow Kids: How Screen Addiction Is Hijacking Our Kids — and How to Break the Trance". This is previewed in the [New York Post](#).

Dr Mary Aiken has also written about the impact of technology on human behaviour. Her book "[The Cyber Effect](#)" makes a powerful case for the view that our society has been criminally negligent in the way it puts children in the harm's way of digital technology.

9.2 CYBER ESPIONAGE- NEW FRONTIERS OF COMMERCIALISM

9.2.1 MESSENGER APPLICATIONS

A friend recently related to me how he was talking to a friend on his smart phone and the friend mentioned something that he had never heard of, namely a Shelf-Elf, which is a popular commodity in the USA. When the conversation finished he then went to his computer and on starting a web search he was accosted by pop-up advertisements for Shelf-Elf supplies.

See - *Is Your iPhone's Facebook Messenger Set to Spy on Your Conversations?*

https://truthkings.com/iphones-facebook-messenger-set-spy-conversations/?utm_source=MCNewsletter&utm_campaign=messengerspy&utm_medium=email

9.2.2 THE AMAZON ECHO SMART SPEAKER

A recent murder case in Arkansas has shown how smart devices such as the Echo can be used for data gathering. A warrant has been issued for an Amazon Echo recording, revealing that Amazon may retain recordings on a server for law enforcement investigations. https://www.rt.com/usa/371984-amazon-echo-warrant-recordings/?utm_source=browser&utm_medium=application_chrome&utm_campaign=chrome

9.2.3 MICROWAVE PLANET -THE LEGACY

We have evolved on our planet over a period of hundreds of thousands of years. During that period, we have evolved a marvellous organ known as the eye which interprets our world by converting a very small band of the electromagnetic spectrum into nerve impulses to be interpreted by our brains. Technology has allowed us to produce other frequencies of that spectrum which we have never encountered before. Unlike the visible light of day and night we are now subjected to non-stop radiation which penetrates our bodies and disrupts our life cycles.

This proliferation of harmful wireless electromagnetic energy could engender strife and intolerance between the Electro-hypersensitive, Electro-sensitive, and non-sensitive people of the planet. The sensitive people may be the more fortunate section of society. They will be forced to seek safer locations. The less sensitive could quite suddenly succumb to illness because their autonomic nervous systems will not initially react to the insult.

9.2.4 AUTONOMIC NERVOUS SYSTEM AND EMF SENSITIVITY

[Lyskov \(2004\)](#) reported that EHS individuals exhibited sensitivity to ELF and EMF frequencies, increased CFF (Critical Flicker Frequency), increased VEP (Visual Evoked Potential), decreased HRV (Heart Rate Variability (HRV) and increased electrodermal reaction to sound stimuli. These results indicate an imbalance in the autonomic nervous system and a lack of normal circadian (daily) rhythms.

9.2.5 HYPOTHESIS

I have observed in my clinical work, which uses Electro-Dermal Skin (EDS) response, that recently I was not finding responses when I knew I should be, from my 30 years of experience in testing. In particular, a long-term patient presented with breast pain. From my testing, I could only detect a dental infection. Two weeks later, after a scan and other medical tests she was given a diagnosis of breast cancer. She immediately returned to me and I still could not identify the problem, nor a response to the usual remedies used for such problems. This was a troubling puzzle for me- a technique that I had used successfully for about thirty years was not working for this patient.

I thought carefully about it, and focussed on the most recent environmental problems which I have observed, namely, Electromagnetic Radiation. In my work, I rely on my patients' response to test items. One of these is a strip of magnetic video tape which I energised from the aerial of my WiFi transmitter (now permanently disabled). With my equipment, I electronically made an inverse of this WiFi energy and transferred it to another strip of Video Tape. This represents the energetic opposite to the WiFi radiation- an energetic tester. When I placed this tester in the testing circuit, the TESTING FOR THE ORGAN SYSTEMS AND THE REMEDIES WERE UNMASKED. This situation pertained for Kinesiology or EDS testing, and was immediately reversed on removal of the tester

from the test circuit. Since then I have tested this and found this masking effect in many other patients

I concluded that the Autonomic Nervous System response, and hence the defences against the radiation was overwhelmed or otherwise dysfunctional. I suspect that where this masking effect applies to some people, they may lack any significant symptoms from radiation exposure for some time, only to suddenly succumb to illness at some stage. I call this the Electromagnetic Autonomic Nervous Response Masking (EANRM) effect (Hypothesis).

9.2.6 CONCLUSIONS

Since early in the 20th century, mankind has been exposed to the detrimental effects of electricity and electromagnetic radiation, and even now, this is not recognised by the majority. Early in the 21st century we are entering a more serious phase of this progression with the relentless spread of radiation of increasing frequencies, increasing pulsation and data transfer, and incessant spread of towers, transmitters and equipment.

The Dilemma is the balancing of health impacts of this technology with the convenience. The Industry is firing ahead without regard to health and safety. The technology could be developed using safer approaches, but this is unlikely to happen unless consumers become informed and demand change with their purchasing power. We owe it our children most of all, including the unborn.

10 APPENDICES

10.1 APPENDIX 1: TECHNICAL NOTES

10.1.1 ELECTRIC POWER TRANSMISSION

The 220 Volt electrical power supply is supplied to our homes by two cables, one of which is called "live", and the other called "neutral". The neutral cable is "neutralised", i.e. connected to the general mass of earth at the source of supply e.g. the local sub-station. Additionally, this neutral cable is often earthed at points along the route of the neutral cable.

Power for all domestic 240V electric appliances is provided by the circuit consisting of these two cables.

The third wire within the home's power circuit is the "Earth" connection, installed for safety reasons in case the insulation of the live cable or of any appliance fails. This Earth cable is also connected to the neutral cable at the supply meter point, and also connected to a metal rod in the ground or a metal water pipe, at each installation.

Thus, should the outer metal parts of an appliance become "live", a fault current will flow back to the supply via the neutral conductor, causing the fuse/circuit breaker to operate and disconnect the supply. This fault clearing operation will take place quickly, in less than 5 milliseconds.

It is true to say that as the neutral conductor and the earth conductor are in parallel paths; fault current will flow in both. However, as the impedance (resistance) of the neutral conductor is considerably lower than the earth path, most of this brief fault current will flow in the neutral conductor. Also, In the rare event of the neutral conductor becoming disconnected, the fault current will then flow via the back-up earth connection, causing disconnection of the circuit breaker as mentioned above.

The result of this connection between the neutral and Earth wire from all domestic and business installations means that current flow will divide between the Neutral and the Earth to complete the electrical circuit connection to the substation transformer. The Electrical Impedance of the Earth is of course variable and will depend on moisture content and other factors. The capacity of the neutral wire will also be variable, depending on the total load (see enter the IEEE below. The Electric current will always flow along the path of least resistance and this could result in some Earth connections showing a positive voltage and others showing a negative voltage depending on this path of flow.

10.1.2 GROUND CURRENT

This is the origin of what is called "ground current" and "stray voltage". This has been known to cause problems for farm animals with a four- legged contact with the ground, including milk yields.

<http://www.feb.se/emfguru/EMF/ground-currents.html>

<http://tdworld.com/smart-energy-consumer/causes-concerns-and-remediation-stray-voltages-distribution-systems>

These problems of ground current are exacerbated by the spread of high-frequency electromagnetic installations such as Cell-Phone towers, WiFi and ancillary equipment, because these frequencies are contaminating the Power Supply.

10.1.3 AN INTERESTING CASE HISTORY

This case involves a couple living in Canada who suffered bad health problems and through research and consultation they discovered a fault with the neutral connector and a resultant ground current fault. The problem is explained very clearly in a letter.

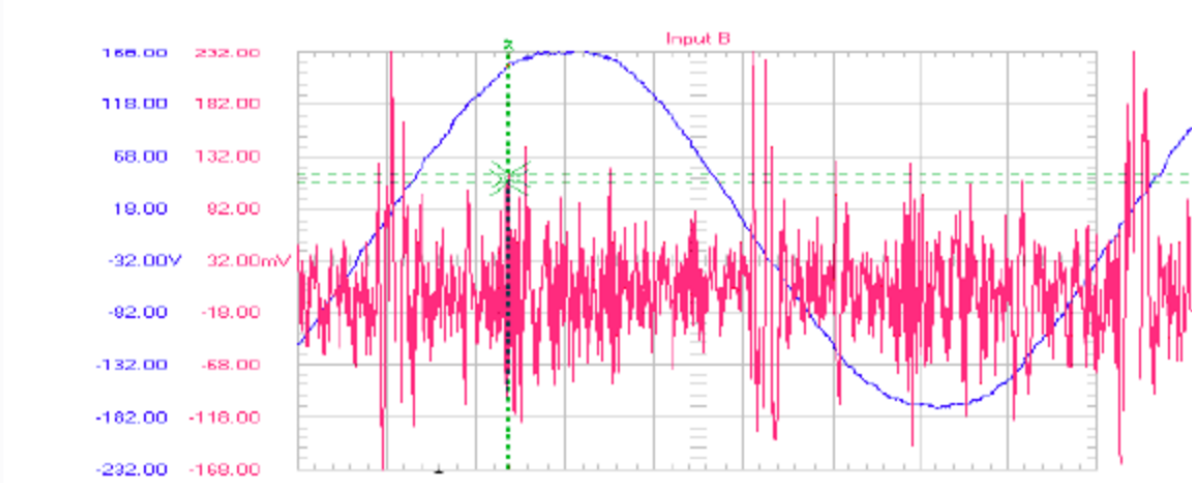
<http://www.emfacts.com/2006/01/adverse-health-impacts-from-ground-currents/>

<https://healthimpactnews.com/2015/dirty-electricity-is-a-national-problem-affecting-everyones-health-in-the-united-states/>

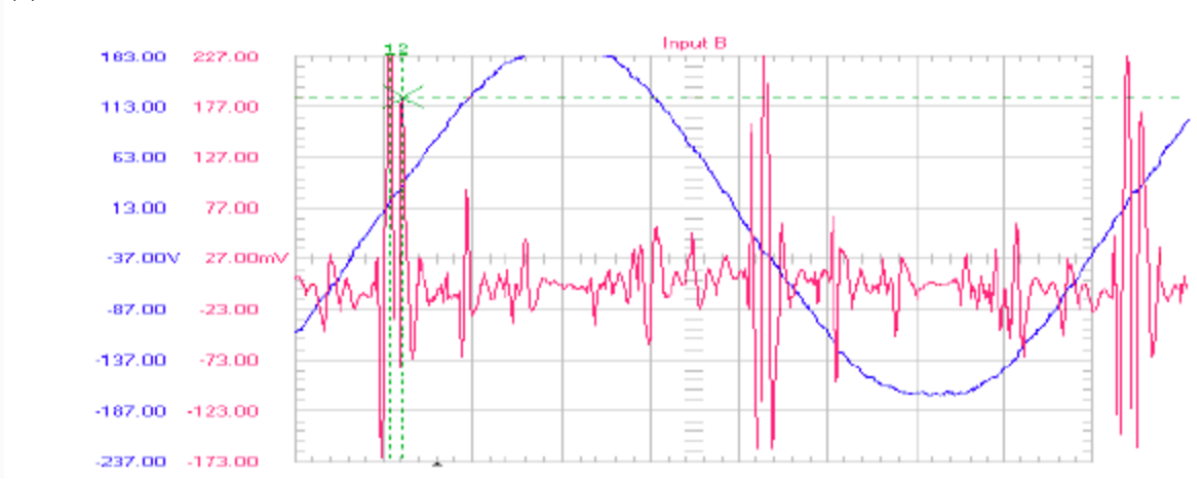
10.1.4 DIRTY ELECTRICITY-THE PROBLEM ILLUSTRATED

The following oscilloscope traces depict the waveform (blue) of a 60Hz sine wave (channel 1) and the high frequency (pink) micro-surges (channel 2) superimposed on the same graph. This was recorded on indoor wiring at a school in Minnesota (as reported by Havas and Stetzer). The pink trace is of interest here.

(a) Before G/S filters were installed



(b) With G/S Filters installed



Trace (a) above shows the distortion effect of the high frequency surges before installation of Stetzer filters, and (b) the smoothing of the distortion after fitting the filters.

Dr. Milham describes in his book the investigation of historical data in the USA, showing the growth of chronic disease in the 20th century in parallel with the spread of the electricity power grid. It also describes how electric power and microwaves are causing health problems. https://www.amazon.com/Dirty-Electricity-Electrification-Diseases-Civilization/dp/193890818X/ref=pd_sim_14_1?ie=UTF8&psc=1&refRID=MGY5CEZ9TTS3G6GAG4MZ

10.1.5 HIDDEN COSTS

The phenomenon of "dirty electricity" or "dirty power" has consequences beyond those of health effects.

The standard disk-type analogue electrical rate meters were designed for "clean" 50 Hz power. They are standardized for measuring "clean" 50 Hz power. With the dramatic increase in non-linear, time-varying loads the power that is delivered to your house or business is no longer "clean" power. The "dirty" power can cause the rate meters not designed for use with "dirty" power to read inaccurately.

Also, this polluted power can cause adverse effects such as -

Flickering and blinking lights, Transformer issues, such as noise, excessive heat, or premature failure, equipment vibrations and noise, panels, neutral wiring and other distribution equipment running hot, premature motor failure and unexpected equipment shutdown, poor network communications, poor power factor, lower than expected system capacity, poor energy efficiency – among many others.

There is an interesting case of the Blair- Taylor school in Wisconsin, USA, where the annual electronic equipment repair budget dropped from \$90,000 to \$4,000 after the installation of filters. See PowerPoint presentation www.getpurepower.ca/resources/DirtyElectricity_Schools_Havas2006.ppt

There is evidence that the erection of a cell tower caused an increase in electricity bills in one home in the USA, which decreased after the installation of filters. This was not explained by other factors such as weather changes or changes in consumption. See http://www.magdahavas.org/wordpress/wp-content/uploads/2009/10/06_Havas_Electricity_Costs_Antennas.pdf

The total cost annually in the USA is estimated to be \$15 billion annually.

<http://blog.schneider-electric.com/power-management-metering-monitoring-power-quality/2015/10/29/dirty-power-what-it-is-and-why-you-need-to-clean-it-up/>

There are no figures available for Ireland, but I would suspect that if the replacement of meters with smart meters goes ahead the increased costs will be significant (see smart meters below).

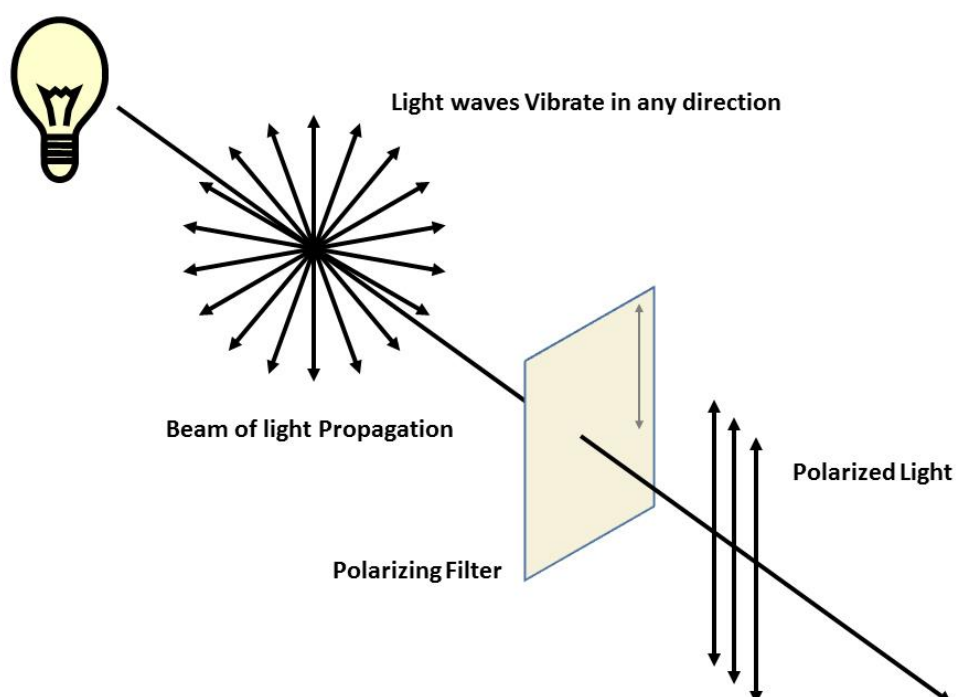
This information makes me wonder about the many failures of pumps, electric motors and circuit boards have affected me in recent years.

See referenced document "The Seven Types of Power Problems"
http://www.apc.com/salestools/VAVR-5WKLPK/VAVR-5WKLPK_R1_EN.pdf?sdirect=true

See also "UTILITY INTERFACE AND POWER QUALITY: THE FLIP SIDE"

https://www.researchgate.net/profile/Rahul_Walawalkar/publication/238783710UTILITY_INTERFACE_AND_POWER_QUALITY_THE_FLIP_SIDE/links/0deec52aefdd53e3a600000.pdf

10.1.6 POLARIZATION- AN IMPORTANT DISTINCTION



The diagram illustrates natural light which vibrates in many planes passing through a polarizing filter with the resultant beam vibrating in a single plane. EMF's and EMR have the same vibrational properties of light, but with a different frequency

With the exception of light frequencies, all types of man-made EMFs/EMR - in contrast to natural EMFs/EMR - are polarized, without the need for a polarizing filter.

Polarized EMFs/EMR can have increased biological activity, and according to the authors in the Nature publication below, this explains why the man-made radiation is more

harmful than the natural (such as solar radiation), even though the natural radiation is much higher in intensity. See

<http://www.nature.com/articles/srep14914>

Another viewpoint given by Dr Leendert Vriens, is that Polarization inherent in man-made EMF is not an important factor in biological susceptibility, in terms of electromagnetic fields, mainly because the very high frequencies of natural sunlight do not penetrate below the skin.

<http://www.stopumts.nl/pdf/Man-made%20and%20Natural%20EMF%20EMR.pdf>

This could be considered to be an example of the problem that I have mentioned in Appendix 3 (The Decline of the Scientific Process), where consensus in investigational research is eluded and the layman is left with opposing conclusions. I personally will not adjudicate on the opposing views of these experts.

10.1.7 BIOGEOMETRY

Dr Ibrahim Karim describes it as *"a new field of science that uses specially designed shapes, color, sound, motion and wave configuration, to induce harmony into biological subtle energy systems"*.

In 2002 Swisscom, the local telecom company, installed a cell phone antenna in the church tower in Hemberg, a small town in Switzerland. A few months later one of the town's residents informed the mediation authority, the Mobile Communication and Environmental Organization (OMK), that since the cell phone antenna had been installed he'd started feeling ill. He complained of suffering from sleeplessness, headaches and had difficulties concentrating. The OMK scheduled an interview with the resident. At the interview, another 10 residents showed up, all with similar complaints. Effects on local wildlife were also observed; a local farmer reported a deformed calf and two abortions.

The OMK went away and did some testing. Not surprisingly the emissions from the cell tower were found to be well within existing safety guidelines.

Somebody had the idea of contacting Dr Karim to see if he could help remedy the problems. Dr Karim agreed to intervene during his vacation, free of charge. He set about installing BioGeometry shapes and figures made from wood and plexiglass. He installed his BioGeometry designs outside the village church and in 6 homes.

The effects on Hemberg's population of BioGeometry applications were carefully monitored by a medical doctor, questionnaires sent out to record before and after and a full study was written up. The study found that 'complaints had been massively reduced'. You can consult the study [here](#). This shows how little is understood and known about EMF energies, and more importantly about ourselves.

10.1.8 MICROWAVE FREQUENCY AND PULSING

All microwaves have at least three parameters describing their physical characteristics

- 1 Frequency, measured in cycles per second. This unit is also termed Hertz or Hz after the German researcher. The terms KHz, MegaHz and GigaHz, are used to denote multiples of a thousand, Million and Billion – respectively
- 2 Amplitude, describes the power of the wave, which can be static or variable.
- 3 Pulse rate; also measured in Hz, (or repetitions per second) describes the rate at which the waveform changes amplitude or suddenly increases in power

Pulsed electromagnetic radiation has been shown to have very powerful effects on Biological systems. A study by Arthur Pilla. Dept. of Biomedical Engineering, Columbia University NY, shows that a non-thermal pulse-modulated Radio Frequency signal, produced an immediate nearly 3-fold increase in nitric oxide (NO) in cells used for physiological research.

http://www.mobilfunkstudien.org/downloads/pilla_2012_electromagnetic-fields-instantaneou.pdf

Increased Nitric Oxide production has been shown by Martin Pall to be a major factor in the production of the harmful compound Peroxynitrite

<http://www.sciencedirect.com/science/article/pii/S0006291X12015975>

(see below- Physiological Mayhem).

10.1.9 PHYSIOLOGICAL MAYHEM

The physiological effects of microwave exposure are gradually being explained- some of the research is included in the references under “Health Issues”

Prof Martin Pall of Washington State University, has undertaken ground-breaking research into the effect of EMF on Voltage-Gated Calcium Channels (VGCC) – see many references to his work below, and has given a detailed explanation of the resulting physiological and biochemical intracellular disturbances.

The simplified important fact of this research is that the intracellular calcium increases, and magnesium decreases. This results in a decrease in the production of Biopterin- a very important metabolite which is the starting point for the production of important neurotransmitters and hormones including Dopamine, Serotonin, Melatonin, Adrenaline and Nor-adrenaline. Also, the excess calcium causes excess production of Peroxynitrite- a very inflammatory compound, and there is a lack of Biopterin to Neutralise it.

In general, illness and disease processes involve inflammation, so whatever illness a person may have, this is aggravated by the Peroxynitrite. Even where there is no existing illness, the Peroxynitrite can cause multiple problems. See the headings in the following comprehensive review to get an idea of the many problems associated with this highly destructive compound. <https://www.emfanalysis.com/wp-content/uploads/2016/03/Nitric-Oxide-and-Peroxynitrite-in-Health-and-Disease.pdf>

Professor Pall writes: “Both extremely low frequency fields, including 50/60 cycle exposures, and microwave EMF range exposures act via activation of VGCCs. So do static electric fields, static magnetic fields and nanosecond pulses.”

<http://onlinelibrary.wiley.com/doi/10.1111/jcmm.12088/full>

This inflammatory situation is often accompanied by low serum Ferritin (an iron storage protein), and I have frequently seen this recently in affected patients. See [700 studies](#) for corroborating research, page 202.

The range of proven biological effects is enormous. For a good summary with hundreds of references see *Electromagnetic Sensitivity and Electromagnetic Hypersensitivity* by Michael Bevington. See <http://es-uk.info/15-home/32-electromagnetic-sensitivity-and-electromagnetic-hypersensitivity-a-summary-by-michael-bevington-new-edition-march-2013.html>

Inheritance. A gene has been identified which makes a protein which is part of this calcium channel. This causes the people who have a defect in this gene to be more susceptible to this radiation effect. Many of my patients who are sensitive have this and other inherited defects.

This is one possible explanation for the variation of sensitivity among the population

See Martin Pall’s Presentation - How EMR causes illness- and what to do about it-

<http://www.bi.edu/InstitutterFiles/Innovasjon%20og%20%C3%B8konomisk%20organisering/MPalI-BI-CSR20102014-Asheld.pdf>

10.1.10 IMPAIRMENT OF SPATIAL MEMORY

the objective of this study was to explore the effects of 10 GHz microwave radiation on developing mice brain. Two weeks old mice were selected and divided into two groups (i) sham-exposed and (ii) microwave-exposed groups. Animals were exposed for 2 h/day for 15 consecutive days. After the completion of exposure, within an hour, half of the animals were autopsied immediately and others were allowed to attain 6 weeks of age for the follow-up study. Thereafter results were recorded in terms of various biochemical, behavioural, and histopathological parameters. Statistically significant ($p < 0.001$) effect was demonstrated in spatial memory of the animals, in learning to locate the position of platforms in Morris water maze test. Results from the study concludes that the brain of 2 weeks aged mice was very sensitive to microwave exposure as observed immediately after exposure and during follow-up study at 6 weeks of age.

<https://link.springer.com/article/10.1007%2Fs11010-017-3051-8>

10.2 APPENDIX 2: THE FUTURE- RAMPANT PROLIFERATION

10.2.1 5TH GENERATION TECHNOLOGY ANNOUNCED

If the 5G (5th Generation) microwave technology is allowed to be deployed here, it will result in rampant proliferation of smaller relay masts, at a distance of every kilometre, meaning that there will be few places free of the pollution. There are at least 50 applications being considered for this technology.

http://www.libelium.com/resources/top_50_iot_sensor_applications_ranking/

Action alert: 5G cellular technology will blanket planetary life with ultra-high microwave frequencies. Whatever problems we have at present, this development will raise the stakes to a serious level. It will bring transfer rates of 50 Mbps (Million bits per second), a thousand-fold increase in mobile network capacity, and provide connectivity for **Seven Trillion** devices worldwide. This report and video will show the money-grabbing determination and cavalier attitude of the main players in this industry of disease and death. <http://www.naturalhealth365.com/5G-wireless-technology-1958.html>

Must see video within the above report (see press conference – at 8.34 minutes)

<https://www.youtube.com/watch?v=OMxfffqyDtc>

See also [5G—THE MICROWAVE PERSPECTIVE](#)

10.2.2 DANGERS OF 5G

10.2.2.1 5G Radiation Dangers – 11 Reasons to Be Concerned

A report by Lloyd Burrell describing these dangers can be found here-

<http://www.electricsense.com/12399/5g-radiation-dangers/>

The frequencies being considered for this technology range from 300 GHz to 3 THz (1 TeraHerz = Trillion cycles per second or 10^{18} cps) see

<http://www.ieee802.org/15/pub/IGthzOLD.html>

The same frequencies used for pain-inflicting crowd control weapons form the foundation of the network that will tie together more than 50 billion devices as part of the Internet of Things (IoT). A mechanism by which these frequencies can cause problems has been identified. Exposed sweat pore structures in the skin have been shown to resonate with a painful burning sensation. See <http://www.globalresearch.ca/the-same-frequencies-used-for-pain-inflicting-crowd-control-weapons-form-the-foundation-of-the-network-that-will-tie-together-more-than-50-billion-devices-as-part-of-the-internet-of-things/5580280>

This is technology which has not been tested for its effects on human health. Again, it may emerge that hyper-electrosensitive people may suffer most.

10.2.2.2 New 5G Cell Towers and Smart Meters to Increase Microwave Radiation

"Telecom Companies are Going Green, but Their Version of Green will cause Illness and Death" by John P. Thomas Health Impact News

This is a highly recommended report covering many aspects of 5G and smart metering including physiological disruption

<http://healthimpactnews.com/2017/new-5g-cell-towers-and-smart-meters-to-increase-microwave-radiation-invade-privacy/>

10.2.3 HUMAN SWEAT GLANDS AND ANTENNA-LIKE BEHAVIOUR

A group of physicists from the Hebrew University in Jerusalem, together with several physicians, have researched "G5" millimetre wave technology (Sub Terahertz frequencies) and its painful physiological effect on humans.

A study by the group on the reaction of human sweat glands to the radiation concludes- *"the sweat ducts possess all the required features to reveal antenna-like behavior in the extremely high frequency band (EHF band or the millimeter/submillimeter band)."* For more details see

<https://ehtrust.org/letter-fcc-dr-yael-stein-md-opposition-5g-spectrum-frontiers/>

10.2.4 ACTIVE DENIAL SYSTEM

"Active Denial Technology is a non-lethal, counter-personnel capability that creates a heating sensation, quickly repelling potential adversaries with minimal risk of injury."

5G technology involves MM wave (millimetre wave technology) and these frequencies are used as weapons. See <http://jnlwp.defense.gov/Future-Non-Lethal-Weapons/Active-Denial-Technology/>

Scientists are very concerned about the effects on biological systems from its use. Similar frequencies will be able to be deployed from utility poles if SB 649 is allowed to come into effect in California.

<https://community.healthimpactnews.com/topic/3934/new-5g-cell-towers-and-smart-meters-to-increase-microwave-radiation-invade-privacy>

10.2.5 THE SPECTRUM- THE LAST FRONTIER OF PLANETARY ECOLOGY

Spectrum, apart from the technical definition, is a concept adopted by the CTIA (Cellular Telecommunications Industry Association) to lay claim to their right to cram the biosphere of our planet, with higher and higher frequencies without reference to untested safety issues. <https://www.ctia.org/policy/policy-position-details/spectrum>

As claimed on this website "Every 10 MHz of new spectrum made available for wireless service creates over 1.6 million jobs and generates \$24.3 billion in GDP growth".

For a comprehensive analysis of the projected enormous economic growth see a comprehensive analysis here <https://www.ctia.org/docs/default-source/default-document-library/entner-revisiting-spectrum-final.pdf>

10.2.5.1 Smart Appliances

Some domestic appliances are now being built with communication circuitry. The idea is the eventual connection of everything possible to a smart meter

<https://www.youtube.com/watch?v=FLeCTaSG2-U>

See this comprehensive lecture <https://www.youtube.com/watch?v=v4HsxNG2-4M>


See here a short video on microwaves from a refrigerator:

<http://www.electricsense.com/3033/rf-radiation-from-power-transmitters-in-smart-appliances/>

see the new Samsung "Family Hub" [Refrigerator](#). This is the technological direction which is commonly called "the internet of things"

10.2.5.2 Wireless recharging of Devices

Perhaps the easiest way to introduce this concept is to quote a commentator who writes

for the site  <https://9to5mac.com/2016/09/16/energous-wattapp-apple-wireless-charging/>

"A company called WattUp has [already demonstrated](#) a range of 20 feet using exactly this type of focused-energy approach. The end goal is to have a network of power transmitters throughout a home so that any device can be remotely powered from anywhere inside the building.

This is what I want: not a wireless charging pad, but a wireless charging home. All our devices being charged all the time. No visible wires, no need to connect a device to anything or put it down anywhere in particular, just power constantly available to any device anywhere in the home.

Fit the same systems to offices, coffee shops, hotels, airport lounges and so on, and we'd never need to carry a charger ever again. That's my idea of wireless power. And that's why I remain entirely unexcited by charging pads."

It is already known that Microwave frequencies of relatively low power can have deleterious physiological effects (not admitted by the communications industry. Naturally, I would question this new technology where electric power is transmitted through the air with enough energy to recharge devices.

Is it safe? The ICNIRP (International Commission on Non-Ionizing Radiation Protection) has found no evidence of adverse effects on human health. If this is true, why has the CNN warned that this technology may not be offered for sale, and Intel have posted this warning on a wireless charging device at an exhibition.

It seems to me that the industry is trying to drive popular demand for untested technology.

<https://www.shieldyourbody.com/2015/01/unknown-risks-wireless-charging/>

It must not be forgotten that with the increase in the use of high frequency transmissions, the electricity used to power all devices is potentially "dirty" with interference from such radiations. See sec 10.1.4

10.2.5.3 V2V (Vehicle to vehicle) Technology

The complex control systems for driverless cars will include WiFi communication to assist with guidance, communication with radars! emergency response and spatial awareness.

<http://www.cbronline.com/news/internet-of-things/sensors-wifi-on-board-computing-5-technologies-making-todays-driverless-cars-possible-4859735/>

10.2.5.4 LiFi

A new development could mean public and even private lighting beaming multimedia high frequency signals, further increasing exposure.

Harald Haas, a professor at Edinburgh University is a busy man. In 2011, he invented a wireless broadband technology that uses LEDs to send data at hundreds of times the speed of today's wi-fi networks.

The system is known as li-fi (short for light fidelity) and offers compelling advantages over wi-fi. Not only is it more energy efficient, but it is also capable of up to 10,000 times the bandwidth of wi-fi. Many see li-fi as being complimentary to wi-fi.

<http://www.stuff.co.nz/technology/digital-living/74430210/lifi-100-times-faster-than-wifi>

see <http://www.hasbro.com/en-us/brands/furby>

Is this technology better for health than WiFi? Theoretically, since light is used to carry the signals, and the light will not penetrate far below the skin surface, it will be much safer. But this does not guarantee that it will be completely safe, as claimed here-

<http://www.lifi-centre.com/about-li-fi/benefits-of-li-fi/>

The question of the increasing pollution of the power supply and its electromagnetic fields will have to be considered. My opinion is that more research is needed.

10.2.5.5 ZigBee Light link.

Zigbee Light Link gives the lighting industry a global standard for interoperable and very easy-to-use consumer lighting and control products. It allows consumers to gain wireless control over all their LED fixtures, light bulbs, timers, remotes and switches. Products using this standard will let consumers change lighting remotely to reflect ambiance, task or season.

Zigbee technology provides open, freely available networking supported by the Zigbee alliance, using 2.4 GHz global operation and wireless range up to 70m indoors and 400m outdoors. See <http://www.zigbee.org/> For more technical details.

Ikea is now providing this technology with their [Trådfri](#) lighting smart hub system. <https://www.theverge.com/circuitbreaker/2017/3/27/15071562/ikea-tradfri-smart-lights-gateway-ethernet-cheap-dimmer-remote>

10.2.5.6 Smart Water Bottles

The **Gululu** smart water bottle is designed to monitor water consumption and is marketed by promotion of the concept of encouraging health in children by consuming more water. It has an animated display and WiFi connection with nearby bottles. Applications for smart phones enable parents to monitor progress. <https://www.mygululu.com/>

There are similar products like the Frank Green Reusable Coffee Cup, which has a micro-chip for recording and paying for coffee refills. <https://frankgreen.com.au/shop.html>

Power density emission figures not available but this and similar products will add to the level of ambient radiation.

10.2.5.7 Wireless Baby Monitors

Emit RFs which are shown to be damaging especially to infants; more harmful if there are springs in the mattress. See <http://articles.mercola.com/sites/articles/archive/2010/08/18/your-box-spring-mattress-could-be-acting-as-a-gigantic-cancercausing-radiation-antenna.aspx>

I have seen my patients' and family members' symptoms improve by removing a spring mattress or taking protective measures see www.groundology.org

For safer alternatives see the power line cabled baby monitor

<https://www.emfanalysis.com/safe-baby-monitor/>

or <https://www.nuk.de/nuk-baby-monitor-eco-smart-control-300.html>

10.2.5.8 Trackers

There are now available tracker attachments which can help to locate lost items. The smart phone is used to communicate, so this could be very popular as we lose our stuff with increasing regularity due to brain fog from all the radiation.

<https://www.thetrackr.com/>

10.2.5.9 Virtual Reality Headsets

Among the innovative gadgets being developed are headsets which will act as views of internet pages superimposed on images of our surroundings and sensors to control the images by movements of our hands, or voice recognition and so on. See Demonstration on this commercial clip: <http://www.angelnexus.com/o/web/112942> Imagine a future with people hidden behind such goggles irradiating their eyes and brains with microwaves and an unnatural spectrum of artificial light. I expect the medical profession and drugs industry will be busy.

10.2.5.10 Body Sensors

These sensors, like straps on the wrist, are already being used to monitor the body's physiological parameters and feed this information to a smart phone or computer for recording and analysis. I recently met a person affected by insomnia who had such a device fitted on the wrist to monitor brain waves during sleeping hours. No consideration was given to the fact that the communicating microwaves interfere with the sleep hormone melatonin, with the result that the device actually interferes with that which is intended to be monitored. [Heisenberg](#) must be smiling. The Heisenberg Uncertainty Principle which he developed, states that in sub atomic physics you cannot simultaneously determine the position and energy of a sub-atomic particle because, the act of observation will change the properties of that particle.

10.2.5.11 Sunrise Smart Pillow

This smart pillow tracks your sleep, wakes you, induces sleep with light and more. See <https://www.kickstarter.com/projects/modem/the-sunrise-smart-pillow-sleep-smart-wake-natural>

The question to consider here is the effect of the wireless electronics on your sleep hormone (see Body Sensors above), and also beware of memory foam which may release toxic chemicals. See <http://www.chem-tox.com/quest/questbook.html>

10.2.5.12 The Loon Project

The prevalence of Electro-hypersensitivity among the population is increasing. Imagine if you are one of such persons who has managed to find refuge in some remote part of the country where you can live in relative comfort without the very debilitating symptoms of exposure to EMF, and then you find that there are plans afoot to beam microwave radiation from balloons in the Stratosphere to cover the whole earth.

<https://www.technologyreview.com/s/534986/project-loon/>

Will it cause problems for the hypersensitive, or the environment, including the bees and birds? Who knows, this is another experiment to be foisted on us. It is likely that the effects of this radiation, even if harmless alone, will have a synergistic effect with all the other burgeoning sources of EMF.

10.2.5.13 Wi-Fi enabled Power Plugs

These wall plugs mean that they can be switched on and off remotely by smart phones. This provides obvious convenience, but is another source of RF radiation in our environment

10.3 APPENDIX 3: THE DECLINE OF THE SCIENTIFIC PROCESS

Personal Opinion

I grieve for the decline of the Scientific Process. By this I mean that the process of discovery whereby Definition of the Problem- Formulation of Hypothesis- Experimentation and Observation-Conclusion, is not providing answers for the layman, but commonly results in irreconcilable controversy. The facts, the data and observations can be interpreted in diametrically opposed ways, to the extent that reality no longer appears absolute, but is fluid and flexible, depending on the observer.

The loser, in this situation, is the layman, not being equipped to understand the technicalities of scientific research, is disappointed by those who should have the integrity to interpret solid data and arrive at a consensus view. Instead- there is rampant disagreement among the academics who all have access to (but may select) the same information. Examples include the EMF/RF, Cholesterol, Water Fluoridation, Global Warming and Vaccination issues.

Central to these and similar controversies as applied to Human Health is the principle of epigenetics- where environmental factors influence the expression of genes. There was a Mindinstitute Environmental Epigenetics Symposium in March 2013 where 13 experts spoke on this topic. All lectures are available online. Quotation from Michael Skinner, Ph.D.- "Biological science is undergoing a paradigm shift away from the fixed genetic determinism of the 20th century and toward an understanding that environmental factors can alter gene expression and activity. Genetics works together with the environment to contribute to disease risk."

http://www.ucdmc.ucdavis.edu/mindinstitute/videos/video_es.html

There is abundant evidence that environmental factors have epigenetic effects. But, be aware, the elimination of environmental toxins does not favour the Communications, Agrichemical, Pharmaceutical and Food industries and it certainly is not conducive to the Biotech Industries, where manipulation of inheritable factors is the very lucrative goal.

When the effects of genetic variation and epigenetic influences combine in the determination of disease outcomes, there is ample room for the dismissal of the sufferer who is an outlier in the epidemiological research of environmental problems.

An informative article titled "Electromagnetic fields from wireless communications and health 'Scientific proof' versus 'observation' and 'experiences'" by Dr Leendert Vriens can be found here- <http://www.iemfa.org/wp-content/pdf/Scientific-proof-versus-observation-and-experiences.pdf>

11 REFERENCES AND RESOURCES

11.1.1 INFORMATION FROM EXPERTS

Dr Andrew Goldsworthy: The Biological Effects of Weak Electromagnetic Fields Problems and solutions. A very informative review from a retired lecturer at Imperial College London.

http://www.foodsmatter.com/es/health_risks/articles/goldsworthy-biological-effects-04-12.pdf

Dr. Magda Havas: The Truth About Wired and Wireless Technologies

<https://www.youtube.com/watch?v=dYjAAqUfHtE>

<https://www.youtube.com/watch?v=6v75sKAUFdc>

Jeromy Johnson

A Silicon-valley engineer turned technology health advocate, Jeromy Johnson discusses our attachment to technology and the health hazards such an addiction may hold.

Video <https://www.youtube.com/watch?v=F0NEaPTu9oI>

Prof. Martin Pall - Wireless Radiation Causes Health Effects -

<https://www.youtube.com/watch?v=CFBYRfmqS8Q>

How WiFi & other EMFs Cause Biological Harm

<https://www.youtube.com/watch?v=Pjt0iJThPU0>

NO/ONOO-Cycle, a New Disease Paradigm,

<https://www.youtube.com/watch?v=6A7r1qemjto>

Electromagnetic fields act via activation of voltage-gated calcium channels to produce beneficial or adverse effects

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780531/#!po=15.0000>

±

<http://onlinelibrary.wiley.com/doi/10.1111/jcmm.12088/pdf>

- The NO/ONOO-Cycle as the Central Cause of Heart Failure

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3856065/>

Access to Martin Pall's research

https://www.researchgate.net/profile/Martin_Pall/publications

Professor Olle Johansson

Cellular Phone Taskforce - THE WORK OF OLLE JOHANSSON

http://www.cellphonetaskforce.org/?page_id=585

Review- Disturbance of the immune system by electromagnetic fields—A potentially underlying cause for cellular damage and tissue repair reduction which could lead to disease and impairment

<http://wifiinschools.org.uk/resources/Johansson+2009.pdf>

Dr Erica Mallery Blythe

Electromagnetic Hypersensitivity- A Summary with 201 References.

<http://www.iemfa.org/wp-content/pdf/Mallery-Blythe-v1-EESC.pdf>

Barrie Trower Videos

https://www.youtube.com/watch?v=z99_SzoXZdY

<https://www.youtube.com/watch?v=-FMMdJibIjY>

Barrie Trower Report http://crossakiel.com/images/images_alternativenews/WiFi%20-%20a%20Thalidomide%20in%20the%20making%20-%20who%20cares.pdf

Jeromy Johnson. Podcast on safe homes

http://content.blubrry.com/naturalhealth365_podcast/11-07-16-johnson-emf.mp3

Open Letter By Irish and British Medical Doctors

<http://mieuxprevenir.blogspot.ie/2016/05/open-letter-by-british-medical-doctors.html>

11.1.2 CHILDREN AND SCHOOL EXPOSURE

Working for Safe Technologies for Nurseries, Schools and Colleges

<http://wifiinschools.org.uk/index.html>

Natural News

<http://www.naturalhealth365.com/classroom-wi-fi-wireless-1586.html>

Michael D'Aleo addresses community on issue of WiFi in school

<https://vimeo.com/107855056>

Wired Child

<http://wiredchild.org/>

Safe Schools Information Technology Alliance

<http://ssita.org.uk/>

Maryland Schools Blogspot

<http://safetechforschoolsmaryland.blogspot.ie/>

Campaign for Radiation Free schools (Facebook)

<https://www.facebook.com/groups/110896245588878/>

11.1.3 EDUCATION

WiFi and RF Frequency

https://www.youtube.com/watch?v=MQ_t39kAdi8

<http://thenadd.org/>

11.1.4 SMART METERS

Die<http://electromagnetichealth.org/media-stories/#Autismtrich> **Klinghardt on Smart Meters**

<http://stopsmartmeters.org.uk/dr-dietrich-klinghardt-smart-meters-emr-the-health-crisis-of-our-time/>

<http://stopsmartmeters.org.uk>

<http://www.earthcalm.com/are-smart-meters-really-dangerous>

<http://stopsmartmeters.org/>

<https://anticorruptionociety.com/lawfully-yours/>

11.1.5 SMART METER ERRORS

https://storage.googleapis.com/files.dinside.no/9/maalere_rapport.pdf

11.1.6 TETRA MASTS

<http://www.theecologist.org/investigations/health/268646/revolt.html>

11.1.7 EARTH'S MAGNETIC FIELD AND SCHUMANN RESONANCE

Dietrich Klinghardt on EMF

<http://www.helladelicious.com/diy/2012/10/the-dangers-of-modern-electromagnetic-fields/>

Resonant Beings of Frequency Documentary Film

https://www.youtube.com/watch?v=YFR5EtO_zdM

Schumann Resonance signal

<https://www.youtube.com/watch?v=sn6m7Zz87L4>

11.1.8 GROUND CURRENTS

<http://www.feb.se/EMFguru/EMF/ground-currents.html>

11.1.9 REPORTS AND STUDIES

Greek Researchers Show Crucial Regions of the Brain Related to Learning, Memory, Alzheimer's Impacted by Whole Body EMF Exposure in Animals

<http://electromagnetichealth.org/electromagnetic-health-blog/mice-proteome/>

11.1.10 THE PROTAGONIST'S VIEW

<http://www.telegraph.co.uk/women/mother-tongue/11599311/Wi-Fi-is-not-harming-our-children-heres-the-evidence.html>

<https://www.theguardian.com/technology/askjack/2012/sep/27/wi-fi-health-risks>

https://en.wikipedia.org/wiki/Electromagnetic_hypersensitivity

<http://www.forbes.com/sites/fayeflam/2015/01/19/the-science-of-wi-fi-and-cancer-dont-fear-the-router/#47d187f1af13>

Note) The above article is an example of uninformed opinion with reference to dubious authority without research backup. There is reference to one scientist's views, but on further investigation more doubts are raised. see <https://www.koofers.com/drexel-university/instructors/finegold-824624/>

11.1.11 INFORMATIVE WEBSITES

Peer-reviewed scientific studies on EMF related subjects

<http://www.powerwatch.org.uk/science/studies.asp>

The Irish Electromagnetic Radiation Victims Network

<http://iervn.com/>

MF Portal -Study Overviews

<http://www.emf-portal.de/viewer.php?!=e&aid=27820>

Compilation of useful websites and research

<https://worldwidescience.org/topicpages/e/electromagnetic+field+effects.html>

<https://www.science.gov/topicpages/e/electromagnetic+field+emf.html>

<http://emfsafetynetwork.org/advocacy-support/emf-and-rf-world-concerns/>

[Informative website compiled by concerned citizens, physicians and scientists](#)

<http://electromagnetichealth.org>

http://www.saferemr.com/2014/10/electromagnetic-hypersensitivity_30.html

<http://timeitch.net.nz/bioenergy/>

<http://www.altermedicine.org/>

<http://empoweredsustenance.com/electropollution/>

<http://www.es-uk.info/>

<http://www.mast-victims.org/>

11.1.12 GLOBAL EMF WEBSITES

<http://emfsafetynetwork.org/global-emf-websites/>

<http://www.rfemf.com/>

Lloyd Burrell

<http://www.electricsense.com/>

11.1.13 EMF RESOURCES

Website compiled by concerned Scientists, Physicians and Citizenswww.ElectroMagneticHealth.org**Blogspot on Environmental Issues with Archives**<http://mieuxprevenir.blogspot.ie/><http://www.emfields.org/>

11.1.14 BOOKS

Dr. George Carlo**Cell Phones:** Invisible Hazards in the Wireless Age: An Insider's Alarming Discoveries about Cancer and Genetic Damage<https://www.amazon.com/Cell-Phones-Invisible-Wireless-Discoveries/dp/078670960X>**Samuel Milham MD,****Dirty Electricity: Electrification and the Diseases of Civilization**

Dr. Milham describes in his book how electric power and microwave is causing health problems. Also describes how information about dangers was suppressed.

https://www.amazon.com/Dirty-Electricity-Electrification-Diseases-Civilization/dp/193890818X/ref=pd_sim_14_1?ie=UTF8&psc=1&refRID=MGY5CEZ9TTS3G6GAG4MZ**Martin Blank PhD****Overpowered:** The Dangers of Electromagnetic Radiation (EMF) and What You Can Do about Ithttps://www.amazon.com/Overpowered-Dangers-Electromagnetic-Radiation-about/dp/1609806204/ref=pd_sim_14_3?ie=UTF8&psc=1&refRID=A2VHX6N7X03MJPMRDJ5N**Dr. Ibrahim Karim.****BioGeometry- Back To A Future For Mankind.** <https://www.amazon.com/Back-Future-Mankind-Ibrahim-Karim/dp/1449963951>**Michael Bevington**

Electromagnetic Sensitivity and Electromagnetic Hypersensitivity - a Summary

<http://es-uk.info/15-home/32-electromagnetic-sensitivity-and-electromagnetic-hypersensitivity-a-summary-by-michael-bevington-new-edition-march-2013.html>**Ann Louise Gittleman**

Zapped

<https://www.amazon.com/Zapped-Shouldnt-Outsmart-Electronic-Pollution/dp/0061864285>

Haim Mazar (Madjar

Radio Spectrum Management: Policies, Regulations and Techniques

[https://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=Haim+Mazar+\(Madjar&rh=i%3Aaps%2Ck%3AHaim+Mazar+\(Madjar](https://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=Haim+Mazar+(Madjar&rh=i%3Aaps%2Ck%3AHaim+Mazar+(Madjar)

11.1.15 PROTECTION AND ALTERNATIVES

Garments, Shielding materials, Accessories etc.

<http://healthbuild.ie/>

<http://www.lessemf.com/personal.html>

<http://www.yshield.org/>

<http://www.groundology.co.uk/>

<https://www.rfsafe.com/product-category/rf-safe-flip-shields/>

<http://www.lessemf.com/computer.html> (Connect iPad to Local Area Network (LAN))

<https://www.healthy-house.co.uk/electro>

<http://beneficialenvironments.co.uk/>

<http://www.wireless-protection.org/>

ElectricSense for Home

<http://www.electricsense.com/988/where-is-the-place-you-absolutely-must-start-if-you-want-to-protect-yourself-from-electromagnetic-radiation/>

Air Tube

<https://www.rfsafe.com/product/rf-safe-air-tube-headset/>

11.1.16 ACTIVISM

International Doctors Appeal 2012

http://freiburger-appell-2012.info/media/International_Doctors_Appeal_2012_Nov.pdf

<https://www.emfscientist.org/>

Ecological Options Network

<https://eon3emfblog.net/>

11.1.17 HEALTH ISSUES

Over 700 Studies Showing Health Effects from Cell Phone Radio Frequency Radiation

<http://www.mainecoalitiontostopsmartmeters.org/wp-content/uploads/2016/02/Cell-Phone-Studies-Final.pdf>

Obesity/Hypothyroidism and EMF:

http://www.foodsmatter.com/es/health_risks/articles/goldsworthy-obesity-05-12.html

The Microwave Syndrome: <http://next-up.org/pdf/MicrowaveSyndrome012007Uk.pdf>

Autism: Call for protection of children suffering Autism from Radiofrequency Radiation Exposure:

<http://mieuxprevenir.blogspot.ie/2014/07/call-for-protection-of-children.html>

Diabetes: (Magda Havas) : Dirty electricity elevates blood sugar among electrically sensitive diabetics and may explain brittle diabetes.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2557071/>

Blood Clumping:

EMFs and changes in the Complete Blood Count: http://www.next-up.org/pdf/EMFs_and_changes_in_the_Complete_Blood_Count.pdf

EMF Live Blood Analysis Observable Effects of RF MW Radiation via Smart Meters <https://www.youtube.com/watch?v=FT-psOufA38>

Tamoxifen research and EMF – Replicated studies:

When Enough Is Never Enough: A Reproducible EMF Effect at 12 mg

<http://microwavenews.com/news/when-enough-never-enough-reproducible-emf-effect-12-mg>

Alzheimer's: Leaky blood vessels in the Brain:

<http://emfrefugee.blogspot.ie/2015/01/leaky-blood-vessels-in-brain-may-lead.html>

Guideline of the Austrian Medical Association for the diagnosis of EMF-related health problems and illnesses (EMF syndrome) <http://electromagnetichealth.org/wp-content/uploads/2012/04/EMF-Guideline.pdf>

11.1.18 **Surveys**

<http://emfsafespace.ie/>

Karl Moore, will perform on site surveys

<http://healthbuild.ie/> health@me.com

Wilhelm Bodwicks, will perform on site surveys

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