



# EMR Aware

## Electromagnetic Radiation - Concerns and Informed Choices

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## Scientific Evidence

### EMR Aware Database - 1600 Accredited Scientific Studies

Name	Updated	Size
Telecom Towers	Yesterday by EMR Aware	63 Files
Main & ELF	Yesterday by EMR Aware	82 Files
Wi-Fi	Yesterday by EMR Aware	38 Files
Smart Grid	Yesterday by EMR Aware	23 Files
Regulations	Yesterday by EMR Aware	147 Files
Radio & TV	Yesterday by EMR Aware	28 Files
Plasma & Mobile	Yesterday by EMR Aware	94 Files
Neurological	Yesterday by EMR Aware	118 Files
Millimeter & 5G	Yesterday by EMR Aware	58 Files
EMS	Yesterday by EMR Aware	97 Files
Children	Yesterday by EMR Aware	65 Files
Mobile Phones	Yesterday by EMR Aware	287 Files
Assessing BioEffects	Yesterday by EMR Aware	390 Files
Cordless Phones	Jul 26, 2017 by EMR Aware	12 Files

The main purpose of this page is to direct the interested reader to our extensive

online database of scientific studies. It is hosted for free access at Box.com, a leading cloud storage service. Once there you can view or download, in PDF format, any of over 1,600 examples of peer-reviewed research. Each associates one or more biological or psychological abnormalities with the types of EMR increasingly prevalent in our daily environment. All included documents are in the format made freely available online by their original providers, either as abstracts (short summaries) or full papers as published in accredited journals.

The link below will take you to our main menu page at Box.com.

<https://app.box.com/s/tivdzn6msilscmyeflsm3o0go9zk9dn>

Once there, click on the folder icon "Electromagnetic Radiation: Adverse Biological Effects - 1,600 Accredited Scientific Studies". This will display the following sub-folders.:

- Assorted Bioeffects
- Children
- Cordless Phones
- EHS (Electrosensitivity)
- Mains and ELF
- Millimeter Waves & 5G
- Mobile Phones
- Neurological
- Plants and Wildlife
- Radio and TV
- Regulations
- Smart Grid
- Telecom Towers
- Wi-Fi

Under each of these headings, can be found numerous related documents. Their file names as saved are often obscure, so it is recommended to spend time exploring. Note that most full papers include in their closing pages a bibliography of prior or supportive research. The titles of these can be copied and pasted into your browser search bar to obtain additional information on your topic of interest.

The above compilation is indicative of a far larger body of similar evidence now in print. The latter is being added to on a daily basis by leading researchers worldwide. As a result, industry and their Governmental regulators can no longer credibly dismiss as unfounded the concerns of informed citizens regarding the potentially adverse bioeffects of existing electrotechnology as well as the possible inadequacy of current public and occupational EMR safety standards.

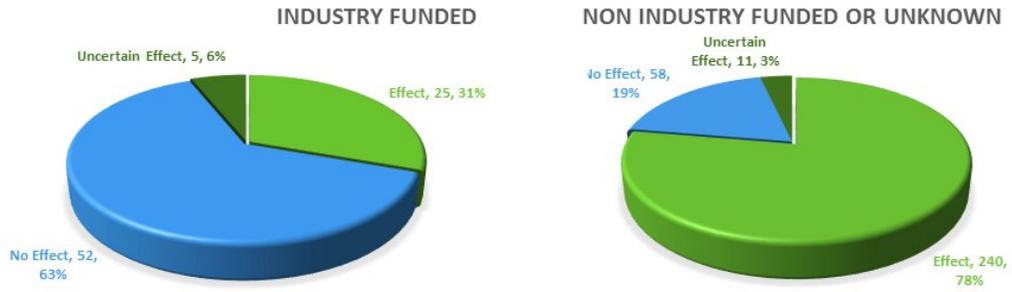
## **Additional Online Databases**

### **ORSAA**

Article	Exposure	Study Categories	Effects Categories	Study Statistics
Auditory Dysfunction / Hearing loss / Tinnitus	<input checked="" type="radio"/> N <input type="radio"/> Y		Apoptosis (Programmed Cell Death) / Cell Death	<input checked="" type="radio"/> N <input type="radio"/> Y
Blood Brain Barrier Permeability Changes	<input checked="" type="radio"/> N <input type="radio"/> Y		Breast Cancer	<input checked="" type="radio"/> N <input type="radio"/> Y
Brain Development / Neuro Degeneration	<input checked="" type="radio"/> N <input type="radio"/> Y		Biochemical Changes	<input checked="" type="radio"/> N <input type="radio"/> Y
Neuro Behavioural Effect / Cognitive Effects	<input checked="" type="radio"/> N <input type="radio"/> Y		Cell Irregularities/ Damage/ Morphological Changes	<input checked="" type="radio"/> N <input type="radio"/> Y
Calcium Influx / Efflux	<input checked="" type="radio"/> N <input type="radio"/> Y		Fatigue	<input checked="" type="radio"/> N <input type="radio"/> Y
Circadian Rhythm Changes	<input checked="" type="radio"/> N <input type="radio"/> Y		Altered Gene Expression	<input checked="" type="radio"/> N <input type="radio"/> Y
DNA Damage / Mutagenic / Genotoxic	<input checked="" type="radio"/> N <input type="radio"/> Y		Altered Glucose Metabolism	<input checked="" type="radio"/> N <input type="radio"/> Y
Endocrine / Sex Hormone Level Effects	<input checked="" type="radio"/> N <input type="radio"/> Y		Cardiovascular/Vascular Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
Miscarriage /Spontaneous Abortion/ Foetus Resorption	<input checked="" type="radio"/> N <input type="radio"/> Y		Immune System Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
Memory Impairment	<input checked="" type="radio"/> N <input type="radio"/> Y		Oxidative Stress / ROS/ Free Radicals	<input checked="" type="radio"/> N <input type="radio"/> Y
Sperm / Testicular Effects	<input type="radio"/> N <input checked="" type="radio"/> Y		Sleep Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
Tumour Promotion	<input checked="" type="radio"/> N <input type="radio"/> Y		Neurotransmitter Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
Thyroid Effects	<input checked="" type="radio"/> N <input type="radio"/> Y		Visual Disturbances/ Ocular Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
Leukemia	<input checked="" type="radio"/> N <input type="radio"/> Y		Parotid Gland Malignancy	<input checked="" type="radio"/> N <input type="radio"/> Y
Depression	<input checked="" type="radio"/> N <input type="radio"/> Y		Induced Adaptive Response	<input checked="" type="radio"/> N <input type="radio"/> Y
			Brain Tumours	<input checked="" type="radio"/> N <input type="radio"/> Y
			Cellular Stress	<input type="radio"/> N <input checked="" type="radio"/> Y
			EEG Changes / Brain Wave / Excitability Changes	<input checked="" type="radio"/> N <input type="radio"/> Y
			Mitochondrial Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
			Altered Enzyme Activity/ Protein Levels / Protein Damage	<input checked="" type="radio"/> N <input type="radio"/> Y
			Headaches/Migraines	<input checked="" type="radio"/> N <input type="radio"/> Y
			Inflammation	<input checked="" type="radio"/> N <input type="radio"/> Y
			Hepatic Effects (Liver)	<input checked="" type="radio"/> N <input type="radio"/> Y
			Impaired / Reduced Healing/ Bone Density Changes	<input checked="" type="radio"/> N <input type="radio"/> Y
			Speech Impairment	<input checked="" type="radio"/> N <input type="radio"/> Y
			Haematological Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
			Synergistic Effects	<input checked="" type="radio"/> N <input type="radio"/> Y
			Autism / ADHD / Hyper-Activity	<input checked="" type="radio"/> N <input type="radio"/> Y
			Neoplasia/ Hyperplasia (Abnormal Tissue Growth)	<input checked="" type="radio"/> N <input type="radio"/> Y
			Dizziness / Vertigo/ Vestibular Effects	<input checked="" type="radio"/> N <input type="radio"/> Y

50 Other Sub-Types Effects  Find Summary Totals

The Oceania Radiofrequency Scientific Advisory Association maintains a large [database](#) of published science on EMR. Numerous search features are available. To get started, click on the magnifying glass and select "Enter Find Mode". Then click the "Study" and/or "Effects" tabs, under which can be selected single or multiple search criteria by choosing "Y" (yes). Finally, click the "Article" tab and cycle through the search results using the < and > controls in the top menu. You can also download a CSV file of search results to collate data off-line. For more advanced functions, consult the [instructions](#) page.



Using this resource, it is possible to uncover all kinds of revealing information. For example, the charts above were produced by ORSAA from search results to illustrate the difference in findings between studies funded by industry and non-industry organisations. The green segment indicates "no effect" found.

## **EMF Portal**

**EMF-PORTAL** Literature - Technology - Glossary Effects - More -

Literature search      Study overviews

Keywords

## Home

The internet information platform EMF-Portal of the RWTH Aachen University summarizes systematically scientific research data on the effects of electromagnetic fields (EMF). All information is made available in both English and German. The core of the EMF-Portal is an extensive literature database with an inventory of **24,852** publications and **5,940** summaries of individual scientific studies on the effects of electromagnetic fields.

The EMF-Portal is a project of the femu working group of the Institute and Out-patient Clinic of Occupational Medicine of the University Hospital RWTH Aachen .

Learn more about the aims of the EMF-Portal ...

New Publications	New Extractions
<p><b>7/3/17</b> Electrotaxis of Cardiac Progenitor Cells, Cardiac Fibroblasts, and Induced Pluripotent Stem cell-derived Cardiac Progenitor Cells requires serum and is directed via PI3K pathways. Frederich BJ et al., Heart Rhythm 2017</p>	
<p><b>7/3/17</b> 24-h personal monitoring of exposure to Power Frequency Magnetic Fields in adolescents - Results of a National Survey. Eliyahu I et al., Environ Res 2017; 158: 295-300</p>	
<p><b>7/3/17</b> Exposure of Bacterial Biofilms to Electrical Current Leads to Cell Death Mediated in Part by Reactive Oxygen Species. Brinkman CL et al., PLoS One 2016; 11 (12): e0168595</p>	
<p>all publications of the last 30 days --&gt;</p>	

## Sources of EMF

Read about the most important properties of technological sources of electromagnetic fields encountered in everyday life, and use this information to compare different field sources.

### News

5/30/17 Start of BioEM2017 in Hangzhou, China

The 2017 joint meeting of the Bioelectromagnetics Society (BEMS) and the European BioElectromagnetics...

5/19/17 FSM Science Brunch 26

The Swiss Research Foundation for Electricity and Mobile Communication (FSM; Zurich, Switzerland)...

5/2/17 femu systematic review on biological effects of static electric fields

The Journal *Environmental Health* has published a systematic review performed by femu with the title...

show all -->

An extensive EMR science database operated by RWTH Aachen University. EMF Portal. <https://www.emf-portal.org/en/>

## Further Resources

The Bio-Initiative Report was published by a group of eminent scientists as a fully referenced 200 page summary of existing literature in support of their demand for more stringent EMR safety standards. It contains invaluable information for persons seeking an understanding of the wide-ranging health impacts of modern electrotechnologies. <http://www.bioinitiative.org/>

There are also a number of websites that consistently offer up-to-date science-based content on issues surrounding EMR. Several are listed below.

- The Environmental Health Trust. <https://ehtrust.org/>
- EMFacts Consultancy. <http://electricwords.emfacts.com/>
- Microwave News. <http://microwavenews.com/>
- PowerWatch UK <http://www.powerwatch.org.uk/science/studies.asp>
- Electromagnetic Radiation Safety. <http://www.saferemr.com/>

Further links to accredited research, as well as related media articles, may be found throughout [Our Newsletters](#) and at the websites of the many EMR-related organisations linked to on the [Networking and Support](#) page.

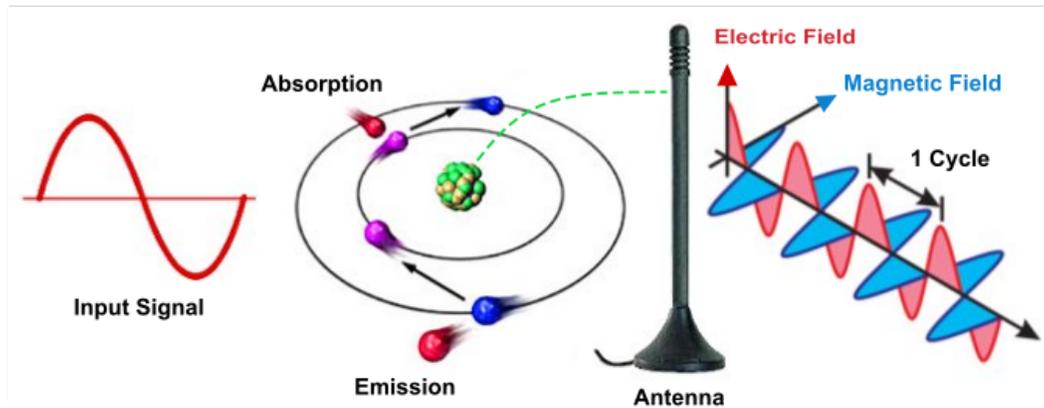
## Reported Adverse Effects

It is estimated there are now over 20,000 studies published in mainstream scientific journals that attribute adverse biological and psychological effects to EMR in its various technology-related forms .The table below provides an indication of the current extent of this rapidly advancing knowledge base.

Oxidative Stress	Sleep Disturbance	Depression, Fatigue
Immune Deficiency	Reduced Melatonin	Addictive Response
Breast Cancer	DNA Damage	Behavioural Problems
Leukemia	Growth Retardation	Tremors, Tingling
Thyroid Cancer	Infertility	Headaches, Dizziness
Calcium Efflux	EHS, Allergic Response	Impaired Learning
Blood-Brain Barrier Leakage	Lou Gerhig's Disease	Memory Loss
Uveal Melanoma	Non-Hodgkin's Lymphoma	Cognitive Impairment
Cataracts, Eye Cancer	Glycaemia, Diabetes	Autism
Acoustic Neuroma	Blood Cell Aggregation	Dementia
Brain and Salivary Tumors	High Blood Pressure	Alzheimer's Disease

Unfortunately, relevant Government agencies have not lowered regulated EMR exposure limits in response to the latest findings, or else when confronted with verifiable evidence of harm simply choose to languish in willful ignorance. Accordingly, a growing legion of vocal health experts is now warning of a global epidemic of EMR-caused illnesses that may affect the wellbeing of generations to come. Who but the whole of society will shoulder the resulting burden of extra health care and loss of human potential?

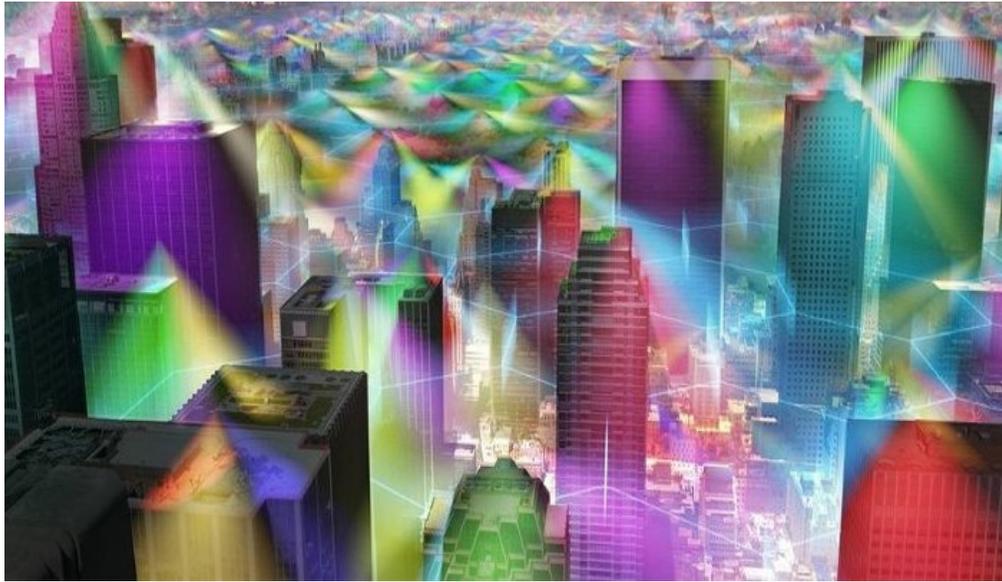
# What Is EMR?



When an electrical charge is applied to an antenna, this energy is absorbed by electrons within the atoms of its constituent metal, causing them to expand in orbit away from the nucleus. When the charge returns to zero, as occurs at an interval determined by the frequency of the applied signal, the electrons return to their rest state. In doing so, they release a burst of radiant energy. We term this "electromagnetic" because it propagates orthogonally upon two planes at once.

One is in line with the axis of the antenna through which the electrical charge is rising and falling in intensity. The second is the accompanying magnetic component that propagates at a right angle to this. Note that this is not the same energy moving upon two vectors, but rather two distinct types determined by their respective modes of generation. Although most often experienced in their combined form as technological electromagnetism, in isolation each possesses its own dynamical properties and mode of inducing bio-effects.

To get the full picture, you need to wrap the vector diagram above 360 degrees around the entire antenna, expanded to its full length. One way to visualise this dual motion is as a vertical stick connected to the centre of a horizontal disk held upon the surface of water. As the stick is moved up and down, waves proceed outwardly in ever-widening circles. Now imagine that this is occurring along the full length of the stick. This is the magnetic vector. For its electrical counterpart, imagine that the stick releases along its full length a radial burst of energy everytime you push it down. Note that the foregoing example applies to monopole antennae which is the simplest geometry.



*An artist's impression of overlapping RF signals within a city environment.*

Multiply this by the number of EMR sources in your environment, all intersecting at different angles, frequencies and intensities, and the complexity of potential bioeffects becomes clear. The ability of science to rationalise such dynamics lags well behind its ability to deploy them. No one knows with certainty the outcome for humanity of unchecked electropollution.

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