

ILL HEALTH (EMR) FROM CFLs (COMPACT FLUORESCENT LIGHTS)

page		
1	A	What ill health may I suffer from CFLs?
2	B	What ill health have other people suffered from CFLs?
3	C	How can I protect myself and others from CFLs?
4	D	What is a safe distance from CFLs?
5	E	What radiation does CFLs emit?
6	F	Why are "non-thermal" and "heating" limits so different?
8	G	Do people made ill by CFLs have any human rights?
9	H	Where can I find out more about ill health from CFLs?

Compact Fluorescent Lights and long fluorescent tubes can cause ill health for **five main reasons**:

- 1. Electromagnetic radiation from the lamp's ballast,**
- 2. Electromagnetic radiation from the wiring ("dirty electricity"),**
3. Mercury vapour, if the bulb is broken,
4. Ultra-violet radiation,
5. Flicker in the light emitted,

This **Information Sheet** is concerned with **the first two: electromagnetic radiation.**

1st September 2012 marks the ban on the sale of traditional incandescent electric bulbs in the European Union. Energy saving lamps, such as CFLs, are taking their place.

A What ill health may I suffer from CFLs?

What short-term symptoms do CFLs cause?

Common symptoms include blurred vision, especially when Wi-Fi is also present, and headaches; also dizziness, short-term memory loss, a fuzzy head, aches, irritability, digestive problems and heart-rate changes. Some people suffer skin rashes and itches.

How many people are ill from CFLs and similar radiation?

Surveys suggest 30% of people are slightly allergic to radio exposure, usually without knowing it, 3% moderately, and under 1% severely. Numbers for long-term effects are not yet known. The UK government admits that 30-40,000 people suffer ill health from CFLs.

What long-term illnesses do CFLs and similar radiation cause?

Long-term or high-level exposure to similar radiation is linked with cancers and neurological illnesses. Fluorescent tubes were introduced in 1938, tubular CFLs in 1980 and helical CFLs in 1995. Long-term effects of CFLs are not yet known and there are few medical studies.

How do CFLs and similar radiation cause ill health?

Electromagnetic radiation can affect the autonomic nervous system, protein expression and the thyroid. Mechanisms include calcium efflux at ion cyclotron resonance on cell membranes, reduced melatonin, mast cell degranulation, free radicals, DNA effects, biogenic magnetite, cryptochromes and metal implants. Some genetic variants are more sensitive to EMR and ions.

Are CFLs and similar radiation linked with epilepsy?

Yes. Some epileptics report seizures from CFLs and other radio waves. All CFLs produce radio waves and it is known that these interfere with the brain for some epileptics. It is unlikely to be an effect from flicker, because CFLs are said to have too high a flicker to be perceived.

Are CFLs and similar radiation linked with migraines?

Yes. It is well known that radio waves can cause migraines. All CFLs produce radio waves and these can cause migraines in people sensitised to these frequencies.

Are CFLs and similar radiation linked with lupus?

Yes. Lupus is a rare but increasingly common auto-immune disease. Like many auto-immune diseases, it is affected by radio waves which can affect every body cell. Radio frequency exposure can cause mast cell degranulation in the skin. UV alone may not be the problem: 8 hours' of fluorescent light has been estimated as equal to one minute of sunlight.

Are CFLs and similar radiation linked with MS, diabetes and rheumatoid arthritis?

Yes. These are auto-immune diseases which are known to be affected by radio waves. There are many pathways, including mast cell degranulation, calcium flux, melatonin reduction etc.

Do CFLs and similar radiation affect muscles and the brain?

Yes. Evidence shows this type of radiation can cause changes in muscle and brain function.

Are CFLs and similar radiation linked with depression, anxiety and hyperactivity?

Yes. It is thought that radiation can cause adrenal glands to excrete too much cortisol and adrenaline, which can depress serotonin, norepinephrine and dopamine, linked with irritability, hyperactivity, depression and anxiety. This makes life difficult for those with panic disorder.

Do most scientists say that radiation from CFLs and similar devices can be harmful?

Yes. In 1958 scientists in the USSR accepted adverse non-thermal effects from electromagnetic radiation and set appropriate biological limits. In 2008 the western scientific press reported that the majority of involved scientists now accepted adverse non-thermal effects from electromagnetic radiation. This view is also now shared by the European Union Parliament, the Council of Europe, and the World Health Organisation's IARC.

What do authorities think about the health dangers of radiation from CFLs?

In 2001 and 2011 the World Health Organisation's IARC classified magnetic and electric fields from CFLs and the transients put on the wiring as a 2B possible carcinogen. Studies show that similar radiation is linked with neurological conditions as well as cancers. It can also trigger what in 2000 the Nordic Council of Ministers categorised "EI-allergy" as IDI-10-R68 and in 2005 the World Health Organisation stated that electromagnetic sensitivity is "certainly real".

B What ill health have other people suffered from CFLs?

Examples of people made ill by CFLs:

- "A woman had worked for a large organisation for a year and had no problems in her offices. When her employer moved to new offices she very quickly became ill and went off sick due to the lighting. She is now very likely to lose her job. We believe that the potential causes of the problems are the high level flicker of low energy bulbs, the high level of blue light they produce, their erratic spectral pattern and the electromagnetic fields from their ballasts." (*The Spectrum Alliance*)
- "You could not pay me any amount of money to use CFL bulbs in our house. In my own case, symptoms included severe insomnia, head pain, tingling of my left arm and leg and frightening cardiac arrhythmia. I had gone to hospital twice in an ambulance and undergone \$18,000 worth of medical tests before the cause of my symptoms was finally determined to be exposure to electrical pollution. (Not brain cancer, as had finally been suspected!) When we cleared my personal environment of the damaging frequencies, the symptoms disappeared. My thyroid also resumed healthy function and I was able to discontinue thyroid medication. The doctors who had followed my case were extremely surprised, as they so rarely see such a total cessation of cardiac or thyroid problems. I believe this would be more common if more people removed the cause of their symptoms."
- Hannah Metcalfe is allergic to EM waves and says her condition gives her splitting headaches, stomach cramps, bloating and flu-like symptoms. She now lives in the countryside without mobiles, a cordless phone or Wi-Fi. She suffered a miscarriage in

November 2010 which she says was triggered by sitting beneath fluorescent lights at work. When her boss removed them, she felt much better but continued to be exposed to EMF waves outside work. She was even forced to stop going to the gym as the fluorescent bulbs were ubiquitous wherever she went. Energy saving light-bulbs at home also had a negative effect on her health and Hannah had to revert back to the old-fashioned variety. She said: "I loved the people I worked with and I loved my job but gradually the situation with the lights was getting worse and worse. My boss was really understanding and at one point was going to fit the whole office with LED lighting but I knew it wasn't going to get any better."

www.dailymail.co.uk/health/article-2158015/Allergic-modern-life-Pregnant-mother-sensitive-electromagnetic-waves-use-iPad-make-mobile-phone-trip-town.html

www.thesun.co.uk/sol/homepage/news/4368871/Tech-free-life-of-the-mum-whos-allergic-to-wi-fi.html

- The photo-dermatologist professor John Hawk said that he had seen many people affected by CFLs and there were studies showing this too. He said ultra violet and electromagnetic fields make some people feel unwell: "These lamps are not harmless."
(BBC4 radio programme, "You and Yours", 24th May 2012)
- People with lupus, migraines, epilepsy, electrosensitivity, MS, ME, psoriasis, rosacea, solar urticaria, vitiligo, photoallergic eczema, xeroderma pigmentosum, polymorphous light eruption and autism/Asperger's have reported problems with CFLs. In many cases it is not clear which aspect of CFLs is responsible for harm; many seem to involve UVR or EMR.

C How can I protect myself and others from CFLs?

Should I replace all CFLs?

Yes. Replace all CFL bulbs with a traditional incandescent bulb if they are still available. Some people say they do not react to LED or halogen bulbs, so these may be suitable. LED halogen bulbs can cause dirty electricity on the wiring, but usually less than a CFL. Even a single CFL bulb can cause ill health if you sit close to it. A single CFL bulb can put high levels of bio-active "dirty electricity" on your house wiring circuit. This is bio-active with a metre or two.

Should I use any CFLs?

No. Avoid CFLs at home and in the workplace or school, especially if they are low-hanging.

How can I protect my child, or a pregnant or elderly person from CFLs?

Check that bulbs in the rooms they use are not CFLs. Avoid any CFLs in a house where children or elderly live. Parents can inform a school; it should then take action if the child is adversely affected. Pregnant or elderly people should not sleep or sit for long periods near a CFL.

How can a school or office replace CFLs?

LED and halogen bulbs are less bio-active for most people. Incandescent are much better.

Why am I particularly ill from CFLs in some libraries and schools?

CFLs used together with Wi-Fi seem to cause especial ill health for some people.

Is ill health from CFLs and similar radiation always immediate?

Some people are so sensitised that symptoms start at once. Others know roughly how long it takes for a given strength of radiation to trigger symptoms. Others react later with, for instance, pains, stomach upsets, internal bleeding or muscular impairment.

D What is a safe distance from CFLs?

How far should I be from CFLs to avoid all health effects from EMR?

- Most experts suggest all people should stay at least 30 cm from all CFLs because of the electromagnetic fields (e.g. Swiss government).
- The German consumer organization Stiftung Warentest recommends keeping at least 1.5 metres from CFLs because of the electro-magnetic radiation.
- Depending on how allergic you are to this type of radiation, therefore,
 - (i) Nobody should use CFLs in a desk or reading lamp.

ILL HEALTH FROM CFLs

- (ii) Nobody should sit or sleep within 1-2 metres of a CFL in use.
- (iii) If you are allergic to electromagnetic fields, you should not use any CFLs in your house because of the "dirty electricity" they cause all around your house.

How far should I keep organic objects from CFLs to avoid deterioration?

CFLs should not be used too close to historic paper documents or some food materials, because high levels of UV and EMR can hasten the decay of organic material like paper and leaves.

Distances for Electric Fields:

ELECTRIC FIELDS - V/m (Volts/meter)								
THRESHOLDS AND LIMITS: BIOLOGICAL AND HEATING								
<i>NB: for most toxins safety limits are usually 10 times lower than the human threshold</i>								
	nature		Non-thermal, biological limit	Non-thermal, biological limit	conscious symptom threshold	Non-thermal, biological limit	Non-thermal, biological limit	Heating limit, 6 minute average
		<i>Building Biology: No Concern</i>	<i>BUND</i>	<i>Building Biology: Slight Concern</i>	<i>some people</i>	<i>Building Biology: Severe Concern</i>	<i>BB Extreme Concern US EPA; TCO</i>	<i>HPA UK, ICNIRP</i>
ELF power cables (50 Hz)	<0.0001	<0.3	0.5	0.3-1.5	1-2	1.5-10	10 (30 cm)	5,000
*VLF, LF (kHz range)			<i>BUND from 2015: 0.2 (0.02 precautionary)</i>				<i>BUND 2015: 1 (30 cm)</i>	87

*CFLs typically operate (23-50 kHz) at VLF (3-30 kHz) and LF (30-300 kHz), requiring stricter limits than for ELF.

TYPICAL MEASURED ELECTRIC FIELDS FOR CFLs (23-50 kHz)						
<i>(figures derived from EMF UK: http://www.emfuk.co.uk/CFL_Table/CFL%20Table.html)</i>						
	V/m					
Wattage	8 W	11 W	12 W	15 W	20 W	Mean
number tested	1	5	1	2	1	(10)
10 cm	87	81-134	49	123-208	236	127
30 cm	11	12-17	8	15-26	23	16
50 cm	3	5-6	3	7-10	12	6

Distances for Magnetic Fields:

MAGNETIC FIELDS - nT (nanoTesla)								
THRESHOLDS AND LIMITS: BIOLOGICAL AND HEATING								
<i>NB: for most toxins safety limits are usually 10 times lower than the human threshold</i>								
	nature	conscious symptom threshold	Non-thermal, biological limit	Non-thermal, biological limit	Non-thermal, biological limit	Non-thermal, biological limit	Non-thermal, biological limit	Heating limit, 6 minute average
		<i>some people</i>	<i>BUND</i>	<i>BB Slight Concern</i>	<i>TCO at 0.5 m</i>	<i>Bio-Initiative US EPA</i>	<i>B.B. Severe Concern</i>	<i>ICNIRP</i>
ELF	<0.0002	7	10	>20	25	100	>100	100,000
VLF, LF								6,250

TYPICAL MEASURED MAGNETIC FIELDS FOR CFLs						
<i>(figures derived from EMF UK: http://www.emfuk.co.uk/CFL_Table/CFL%20Table.html)</i>						
	magnetic fields					
	nT					
Wattage	8 W	11 W	12 W	15 W	20 W	mean
number tested	1	5	1	2	1	(10)
10 cm	16	4-355	8	7-8	10	43
30 cm	1	0.4-40	1	1	1	5
50 cm	0.4	0-9	0.2	0.2	0.3	1

E What radiation do CFL ballasts emit?

What type of radiation do CFL ballasts emit?

CFL electronic ballasts produce electromagnetic radiation at low-frequency (LF) 43-77 kHz, with constant amplitude but frequency modulated with varying FM bandwidths of 0-14 kHz.

Electric fields at 20 cm can be 100 V/m ELF, and 125 V/m LF (*Health Canada, 2009*).

Electric fields range from 42 to 216 V/m with 9 CFLs tested >87 V/m. (Bakos at al., 2010).

Magnetic fields at 20 cm can reach 116 nT for ELF, and 16.5 nT LF (*Health Canada, 2009*).

Further, this radiation is not like the smooth sine-curve typical of an old incandescent bulb. A CFL has a steep, distorted 100 Hz pulse, which is likely to be highly bio-active.

How much dirty electricity do CFLs put onto the wiring?

"Dirty electricity" or voltage transients from CFLs are measured in Graham-Stetzer units (GSU) with a GS Microsurge meter. They depend on both frequency and voltage.

A typical CFL ballast at 56 kHz and 100 millivolts produces 900 GSU (0.11 millivolts per GSU).

Two homes with a CFL reached 650 GSU, or 75 millivolts at 54 kHz. 75 millivolts on a wire gives an electric field from the wiring <0.04 V/m at 20 cm or more (*Health Canada, 2009*).

Safety limits are often set at <50 GSU. Cancers are associated with >2,000 GSU.

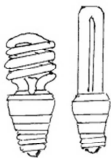
Can dirty electricity from CFLs be removed from the wiring?

"Dirty electricity" or voltage transients from CFLs can be reduced by the use of Graham-Stetzer filters. These should not be used with dLAN plugs for internet connections over household wiring, since the latter uses transients.

Which lamps are CFLs?

The most common energy saving lamps are CFLs. They can be open, with straight or spiral tubes in a single layer of glass. Others have their tubes enclosed inside a secondary glass covering. The latter provides better protection against some harmful UV but not against electromagnetic pollution.

OPEN



ENCLOSED



When were the health dangers of CFLs discovered?

Health problems from the high electric and magnetic fields of CFLs have been known since 1992, when Baubiologie Maes' evidence was published in "Öko-Test". "The body currents caused by the unnecessary electrosmog of energy-saving lamps are 30 to 100 times higher than from incandescent lamps," according to Dr. Heinrich Eder of the Bavarian Environment Agency. Most CFLs exceed the accepted TCO safety limits, some by up to 67 times.

Is it true that CFLs create electric currents in my body?

Scientists have discovered that a person sitting or standing below a CFL suspended from the ceiling attracts a strong electric field and currents from the CFL through the body. It is important not to sit or stand for a long time directly under a CFL or long tube fluorescent light.

- Remember that the electromagnetic fields from a CFL suspended on the ceiling of a room just below yours will travel through the ceiling and can be much closer and thus stronger than when you are on the floor below.
- Keep 1-2 metres away if you can from the wiring in a house with CFL bulbs, since the radiation from the "dirty electricity" in the wires can be bio-active for this distance.
- Many leading experts on the non-thermal health effects of man-made radiation state that there are no safe limits, meaning that CFLs should not be used at home or at work. Since the radiation power decreases by the inverse of the square of the distance, in practice a few tens of metres may be enough for a person highly sensitised to radiation.
- In addition electro-magnetic radiation can cause cumulative health effects, so other radiation, such as from phone masts, cordless phones, wireless smart meters and Wi-Fi, adds to ill health.

F Why are "non-thermal" and "heating" limits so different?

Is ill health from CFLs caused by "non-thermal" or "heating" effects?

Radiation from CFLs is far below "heating" levels. CFLs cause illness by "non-thermal" effects.

How do CFLs compare with "non-thermal" and "heating" safety limits?

(a) Electric fields (mV/m)

Location	Electric fields	Nature	Non-thermal limit	"Heating" limit
Near transmitter	mV/m	mV/m	mV/m	mV/m
ELF, VLF, LOW FREQUENCY				
typical CFL	87,000 (87 V/m)	0.1 (0.0001V/m)	300 (0.3 V/m)	87,000 (87 V/m)
RADIO FREQUENCY				
Wi-Fi router	6,000 (6.0 V/m)	0.02 (0.00002 V/m)	194 (0.19 V/m)	*61,000 (61.0 V/m)
Wi-Fi laptop	1,000 (1.0 V/m)			
phone mast	900 (0.9 V/m)			

*1,925,000 (1,925 V/m) peaks allowed

(b) Voltage/radio transients "dirty electricity" density from the wiring

Location	CFL	Electric potential	Electric field	Nature	Conscious symptom threshold	Biological limit*	MS	Cancer risk increased by 13% after 1 year**
near transmitter	GSU	mV	V/m	GSU	GSU	GSU	GSU	GSU
Wiring near a CFL, Ballast frequency of 56 kHz	900	100		0	17-40	50	580	1,000
Wiring near a CFL, at 54 kHz	650	75	<0.04 at 20 cm					

* Kazakhstan

** see: Fisher D (2011) *Dirty Electricity and Electromagnetic Radiation*.

Can I trust UK government advice on ill health from CFLs?

The UK government's Health Protection Agency claims that the only effect of radiation like CFLs is "thermal" or heating, like a microwave oven. The HPA also claims for similar radiation that there is "no consistent evidence" ("no evidence" until 2008) of ill health in the "general" population. In contrast, Russia accepted ill health at "non-thermal" levels in 1958 and set much lower safety limits than the UK, while many medical procedures now use "non-thermal" radiation. "Non-thermal" ill health appeared in radio and radar workers in the 1930s, but has now spread into the general population. The US National Academy of Sciences' NRC accepted "non-thermal" effects in 1986. The UK Stewart report of 2000 advised that no child should use a mobile phone except in an emergency. CFLs radiation is similar; Denis Henshaw, emeritus professor of Human Radiation Effects at Bristol University, says the UK government is "poorly advised".

What do other countries advise on CFLs and similar "non-thermal" radiation?

Many countries are not making energy saving bulbs like CFLs compulsory or banning traditional or energy-efficient incandescent bulbs. Many organisations regard the UK's "heating" limits as obsolete and call for "non-thermal" limits: the International Commission for Electromagnetic Safety, the EU Environmental Agency, the EU Parliament, and the Council of Europe.

What do other authorities think about "non-thermal" radiation from CFLs?

The World Health Organisation's IARC classifies ELF and RF radiation from CFLs as a 2B possible carcinogen.

Can the electromagnetic radiation from CFLs be called 'safe' according to the World Health Organisation?

No. The World Health Organisation's IARC classifies radiation from CFLs as a 2B possible carcinogen. This applies to the EMR both directly from the CFL and from the transients on the wiring. If it were considered safe, it would be a class 4: 'probably not carcinogenic to humans'.

Can electromagnetic radiation, such as from CFLs, be 'safe' according to scientists?

No. Scientific certainty of 'safe' would depend on the five-sigma test or 99.999% certainty, based on mathematical assessment of the statistical evidence of harm. There are so many studies showing harm, certainty of calling such radiation 'safe' is not possible.

Can the electromagnetic radiation from CFLs be called 'safe' legally?

No. Legal certainty of 'safe' requires 'beyond reasonable doubt'. There are so many studies showing harm, it is now impossible to claim EMR is 'safe' 'beyond reasonable doubt'.

Is consent required before experimental exposure to EMR, as from CFLs?

Yes. It would be illegal to conduct a study involving exposing humans long-term to a possible carcinogen without containing their consent, or the consent of their parent/guardian, even if the study were approved by a scientific ethics committee.

Should there be health warnings about the electromagnetic radiation from CFLs?

Yes. Some countries are introducing health warnings for mobile phones. CFLs produce similar types of radiation. Some scientists think the lower frequencies from CFLs are more bio-active.

Should there be health warnings about CFLs' "dirty electricity" on home wiring?

Yes. This health danger was first publicised in 2008 in the USA.

What do international experts say about the health problems of "dirty electricity"?

The international Seletun Scientific panel of 2010 recommends all countries should adopt electrical code requirements to disallow conduction of voltage transients back into electrical wiring systems. In particular it recommends that all new electronic devices, including CFLs, should have filters to block voltage transients from going back onto electrical wiring systems.

What do international experts think about the UK government's high heating limits?

The international Seletun Scientific panel in 2010 stated that present guidelines, such as ICNIRP, are outdated and are not adequate to protect humans from harmful effects of chronic EMF exposure. It stated that there is sufficient scientific evidence and public health concern for action, based on increased risk for cancer, adverse fertility and reproductive outcomes, immune disruption, neurological diseases, and impairment of cognition, behaviour, performance, mood status, and disruption of sleep.

What do international experts think about the UK government's failure to provide limits suitable for children, pregnant women and the elderly?

The international Seletun Scientific panel in 2010 stated that even their new biological guidelines do not yet take into account sensitive populations (EHS, immune-compromised, the fetus, developing children, the elderly, people on medications, etc). The Scientific Panel acknowledges that even new biologically-based public exposure standards are still a billion times higher than natural EMF levels at which all life evolved.

How relevant are SAR data from mobile phones to CFLs radiation?

The Specific Absorption Rate for mobile phones has two serious limitations.

- (a) SAR is designed to prevent heating. For CFLs the danger is from "non-thermal" biological effects. This needs to be set at a much lower safety level.
- (b) SAR is particularly designed to prevent heating in the head. For CFLs the danger is from "whole body" exposure. This should be set at a lower safety level.

Is the UK government more interested in helping CFL manufacturers than my health?

Some people note that governments often put tax revenue and industry's interests before health. Others note the total cost of cancers and illnesses linked to EMFs is growing rapidly.

G Do people made ill by CFLs have any human rights?

How do I cope with CFLs in shopping centres, hospitals, schools and libraries?

Electro-hyper-sensitivity is a functional disability. Under the UK Equality Act of 2010 public places are required to make reasonable adjustments for disabled people.

How do I cope with CFLs at work?

Electro-hyper-sensitivity is a functional disability. The UK Equality Act of 2010 requires employers to make reasonable adjustments. Employers also have a duty of care. Trade Unions expect employers not to use Class 2B carcinogens like electromagnetic fields from CFLs and on the wiring when other means are available.

Does the UK government grant disability pensions to people prevented from working by CFLs and similar radiation?

Not yet. Other countries already allow disability rights and pensions, including Canada, France, Spain, Sweden, and the USA. The UK is behind many other countries in this respect.

Does use of CFLs radiation require a risk assessment?

Electromagnetic radiation, such as that from CFLs and on the wiring, is not pre-empted by UK law. Each person or organisation, therefore, using CFLs should undertake their own Health and Safety risk assessment based on current international medical studies. It appears from legal cases in the EU that it is not sufficient simply to rely on external agencies and industry-backed "heating" groups like ICNIRP. These may not be up-to-date in their assessments and they may not allow for sub-groups of the population which are known to be affected by such radiation.

Can CFL radiation be insured against claims for ill health?

Many insurers now refuse to underwrite electromagnetic radiation claims because of the established evidence for non-thermal harm.

Should the polluter pay for harm from CFLs?

Under the Rio Declaration, principle 16, the polluter should pay for environmental damage.

What are our basic Human Health Rights as regards to ill health from CFLs?

1. The right to homeostasis in our own bodies.
2. The right to normal central nervous system function.
3. The right to natural environmental cues which synchronise our circadian rhythms.
4. The right to sleep.
5. The right to heal.
6. The right to hear.
7. The right to reproduce.
8. The right to learn and retain memories.
9. The right to an intact genome.

If one of these rights is at risk from involuntary CFLs exposure, it is a breach of human health rights and the CFLs should be halted.

Which articles of the United Nations' Universal Declaration of Human Rights could apply to people made ill by CFLs?

3: "Everyone has the right to ... security of person."

5: "No one shall be subjected to ... degrading treatment."

21. "Everyone has the right of equal access to public service in his country."

23. "Everyone has the right to work, to ... favourable conditions of work."

25. "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including housing."

27: "Everyone has the right freely to participate in the cultural life of the community."

H Where can I find out more about ill health from CFLs?

The following series of TV reports gives a useful overview of health dangers from CFLs.

Videos on the health dangers of CFLs:

- Vuchnich A, 16:9: (2010) "Dirty truth about CFL Bulbs" Part 1 of 3 www.youtube.com/watch?v=4x6LNTdMVaU
- Vuchnich A, 16:9: (2010) "Dirty truth about CFL Bulbs" Part 2 of 3 www.youtube.com/watch?v=QFmO_2RoTgY
- Vuchnich A, 16:9: (2010) "Dirty truth about CFL Bulbs" Part 3 of 3 www.youtube.com/watch?v=IAITXR22YYQ
- Vuchnich A, 16:9 (2011) "Report on CFLs, 1 of 2" www.youtube.com/watch?v=Iw_eOIPHFTI
- Vuchnich A, 16:9 (2011) "Report on CFLs, 2 of 2" www.youtube.com/watch?v=7s-evZg4Hr0
- King5 TV News (2008) "Health Effects: Compact Fluorescent Bulbs" www.youtube.com/watch?v=upmLJM2VTIM&feature=endscreen&NR=1
- Anon. (2010) "The Dangers of Compact Fluorescent Light Bulbs" www.youtube.com/watch?v=LYKobhX2X5A&feature=related
- <http://www.youtube.com/watch?v=4x6LNTdMVaU>

Reports on the health dangers of CFLs:

- Goldsworthy A (2008) "Compact Fluorescent Lamps (CFLs) – What you need to know about low energy lighting" www.cflimpact.com/wp-content/uploads/drgoldsworthy.pdf
- Havas M (2008) "Health Concerns associated with Energy Efficient Lighting and their Electromagnetic Emissions" www.electricalpollution.com/documents/08_Havas_CFL_SCENIHR.pdf
- h.e.s.e. (2009) "Factsheet: the three main health risks associated with energy saving lamps (CFLs)" www.hese-project.org/hese-uk/en/issues/cfl_factsheet_2009.pdf
- h.e.s.e. (2009) "Artificial Light in the Environment: Human Health Effects" www.hese-project.org/hese-uk/en/issues/cfl.php
- Maes W (2009) "In the Cold Light of Day: Energy-Saving Lamps", *Wohnung+Gesundheit* ("Home and Health"), Baubiologie Maes (Building Biology Standard), Special Supplement, Issue 133 (trans. Gustavs K). www.buildingbiology.ca/pdf/2009cflights.pdf
- Nadakuduti J, Douglas M, Capstick M, Kuhn S, Benkler S, Kuster N (2010) "Assessment of EM Exposure of Energy-Saving Bulbs & Possible Mitigation Strategies" (Swiss study) www.news-service.admin.ch/NSBSubscriber/message/attachments/18707.pdf
- Federal Office of Public Health (2010) "Fact Sheet: Energy-saving lamps" Swiss Confederation www.news.admin.ch/NSBSubscriber/message/attachments/18709.pdf
- Daily Telegraph (31st August 2009) "Phasing out 100W lightbulbs 'could damage health of Britons'" www.telegraph.co.uk/health/healthnews/6115182/Phasing-out-100W-lightbulbs-could-damage-health-of-Britons.html

Reports on CFLs and Epilepsy

- Epilepsy 360° (September 2008) "Energy-efficient lights a threat?" (Epilepsy Newsletter) www.magdahavas.com/wordpress/wp-content/uploads/2009/10/In-the-news-SEPT08.pdf-up.pdf
- Macrae F (2008) "Low-energy light bulbs 'can trigger epilepsy'" (*Daily Mail*, 24th June 2008) www.dailymail.co.uk/sciencetech/article-464080/Low-energy-light-bulbs-trigger-epilepsy.html

Reports on the Electric and Magnetic fields from CFLs:

- EMF UK, CFLs (2009): www.emfuk.co.uk/CFL_Table/CFL%20Table.html
- Bakos J et al. (2010) "Spot measurements of intermediate frequency electric fields in the vicinity of compact fluorescent lamps" *Radiat Prot Dosimetry* 142(2-4): 354-357. <http://rpd.oxfordjournals.org/content/early/2010/10/05/rpd.ncq276.abstract>
- Fisher D (2011) *Dirty Electricity and Electromagnetic Radiation: Understanding Electromagnetic Energy* (Joshua Books, Buddina, Queensland, Australia; ISBN 978 0 9808 744 9 5).

Reports on the imposition of CFLs:

- Postrel V (2011) "Need a Light Bulb? Uncle Sam Gets to Choose" Bloomberg View www.bloomberg.com/news/2011-06-10/need-a-light-bulb-uncle-sam-gets-to-choose-virginia-postrel.html

Videos and books: people sensitive to electro-magnetic radiation

- Havas, Dr Magda (2010) "DECT Phone affects the Heart" www.youtube.com/watch?v=EI9fZX4iww
- Havas, Dr Magda (2010) "Diabetes and Electrosensitivity" www.youtube.com/watch?v=gJcM6RZwyfA
- Havas, Dr Magda (2010) "Evidence of Electrosensitivity" www.youtube.com/watch?v=k5xFLi-ip_g
- Havas, Dr Magda (2010) "Live Blood and Electrosmog" www.youtube.com/watch?v=L7E36zGHxRw&feature=related
- (2011) "Symptoms of electrosensitivity" www.youtube.com/watch?v=DskKap_1Po4
- Bevington, Michael (2010) "Electromagnetic Sensitivity and Electromagnetic HyperSensitivity: A Summary" (ISBN: 9781872072203)
- Philips, Alasdair & Jean (2006) "Electrical Hypersensitivity, A Modern Illness" (ISBN: 0952450348) <http://www.powerwatch.org.uk/library/index.asp>

Websites on the health dangers of CFLs:

- Spectrum Alliance, UK: www.spectrumalliance.co.uk/
- CFLs: Get The Facts, U.S.A.: www.cflimpact.com/

How can I measure electromagnetic radiation from CFLs?

- **For direct EMR from a CFL:** an AM radio tuned off station is any easy way to detect the strength of Low Frequency transmissions.
- **For CFL voltage transients on the wiring:** use a GrahamStetzer Mircosurge Meter.
- You can hire or purchase meters. A professional measurer is helpful but can be expensive. www.es-uk.info/docs/20110111_products_services.pdf