

## Your low EMF Home Articles

Your low EMF Home set of articles is separated into 9 sections, each of which can be individually downloaded.

It is a 'work in progress' incorporating new information whenever time permits.

### Section 7

#### Microwaves, windows and Pilkington-K glass

1. House wiring and EMFs; introduction; what are normal EMFs? Choosing a consumer unit; electric Fields; cables; demand switches; external 'faults' in the supply that can cause high magnetic fields; Wiring in homes - SAGE report July 2007
2. Dirty electricity (DE) – What is dirty electricity? What effect does it have? What sort of levels are you likely to have? What you can do if you have high levels of DE; DE coming into the house; DE generated within the house; dLAN caution
3. Lighting and EMFs; Bulbs, incandescent, energy-saving, fluorescent, halogen, full-spectrum light, daylight, light emitting diode (LED); anglepoise lamps and other metal framed lamps, halogen desk lamps, bedside/bedhead lights, spotlights, standard lamps and table lamps, nightlights; light wiring; light switches, dimmer switches; Physiological effects of blue and red lights; circadian rhythms, melatonin, light and illness, timing of blue lights, timing of red/amber lights
4. Smart meters – What is it all about? Smart Grid; Remote reading meters; Smart meters; Wide Area Network (WAN) technologies; Home Area Network (HAN); RF exposures from Smart Meters; Experiences of smart meters in other countries; Solar storms may affect smart meters
5. WiFi general – brain damage; cancer; diabetes; DNA; electrical hypersensitivity; eyes; heart; heat shock proteins; immune system defects; kidney damage; memory effects; neurodegenerative diseases; neurological effects; oral effects; plant effects; reproductive effects; skin effects; elicited stress response and WiFi technical – WiMAX; Wireless Myths 1) We've been exposed to this radiation for years, it must be safe 2) People only got affected when the scare stories started, it must be psychosomatic 3) Being on a phone for 20 minutes is equivalent to 1 year in a WiFi classroom 4) The WHO factsheet says there is no cause for concern, and they should know; Technical Information for Different Protocols
6. Underfloor heating
7. Microwaves, windows & Pilkington K glass – the glass; frames; ventilation
8. Intermediate frequency sources – CFLs; solar-power invertors; electric car chargers; toys including electric engines; a result of DE; electronic article surveillance systems

## 9. References – 143 References

### **Microwaves, windows and Pilkington-K glass**

#### **The glass**

Normal single or double-glazing glass offers little resistance to the passage of microwaves into your rooms - almost all pass straight through.

Pilkington-K is a specially treated thermal insulation glass, coated with a thin metallic layer, which includes indium and tin oxides, and this does offer a reasonable level of protection, stopping over 99% of microwaves in the frequency range 300 to 3000 MHz (this range contains all current mobile phone mast bands).

This type of glass is mandatory in new-build double glazing, though not in replacement windows. All double glazing firms will stock Pilkington-K glass. The special metallic coating is on the inside of the outer pane of glass in the double glazed sealed unit.

We have had one report from someone whose Pilkington K unit provided no protection from incoming radiofrequency (RF) radiation. It may be that the composition of the special metallic coating has changed and the glass is more effective at providing thermal insulation, but has lost its RF screening potential. It is worth checking that it is effective against RF before your supplier installs or replaces your window units.

Whilst theoretically it may be possible to have a single pane of glass with this coating, it may well degrade when wiped or washed, losing its effectiveness. It is well protected on the inside of a double paned unit.

#### **The frames**

Pilkington provide the 'K' glass to local companies who fit it into sealed double glazed unit frames. There is no consistency as to how these frames are made by the different companies. Only metal frames give protection from incoming microwaves.

Window frames made of wood or UPVC will give virtually no protection at all. The 'long slots' around the glass panes allow microwaves to enter the room. Two right angle 1 metre x 10 mm non-metallic window frame 'slots' reduce the window's shielding efficiency from 99% to less than 10%.

#### **Ventilation**

Opening a ventilation flap will also allow microwaves to enter in the gap formed. *Ventilation is very important in all houses* to promote air flow, increase the level of negative ions inside and to remove all chemical pollutants from furnishings, appliances, sprays and cleaning materials. This must be borne in mind when deciding on the measures you wish to take to reduce your microwave exposure.