



International Guidelines on Non-Ionising Radiation

**INTERNATIONAL GUIDELINES**  
**ON**  
**NON-IONISING RADIATION**

**IGNIR is a set of Guidelines for electromagnetic exposure based on EUROPAEM EMF Guidelines 2016.**

**IGNIR Guidelines allow easy testing for compliance.**

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IGNIR Issue 1.1.  
October 2018

**IGNIR**

**INTERNATIONAL GUIDELINES ON NON-IONISING RADIATION**

**MISSION  
STATEMENT**

*IGNIR is a set of Guidelines for electromagnetic exposure  
based on EUROPAEM EMF Guidelines 2016.*

*IGNIR Guidelines allow easy testing for compliance.*

**IGNIR**

*IGNIR is an independent multidisciplinary team comprising of medical doctors, scientists and representatives of vulnerable and sensitive groups.*

*IGNIR was formed on 17<sup>th</sup> October 2017 at a public meeting in Oxford, UK.*

*Within the first year there were 15 meetings or Skype/telephone conferences, with Dr Andrew Tresidder as chair and Angela Helm taking the minutes. The concept and aims were proposed by Michael Bevington, as was the initial draft of the Guidelines. Alasdair Philips and Guy Hudson gave specialist advice on measurements with the latter producing video material, Mike Mitcham devised the website, and Dr Erica Mallery-Blythe launched the IGNIR Guidelines in September 2018 with her poster and lecture at the international scientific and medical conference on Cancer in Children and Young People, organised by Children With Cancer, at Westminster, UK. Other people who have been involved include Sarah Dacre, Dr Elizabeth Evans, Debra Fry, Diana Hanson, Dr Denis Henshaw, Professor Emeritus University of Bristol and Fellow Collegium Ramazzini, Brian Stein CBE, Phil Watts and Sarah Wright.*

**IGNIR GUIDELINES**

IGNIR has three levels of guidelines, Day (D), Night (N) and Sensitive (S), covering three frequency ranges.

Electromagnetic (EM) hygiene and safety involves minimising exposure levels to an environmental toxin. This guidance is based on the international EUROPAEM EMF Guidelines 2016. Although at present there are no assured safe levels of man-made EM exposure, and studies continue to show harm to living systems at very small exposure values, this guidance aims to help achieve substantial reduction in EM exposure.

<b>Frequency range</b>	<b>Metric</b>	<b>Type of reading</b>	<b>D Day</b>	<b>N Night</b>	<b>S * Sensitive *</b>
Radio Frequency 30 MHz – 300 GHz	V/m	average	0.06	0.02	0.006 to <0.001
	µW/m <sup>2</sup>		10	1	0.1
	V/m	maximum	0.2	0.06	0.02 to <0.002
	µW/m <sup>2</sup>		100	10	1

<b>Frequency range</b>	<b>Metric</b>	<b>Type of reading</b>	<b>D Day</b>	<b>N Night</b>	<b>S* Sensitive*</b>
**VLF	V/m	average	0.1	0.03	0.01
3 kHz – 300 kHz	nT	average	1	1	0.3
	nT	maximum	10	10	3

<b>Frequency range</b>	<b>Metric</b>	<b>Type of reading</b>	<b>D Day</b>	<b>N Night</b>	<b>S* Sensitive*</b>
ELF 15 Hz – 3000 Hz	V/m	average	10	3	1
	nT	average	300	100	30
	nT	maximum	1000	300	100

\* Sensitive:

(a) Sensitive groups include children, the elderly, fetuses, pregnant women, the ill and people with EHS.

(b) Electrohypersensitive (EHS) people can have mild, moderate or severe sensitivity.

(c) People with body metal work.

\*\* If no meter is available, VLF measurements should not be included at present.

**RF: Radio Frequency: 30 MHz – 300 GHz**

includes Wifi, digital radio and TV, DAB+, cordless (DECT) and mobile phones, TETRA, FM radio, microwave ovens, wireless smart appliances, and 5G.

**VLF: Very Low Frequency: 3 kHz -30 MHz**

includes “dirty power/electricity” on mains power supply cables, powerline communication, compact fluorescent lamps (CFL), induction hobs and VLF radio,

**ELF: Extremely Low Frequency: 1 Hz – 2 kHz**

includes mains electricity, power cables, and some home power appliances.

*(These guidelines are not inclusive of all EMF-emitting devices, such as DC fields, metal detectors, body scanners, MRI scanners, pacemakers, and lasers. As with ionising radiation, for medical investigations the benefits may outweigh possible harm.)*

## **APPENDIX 1 - TESTING FOR COMPLIANCE**

### **GENERAL PRINCIPLES FOR MEASUREMENTS**

#### **A. The Utilisation and Exclusion Zones**

##### **A.1 Utilisation Zone (UZ)**

Measurements are taken in Utilisation Zones, areas where people typically move, work and rest. They are locations where people could remain over 4 hours in total per day.

Typical UZs: workstations, classroom desks, home settees, kitchen chairs or work surfaces, seating in transport (car, coach, train), cinema or theatre seats, library chairs, hospital wards and health centres, hairdressers and beauty salons, gyms, supermarkets, shopping centres, etc.

- Measure over 150 mm (6 inches) from the walls of a room.
- Measure from 2 metres (6 feet 6 inches) high to down to floor level.

For each individual person, exposure to electromagnetic (EM) energy is cumulative, so it is important for that person to know how much EM energy is present over a few hours in one location (UZ), since combined with other locations this could result in that person exceeding the guidelines.

UZs are unlikely to include rooms or areas which are used rarely or only for a short time, except for a few people with severe Electromagnetic Hypersensitivity.

##### **A.2 Exclusion Zone (EZ)**

Exclusion Zones, which do not require measurement, include inaccessible areas of rooms or at heights significantly above head height (standardised at 2 metres, or 6 feet 6 inches).

Exclusion zones can include limited areas around hotspots such as pendant lamps, cable runs or steel beams, so long as there is no seating close by.

- EZs include under 150 mm (6 inches) from the walls.
- EZs include above 2 metres (6 feet 6 inches) in height.

#### **B. Measurements**

##### **B.1 Metrics**

For a room to be certified as meeting the D, N or S guidelines, it must meet all relevant metrics (V/m,  $\mu\text{W}/\text{m}^2$  and nT) for all 10 values (or 7 without VLF), according to whether it is for Day or Night or Sensitive use. If no appropriate meter is available, VLF measurements should not be included at present.

##### **B.2 Measurement Techniques**

Measuring electromagnetic energy is a skill acquired through practice and careful observation. The whole property needs to be considered.

- Usually a meter kept stationary for up to a minute will indicate whether the reading is steady or varying significantly.
- Where the reading varies, a longer period is required and often readings at further locations.
- Readings may vary according to the time of day.

- Readings can depend on hidden features, such as power distribution boxes or smart meters on the other side of a wall, or lighting units in a room below, or the location of electric storage heaters, or Wifi from a neighbour.
- In apartments, flats or terrace houses with party walls, radiation and fields from nearby devices on the other side of the wall or from flats below or above should be included.
- Nearby phone masts, powerlines, including some buried cables, and substations can produce significant fields and these should be included as measured within the room.
- Wireless smart meter radiation should be included, along with any neighbour's home Internet of Things with wireless communication using wireless smart appliances.
- Incidental or occasional radiation from aircraft ground-seeking radar, passing buses with Wifi or car online phone-based satnavs need not be included unless frequent enough to cause problems for a sensitive person.
- Special situations: e.g. some radars operate on an 8-minute cycle
- Transport:
  - cars: cruise control radar (often from the bumper or driver's mirror), magnetic fields from pumps and wheels (often near the feet), telematics ('black') boxes;
  - buses, trains and aircraft: Wifi, mobiles, magnetic fields.
- Public places: airports, hotels, shops, theatres etc.: Wifi, use of mobile phones and wireless devices, magnetic fields.

### **B.3 Day Time (D)**

#### *Applicability:*

- Everyone (except Sensitive people who have their own S guideline values) in places where they typically can spend four hours or more as residents, workers or visitors (night and sleeping areas have separate guidelines).

#### *Measurement techniques:*

- Day-time places should include chairs, desks and tables where people spend time, such as in kitchens, sitting rooms, work places, classrooms, lecture halls, etc.
- Usually four spot measurements per chair/workplace are sufficient (at the head, abdomen, hands and feet).

### **B.4 Night Time (N)**

#### *Applicability:*

- Everyone (except Sensitive people who have their own S guideline values) in places where they sleep.

#### *Measurement techniques:*

- The only location necessary to measure is at the top surface of the mattress.
- Measurement points should be 150mm (6 inches) from the edge on each side and in the centre, at each end of the bed and across the middle, giving a matrix of nine locations. Single beds may have a matrix of six points instead of nine.
- Meters for ELF Electric Fields should be held by a person lying on the bed, and not earthed.

## **B.5 Sensitives (S)**

### *Applicability:*

- Sensitive groups, including children, fetuses, the elderly, pregnant women, the ill and people with EHS.  
People with body metal work need appropriate protection, as may active implants like pacemakers.
- People with Electrohypersensitivity (EHS) can have mild, moderate or severe sensitivity.  
Those with moderate or severe sensitivity will probably need lower exposure measurements than other sensitive groups.  
Individual sensitive people need to have a level below which they have no symptoms.

### *Measurement techniques:*

- As above in B.3 and B.4, for measurements including both D and N locations, but they are referenced to S guideline values.

**APPENDIX 2 - FURTHER DETAILS**

**A. GUIDELINES: (i) BIOLOGICAL OR (ii) THERMAL**

There are two types of Guidelines for man-made electromagnetic energy:

- Biological and/or non-thermal, for long-term and short-term effects, e.g. IGNIR
- Thermal, for short-term (6 minutes) heating effects, e.g. ICNIRP

**(i) Biological and/or non-thermal guidelines, for both long-term and short-term effects**

- [IGNIR](#) (International Guidelines on Non-Ionising Radiation) based on EUROPAEM, with some changes for ease of practical measurements
- EUROPAEM EMF Guideline 2016 (European Academy for Environmental Medicine)
  - [EUROPAEM EMF Guideline 2016](#)
  - [Supplementary material](#)
  - [Article \(pdf\)](#)
- Building Biology: [Guidelines for Sleeping Areas](#) (2015)
- [Bioinitiative Report](#) (2012).

**(ii) Thermal guidelines, for only short-term (6 minutes) heating effects**

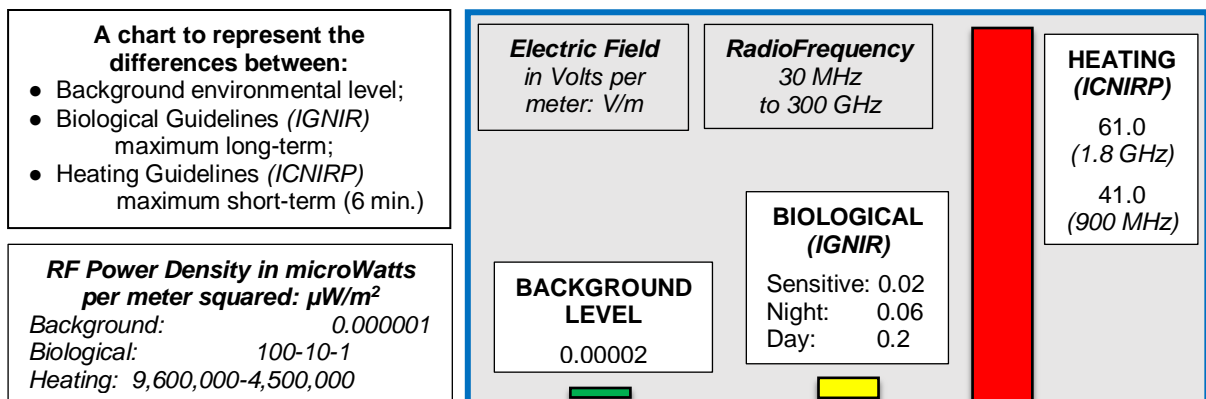
- [ICNIRP](#) (1998) (International Commission on Non-Ionizing Radiation Protection)

*"The guidelines of ICNIRP are irrelevant to the present situation when the majority of the population over the world is chronically exposed to non-thermal RF from mobile communication."*

(The Russian National Committee on Non-Ionizing Radiation Protection, 2017)

The chair of ICNIRP has accepted that people can chose whether to adopt biological (non-thermal) or thermal guidelines. The [ICNIRP](#) in 2002 stated that sensitive people need biological guidelines and not the ICNIRP thermal ones. Since the 1950s many countries, such as Russia, have adopted non-thermal guidelines. ('Non-thermal' is where a temperature rise cannot be measured easily.) Any biological action is a health effect. Some governments, including the UK and USA, still follow ICNIRP's thermal guidelines based on Schwan's hypothesis of 1953 that the only adverse EM effect is heating the body one degree within six minutes. Many people can raise their body temperature one degree within six minutes by exercise, but without the risk of cancers, neurological and cardiovascular harm and fertility effects caused by some man-made EM energy.

Non-thermal guidelines can now be based on biological effects such as DNA damage, cell hydration, miRNA effects, oogenesis, VGCC effects and nitric oxide.



Time-varying or information-carrying signals are more biologically active than continuous waves. For RF Power Density, background environmental levels are roughly a million times lower than Biological Guidelines, which are roughly a million times lower than Heating Guidelines.

## **B. DEFINITION OF 'SENSITIVE'**

- IGNIR: (a) Sensitive groups include children, fetuses, the elderly, pregnant women, the ill and people with EHS.  
(b) Electrohypersensitive (EHS) people can have mild, moderate or severe sensitivity.  
(c) People with body metal work.
- EUROPAEM: EHS, immune compromised, fetus, developing children, elderly and people on medications.
- Bioinitiative: Sensitive populations include the developing fetus, the infant, children, the elderly, those with pre-existing chronic diseases, and those with developed electrical sensitivity (EHS).

## **C. TYPES OF EXPOSURE AND FREQUENCIES**

### **Average and maximum:**

Average measurements give an indication of the general hygienic level of a location. Maximum is important because of the damage caused by a short blast of high intensity radiation. This intensity is masked when averaged over a long time.

### **RF: Radio Frequency: 30 MHz – 300 GHz**

The IGNIR Guidelines have a single set of average and maximum values for radio frequency. Particularly significant are the pulse characteristics, modulation and amplitude. The EUROPAEM EMF Guidelines 2016 divide Radio Frequency into four groups based on the different characteristics. The IGNIR Guidelines, based on Groups A and B for average and maximum readings, include the wireless exposures most commonly causing health problems, such as Wifi, mobile phones, and 5G.

- Group A:** Wifi (2.4/5.6 GHz, 10 Hz pulsing)  
DAB+ (10.4 Hz pulsing)  
GRPS (2.5 GHz) with PTCCH (8.33 Hz pulsing)
- Group B:** LTE (4G) (800, 900, 1800, 2500-2700 MHz),  
UMTS (3G) (2100 MHz)  
DECT cordless phone (1900)  
GSM (2G) (900 and 1800 MHz)
- Group C:** DVBT (Digital Video Broadcasting: Terrestrial) TV  
TETRA (400 MHz)
- Group D:** radio broadcast (FM)

### **VLF: Very Low Frequency: 3 kHz -30 MHz**

For example: "dirty power/electricity", powerline communication (PLC), radio-frequency identification transmitters (RFID), compact fluorescent lamps (CFL).

### **ELF: Extremely Low Frequency: 1 Hz – 2 kHz**

For example: mains electricity 50/60 Hz, 17 Hz railways and 400 Hz airplanes.  
For V/m: without ground reference (potential free).



## **D. BIOLOGICAL EFFECTS**

### **Common symptoms:**

*Common symptoms from exposure to low-level anthropogenic EM energy include:*

- Anxiety
- Blood pressure effects
- Concentration problems
- Depression
- Dizziness
- Earaches
- Fatigue
- Headaches
- Lethargy
- Memory loss
- Muscle pains
- Skin lesions
- Skin tingling
- Sleep disruption
- Tinnitus

### **Symptom complexes:**

*Illnesses linked to continued exposure to low-level anthropogenic EM energy include:*

- Cancers
- Cardiovascular effects
- Electromagnetic Hypersensitivity
- Infertility and miscarriages
- Neurological conditions
- Suicide

## **E. FURTHER INFORMATION ON BIOLOGICAL EFFECTS**

*The following lists feature just a few of the many organisations across the world and the many thousands of peer-reviewed studies concerned with low-level EM biological effects.*

### **(i) Organisations:**

- Austrian Medical Association: ["Guideline for the diagnosis and treatment of EMF related health problems and illnesses \(EMF syndrome\)"](#)
- [EM Radiation Research Trust](#)
- [Electrosensitivity UK \(ES-UK\)](#)
- EUROPAEM: [EMF Guideline 2016](#)
- [PHIRE](#)
- [Powerwatch](#)
- [WiFi in Schools UK](#)

### **(ii) Studies:**

- Belpomme D et al.: ["Thermal and non-thermal health effects of low intensity non-ionizing radiation: An international perspective"](#) (*Environ Pollut.*, 2018)
- Belyaev I et al.: ["EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses"](#) (*Rev Environ Health*, 2016)
- Kaszuba-Zwolińska J et al.: ["Electromagnetic field induced biological effects in humans"](#) (*Przeegl Lek.*, 2015)
- Pall ML: ["How to Approach the Challenge of Minimizing Non-Thermal Health Effects of Microwave Radiation from Electrical Devices"](#) (*Int J Innovat Res Engin Management (IJIREM)*, 2015)
- See also: ES-UK: ["Selected Studies on Electrosensitivity \(ES\) and Electromagnetic Hypersensitivity \(EHS\)"](#)

## **SUPPLEMENT 1**

### **ADVICE FOR REMEDIATION**

#### **to help make a location comply with IGNIR guidelines**

Remediation covers two aspects, (a) location (the room etc) and (b) personal (your own devices and protection). Although the IGNIR guidelines relate to locations, compliance there can be compromised by the use or presence of personal devices like mobile phones.

#### **(a) Location**

##### *(i) Daytime (and night)*

A room at home, classroom, lecture hall, hospital ward, shop, theatre etc can all be made more likely to comply with the IGNIR guidelines for Day (D), by the following.

- Wifi:
  - o Remove Wifi and use ethernet cables for each computer or laptop.
  - o Ensure Wifi is fully disabled on each device.
  - o Use a wired USB adaptor for a notebook without an ethernet port.
  - o If ethernet cables are not available, you can access the internet with wired powerline adapters. Although these are preferable to Wifi, they send radio frequencies over power cables and should be switched off at night.
- Appliances with wireless:
  - o Switch off home networks for appliances (Internet of Things) and smart meter transmitters for home appliance.
  - o Check that any transmitter on appliances can be switched off before buying the appliance, or ask the supplier to disable the transmitter.
  - o Replace any wireless keyboard, mouse, game console etc with wired versions. Infrared controls do not cause most wireless health effects.
- Cordless phones:
  - o Replace cordless phones with wired telephones.
  - o For conference calls, wired hands free receivers are useful.
- Wireless baby alarms:
  - o Use wired baby alarms, or keep the cot in the parent's room.
  - o Do not use wireless baby alarms or wireless video monitors.
- Burglar, movement and smoke detectors and alarms:
  - o Replace active wireless systems with passive wired units
- Smart meters:
  - o Refuse a wireless smart meter.
  - o Apply shielding if a neighbour's smart meter is close to your property
- CFLs (compact fluorescent lights):
  - o Replace with incandescent bulbs where possible, or with halogens if incandescent bulbs are unavailable.
  - o Remove all CFLs (compact fluorescent lights).
- Electric battery chargers:
  - o Keep switched off when not in use.

- Avoid wireless electric chargers.
- Mobile phones, iPads, etc:
  - All mobile phones and wireless devices should be switched to airplane mode.
  - Alternatively, all mobile phones should be stored in a Faraday box.
  - It is advisable to check that mobile phones are not emitting radiation. Some switch back onto wireless the following morning or act as relay stations.

*(ii) Night*

The IGNIR guidelines for Night (N), are focused on the sleeping area in the bedroom. The general remediation advice given for (i) Day should also be applied in the bedroom.

- Beds:
  - Use wooden frames.
  - Use mattresses without metal springs.
- Bedrooms, alarm clocks:
  - Use a battery alarm clock, not a plugged in alarm unless it is kept well away from the bed.
- Bedrooms, mobile phones:
  - Do not leave mobile phones switched on in a bedroom; keep them in flight mode.
  - Do not place mobile phones under the pillow.
  - Do not charge mobile phones in a bedroom.
- Bedrooms, other electrical equipment:
  - Keep as much switched off as possible.
  - Fitting a demand switch for the bedroom is good practice and may be necessary to achieve low fields in the bed space.
  - Switching off the lighting circuit for the floor below may also be necessary.
  - Switching off the ring main to the bedroom and other circuits may help hypersensitive persons. Keep a torch near the bed if the breaker is off.

*(iii) Shielding:*

For both Day (D) and Night (N) locations, some people use shielding, in addition to the general remediation advice given for (i) Day (D) and (ii) Night (N).

For wireless from masts or neighbours' Wifi some shielding systems may help but:

- it can be difficult to make effective;
- it can make the situation worse by reflecting radiation;
- shielding paint can be difficult to remove.

Shielding usually needs earthing, but check your home wiring Earth to see if it carries stray currents, or use a separate earth.

Common shielding solutions include:

- metallic fabrics or netting;
- carbon-based paints;
- window screening.

It is very difficult and expensive, or impossible, to shield effectively against power frequencies, such as being near to substations, overhead power cables, main power cables in blocks of flats, etc.

To reduce 'dirty electricity' some people use filters on the wiring circuit.

Shielded cabling is advisable for a new building or renovations.

### **(b) Personal**

Even if a location is compliant with the IGNIR guidelines, it is also essential not to compromise that compliance by introducing wireless devices into the location.

- Always keep your mobile phone as far from your body as you can if it is not on flight mode.
- Do not carry an active mobile phone in your pocket, bra or on your person
- Keep your mobile phone in airplane mode as much as you can, but note that some smart phones revert to active mode each night.
- Although texting rather than speaking reduces exposure to your head, is not advised since it exposes other parts of your body to high levels of radiation.
- If you have to speak, use an airtube headpiece or loudspeaker mode, and keep the phone as far away as you can, ideally at least 1 metre (3 feet) from you or anyone else. This distance is still far too close for hypersensitive people who may be consciously affected at up to 15 metres or 45 feet depending on conditions.
- Avoid wireless fitbits, wireless watches, glasses with transmitters, and any other wireless device next to or near your body.
- Keep away from wired electric battery chargers.
- Keep away from wireless electric chargers.
- Some appliances with high fields in their immediate vicinity:
  - o mobile phones
  - o iPads and notebooks
  - o cordless phones
  - o Wifi laptops
  - o Wifi routers
  - o Bluetooth devices
  - o smart meters
  - o solar panel inverters
  - o electrical fuse boxes and meters
  - o electric storage heaters
  - o electric chargers
  - o mains adaptors
  - o electric blankets: do not have them switched on when in bed
  - o hair dryers
  - o microwave ovens
  - o induction hobs
  - o electric shavers
  - o electric fans
  - o some LED lights
  - o dimmer switches

- electric cars
  - radial tyres reinforced with steel wires
  - cars with inbuilt Bluetooth or Wifi
  - appliances with inbuilt Wifi such as some printers, TVs, fridges, boilers
  - wireless radio hearing aids
  - wireless radio controls for games, toys, drones etc.
  - radar trackers to measure ball speeds in games practice
  - virtual helpers (e.g. Alexa, Echo, Home).
- Protection:
- Some EHS people wear protective clothing, but unless this entirely inclusive of the whole body, it does not provide full protection.
  - Wireless devices can be kept in 'Faraday' bags. However, since this simply impairs their function, it is better to switch them to airplane mode and off.
- Avoidance:
- Maximise your distance from wireless and electrical appliances.
  - Mobile phones have their heating absorption (SAR) inside the small print of the manual. Often these state that a phone should be kept about 2 cm ( $\frac{3}{4}$  inch) away from all parts of the body. This means that the mobile cannot be held in the hand. This distance prevents heating but not the other established harm from wireless radiation at below heating levels.
  - Keep at least 2 metres (6 feet 6 inches) from your microwave oven if possible. Household microwave ovens are allowed to leak up to 50,000,000  $\mu\text{W}/\text{m}^2$  (microWatts per metre squared) at 5 cm (2 inches) (or 100,000  $\mu\text{W}/\text{m}^2$  in Russia). At 1 metre (3 feet) they typically give out 36,400  $\mu\text{W}/\text{m}^2$ . Although these 2.4 GHz microwaves are not pulsed like Wifi, Bluetooth or cordless phones, they can still be harmful, especially for sensitive persons. Older ovens can leak more than new ovens. They also emit low frequency fields.
  - Keep as far as possible from electric induction hobs. These use 20-100 kHz. Some have exceeded heating limits at 0.3 metre (1 foot). Sensitive people, especially pregnant women and children, should try to keep out of the kitchen while an induction hob is in use. It is best to replace this type of cooker with another.

**SUPPLEMENT 2**

**METERS**

Many makes of meters can measure electric fields, magnetic fields and power flux density. They typically cost in the range of £130 to £350. A digital display is very helpful.

<b>A. Radio Frequency: electric field (V/m) and power density (<math>\mu\text{W}/\text{m}^2</math>)</b>						
Example Meter	Colour of lights	Reading		Nearest Guideline		
		V/m	$\mu\text{W}/\text{m}^2$		V/m	$\mu\text{W}/\text{m}^2$
Acousticom 2 (lights, sounds)	Green	0.01 V/m	0.3 $\mu\text{W}/\text{m}^2$	Night - Average. Sensitive -Maximum	0.02 V/m	1 $\mu\text{W}/\text{m}^2$
	Yellow	0.05 V/m	7 $\mu\text{W}/\text{m}^2$	Day - Average. Night - Maximum	0.06 V/m	10 $\mu\text{W}/\text{m}^2$
	Amber	0.3 V/m	240 $\mu\text{W}/\text{m}^2$	Day - Maximum	0.2 V/m	100 $\mu\text{W}/\text{m}^2$
	Red	3.0 V/m	24,000 $\mu\text{W}/\text{m}^2$			
Acoustimeter AM-10 (lights, digital readout, sounds)	Green	0.02 V/m	1 $\mu\text{W}/\text{m}^2$	Night - Average. Sensitive -Maximum	0.02 V/m	1 $\mu\text{W}/\text{m}^2$
	Yellow	0.07 V/m	14 $\mu\text{W}/\text{m}^2$	Day - Average. Night - Maximum	0.06 V/m	10 $\mu\text{W}/\text{m}^2$
	Red	0.5 V/m	700 $\mu\text{W}/\text{m}^2$			
Cornet ED78S (lights, digital readout)	Green	0.014 V/m	0.5 $\mu\text{W}/\text{m}^2$	Night - Average. Sensitive -Maximum	0.02 V/m	1 $\mu\text{W}/\text{m}^2$
	Yellow	0.21 V/m	105 $\mu\text{W}/\text{m}^2$	Day - Maximum	0.2 V/m	100 $\mu\text{W}/\text{m}^2$
	Red	1.2 V/m	3,800 $\mu\text{W}/\text{m}^2$			

<b>B. VLF and ELF electric fields (V/m) and magnetic fields (nT)</b>									
Example meter: PF5 Pocket Power Frequencies Meter (ELF & VLF) (frequency range 20 Hz to 70 kHz)									
Colour of lights	Electric field V/m	Magnetic field		VLF			ELF		
		$\mu\text{T}$	nT	V/m	nT		V/m	nT	
				Av.	Av.	Max.	Av.	av.	max.
Green	5-10	0.02-0.05	20-50				Day <10	Sens. <30 Night <100	Sens. <100
Amber	20-40	0.1-0.2	100-200					Day <300	Night <300
Red	60-200	0.4-2.0	400-2,000						Day <1,000

<b>C. ELF electric fields (V/m) and magnetic fields (nT)</b>			
Example meter: Gigahertz Solutions ME 3030B Digital Stress Analyser (frequency range 16 Hz to 2,000 Hz)			
	V/m	nT	nT
	Average	Average	Maximum
Sensitive	< 1	< 30	< 100
Night	< 3	< 100	< 300
Day	< 10	< 300	< 1,000

Manuals for meters listed above		
Radio Frequency meters:		
<a href="#">Acousticom 2</a>	<a href="#">Acoustimeter AM-10</a>	<a href="#">Cornet ED78S</a>
VLF and ELF meters:		
<a href="#">PF5 Pocket Power Frequencies Meter</a>	<a href="#">Gigahertz Solutions: ME 3030B</a>	

<b>Conversion</b> (V/m to/from $\mu\text{W}/\text{m}^2$ , etc.)
<a href="#">table</a>
<a href="#">online converter</a>