

Some ideas for limiting your exposure to radiation

1. Use a low-radiation cordless phone for short calls and a corded phone for long calls (if necessary we can refer you to manufacturers).
2. Set up call forwarding from your mobile phone to a landline phone when you are at home or in the office.
3. If possible, ground your Internet box (making sure you comply with the manufacturer's conditions of use).
4. Favour an internet connection with an Ethernet cable. When you use the cable, remember to turn off the Wi-Fi. For computers not equipped with RJ45 sockets, you can buy small adapters that plug into USB sockets.)
5. Use a timer or a switch on the internet box power supply so you can cut it off at certain times of the day or night if necessary.
6. Use a USB grounding kit for a laptop.
7. Use shielded extension cords and multi-sockets at home or in the office.

WARNINGS

CEMPROTEC is by no means a measuring device
CEMPROTEC is a detection device that gives tendencies and approximations in relation to radiation.

The human body is likely to directly affect detection. For more accurate detections, hold the device at least 50 cm away from you.

The devices are calibrated in an environment at a temperature of 20°C and a humidity level of 45%.

Store CEMPROTEC in a dry place with low humidity.

All modifications to this device are not authorised and will void the warranty.
Keep the device away from children

Technical Specifications

- ◆ Powered by a non-rechargeable 9V battery
- ◆ Maximum current: 50mA
- ◆ Device dimensions: 179,5 x 46 x 32,2 mm
- ◆ Device weight: 80g
- ◆ Ideal temperature usage: -10°C +50°C
- ◆ Cleaning recommendations: To clean, use a soft, slightly damp cloth with household/ rubbing alcohol



Evaluation Pollutions Electromagnétique & Conseil
offers its expertise in the detection and control of
electromagnetic radiation

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User Guide



Electromagnetic field detector

- High frequencies from 1 MHz to 10 GHz



- Low frequencies (electric and magnetic field) from
10 Hz to 5 kHz

EPE Conseil would like to thank you for purchasing
CEMPROTEC, before using it, please read this guide in its
entirety, especially the "Warnings" section.

This section specifically indicates the terms of usage to ensure
CEMPROTEC is used safely and within the warranty limits.



What is electromagnetic pollution?

There are mainly two "families" of electromagnetic radiation:

High-frequency radiation: Generated by popular wireless systems such as connected objects, Wi-Fi, cell phone towers/ antenna arrays, cell phones, fixed wireless phones, Bluetooth, baby-phones, etc.

Low-frequency radiation: This concerns all appliances connected to the electrical network, medium and high voltage power lines, electrical panels and motors.

Cables and electrical systems can create an electric field and also a magnetic field depending on the power.



Inserting the device battery

Installing the 9V battery (supplied): The 9V battery must be connected respecting the + and - terminals on the black connector.

Battery level display: When switching the device on the battery level is displayed for 3 seconds in the middle row of LEDs, while the other LEDs are off at this point. The LEDs will light up from the red one at the top, stopping at the relevant LED to show the battery level. The green LEDs at the bottom represent a full battery.

Battery saving mode: To save power the device will automatically switch itself off after 20 minutes. For frequent usage, it is recommended to use a rechargeable battery.



Using your detector: there are two main functions!

1. Standard Mode:

As soon as the device is turned on, it is in « Standard Mode » This mode detects the magnetic field, the electric field, and high frequencies (radio frequencies) separately.

2. Full HF Mode:

Press the HF ONLY briefly. This function only allows the detection of high frequencies (therefore not electric and magnetic fields). The LEDs light up from the bottom to the top, from left to right. The corresponding LED values are on page 5 of this manual.

To turn off the SOUND press and hold the HF ONLY button.

Usage guidance

Interior or exterior pollution?

The first time you use the device you may be surprised by the level of exposure if it is higher than expectations.

It is absolutely necessary to identify the cause(s) of radiation to have the clearest possible picture of the situation; this will make it possible to apply suitable and effective protection/shielding solutions against the nuisances observed.

To help you quickly identify your electromagnetic exposure:

1. Turn on the device in Standard mode (with or without speakerphone on)
2. Move slowly from room to room, paying particular attention to the areas where you stay for a long time (e.g. the bedroom, living room, office). If possible after, switch off the electricity in your home for a few moments and then repeat the same detection room by room.
3. If the levels are the same, it means that the radiation is coming from outside. If they are lower, it means that you have an exposure generated by your own electrical installation or a system(s) connected to it.

For outside radiation, some effective solutions can be used such as paints, fabrics, curtains and plastic films on windows. These products act as screens and greatly reduce the penetration of outside radiation coming inside. However, it is important to choose the right solution according to the type of radiation that is detected, as unfortunately there is no single solution that effectively addresses all types of radiation.

How to find the polluting devices inside:

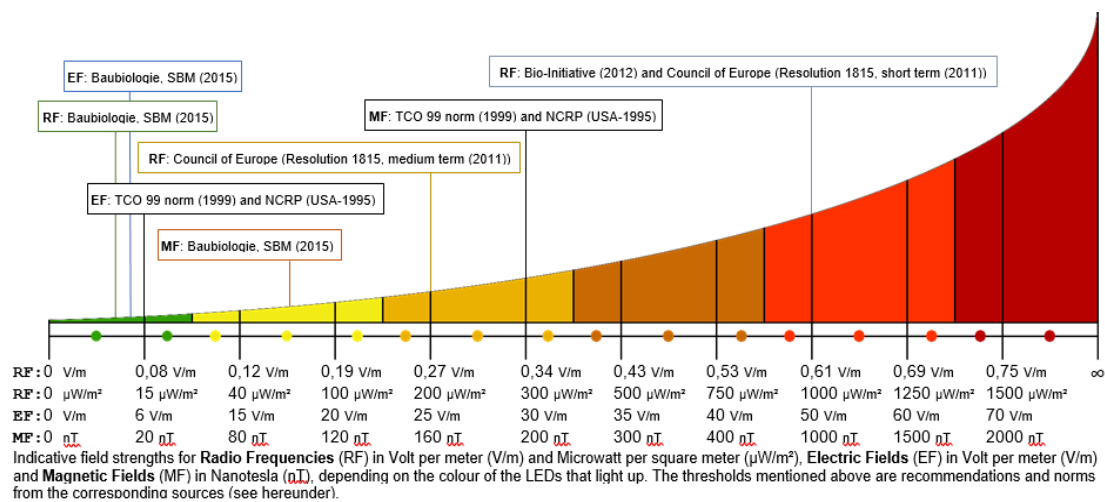
It is advisable to use the detector and check the radiation level room by room.

The polluting systems are mainly cordless phones (DECT), Wi-Fi, alarms, and various connected objects. If you unplug each device for a few moments you should immediately notice a decrease in radiation with your detector.

Please note! If you are measuring an internet box and there is a DECT phone in close proximity, it is crucial to ensure that you separate the two sources as they both emit radiation of the same type (high frequency).

STANDARD MODE GRAPH WITH THRESHOLDS

(radiation strength indicated by each row of 8 LEDs)



- Baubiologie MAES-SBM. (2015). Indicative values in Baubiologie (Building Biology) for rest areas. In addition to the standard measurement technique in baubiologie SBM-2015. Retrieved December 2, 2015, from http://baubiologie.fr/IMG/pdf/valeurs_sbm-2015_fr.pdf. (recommendation)
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- Council of Europe. (2011). Resolution 1815 (2011) Final version. In the potential dangers of electromagnetic fields and their effect on the environment. Retrieved November 16, 2015, from <http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=17994&>. (recommendation)
- NCRP, (1995) "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields", NCRP Report No.86, Bethesda, Maryland, USA. (norm)
- TCO Development. (2012). TCO-Certified-Displays-6.0. In TCO Development. Retrieved November 16, 2015, from <http://tcodevelopment.com/files/2013/04/TCO-Certified-Displays-6.0.pdf#page=28>. (norm)

Detection level display

The 3 rows of LEDs display the detected radiation levels:

- **Magnetic:** Example of sources > transformers, telephone chargers, electrical panels and electrical transformers, high voltage lines.
- **Electric:** Example of sources > bedside lamps, various electrical appliances plugged into the mains, computers, power supplies, sockets, switches.
- **High Frequency:** Example of sources > Wi-Fi, cell phones, cell phone antennas, connected objects, baby phones, fixed wireless phones.

How it displays:

- If there is no radiation, the first green LED stays on.
- When radiation is detected, the LEDs light up from **left to right** and **bottom to top** to indicate its level.
- The LED's value is explained on page 5 of this manual



ON - OFF Button

- Press once to turn on the device
- Press once to turn off the device

HF ONLY button with or without sound:

- Press once to turn on/off the FULL HF
- Press and hold the button to turn on/off the speaker

Initial State	Action	Final State
Device off	Press the ON/OFF button	The device is switched on
Device on	Press the ON/OFF button	Device is switched off
Full HF function deactivated	Press the HF ONLY button	The Full HF function is activated
Full HF function activated	Press the HF ONLY button	The Full HF function is deactivated
Loudspeaker is on	Press and hold on the HF ONLY button	Loudspeaker is switched off
Loudspeaker is off	Press and hold on the HF ONLY button	Loudspeaker is switched on

1. Detection in Standard Mode:

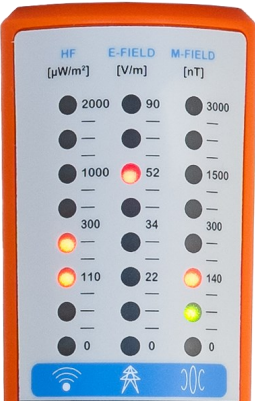
The standard mode is very practical and allows the simultaneous detection of electric and magnetic fields and high frequencies **with or without sound**.

The device makes radiation easily "visible" therefore making the sources more easily identifiable.

It can also be used to verify the protection solutions that have been put in place to reduce exposure to waves.

- 1. Briefly press the "on-off" button to switch the unit to standard mode.
- 2. Hold the detector with your arm slightly extended forward.
- 3. **Move around slowly** to detect electromagnetic fields. The device performs a new detection every two seconds.

NB: To **activate or deactivate** the sound, press and hold on the select button.



Standard Mode Table:

Each row of 8 LEDs and 14 levels represents the power of radiation. . The table indicates the numerical values for the LEDs:

- **The magnetic field** with a 3D detection spectrum of 10 Hz to 5 kHz.
- **The electric field** with a detection spectrum of 10 Hz to 5 kHz.
- **The high-frequency field** with a detection spectrum of 1 MHz to 10 GHz.

Levels :	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
LED :															
G = green LED Y= yellow LED R = red LED	G1	G1 + G2	G2	G2 + Y1	Y1	Y1 + Y2	Y2	Y2 + Y3	Y3	Y3 + R1	R1	R1 + R2	R2	R2 + R3	R3
EF in V/m :	0	6	12	17	22	26	30	34	39	45	52	60	70	80	90
HF -in μW/m² :	0	15	40	70	110	150	200	300	500	750	1000	1250	1500	1750	2000
-in V/m :	0	0,08	0,12	0,16	0,19	0,23	0,27	0,33	0,43	0,53	0,61	0,69	0,75	0,81	0,86
MF in nT :	0	20	60	100	140	180	220	300	400	650	1000	1500	2000	2500	3000

2. Detection in FULL HF Mode:

The FULL HF mode enables enhanced sensitivity detection that corresponds to the tolerance thresholds of electro-sensitive people.

In Standard Mode, high-frequencies are detected by 8 LEDs. In FULL HF Mode, there are 24 LEDs for greater accuracy. The LEDs light up from LEFT to RIGHT from the BOTTOM to the TOP.

The detected high-frequency sound corresponds to a FINE ACOUSTIC ANALYSIS which is very useful. This allows the sources to be **identified by a sound proportional to the modulated frequency**. In other words, this function allows the ear to differentiate between different sources of radiation. For example, if it is from the Wi-Fi, a DECT phone, or an antenna. However, if the SOUND bothers you, it can be easily turned off by **pressing and holding** the HF ONLY button.

- 1. Press the ON/OFF button briefly to turn on the standard mode.
- 2. Press the "HF ONLY" button to activate **the high-resolution HF mode**
- 3. Hold the detector with your arm slightly extended forward.
- 4. **Move around slowly** to detect high frequencies.

Note: In this mode, all 24 LEDs are used for wave detection. The LEDs at the bottom of the display indicate the lowest radiation level, while the LEDs at the top of the display show the highest level.

When operating in FULL HF mode, the values shown are peak values that are updated in real-time. The maximum values measured are briefly displayed, indicated by a top LED that remains lit for two seconds. Additionally, the sample rate now exceeds 20 KHz, providing benefits such as improved detection of 4G/5G signals and general sensitivity, especially at lower levels.

Hypersensitive mode table:

When the FULL HF function is activated, the unit detects only high-frequencies.

The radiation power is shown by all 21 LEDs, from left to right and from bottom to top, covering a detection range of 1 MHz to 8 GHz.

High-frequency levels:	0	1	2	3	4	5	6	7	8	9	10	11
in μW/m² :	0	1	2,5	10	20	40	50	75	100	140	180	225
in V/m :	0	0,02	0,03	0,06	0,09	0,12	0,14	0,17	0,19	0,22	0,25	0,29
levels :	12	13	14	15	16	17	18	19	20	21	22	23
in μW/m²	300	400	550	750	1000	1250	1500	1750	2000	2250	2500	2750
in V/m :	0,33	0,38	0,45	0,53	0,61	0,69	0,75	0,81	0,86	0,92	0,96	1