

Shielding Bed Canopies



Shielding Faraday canopies can protect a sleeper against Wi-Fi/WLAN, cell towers, wireless smart meters, FM radio stations and other transmitters. This article covers what to consider before buying, including the problems some people have with these canopies.

Keywords: shield, bed, bedroom, Faraday, canopy, EMF, microwave, Wi-Fi, cell tower, base station, electrical sensitivity, MCS

Why shield the bed?

People with electrical sensitivities often report that they are the most affected by EMF when trying to sleep. Whether healthy people are also more affected at night is unclear.

In some cases it is not realistic to shield a whole house or even the entire bedroom. This can be because of cost, because the space is leased or other factors. An alternative is just to shield the bed, using a shielding canopy.

A canopy can also be used to test whether shielding may provide a health benefit before going ahead with more expensive shielding.

If a high level of shielding is needed, a canopy can be used as the innermost part of a multi-layered shielding system, together with a shielded house or shielded room (or both).

How well does it shield?

The shielding effect depends on the material, how well the canopy is sewn together and how well it is closed up.

The manufacturer should provide information about how well the material itself shields. It should list it by frequency, as the shielding will vary by frequency. Cellular towers, Wi-Fi/WLAN and smart meters operate in the frequency range from 900 MHz to 2500 MHz (or 2.5 GHz), so those are probably the most important frequencies.

Several of the canopy fabrics start to lose their shielding effect at frequencies above 1-2 GHz and will be less effective against future communication technologies that operate at 6 GHz and higher.

Scientists at a German military university (Pauli & Moldan, 2015) have tested some of the shielding fabrics used in canopies. They found them able to shield between 20 and 40 dB (100-10,000 fold) at 1 GHz — under optimal conditions. At 6 GHz the same fabrics shield only 8 to 25 dB (6-320 fold).

Some canopies are made of other materials, including one that the manufacturer rates at just 10 dB. Such a poor shield seems hardly worth buying.

The actual shielding effect of a canopy also depends on how well it is put together, especially whether there are any holes or slits in the material or at the seams, and

whether the canopy fully encloses the bed, including below it (not needed if the bedrooms are on the ground floor with no space below).

Some people prefer not to zip it up tightly, which can seriously weaken the shield.

If there are breaches in the shield, it may help to reorient it so the hole faces away from all major sources of radiation.

Problems using a canopy

People have reported various problems with the canopies:

- claustrophobia
- lack of ventilation
- reactions to the materials

There have been various complaints about the confined space and lack of ventilation inside some of the canopies. One woman bought a high-quality canopy, but had to keep one side open, which reduced the shielding effectiveness. It shielded microwaves by only a factor of twenty (13 dB), but that was the best she could do.

Many of the fabrics are based on a polyester thread, which is coated with copper or silver. Polyester is noxious to some people, especially those with MCS. A few fabrics use nylon or cotton, which may be more tolerable.

Some people simply do not feel well with a lot of metal around them. The typical metals used are copper and silver as they are excellent conductors and can be made thin and flexible.

The washing problem

The canopies can usually be washed, but it must be done very sparingly. Each washing reduces the shielding effect as small metal particles are stripped off the thread. This may make the canopies unusable to people with MCS, who typically need to wash any fabric several times before the first use.

It may be possible to detox the fabrics by gently soaking them, instead of the rougher treatment in a washing machine, but we are not aware of anyone who has tried and then tested how it affected the shielding.

Choosing the shielding fabric

There are a limited number of choices for canopy materials. In general, the more metal in the fabric, the better it shields. One manufacturer offers a fabric with 7.5% copper and 0.5% silver and another fabric with twice the amount of metals (17% copper, 1% silver). The higher-metal fabric shields about 20 times (13 dB) better at 2 GHz, according to the manufacturer.

It is probably not worth the money to get a canopy that only reduces the radiation tenfold (10 dB), unless combined with other shielding. Keep in mind that the published shielding data is generally very optimistic.

The effectiveness depends on the frequency. The manufacturer publishes charts with this data. Keep in mind that most radiation today falls between the frequencies 0.9 GHz – 2.5 GHz (900 MHz – 2500 MHz). The trend is to move to yet higher frequencies: the next generation Wi-Fi operates around 6 GHz.

Keep in mind that manufacturer's data is for optimal conditions. Expect lower real life shielding.

People with sensitivities to various materials should consider buying a sample before purchasing the full canopy. The fabric based on cotton may be the most tolerable.

Some fabrics allow better air movement than others, but that can also reduce their shielding effectiveness, especially at higher frequencies.

Grounding/earthing

The canopies do not need to be grounded (earthed). Grounding does not improve the shielding effect at these frequencies. It is only at lower frequencies that grounding helps, such as for shortwave radio, AM radio and power lines. If you still wish to ground it, it is best to use a true ground, such as a dedicated ground rod. The grounding prong on an electrical outlet is not a true ground. In the rare case of a wiring error, there can be a shock hazard when using the electrical ground.

Make sure it can be returned

These canopies are costly and they do not work for everybody. The owner of the Swedish company RTK, Lars Rostlund, reports that about 10% of the canopies he sells are returned.

Home-built shielding canopies

People who are handy with a needle or sewing machine can build their own shielding canopy. The benefits of a custom-built project can be:

- lower cost
- custom sizing
- wider choice of shielding fabrics

Here are some pointers to keep in mind:

- seams should overlap at least an inch (3 cm), with good electrical contact
- full enclosure of bed, including below mattress (if not on lowest floor)
- adequate ventilation
- test materials for tolerability, if needed
- not all fabrics can be sewn

The canopy pictured on the front page has two parts: one that hangs down from the ceiling and a “carpet” underneath the bed. A home-built shielding canopy could be made much simpler, with parts of the canopy tucked in under the mattress.

An alternative to the canopy

People with claustrophobia or MCS may be better served with a free-standing Faraday cage. It is like a screened porch, but built inside a room. It can fit snugly around a bed (or desk), or it can fill the room all the way out to the walls.

The cage can be framed of lumber, aluminum or steel, with many choices of shielding material.

People with MCS can consider less odorous materials such as poplar, maple or anodized aluminum for the frame.

It is best to use rigid meshes as shielding material, as they have much less of an odor than the fabrics. The meshes are available as pure copper, pure stainless steel, galvanized steel (made for screening windows) as well as materials where the mesh is steel or aluminum with a copper coating.

More information

More information about shielding can be found on www.eiwellspring.org/shielding.html.

