

# EMP, just what is this?

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EMP or Electromagnetic pulse, what is it and should I be worried?

EMP or Electromagnetic Pulse as defined in Wikipedia:

An **electromagnetic pulse (EMP)**, also a **transient electromagnetic disturbance (TED)**, is a brief burst of [electromagnetic](#) energy. Depending upon the source, the origin of an EMP can be natural or artificial, and can occur as an [electromagnetic field](#), as an [electric field](#), as a [magnetic field](#), or as a conducted [electric current](#). The electromagnetic interference caused by an EMP disrupts communications and damages electronic equipment; at higher levels of energy, an EMP, such as a lightning strike can physically damage objects such as buildings and aircraft.

EMP weapons are designed to deliver the damaging effects of a high-energy EMP that will disrupt unprotected infrastructure in the country,<sup>[1]</sup> thus the employment of an EMP weapon against a country is the scenario of war most likely to collapse the functionality of the electrical network of the country.

Now that we know what an EMP is or at least what it may be, we can begin to think about the bigger question. That would be, do I need to worry about this? I guess the simple answer would be to ask yourself what is your level of paranoia?

I believe that the two major areas of concern would be if the EMP was because of a natural event (Lighting or CME – Solar flare) or a man-made event. If the EMP is the result of a natural event we should have some type of warning that would allow us to protect our equipment from damage. Just simply unplugging your equipment from the power mains, then removing and grounding any antenna connections should do the trick.

If the EMP is the result of an upper atmosphere nuclear blast, worst case, or a local ground level blast, even worse, all bets are off. Odds are that this would come with little to no warning. Unless you had taken precautions to guard against this all we could do is hope for the best.

What will be affected? How long will this last?

Just about the entire power grid will or could be affected. Power blackouts, blown transformers and damage to other substation equipment would be possible. Some of these items would take months or longer to replace / repair. It would just depend on the extent of the damage caused by the event and if it's a local or national event.

Additionally, with today's dependance on electronics we could be deep in the weeds. Just think about it. Any motor vehicle made in the last dozen years or more could be affected, your fancy coffee maker, alarm clock, wristwatch, Ham radio, mobile phone, I think you get the idea.

What can be done to protect my stuff?

Other than using nothing but vintage ham radio gear based only on tubes. There are two basic ways to protect or harden things. First would be to use some type of metallic shielding. Shields made of a continuous piece of metal such as steel or copper are best. A basic metal enclosure generally does not fully shield the interior because of the small holes that may exist. Because of this most commercial or military enclosures will have a multi-layer construction or other built in elements to complete the coverage.

Normally, a sheet of metal only a fraction of an inch thick would be needed to provide adequate protection, but this shield must completely surround whatever you are trying to protect. Heavy duty foil would work well here.

The second method is designed hardening of the circuits involved. The most vulnerable elements and circuits are designed to be more rugged. In this way they would be able to withstand much higher currents. Unless this is a design feature from the beginning it's not feasible to retrofit existing electronics at a reasonable cost.

You can purchase many types of shielding materials, premade bags, boxes, or other items designed to provide the shielding you require. But there is a simpler way.

Let's build a Faraday cage.

Simple but adequate protection at minimum cost.  
What's needed?

You could make do with a basic shoe box, antistatic foam or other insulating material and a roll of heavy-duty aluminum foil.

Just cover the box in foil including the top. Place another layer of foil inside the box and then a layer of insulation. Make sure that you wrap the foil that is on the lid around the top edge so the it makes good contact with the foil on all sides of the box. Place your items to be protected inside of the box and press on the lid. One Faraday cage at your service.

This can be sized up to meet your needs while keeping your costs to a minimum.

Another method would be to use a standard metal trashcan with tight fitting lid or other metal box (surplus ammo can). Just make sure to fully line the interior of the can with a nonconductive material like cardboard or anti-static foam. Also make sure to seal the lid to the body of the can with conductive tape.

Should I ground the cage?

No, the faraday cage must be free floating and not connected to any grounds.

Can I run a charging cord into the box to keep things charged up?

No, any break in the solid metal exterior or cables exposed would allow the EMP to enter the cage.

Is this the perfect solution? No, but it's better than nothing and should do the trick in most cases.

What should I keep in the cage? Whatever makes you happy. I might start with a cheap Timex watch and extra battery, then maybe some type of GMRS / FRS HT and maybe a cheap Ham HT. Extra batteries would be a good idea, not that they would be affected by the EMP but at least you would know where they are when you need them.