

Nathaniel Ellis

*Electromagnetic Pulses (EMPs): Solar Flares, Radioactive Waves and the End to Our Digital World!*

Recently in the news I have been hearing a lot about the possibility of an electromagnetic pulse attack (EMP) against the US. It got me thinking - what is an EMP attack, and how dangerous are they? I began my investigation on the internet, and found a wide variety of conflicting information. I learned that EMPs can knock out electronics on a small scale, and also on a large scale (nuclear). But on a large scale an EMP attack would carry significant practical and political complications. I believe this research is important because there appears to be much misinformation about EMPs. I wanted to demonstrate the mechanics of an EMP, and how an individual, institution, or government might guard against it. My research goal was to discover what an EMP is, and how it might affect typical household electrical equipment (both AC and DC) using two different DIY EM Pulse generators. To investigate this, I built both a low- and high-power EMP device and tested their effect at different distances and recorded the results. Lastly, I researched the possibility of a large scale (nuclear) EMP attack. My expected outcome was that a small EMP will take out small electronics from a limited distance - this was proven through experimentation. A larger scale EMP might be effective, but impractical. And there are low chances of a large scale (nuclear) EMP attack due to political implications.