

What are the Sources of EMI? - Three Main Causes of EMI



Electromagnetic Interference (EMI) is an electromagnetic or electrical disturbance that causes a piece of technology to degrade or malfunction. EMI can lead to the loss of transmitted data. In severe cases, it could disable a piece of equipment entirely.

Though EMI can have disrupting and sometimes devastating effects, it's surprisingly common in the modern environment. EMI has caused regular problems for the military and civilian populations since World War II when electrical and electronic equipment began to assume a more prominent role in society.

Everything from phones and laptops to weather phenomena can cause EMI disturbances. But generally, we can divide instances of EMI into one of the following three main causes.

1. Human-Made EMI



Any interference caused by another manufactured electrical or electronic device is considered human-made EMI. This interference commonly occurs when two signals are close to each other or when multiple signals come through a device at the same frequency, such as when a car radio picks up two stations simultaneously.

Consumer products including phones, computers and car motors can all cause or fall victim to accidental interference. Components of electrical infrastructure like power lines may cause EMI as well, especially if poorly placed.

In addition to accidental EMI, a military body may use weaponized devices to intentionally disrupt electromagnetic signals and cause electronic devices in a targeted area to cease functioning.

2. Natural EMI



Natural EMI disrupts manufactured electrical and electronic devices, but these interferences aren't human-caused. These electromagnetic emissions occur as a result of natural events on earth or in space.

Weather events such as snowstorms and thunderstorms are common natural causes of EMI. On a cosmic level, solar radiation and cosmic noise from planetary bodies like Jupiter can also lead to interference.

Natural sources of EMI don't pose as significant a threat to modern equipment as human-caused interferences do. However, natural EMI may still cause problems with older radio frequency communication equipment.

3. Inherent or Internal EMI

Inherent EMI occurs when the electromagnetic emissions from a device disrupt its own functioning. This internal "noise" is created by the thermal agitation of electrons moving through the circuit.

Many devices create inherent EMI. One familiar example is the static sound you hear when you tune a radio to a frequency between stations.

Why Shield Against Electromagnetic Interference?

Today, more and more systems rely on the proper transmission of electromagnetic signals to function. As technology becomes even more integrated into daily life, considering EMI risks when designing electronic devices and equipment also becomes increasingly important. Proper shielding protects your equipment from intentional and unintentional interference, which allows them to safely function as intended. JEMIC manufactures and sells the shielding products you need to protect products and equipment from the effects of EMI, whatever the source. Contact us today to learn more about our EMI shielding products.