



"EMC problems? AstrodyneTDI has a solution!"

EMC describes how a device functions or performs in an environment of electromagnetic noise. EMC includes two factors — a device's tolerance to noise, also known as "noise immunity," and how much noise it produces. Devices must be able to operate correctly and securely in an environment with a certain level of electromagnetic noise and must not produce EMI at levels or frequencies that disrupt other devices.

Internationally, the [International Special Committee for Radio Interference](#) regulates conducted and radiated EMI from industrial, commercial, residential and automotive sectors. EMC is also subject to regulation by [various European standards](#), including EN55011, which addresses industrial equipment, and EN55022, for IT equipment.

Causes of EMI

Industrial causes of EMI are often larger-scale and can cause severe interferences with essential technologies. There are several different industrial sources of EMI which produce ambient electromagnetic energy with a widespread impact. Industrial EMI can cause disruptions to hospitals, military operations and even the local power grid. Here are some common EMI sources in the industrial sector.

- **Electric motors and generators:** Electric motors and generators can produce a large amount of high-frequency noise and sometimes operate on a continuous cycle for uninterrupted power in factories and manufacturing plants.
- **Cellular networks and telephone transmissions:** Both wired and wireless telecommunications produce EMI. As the cellular grid continues to grow and more consumers use cell phones, the noise from cell networks becomes a more severe threat to other electronics and devices.

- **Television transmissions:** Like cellular transmissions, television transmissions can also cause EMI to residential and industrial devices.
- **Radio and satellite:** Radio and satellite waves transmitted across the country can cause interference with cellular networks or with sensitive equipment.
- **Grid power:** Transmission lines in the electrical grid often have high voltage and low frequencies that can disrupt certain electronics. Disruptions in grid power — such as voltage surges, voltage dips or spikes, blackouts and brownouts — can also result in electromagnetic interference in devices and equipment connected to grid power.
- **Railroads and mass transportation systems:** Operating systems for trains and mass transportation can produce EMI from their propulsion system, signaling systems, control systems and other processes. These systems operate at high voltages and currents that can impact other transportation system components or electrical devices in facilities located near railroads.
- **Medical equipment:** Many technologies in the medical field can produce EMI, including life support, X-ray equipment, MRIs, electrical surgical units, telemetry units and other assistance equipment. EMI from medical equipment can cause the devices themselves to malfunction or can interfere with other medical technology.
- **Other high-frequency sources of EMI:** Many industrial processes produce high-frequency EMI from components such as transmitters, transformers, inverters, microprocessors and controls.

Some industrial causes of EMI affect technologies within the same facility or process, while others — such as grid power interruptions — can cause more widespread disruptions.



Why is EMI a Problem?

EMI can cause a range of issues for residential and industrial devices, from a temporary impact to permanent damage. In its mildest form, EMI may cause annoying disruptions to the quality of performance of a device, such as poor cell phone reception. In more severe instances, EMI can lead to fatal consequences, such as failure or malfunction of essential medical equipment. The impact of EMI depends on many factors, including the duration of the interference, the environment in which it takes place and the noise immunity of the device.

How Astrodyne TDI can help!

If you need effective protection against electromagnetic interference, Astrodyne TDI can provide durable and dependable EMI filters for every application. Their inventory includes reliable EMI filters for specialized applications in the military and medical fields, as well as cost-effective EMI filters for residential and industrial use. For applications that require a custom solution, our expert team can select an EMI filter that meets your specific requirements.

With more than 60 years of experience, Astrodyne TDI is a trusted manufacturer of high-quality EMI filters for medical, military, commercial and residential applications. They design EMI filters to meet industry standards and comply with EMC regulations. Explore their selection of EMI filters or submit a custom quote request for the perfect EMI filter for your needs. For more information about custom and standard EMI filters from Astrodyne TDI, contact us.