



The frequency bands used by avionic systems span the electromagnetic spectrum from a few kilohertz to several gigahertz. At the low end, Omega Navigation, which is used to fix aircraft position within a network of ground based transmitters, operates in the frequency range of 10 to 14 KHz. VHF Omnidirectional Range Finders (VOR) are radio beacons used in point to point navigation. They operate from 108 to 118 MHz. Glideslope Systems used during landings operate in the 328 to 335 MHz range. Distance-Measuring Equipment (DME), which gauges the space between the aircraft and ground-based transponders operate at just over 1 GHz. Also in the spectrum above 1 GHz are global positioning, collision avoidance, and cockpit weather radar systems. Personal Electronic Devices (PEDs) operate at frequencies from 10 to 15 KHz for AM radios and up to 400 MHz for laptop computers. When the higher harmonics of these signals are taken into account, the emitted frequencies cover almost the entire range of navigation and communication frequencies used on the aircraft, and PEDs, are just a single class of EMI emitters. When the full spectrum of other radiated and conducted EMI emitters are taken into account, it becomes clear that the entire system of electronic equipment aboard commercial and military aircraft are at risk to EMI.

Naturally

Naturally occurring noise sources such as ESD, lightning or other energy surges also present significant life safety and equipment damage potential. A poorly grounded device can transmit dangerous energy from a transient surge to a technician, user or any other passerby. Sensitive semiconductors and other components can be damaged or destroyed. Solutions to naturally occurring noise include:

- Eliminate static buildup at the source
- Insulate the device properly
- Provide an alternative path for the discharge or surge to bypass the circuit
- Use of EMI Filters with Transient Suppression

In conclusion, it is becoming more and more apparent that EMI/EMC is a growing concern for both the military and commercial industries for all forms of electronic equipment. In response to the increasing demand for low-cost and effective EMI/EMC solutions, WEMS Electronics is here to solve your most challenging requirements and would welcome any opportunity to demonstrate our expertise on your new & upgrade program requirements.

Why use a Filter Connector or Insert?

Filters can be a planned addition to an electronic subsystem or, as frequently occurs, added after a problem has been discovered.

- Easiest and most cost effective permanent EMI/EMP solution – eliminate conducted EMI before it passes into the box
- Helps reduce volume inside the unit as well as conserve circuit board space

- Moves filtering away from sensitive board electronics
- Can easily replace existing non-filtered connectors in existing systems
- Mates with standard Mil-Spec connectors: MIL-DTL-38999, MIL-DTL-26482, MIL-DTL-83723, MIL-DTL-26500, AS50151, MIL-DTL-24308, MIL-DTL-83513, etc.
- Meets military standards and aerospace environmental requirements: EIA-364, MIL-STD-810, MIL-STD-461, DO-160, etc.