

EMI / RFI Shielding

What is Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI)?

Electromagnetic waves generated by electronic devices that cause other devices to malfunction.

Who is affected?

Manufacturers of commercial electronic products generally contend with three types of EMI problems:

► Suppression of internally generated signals

The FCC in the United States, CSA in Canada, VCCI in Japan, AUSTEL in Australia, and legislation by EU (European Union) member countries all set certain standards for EMI emission levels that commercial electronic devices must meet before being sold in those countries. Many electronic products sold in the US must be tested and verified or certified for compliance with the FCC's Part 15 regulations.

► External ambient interference with equipment operation

Many companies establish their own specifications for immunity to EMI over a range of phenomena. These may include electrostatic discharge (ESD), radiated immunity, and electric fast transients (EFT). This is not yet a requirement in the US; however, EU regulations currently do include immunity requirements.

► Internally generated emissions interfering with equipment operation

EMI from one circuit can interfere with the function of another within the same system or subsystem. Typically called cross-talk, this problem is the most common source of system susceptibility. Cross-talk frequently occurs in densely packaged mobile or portable equipment.

INDUSTRY EXAMPLES

Telecommunications



- Shielding radio emissions from another transmitter at approximately the same frequency as the emission of interest will impede the reception of the desired signal by the intended recipient.

Medical



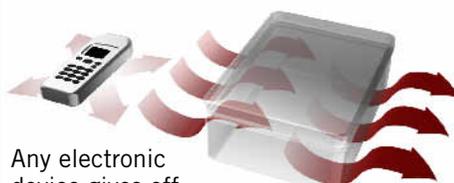
- Shielding medical equipment to meet FDA pre-market requirements and protect against cellular phones, hand-held transceivers, etc
- Shielding electric wheelchairs, pacemakers, and anesthesia machines

Aerospace



- Shielding the electronic flight control on aircrafts from radar beams and other electromagnetic fields
- Shielding aircraft control systems located within the aircraft
- Shielding sensitive navigation systems

Enclosure without EMI / RFI Shielding



Any electronic device gives off EMI / RFI

Plastic enclosure

Enclosure With EMI / RFI Shielding



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MG Chemicals®

EMI / RFI Shielding

The solution is M.G. Chemicals' Super Shield Conductive Coating.

A general purpose EMI / RFI shielding spray for use on plastic electronics enclosures. Consists of a tough, durable acrylic base pigmented with a high purity nickel, silver coated copper or silver flakes. Reduces or eliminates EMI / RFI interference.

- ▶ Dry time: 10 min. at room temperature
- ▶ Recoat time: 5 min.
- ▶ Excellent adhesion to most plastics
- ▶ Tested as per IEEE Std. 299-1997
- ▶ Underwriters Laboratories Recognized File No.: E202609
- ▶ Liquid version available for dipping/brushing/spray gun applications
- ▶ Thin or clean with part #435-1L Thinner/Cleaner

AVAILABLE SIZES

Nickel Conductive Coating (0.25 ohms cm)

Cat. No.	Size	Coverage	Format
841-340G	340g (12oz)	1600 in ²	Aerosol
841-900ML	900ml (0.23 gal, 4 lbs)	8300 in ²	Liquid
841-1G	3.8L (1 gal)	33200 in ²	Liquid

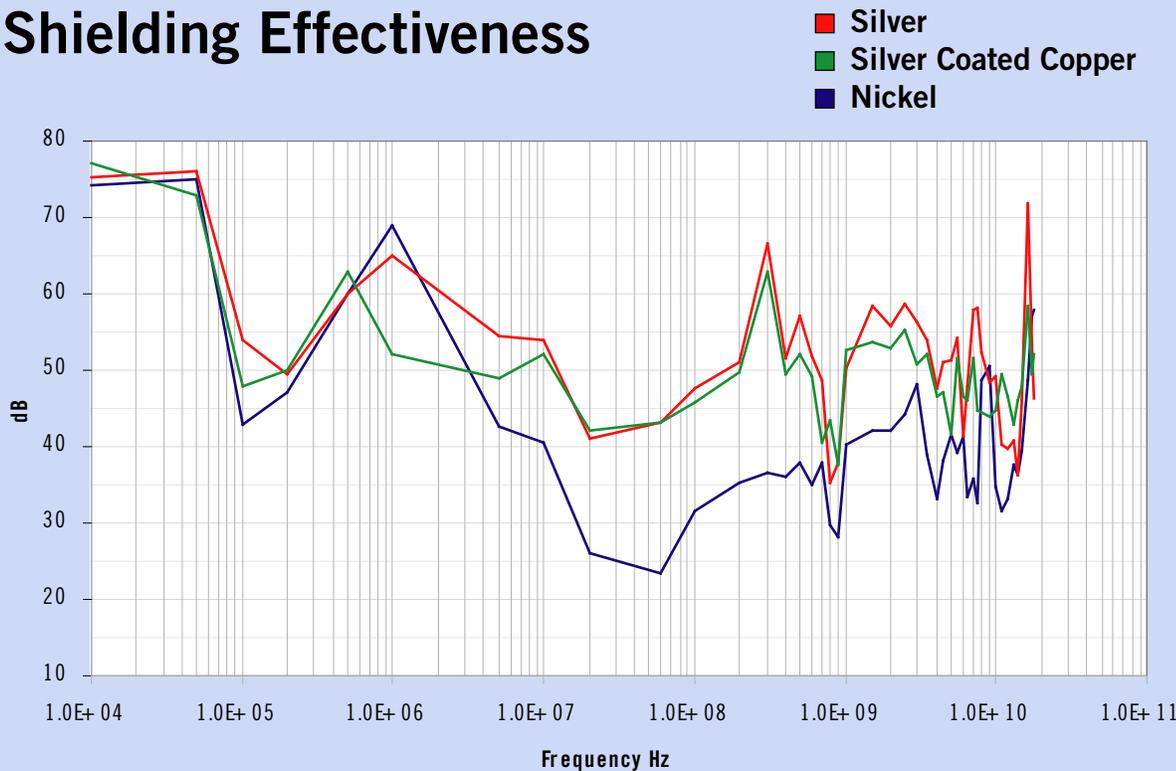
Silver Coated Copper Conductive Coating (0.15 ohms cm)

Cat. No.	Size	Coverage	Format
843-900ML	900ml (0.23 gal, 4 lbs)	8300 in ²	Liquid

Silver Conductive Coating (0.01 ohms cm)

Cat. No.	Size	Coverage	Format
8420-900ML	900ml (0.23 gal, 4 lbs)	8300 in ²	Liquid

Shielding Effectiveness



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