Architectural Shielding Using Copper Foil

European EMC Products

Product Datasheet

Architectural Shielding is the protection of buildings from electromagnetic fields using suitable shielding materials. Careful consideration of shielding attenuation, frequency range and cost will dictate the most effective material and method of installation. Commonly used materials include copper and aluminium foils and steel sheet.

Careful design, installation and selection of apertures will ensure the maximum practical performance will be achieved from the materials selected.

European EMC Products can offer a complete service from the initial RF site surveys to the design, installation and final attenuation testing.

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The shielding material should comprise of:

- 125 micron copper sheet bonded and overlapped to all walls and ceiling.
- All joints should be over lapped by 100 mm and sealed with a metallic tape, or soldered depending on the performance required (see below).
- The floor should be shielded with 1mm thick galvanised steel sheets, fixed to the floor with percussion type fixings. All sheets will be overlapped and sealed with tape which has a conductive adhesive.
- Steel sheet should also be fixed to the wall and ceiling, where these coincide with the internal partition walls to be installed on completion of the shielding.

RF Shielded Doors should be of a steel construction with TCS (tin coated steel) knit mesh gasket for RF performance. Two-point latching should be used to ensure uniform compression of the gasket.

Ventilation Grills should be honeycomb with a minimum thickness of 2.7mm.

RF Pipe Penetrations should be prefabricated into 2mm steel plates then bonded to the shield.

Windows should be shielded using an internal secondary RF shielded glazed unit of copper or stainless-steel mesh bonded between glass sheets.

Copper Cable Penetrations; i.e. power and data, should enter the shield room through RF filters mounted on steel penetration panels.

For Further Information Visit: www.euro-emc.co.uk

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EMC/ARCH/8003 TECH 09/20 V1

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Internal Fixing Points for decorative finishes should be metallic; ie steel studding frames used for plasterboard. The fixings can be mounted through the copper but should then be sealed over using metallic tape. The number of fixings through the copper should be kept to a minimum.

Shielding Performance

For overlapped and taped joints 40 dB of attenuation of radiated electric and plane wave signals over the frequency range 10 kHz to 10 GHz can be achieved. For overlapped and soldered joints 50 - 60 dB of attenuation of radiated electric and plane wave signals over the frequency range 10 kHz to 10 GHz can be achieved.

About Us

European EMC Products Ltd was formed in July 1996 to supply high quality products and services to the Electro-Magnetic Compatibility (EMC) market. The emphasis being on EMP and RF Shielded Chambers and associated products and services such as RF Shielded Windows, Shielded Doors and Shielding Effectiveness and EMP Testing.

Quality

European EMC Products are registered to BS EN ISO 9001:2015, Certificate No. FS 38901. License scope: The design, assembly, servicing and testing of RF Shielded structures and equipment including EMI shielding and thermal management materials; Gas tight doors; and specialised mobile electromagnetic pulse protected (EMPP) containers.

Disclaimer

NB: All of the information provided within this datasheet is for reference only. Product specifications are subject to change without notice.

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