



Application Note

RF Filter Housing - Plated Plastic

Problem

Current RF Filter Housings are manufactured by die casting and/or machining aluminum to the final dimensions, then applying Silver plating. The excessive cost to die cast and machine the aluminum housings has caused RF Filter OEM's to evaluate lower cost injection molded and plated housings.

Cybershield Solution

Cybershield has teamed with SABIC Plastics to develop an injection molded plastic and plated RF Filter Housing. SABIC Plastics has developed Ultem 3452, which has outstanding dimensional stability needed to mold to the precise dimensions required for the RF Filter Housing. Other plastic resins may also be suitable for RF Filter applications, including Polycarbonate, Liquid Crystal Polymer to name a few. Cybershield applies All-Over Copper electroless plating, which is subsequently Silver plated to provide identical electrical properties as machined aluminum. Based on evaluations to date, plated plastic RF Filter Housings offer $\geq 20\%$ cost reduction compared to aluminum and are approximately 40% lighter.



RF Filter Housing Summary

Overall dimensions 11.7" x 6.8" x 2.5"

Approximate weight:

Aluminum - 8 lbs.

Ultem - 4.5 lbs.

The system is comprised of the following:

SABIC Ultem 3452 Injection Molded Housing
150-200 micro-inches (3.75-5.00 μ) All-Over Copper plating
80-150 micro-inches (2.00-3.75 μ) All-Over Silver plating

Other plastic resins with high dimensional stability are available for this application. Contact Cybershield of plastic resins supplier for more information.

RF Filter Housing Design for Injection Molding: Incorporate draft angles into walls to allow removal from mold tool versus vertical walls in machined aluminum and design thinner wall sections to facilitate injection molding processes.

For more information about this application, Cybershield capabilities and/or to review your application requirements for metallized plastic, contact Cybershield

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- Fabricate a full range of EMI shielding solutions – Electroless Plating and Conductive Paint
- Electroplating Copper, Nickel, Trivalent Chrome, including decorative plating on plastics and metal
- Offer engineering design assistance – plastic resin selection, metal coating specification and mechanical design recommendations
- Serve applications in volumes from 25 units per month to millions of units per month
- Provide extensive mechanical assembly services to its customers
- Manage entire supply chain, including plastic injection molding to provide customers with turnkey solutions, designed and manufactured to strict OEM requirements

EMI Shielding, ESD and Electroplated Coatings	Assembly Services
All-over & Selective Coverage Electroless Plating Copper, Nickel, Tin, Gold Electroplating Copper, Nickel, Trivalent Chrome Conductive Paint	Dispensed Gaskets (Conductive or Environmental) Insert Installation (Ultrasonic or Heat Staking) Decorative Paint Mechanical Assembly

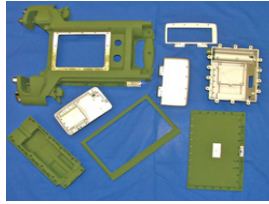
Other Cybershield Plastic Metallization Systems



Plated Plastic Router Chassis



Plated Plastic Shielded Connectors



Military Electronics EMI Shielding



Plated Plastic PDA Shield