



## Application Note

### Tamper Resistant Security System - EXACT™ 3D Metallization Technology

#### Problem

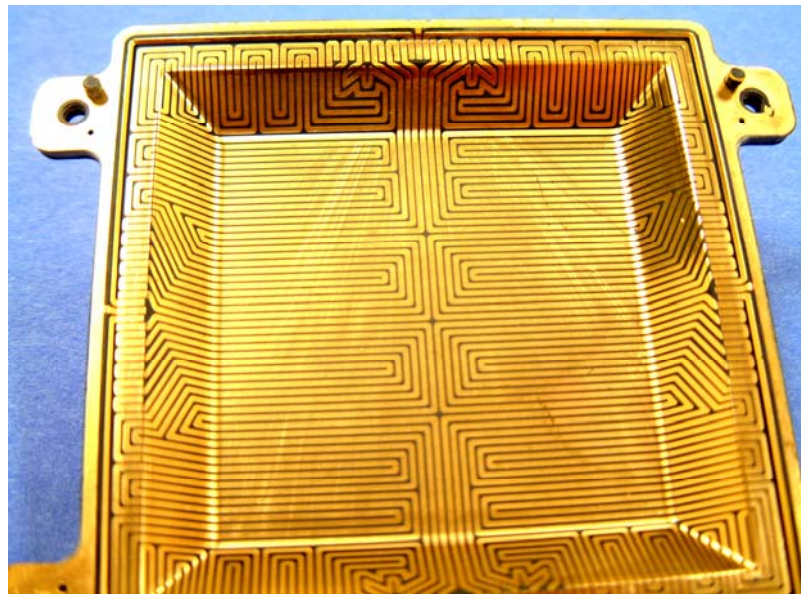
Protecting customer information from unauthorized use is critical in the automatic teller machine (ATM) industry. Recently, a new industry security standard has been implemented to eliminate the potential to tamper with the ATM to intercept customer account information. Known as 3DES for Triple Data Encryption Standard, it includes the requirement that a Tamper Resistance System be incorporated into the ATM to prevent illegally capturing customer account information.

This standard became effective in the US in April 2005. Any ATM's not meeting 3DES will not be allowed to access the networks of the financial institutions that manage the ATM's.

#### Cybershield Solution

Cybershield teamed with a major ATM manufacturer to design and manufacture a tamper resistant cover to meet the new 3DES standard. Utilizing Cybershield EXACT™ 3D Metallization Technology, the customer designed a pattern of circuits onto the interior surface of the cover. The gold plated circuits mate to contacts on the PC Board connector. Applied onto the interior surface of the cover and invisible from the outside, the 3D circuits have 0.010" (0.25 mm) spacing. In testing to meet 3DES, the 3D pattern defeated attempts to penetrate the cover and access the controller PC Board. When the circuit pattern is broken, an open circuit is created. This signal causes the ATM to cease operating and to dump its memory thereby eliminating the opportunity to steal customer account information.

The customer specified Cyclooloy PC/ABS, which is a low cost plateable resin that meets all the mechanical requirements. Many other plastic resins are compatible with Cybershield plating processes.



**Plateable Resins** – Consult Cybershield for details

ABS, PC/ABS, Polycarbonate, Polyetherimide (Ultem), Syndiotactic Polystyrene (SPS), Noryl, Xenoy, Polypropylene, Polyphthalamide, Polyethersulfone (PES), LCP, Xylex, Urethane, Nylon, Epoxy, Polyetheretherketone (PEEK),

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

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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

<b>EMI Shielding, ESD and Electroplated Coatings</b>	<b>Assembly Services</b>
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 RF  
Filter Housing



Plated Plastic  
Shielded Connectors



Plated Plastic PDA  
Shield