

HIGH-PERFORMANCE PATTERNED METALLIC MESH COATINGS



BOOST PERFORMANCE FOR EMI SHIELDING, THERMAL MANAGEMENT, OR RCS CONTROL

For large flat windows, curved dome surfaces, or thin flexible films, Battelle is in a unique position to lithographically apply micron-sized mesh coatings that meet or exceed your requirements. By reducing metal linewidths and features to micron dimensions, Battelle's mesh coatings provide the highest levels of EMI shielding or heating while maintaining very high visible and IR transmission. Thirty years of solid technical experience combined with the facilities and versatility to design, fabricate, manufacture, and test a wide variety of coatings on any substrate enable Battelle to deliver better performance at a cost-effective price.

FLEXIBILITY AND QUALITY

Battelle provides research and manufacturing from proof of concept to volume production:

Whatever the material:

- Visible window materials: ZKN-7, BK-7, polyimide film, Mylar® film, tempered glass, quartz, acrylic, fiber glass, and polycarbonate
- Infrared window materials: ZnS, ZnSe, sapphire, germanium, Cleartran™, silicon, AlON, CaF₂, and MgF.

Virtually any shape and size:

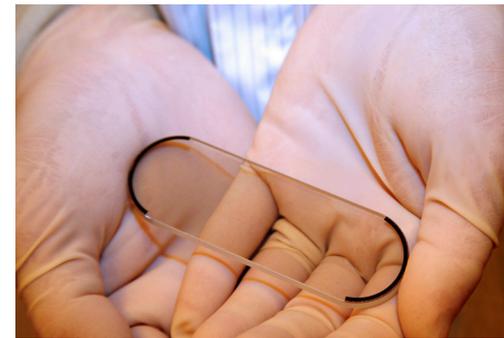
- Very large flat windows
- Curved optics or dome surfaces
- Thin flexible films
- Complex curved surfaces

Our quality assurance capabilities are extensive and include testing for:

- RF and microwave attenuation
- Visible and IR transmittance
- Shielding effectiveness
- Resistivity
- Temperature and adhesion

ONE STOP—FROM DESIGN TO MANUFACTURING AND TESTING

Battelle does it all, from EMI grid design, prototyping and testing to limited- and high-volume production. We use proprietary computer models that predict the performance of metal mesh coatings on IR transmitting windows and domes to fit design to your needs. Battelle can modify our mesh parameters to trade off shielding versus transmission, while minimizing unwanted diffraction effects. We operate two class 100 cleanrooms (totaling 7,000 square feet), staffed by 20 cleanroom technicians, working two shifts of operation.



Battelle's metallic mesh coatings provide the highest levels of EMI protection and transparency.

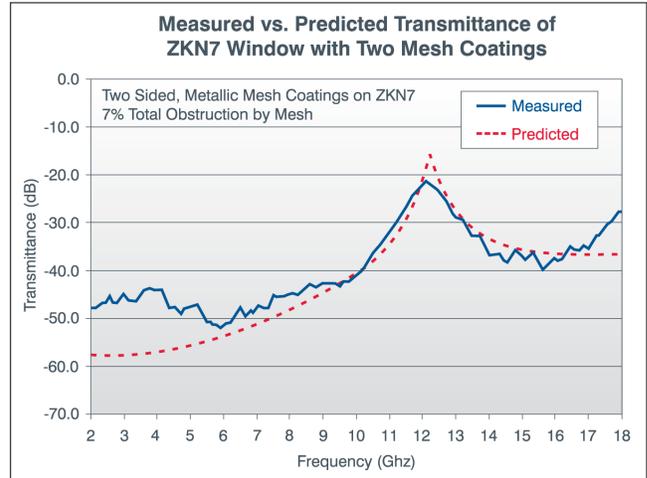


Our world-class lithographic and metallization capabilities enable us to fabricate metallic patterns with micron-sized features over large and curved optics. We are equipped to test for EMI shielding, IR transmission, resistivity, environmental compliance, and other critical performance requirements in our ISO 9001:2008 certified laboratories. Keeping the research and development team close to the product means we solve problems quickly, accurately, and cost effectively.

EXPERIENCE COUNTS

Our clients include the Army, Navy, Air Force, large aerospace contractors, and IR window manufacturers. A partial listing of the projects Battelle has conducted for these clients includes:

- **F-35 Joint Strike Fighter (JSF) Windows** – Battelle is currently in production on multiple windows for the JSF.
- **Large area ZnS Windows**—Battelle has applied metallic mesh coatings to multiple large ZnS windows, some as large as 30-inches by 30-inches, for various programs. Battelle fabricated and delivered 30 sets of mesh-coated windows.
- **Visible/IR Pod**—Battelle designed, fabricated, and tested a randomized mesh for use as a combination EMI shield and defogging heater. Battelle applied the EMI/heater meshes to over 100 sets of large germanium FLIR windows and two ZKN-7 windows for use on a reconnaissance/targeting pod.



- **Javelin Missile Dome**—Battelle designed and applied metallic mesh coatings to over 8000 ZnS Javelin missile domes for the U.S. Army.
- **Resonant Mesh on Missile Domes**—Battelle developed a novel holographic interference technique for fabricating short-wave IR bandpass resonant mesh filters for the U.S. Army Missile Command.

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.

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