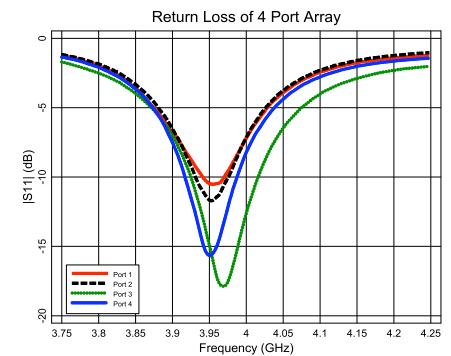
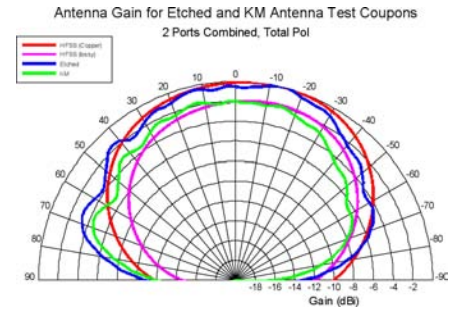
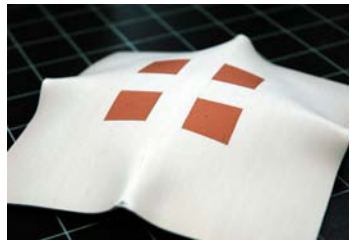
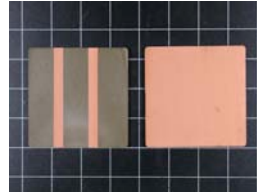


# Kinetic Metallization of Conformal Antenna and Electronics



**Bands:** VHF, UHF, C, D  
**Aperstructures:** Doubly Curved Surfaces  
**Environmentally Safe:** No carcinogens

**Dielectrics:** PTFE Composites, Ultem®, Ceramics  
**Conductor Thickness:** 0.001-.005"  
**Fully Dense Conductors:** >99%



## KM Conformal Antenna Aperstructures

Future SatCom systems for aircraft and spacecraft uplink/downlink applications require that antenna array elements possess enhanced bandwidth, higher efficiency, and gain. Large patch antenna arrays mounted directly on the surface of loading bearing aircraft wings and structures permit implementation of future SatCom systems without the aerodynamic drag of protruding antenna. Current techniques for fabricating conformal antennas are difficult to apply to doubly-curved surfaces of high performance aircraft. For spacecraft applications, the dielectric structures frequently require materials such as Ultem® thermoplastics that survive the radiation environment of space. Doubly curved load bearing dielectric ceramics are also needed for missile and munitions radomes which can survive high temperatures.

Inovati has been developing techniques for applying antenna conductor elements to various doubly curved dielectric materials using Kinetic Metallization. Using a multi-axis robot to translate the KM Spray Gun enables deposition of conductor elements onto doubly curved polymeric and ceramic dielectrics for conformal antenna fabrication. The highly directed narrow beam of the KM nozzle permits deposition of small area patches and trace networks for electrical interconnects and for RF electrical packaging.

## KM Benefits

- Low temperature
- Inert high velocity gas
- Highly directed narrow beam
- Environmentally safe
- No soundproofing
- No grit blasting
- No explosive gas or chemicals

## KM Antenna Characteristics

- Metallic conductors
- Direct write capability
- Doubly curves surfaces
- Polymeric dielectrics
- Ceramic dielectrics

## Application Areas

- Airborne SatCoM
- Spacecraft Antenna
- Missiles & Munition Antenna
- EMI Shielding
- RF Electrical Packaging