

Electrostatic Studies for the 2008 Hubble Service Repair Mission

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Abstract— High vacuum triboelectric testing of space materials was required to identify possible ESD concerns for the astronauts in space during LVPS-2R board replacement on the Hubble Space Telescope. Testing under high vacuum conditions with common materials resulted in some interesting results. Many materials were able to charge to high levels which did not dissipate quickly even when grounded. Certain materials were able to charge up in contact with grounded metals while others were not. An interesting result was that like materials did not exchange electrostatic charge under high vacuum conditions. The most surprising experimental result is the lack of brush discharges from charged insulators under high vacuum conditions.