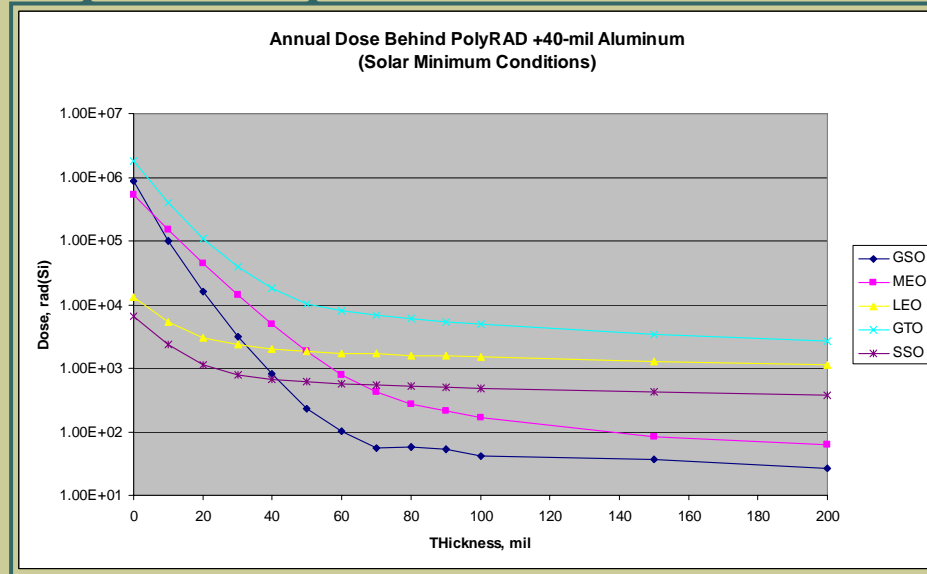
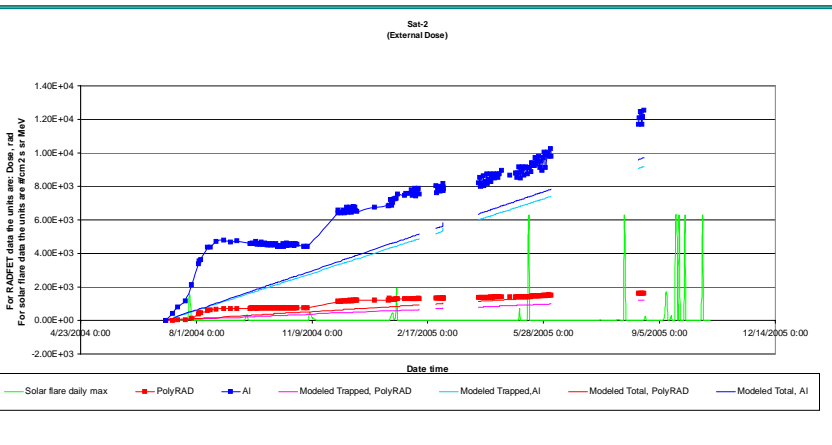


PolyRAD Performance Data



Flight TID Data

Spherical-Equivalent Modeled TID Data



Ground Test Property Data

Specifications

- Thickness:** Tailored to needs
- Density:** 15.7 g/cc, equivalent tungsten
- Outgassing:** TML - 0.062% WVR - 0.002% CVCM - 0.031%
- Maximum Continuous Use Temperature:** 204 °C
- CTE:** $6.1 \times 10^{-6} / ^\circ\text{C}$
- Specific heat capacity:** -14 J/°C **Thermal Conductivity:** 0.03 W/cmK
- Mechanical:** Flex - 4.01 ksi strength, 2.38 Msi modulus
Shear - 6.0 ksi strength
- Electrical Surface Resistivity:** - 1.0×10^9 ohm/square
- Volume Resistivity:** - 4.4×10^9 ohm-cm
- Optical Absorbance:** 0.973-0.804, **Emittance:** 0.658-0.700, **Reflection:** 0.302-0.339

Explanation: The above two plots contain flight and closely modeled data for two identical satellites in a sun-synchronous orbit. For each, aluminum and PolyRAD shielded radfets were located the same on the exterior surface. The flight data show an increase with exposure that “steps” when solar flares occur. Two prediction modelings are included for each shield type, one for trapped radiation & another for trapped + flare radiation which use annual flux data. Therefore the modeled data does not reflect individual flares. Comparisons indicate that for a flight period of approximately one year the modeled data was a correct prediction of PolyRAD’s performance. Thus the Spherical-equivalent data shown in the upper right is a reasonable prediction of PolyRAD’s performances in other orbits.