

VSRS is a lightweight, conformal radiation shield that improves reliability and lifetime of COTS components in LEO, MEO, and GEO radiation environments.

Capabilities

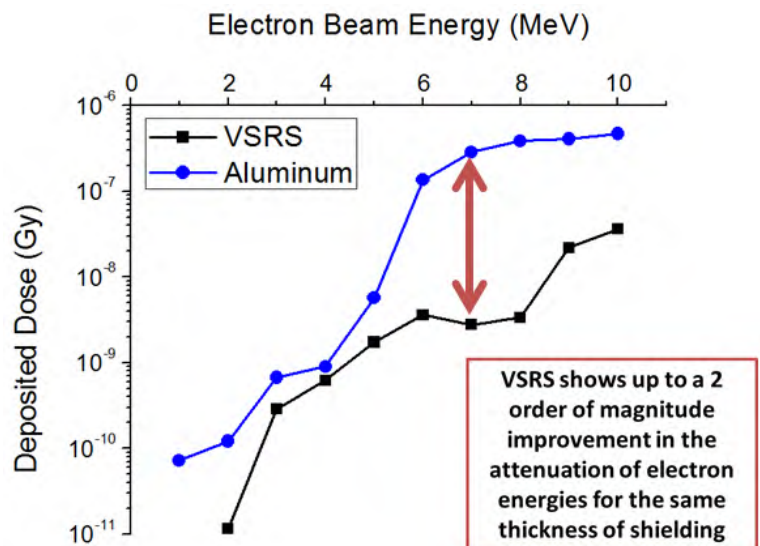
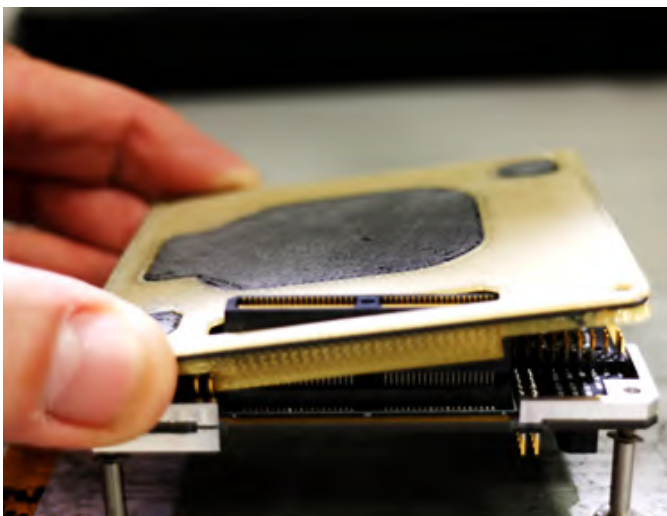
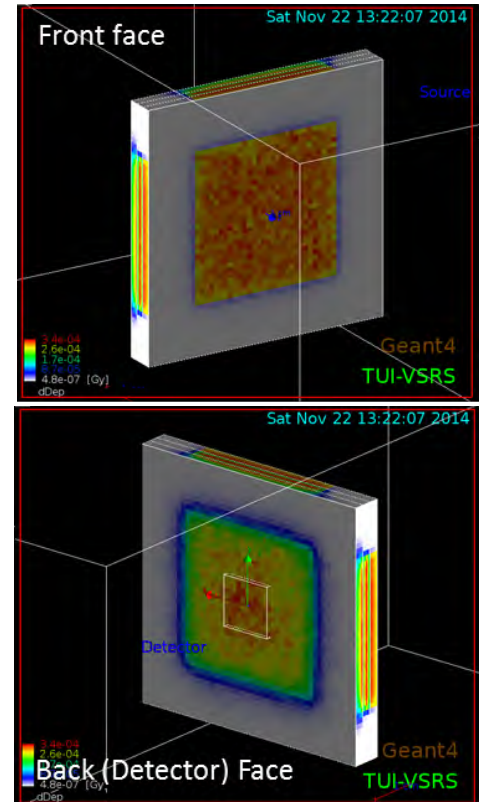
VSRS uses the power of 3D-printing to create optimized, conformal radiation shielding that can be tightly integrated with electronics stacks or layered with traditional aluminum shielding. Through the optimization of the ratio and placement of both low and high atomic number materials, VSRS performs significantly better as a radiation shield than aluminum:

- Two orders of magnitude improvement in attenuation of electrons for the same thickness of shielding
- 3x improvement in attenuation per unit mass in Geostationary orbit

TUI has developed a sophisticated simulation toolkit based on the Geant4 physics engine to design optimized shielding for nearly any geometry and environment.

- Accepts mass or thickness constraints as well as mission location and duration to optimize radiation shielding on a case-by-case basis

With the flexibility enabled by multi-material 3D printing, VSRS can be optimized and produced affordably over a range of scales suitable for systems ranging from picosatellites to manned spacecraft.



VSRS shows up to a 2 order of magnitude improvement in the attenuation of electron energies for the same thickness of shielding