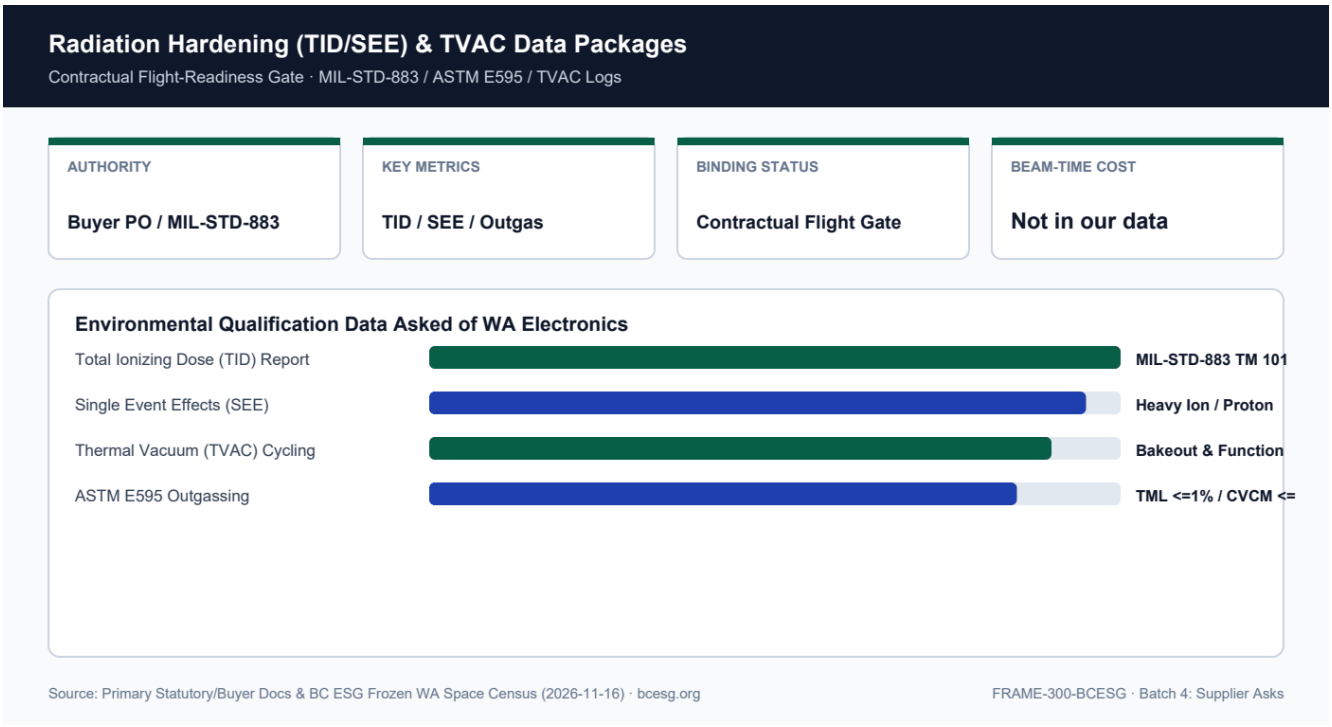
Space Radiation Hardening (TID/SEE) & TVAC Test Data Packages

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Verification & Authority Baseline: Contractual engineering qualification asks issued by satellite and lunar primes referencing MIL-STD-883, NASA/GSFC radiation guidelines, and ASTM E595 outgassing. Not a statute; binding when written into prime flight-hardware POs.



Test Package	Standard / Metric	Required Deliverable
TID / SEE Radiation	MIL-STD-883 / NASA-GSFC	Lot radiation test report or heritage trace
TVAC / Bakeout	Program thermal profile	Chamber pressure/temp curves + functional pass
Outgassing	ASTM E595 (TML <=1.0%, CVCM <=0.1%)	Material lot outgassing test cert

Who Issues This Ask, Authority, and Binding Status

Satellite and cislunar primes ask WA electronics and payload vendors for **Total Ionizing Dose (TID)**, **Single Event Effects (SEE)**, **Thermal Vacuum (TVAC)**, and **ASTM E595 outgassing** test reports.

Binding status: These are **contractual technical specifications** (not statutes), binding when invoked by a buyer's Statement of Work or ICD.

Evidence Required & Small-Supplier Effort Cost

Suppliers submit lot-specific **radiation test reports** (or heritage analysis) and **TVAC thermal-profile logs**—often executed via specialized WA test providers like The Radiation Team (Tukwila/Renton) or SpaceRig (Seattle).

Cyclotron/heavy-ion beam time and TVAC chamber rates are **not in our data**.

WA Space Cluster Segments & Companies Affected

Affects Components & Suppliers (The Radiation Team, Xanfab, Crane Aerospace & Electronics) and In-Space Servicing.

Verified Primary Sources & Internal Bridges

• NASA Technical Standards System: https://standards.nasa.gov/