JPL is able to apply its technologies, facilities, and expertise to assist our partners in product improvement and problem solving to reduce risk.

Electron Irradiation Facilities
ELECTRON BEAM IRRADIATION FACILITIES

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
4800 OAK GROVE DRIVE, PASADENA, CA
Dennis Thorbourn, Sec. 514
(818) 354-1830
JPL DYNAMITRON ACCELERATOR

MAIN BEAM TUBE

CONTROL CONSOLE
SCHEMATIC OF ELECTRON ACCELERATOR
RADIATION EXPOSURE LEVELS

- **ELECTRONS**: AT ENERGIES OF 0.3 TO 2.0 MeV
- **TYPICAL FLUX**: 1 E+10 TO 1 E+12 ELECTRONS/CM^2 – SEC
- **DOSE FACTOR**: 2.4 E-8 RADS/ELECTRON-CM^2 (@ 1MeV)
- **TYPICAL DOSE**: 1.2 E+4 RADS (Si EQUIVALENT) PER SECOND
- **ONE GIGARAD DELIVERED IN APPX. 12 HOURS**
- **ENERGIES**: OF LESS THAN 0.4 MeV AVAILABLE WITH SCATTERING FOILS (BUT LARGE BEAM LOSS)
- **FLUENCE**: DETERMINED FROM FARADAY CUP AND ELECTRON CURRENT INTEGRATION
- **VACUUM PRESSURE**: 1 E–5 TORR
- **TARGET SIZE**: 12.7 x 12.7 CM (5” x 5”)
- **TARGET TEMPERATURES**: LN2 (77°K) TO APPX. 150°C (423K)
APPROXIMATE COSTS AND CONTACTS

• NOT INCLUDING SAMPLE PREPARATION, CONDITIONING OR TESTING, APPX. $250 PER HOUR, MACHINE TIME
• MULTIPLE ENERGY EXPOSURES POSSIBLE (IN SEQUENCE)
• EXPOSURES IN BOTH VACUUM AND AIR POSSIBLE
• SPECIALIZED SAMPLE PREPARATION AND TESTING AVAILABLE
  – MECHANICAL TESTING, CHEMICAL ANALYSIS, THERMO-OPTICAL PROPERTIES, SPECTROSCOPY, DIELECTRIC CONSTANT, SURFACE RESISTIVITY, SEM MICROSCOPY, ETC.

• CONTACT PERSONNEL:
  – DENNIS THORBOURN (818) 354-1830 TEST LEAD
  – ROY SCRIVNER (818) 354-1058 SCHEDULING & TESTING
  – BOB MUELLER (818) 354-0694 LILT, X-25 & PV CELLS
  – PAUL B. WILLIS (818) 354-6998 MATERIALS EFFECTS
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