



BOEING RADIATION EFFECTS LABORATORY

The ultimate proving ground for more than 50 years.



Since 1963, Boeing Radiation Effects Laboratory (BREL) has helped companies protect their people and products around the world and into space. Contact us for more information about contracting opportunities, capabilities, and pricing.

BREL Services

- Radiation effects testing of electronics and materials: total dose, dose rate, displacement damage, single-event effects
- Radiation modeling
- Combined radiation-effects testing
- Space simulation: solar, Van Allen, cosmic rays, UV
- Man-made effects simulation
- Flight altitude
- Program hardness assurance
- Survivability and vulnerability analysis

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Cutting-edge technology. World-class people.

BREL is the largest private radiation test lab in aerospace, leading the industry in radiation simulation, testing, and qualification of materials and electronics.

In addition to state-of-the-art equipment, BREL has a team of world-class physicists, engineers, and technicians with decades of experience and knowledge in radiation effects environments. And by having comprehensive access to some of the world's best

irradiators, accelerators, and other test capabilities in a single location, the laboratory is able to conduct cutting-edge simulations of both natural and man-made radiation environments at a competitive cost.

Program Support

	Linac	FX-75	Dyna- mitron	CRETC	Kaman Sciences A-711	Gamma Source R	Gamma Source E	Gamma Source F	Open- Field Gamma Irradiator
Type	e ⁻	✓	✓	✓	✓				
	p ⁺			✓	✓				
	γ	✓	✓		UV	✓	✓	✓	✓
	Neutron					✓			
Mode	Pulse	Pulse	DC	DC	DC	Continuous			
Maximum dose rate (rad[Si]/s)	1e11	1e14		Solar and UV: 1.3 Sun		13	110	1	2
Minimum dose rate (rad[Si]/s)						5	43	< 0.001	< 0.003
Maximum energy (MeV)	10	6†	2.5	e ⁻ :100keV p ⁺ :75keV	14	1.25 (average)			
Minimum energy (MeV)		3	.010	e ⁻ :1keV p ⁺ :15keV					
Maximum beam current (part/cm2)	2A		e ⁻ :3e11 p ⁺ :1e10	100x space rates					
Maximum target size	4" x 4" ‡	48" x 48" ‡	12" x 12"	6" x 6"	12" x 12"	5.5" x 7"	5.5" x 7"	6" x 9"	

†End point energy. Bremsstrahlung peak energy is approximately 280 keV.

‡Dependent on uniformity and dose rate.

Contact Us

For more information about the Boeing Radiation Effects Laboratory and related services:

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