

Cobalt 60 High Dose Rate, Gamma Irradiation Facility 1

Type: Co-60 radioisotope source, J. L. Shepherd and Associates Model 81.

Application: Gamma total dose. MIL-STD 750 & 883, TM 1019

Availability: Operational and available.

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: Up to 50-cm height by 50-cm width (20 in x 20 in)

General Description: Panoramic irradiator contains a single 2600-Curie source (August 2015). Irradiation chamber is 32-in deep by 24-in wide by 22-in high, with source approximately centered in the chamber. The radiation dose rate varies with distance from the source, with the maximum dose rate at a distance of 50 mm from the source centerline of 250 rads(Si)/s or 15 krad(Si)/minute. The minimum practicable dose rate is 3.0 rads(Si)/s or 180 rads(Si)/minute at a distance of 500 mm (20 in) from the source centerline.

Technical Characteristics:

Source Strength:	2600 Curies
Dose rate (8/2015):	maximum 250 rads(Si)/s or 16 krad(Si)/minute; minimum 3.0 rads(Si)/s or 180 rads(Si)/minute
Calibration:	traceable to NIST

Instrumentation and Data Collection: Includes Devices LTS2020 tester, digital and analog curve tracers, power supplies, computer-controlled instrumentation and data reduction software, bias boards, dosimetry, and ESD work stations.

Special Features and Requirements: All irradiations conducted using lead/aluminum enclosure per MIL-STD 883, Method 1019.7 specification. Experienced support staff are available to design, conduct or support any test.

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



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Cobalt 60 Low Dose Rate, Gamma Irradiation Facility 2

Type: Co-60 radioisotope source. J. L. Shepherd and Associates

Application: Gamma total dose. MIL-STD 750 & 883, TM 1019

Availability: Operational and available.

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: Up to 100 cm height by 100 cm width (40 in x 40 in)

General Description: Contains a single 270-Curie source (August 2015). Irradiator room is approximately 14 ft x 20 ft with source approximately centered in the room. The radiation dose rate varies with distance from the source respective source, with the maximum dose rate at a distance of 50 cm from the source centerline of about 0.12 rads(Si)/s or 7 rads(Si)/minute. The minimum dose practicable dose rate is 1mrad(Si)/s or 6mrad(Si)/minute at a distance of 15 ft from the source centerline, with attenuation.

Technical Characteristics:

Source Strength:	270 Curies
Dose rate (8/2015):	maximum 0.12 rads(Si)/s or 7 rads(Si)/minute; minimum 1 mrad(Si)/s or 0.06 rad(Si)/minute
Calibration:	traceable to NIST

Instrumentation and Data Collection: Includes Devices LTS2020 tester, digital and analog curve tracers, power supplies, computer-controlled instrumentation and data reduction software, bias boards, dosimetry, and ESD work stations.

Special Features and Requirements: All irradiations conducted using lead/aluminum enclosure per MIL-STD 883, Method 1019.7 specification. Experienced support staff are available to design, conduct or support any test.

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



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Cobalt 60 Low Dose Rate, Gamma Irradiation Facility 3

Type: Co-60 radioisotope source. J. L. Shepherd and Associates

Application: Gamma total dose. MIL-STD 750 & 883, TM 1019

Availability: Operational and available.

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: Up to 100 cm height by 100 cm width (40 in x 40 in)

General Description: Contains a single 80-Curie source (August 2015). Irradiator room is approximately 14 ft x 20 ft with sources approximately centered in the room. The radiation dose rate varies with distance from the source respective source, with the maximum dose rate at a distance of 50 cm from the source centerline of about 40mrads(Si)/s or 2.4rads(Si)/minute.

Technical Characteristics:

Source Strength:	80 Curies
Dose rate (8/2015):	maximum 40 mrads(Si)/s or 2.4 rads(Si)/minute;
Calibration:	traceable to NIST

Instrumentation and Data Collection: Includes Devices LTS2020 tester, digital and analog curve tracers, power supplies, computer-controlled instrumentation and data reduction software, bias boards, dosimetry, and ESD work stations.

Special Features and Requirements: All irradiations conducted using lead/aluminum enclosure per MIL-STD 883, Method 1019.7 specification. Experienced support staff are available to design, conduct or support any test.

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



Contact: Dr. Joseph Benedetto, General Manager / Dr. Terry Deaton, Laboratory Supervisor

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Dose Rate/Flash X Ray Facility

Type: Pulserad 112A Flash X-Ray.

Application: X-rays. MIL-STD 750 & 883, TM 1020, TM 1021

Availability: Operational and available

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: up to 50 cm x 50 cm.

General Description: The Pulserad 112A is a flash x-ray generator, used primarily for dose rate or prompt upset/recovery testing for individual electronic components. The configuration is flexible and can be changed to meet the needs of particular experiments.

Technical Characteristics:

Voltage: 1.75 MV (peak diode) Dose: 2,500 rads(Si) at faceplate

Dose rate (maximum): $1.0E+11$ rads(Si)/s at faceplate; $2.0E+10$ rad(Si)/s at 3 cm

Rise time (10 to 90%): 5 ns

Pulse width (FWHM): 20 ± 2 ns

Instrumentation and Data Collection: Tektronix 3034 digital scopes, TLD dosimetry, PIN diode for pulse history.

Special Features and Requirements: All irradiations conducted in accordance with Method 1020 & 1021 specifications. Experienced support staff are available to design, conduct or support any test.

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



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14 MeV Neutron Generator Facility

Type: MF Physics model A-1254, 14 MeV neutron generator.

Application: Neutrons for displacement damage and Single Event Upset (SEU) testing programs. MIL-STD 750 & 883, TM 1017

Availability: Operational and available.

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: Variable; depending on application.

General Description: The facility consists of an MF Physics model A-1254 neutron generator (accelerator type) that can produce high fluxes of 14 MeV (nominal) neutrons. Dosimetry support is available.

Technical Characteristics:

- Energy (particle): 14 MeV nominal
- Neutron flux (maximum): greater than $1.0E+10$ n/cm²/s*
- Target area (maximum): limited only by room and doorway dimensions

*For 1-cm diameter sample placed at surface of accelerator head.

Instrumentation and Data Collection: Includes Devices LTS2020 tester, digital and analog curve tracers, power supplies, computer-controlled instrumentation and data reduction software, bias boards, dosimetry, and ESD work stations.

Special Features and Requirements: All irradiations conducted in accordance with Method 1017 specifications. Experienced support staff are available to design, conduct or support any test.

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



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1 MeV Pelletron Electron-Beam Source

Type: NEC (National Electric Corporation) 1.0 MeV Pelletron

Application: Continuous Wave Electron Beam.

Availability: Operational and available

Host Location: Cobham RAD Solutions, Colorado Springs, CO.

Sponsor: N/A

Operator: Aeroflex RAD, Inc. dba Cobham RAD Solutions

Test Object Size: up to 100 cm x 100 cm.

General Description: The 1.0-MeV Pelletron fabricated by National Electrostatics Corporation (NEC) of Middleton, WI. is currently configured with drift tube and a large test chamber, along with appropriate beam control magnets. Direct illumination of a large area is accomplished by scanning the electron beam. In the current configuration, the irradiated area can be increased by as much as 4X without significant rework of the beam scan apparatus. Beam energies can be presently controlled to within 10%, primarily due to the voltage ripple on the charge injection source on the Pelletron. The beam current is stable to within a few percent at currents up to 10 microamps.

Technical Characteristics:

Particle Energy: 1.0 MeV

Surface Dose Rate: @ 800 keV and 5 microamps, target of 6 cm x 6 cm, ~100Mrad/hr.

Pulse Width: Continuous Wave

Beam Current (max): 30 microamps

Beam Current (nom.): 5 microamps

Beam Diameter: 4mm

Scan Area: 150mm x 150mm

Typical Costs and Schedule Lead Times: Request quote for daily rental and/or radiation test program. Typically two to four week lead time.



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