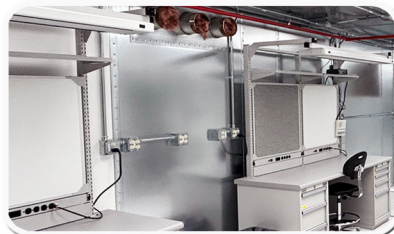


## SPECIAL FEATURES



Mass concrete for radiation safety shielding to encase the SPG testing area.

Radio Frequency (RF) electromagnetic interference (EMI)/electromagnetic pulse (EMP) shielded screen room for test data acquisition. The container is equipped with incoming power line EMI/RFI filters for isolation from electrical disturbance or harmonics which may be induced on the copper conductors during equipment operation.

4'x4' Test Table with 1-ton load limit located in SPG test cell. The table is positioned on floor mounted rails capable of operating in the full X, Y, and Z-axis.

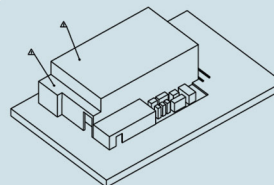
Electrical earth grounding options for each lab bench and Test Table within test cell.

Electro-static Dissipative (ESD) floor interior to test cell and RF shield room.

ESD certified workstation and workbenches.

Within SPG test cell, RF screen room, and workbenches around the open bay area of the facility -- multiple receptacles, including 120VAC/1Ph/20A, 120VAC/1Ph/15A, 120VAC/1Ph/30A and 208VAC/1Ph/30A

The Test Cell and RF shield room are environmentally controlled @ 68-82F and 40-65%RH.



### Store (Marx)

- Acquire energy from HVDC
- Temporarily store energy until discharge
- Discharge via electrical ancillaries (Trigger)
- Route energy to the pulse conditioning



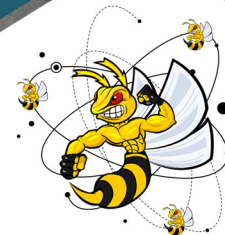
### Condition

- (Oil, Line, PFL, & Voltage Adders)
- Shape energy pulse through the pulse forming lines, switches, and cells
  - Feed energy through the voltage adder into the converter



### Convert (Diode)

- Convert electrical energy into radiation energy
- Emit desired radiation energy toward target

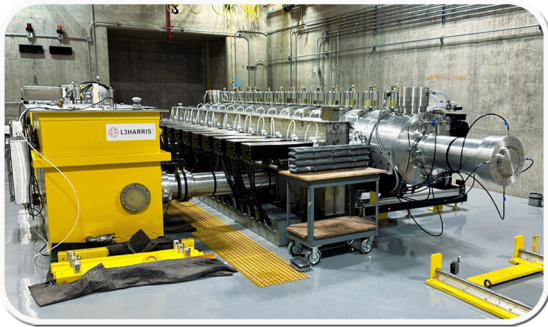


## SHORT PULSE GAMMA "The Bumblebee"

## SHORT PULSE GAMMA (SPG) TEST CAPABILITY

The **Short Pulse Gamma (SPG)** is a compact, “second generation” of Inductive Voltage Adding (IVA) technology, where the Pulse Forming Lines (PFLs) are charged directly by Marxes instead of by an intermediate stage of pulse compressions.

These IVAs take advantage of their short output pulse requirement and recently developed low inductance fast Marx generator to reduce the size of the simulator while creating very high dose rate output and maintaining modest sized subsystems that are easy to access, operate, and maintain.



PARAMETER	UNIT	THRESHOLD	PREDICTED
Peak End Point Energy	MeV	$\geq 3$ $\leq 8$	7-9
Dose Rate Pulse Width (FWHM)	ns	$10 \pm 2$	11.0
Dose Rate Pulse Rise Time	ns	$\leq 5$	4.1
Exposure Dose Rate (X-ray)	rad(Si)/s	$\geq 3 \times 10^{12}$	$\geq 4.8 \times 10^{12}$
Exposure Area Diameter	cm	$\geq 4$	9.2
Throughput Jitter	ns	$\leq 10$	1.6
Shot Rate @ Exposure Dose Rate	per 8 hour day	$\geq 21$	$\geq 21$
Usable Shots	%	$\geq 70$	$\geq 70$

The “**Bumblebee**” SPG system provides a prompt-dose environment for **Research, Development, Test and Execution (RDT&E), qualification, and radiation lot acceptance testing** of radiation-hardened microelectronics at the piece-part level within the strategic environment.

## SUPPORT SERVICES OFFERED

<b>Model USC26-123008</b>	
<i>Nominal Inside Dimensions (30.0' Long x 12.0' Wide x 8.0' high)</i>	
<i>USC26 Rigid Wall, Free Standing, Modular RF Shielded Enclosure, floor, walls and ceiling are all rigid wall panels</i>	
FIELD TYPE	USC-26 TYPICAL ATTENUATION
Magnetic	21dB at 1 kHz, 58 dB at 15 kHz, 90 dB at 100kHz
Electric	100 dB from 15 kHz, 58 dB to 50 MHz
Plane Wave	100 dB from 50 kHz, 58 dB to 10 MHz
Microwave	100 dB at 10 GHz

Support includes shipping, receipt, management, dosimetry and test coordination and scheduling.

General engineering, test support, and miscellaneous materials (i.e. cabling, electrical supplies, etc.) provided.

Delay triggers to synchronize data acquisition with the SPG pulse.

Custom cable runs available.

High speed acquisition equipment and power supplies available up request.

Shop equipment (mill, drill press, saws, soldering station) available on-site.

Weight handling equipment (WHE) which includes a 3-ton bridge crane for handling test equipment.



## CONNECT WITH CRANE

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TECHNICAL DIRECTOR

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DEFEND  
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