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Trial Installation Data

March 2025

G&G's RRX Radiation Resistant LED Linear luminaire is designed to CERN open source standards of withstanding a minimum of 10 kGy/yr, making the RRX fixture a perfect solution for particle accelerator facilities in which there is not currently an alternate LED product capable of contending in the US. It's the first American-made radiation resistant LED lighting solution on the market. Engineered only with materials with a high threshold displacement energy, the RRX does not contain any traditional silicon semiconductor devices that are easily damaged by radiation. Radiation-resistant technologies leveraging Gallium Nitride (GaN) avoid the use of traditional silicon semiconductor devices like MOSFETs, which are vulnerable to radiation damage. Instead, RRX utilizes advanced materials with high threshold displacement energy, such as GaN and Silicon Carbide (SiC), ensuring superior durability and performance in high-radiation environments.

Since its initial inception, G&G has partnered with several customers who have installed RRX in their facilities to trial in areas where radiation exposure has been notoriously detrimental to alternative light sources. Details of these trials and results are as follows:

- **NextBeam** - Electron Beam Sterilization
  - Radiation Level: 3.972 kG/hr
  - Estimated Hours: 4,320
  - Total Exposure Dosage: 16,381 kGy
  - Fixture Condition - Functional, no signs of degradation

- **FLEX** - Electron Beam Sterilization
  - Installed in the accelerator room; fixtures remain fully functional with no degradation after 16 months. No measured dose rates or total doses available.

- **SLAC** - Particle Accelerator
  - Installed in various locations throughout the tunnel
  - Dose Rate: Up to 12kGY/yr
  - Total Dose: Not Measured
  - Results: Fully functional with no degradation after almost 2 full years.