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Engineering, Manufacturing and Validation of Microwave Thermionic Electron Gun for Advanced Photon Source Upgrade*

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Recently, RadiaBeam has designed, manufactured, high power tested and delivered a robust production ready S-Band thermionic RF gun with optimized electromagnetic performance, improved thermal engineering and robust yet precise cathode mounting technique. This gun will facilitate performance improvements of existing and future light sources, industrial accelerators, and electron beam driven terahertz sources. Unlike conventional electrically or side-coupled RF guns, this new gun operates on pi-mode, with a help of magnetic coupling holes. This new iteration of thermionic electron gun was redesigned for cost efficiency without sacrificing performance. Thermal simulations, mechanical engineering, manufacturing and high power testing results will be presented.

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Yes

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