

A brief history of the X-Band accelerator development program will be presented. The original development program was funded by the Electric Power Research Institute to provide an inspection tool for Nuclear Power plant use.

Medical use development followed 10 years later. The small size and light weight components made possible by the use of X-Band technology, which operates at a frequency three times higher than the conventional S-Band, led to the advent of a much more easily supported, mounted and manipulated system. This in turn makes it possible to improve aiming accuracy and allow real time image guided radiosurgery with a high degree of confidence that the X-Rays are directed accurately to the treatment area. The X-Band technology also made it possible to design and deploy a portable electron beam therapy unit for use in surgery without the need for a shielded room while treating with energies up to 12 Mev.

Updated information on applications and clinical results for X-Ray radiosurgery and Intraoperative electron beam therapy will be reported. Recent technology advances in both accelerators and guidance systems will be presented.