

Mechanical Simulation with Electrical and Dimensional Tests for AISHa Containment Chamber

Authors : F. Noto, G. Costa, L. Celona, F. Chines, G. Ciavola, G. Cuttone, S. Gammino, O. Leonardi, S. Marletta, G. Torrissi

Abstract : At Istituto Nazionale di Fisica Nucleare – Laboratorio Nazionale del Sud (INFN-LNS), a broad experience in the design, construction and commissioning of ECR and microwave ion sources is available. The AISHa ion source has been designed by taking into account the typical requirements of hospital-based facilities, where the minimization of the mean time between failures (MTBF) is a key point together with the maintenance operations, which should be fast and easy. It is intended to be a multipurpose device, operating at 18 GHz, in order to achieve higher plasma densities. It should provide enough versatility for future needs of the hadron therapy, including the ability to run at larger microwave power to produce different species and highly charged ion beams. The source is potentially interesting for any hadron therapy facility using heavy ions. In this paper, we analyzed the dimensional test and electrical test about an innovative solution for the containment chamber that allows us to solve our isolation and structural problems.

Keywords : FEM analysis, electron cyclotron resonance ion source, dielectrical measurement, hadron therapy

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