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## **Cold Tests and Magnetic Characterization of a Superconducting Magnet for a Compact Cyclotron for Radioisotope Production**

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A superconducting magnet able to provide the required field of 4 T has been developed for a compact cyclotron to produce radio isotopes for medical imaging, in the framework of AMIT project. It consists of two coils in Helmholtz configuration, embedded in a stainless steel casing to hold the Lorentz forces. The cooling scheme is based on a low pressure forced internal flow of two-phase liquid-vapour helium through a narrow channel machined in that casing. This paper reports about the cooling tests. Firstly, liquid helium from dewars has been used to train the magnet and estimate the thermal losses. Afterwards, a custom closed circuit re-condenser – so called Cryogenic Supply System (CSS)- has been tested. It would allow a user-friendly operation of the cyclotron, without external supply of cryogens. Finally, a custom magnetic measurement bench, developed in collaboration with ALBA/CELLS, has been used to map the magnetic field and shim the iron pole to achieve the required field quality.

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