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Upgrade of the CERN Cobalt-60 (CC60) facility

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The CERN Cobalt-60 facility serves different essential purposes in the context of the R2E project. Firstly, Total Ionizing Dose (TID) testing is a crucial step for the qualification of components candidate for the electronics installed in the CERN accelerators' radiation environment. At the CC60, the screening of components produced by different manufacturers can be easily performed. Moreover, thanks to the large irradiation area available, entire systems and multiple users testing in parallel are allowed. Secondly, testing materials to be employed in high radiation level areas, such as the particle detector of the experiments, can be done by installing small samples in the aperture of the irradiator, and hence exposed to high dose rates (up to 300 Gy/h). Finally, the accuracy on the facility calibration allows to carry on R&D on solid state dosimeters, like RadFETs, Floating Gate Dosimeters, NMOS dosimeters, Optical Fiber Dosimeters, and Gafchromic films.

To face the increasing number of requests, a new 110 TBq Co-60 source, 10 times more active than the current source, will be soon installed. The source installation requires the upgrade of the infrastructures to deal with the higher radiation levels, as well as the collaboration of different entities, including external companies, to safely transfer the new source in the irradiator. The upgrade of the facility will be beneficial for the whole R2E community.

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