The IFMIF (International Fusion Materials Irradiation Facility) is an accelerator-based DLI neutron source designed to test fusion reactor candidate materials for high fluence neutrons. Before deciding IFMIF construction, an engineering design and associated experimental data acquisition, defined as EVEDA, has been proposed.

Along the EVEDA accelerator, deuteron beam losses collide with the accelerator materials, producing activation and consequent radiations responsible of dose.

Calculation of the dose rates in the EVEDA accelerator room is necessary in order to analyze the feasibility for manual maintenance.

Dose rates due to the activation produced by the deuteron beam losses interaction with the accelerator materials, will be calculated with the ACAB activation code, using EAF2007 library for deuteron activation cross-sections.

Also, dose rates from the activation induced by the neutron source produced by the interaction of deuteron beam losses with the accelerator materials and the deuterium implanted in the structural lattice, will be calculated with the SRIM2006, TMAP7, DROSG2000/NEUYIE, MCNPX and ACAB codes.

All calculations will be done for the EVEDA accelerator with the room temperature DTL structure, which is based on copper cavities for the DTL. Some calculations will be done for the superconducting DTL structure, based on niobium cavities for the DTL working at cryogenic temperature.

Final analysis will show the dominant mechanisms and major radionuclides contributing to the surface dose rates.

Number of words in abstract: 219

Keywords:
Technical area: A1. Irradiation facilities (fission, spallation, IFMIF, charged particles) and innov
Special session: Not specified
Presentation: No preference
Special equipment: No special equipment