

Crew Active Dosimeter Project Overview: ISS Ops, Commercial Crew, Artemis I

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Monitoring space radiation is of vital importance for risk reduction strategies in human space exploration. Crew worn active dosimeters providing time-resolved dose data are required for long-term Exploration Class Missions to Moon and Mars.

Thus, the Space Radiation Analysis Group at NASA Johnson Space Center has developed the Crew Active Dosimeter (CAD) to be the designated personal dosimeter for Artemis 2+ missions. The CAD device, based on direct ion storage technology, was developed in collaboration with Mirion Technologies, USA to meet NASA's specific design requirements for Exploration missions outside low-Earth orbit (LEO). The CAD is a battery-operated, small volume, compact device equipped with a display that tracks the mission cumulative dose and dose rate. Following a successful Technology Demonstration on the International Space Station (ISS) in 2018, the CAD has been certified for ISS Flight Operations and fully implemented since 2020 on all SpaceX crewed missions. In addition, multiple CADs have been delivered in August 2022 to support several of the Orion Artemis I flight Secondary Payloads: Commander "Moonikin" Campos, the Matroshka AstroRad Radiation Experiment (MARE) and BioExpt-1.

This presentation will include an overview of the CAD Project and certification process for the ISS and Orion Programs, CAD radiation dosimetry report overview and future work.

This presentation will not be posted on the web-page

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