

54th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE  
ACTIVITIES (D5)

Prediction, Testing, Measurement and Effects of space environment on space missions (3)

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University of British Columbia, Canada, noah.tajwar@gmail.comCHARACTERISING THE RADIATION HARDNESS OF COTS COMPONENTS DURING LIMITED  
TESTING SESSIONS.**Abstract**

Small satellite designers often select Commercial-Off-The-Shelf (COTS) components, such as micro-processors, memory modules and even computers, over their space-qualified counterparts to maintain a reasonable budget and rapid development cycle despite the associated risks. In most cases, COTS manufacturers do not qualify their components for operation in the radiation environment that they will encounter in space. The burden of radiation testing and validation often falls on the designers. However, access to radiation testing facilities can be limited and expensive; thus, it is paramount for designers to perform their tests in a short period efficiently.

This work presents UBC Orbit's radiation testing procedure, using a Raspberry Pi Compute Module 1, during a two-hour-long testing session. We will present our testing methods, the software developed to detect single event effects, and our testing results. We will discuss possible improvements to our testing procedure and introduce further test automation strategies.