

Space Radiation Effects Study on Microelectronics

Code: 20/10

Company: Cobham RAD Europe Ltd

Location: Harwell, Oxfordshire

Company Description:

Cobham is a leading global technology and services innovator, respected for providing solutions to the most challenging problems, from deep space to the depths of the ocean. We provide critical solutions on land, at sea, and in the air and space, by moving data through off-the-shelf and customised products including RF, microwave, and high reliability microelectronics, antenna subsystems and motion control solutions.

Cobham RAD Europe provides a comprehensive offering of radiation testing services and advice to customers in the space, nuclear and industrial sectors. We have a focus on assessing the suitability of highly integrated devices, such as processors and FPGAs, for use in the natural space radiation environment, but also cover applications from materials used in nuclear reactors to medical scanners and qualifying wafer lots of discrete components.

Project Description:

Dealing with radiation effects is one of the most challenging aspects of operating electronics in the space environment. International standards exist to define a consistent and reliable methodology for radiation testing. ESA's current best practice for assessing the susceptibility of components to this environment is being revised and this project will contribute to the exercise. The main project involves the testing of 1,000 quad comparators over twenty full test runs, followed by in-depth statistical analysis of the results. Based at Harwell and using our own irradiation facility, it is anticipated that the SPINtern will be able to carry out up to four of these runs. The work will involve the following tasks:

- selection and procurement of electronic components
- designing, building and setting up test boards
- using test instruments to make measurements on samples
- exposure of the samples to ionising radiation
- data analysis, including statistical assessments
- report writing
- In addition, there is the possibility of involvement in other test campaigns undertaken by the company, depending on contracts secured nearer the time.

Applicant Specification:

Sound practical skills, attention to detail, reliability. In the final year of undergraduate study or, preferably, with a completed first degree, probably in physics, electronic engineering, mathematics or a related subject

Minimum Requirements:

About to commence or in the course of relevant MSc/PhD studies involving at least one of the following topics: electronics engineering, component-level design, use of comparators or operational amplifiers, statistical analysis of sample data.

Preferred Additional Requirements:

Experience of more than one of the topics above. Previous experience of handling and using electronic components in practical circuits, whether as part of a taught course, as previous work experience or in a hobby context, will be highly advantageous.

Further details:

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 15 June 2020 to attend the SPIN Induction day at the Satellite Applications Catapult, and completion before mid-September. Salary is £1,500 per calendar month gross.

Closing Date for Applications: 5pm Thursday 19 March

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.