

Experience in hardness control of electronic components for space application to high energy particles

Monday, 12 December 2016 14:50 (30 minutes)

The impact of high energy particles to space first and foremost connected with heavy ions are the main natural force, which determined the working capacity of electronic components that are used in the electronic equipment for spacecraft. For the last 7 years by the cooperation of the Branch of JSC "URSC"–"ISDE" and JINR FLNR have made and have been using unique in the country test facility of electronic components hardness control to heavy ion particle impact. For this period by the effort of the five testing laboratories have been tested more than 3000 electronic component part types. In the abstract would be used short summary of space ionizing radiation and their impact to electronic components, the modern approach to the preparation, carrying out tests and interpretation of tests scores, also would be detailed information about test facilities on the base of accelerator U400 and U-400M in the JINR FLNR, despite that we would like to tell you about method which are used to control and definition of beam characteristics, we have also found out the advantages and disadvantages of using testing foundation and methodology. We are based on the long experience of using heavy ion accelerators for carrying out tests, because we want to put out the disadvantages, we also would like to present the requirement of using superhigh energy facilities (such as NICA) for hardness control assurance of the long range electronic components item for space application. In the conclusion we would like to formulate the requirements to test facility with the use of high energy ions and we would like to make suggestions about future cooperation.

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Session Classification: Radiobiology session: Continue