



Radiation Test Standards for Space – MCQ correction

RADSAGA Training Workshop – March 2018

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Question 1:

In space, high energy heavy ions mainly come from:

- The sun
- The Galactic Cosmic Rays
- The Van Allen belts

Question 2:

Which of these radiation induced phenomenon is not cumulative.

- TID
- SEFI
- DDD

Question 3:

High temperature is worst case condition for:

- SEU
- SEB
- SEL

Question 4:

The TID deposited in a given material by an incident charged particle depends on:

- The target material
- The incident particle type and energy
- Both of them

Question 5:

Protons can induce:

- TID
- TNID
- SEE
- All of them

Question 6:

NIEL expresses the ability of a particle to:

- Deposit TID
- Deposit TNID
- Destroy the Device Under Test



Question 7:

Which of these SEE is destructive and cannot be protected

- SEL
- SEB
- SEGR

Question 8:

Regarding SEGR, the result of a test is:

- A parametric drift curve
- A cross section curve
- A safe Operating Area

Question 9:

Beam propagates in air when its energy is bigger than:

- 1MeV/n
- 10MeV/n
- 1GeV/n

Question 10:

Which beam doesn't deposit TID by direct ionization?

- Heavy ions
- Neutrons
- Protons

Question 11:

The LET of a beam can be modified by:

- Using degraders
- Changing operational temperature
- Increasing the flux

Question 12:

TID deposited in a device is function of:

- The beam LET and fluence
- The beam LET only
- The beam fluence only



Question 13:

Which of these standards is dedicated to Single Event Latch-up testing?

- ESCC 22900-5
- MIL-STD-750E Method 1080.1
- ESCC 25100-2

Question 14:

There is no standard that fixes how to test electronic devices regarding:

- TNID
- High TID levels
- SEGR

Question 15:

When irradiating a flip chip packaged device under limited energy heavy ion beam, the sample shall be prepared by:

- Mechanical thinning
- Chemical opening
- Laser beam erosion



Question 16:

Standard MIL-STD-750E Method 1080 is specific to:

- SEB testing
- SEGR testing
- SEB &SEGR testing

Question 17:

Between 2 irradiation steps of a given device, what is the maximum recommended delay in order to avoid recovery?

- 1h
- 2h
- 4h

Question 18:

TID testing of bipolar devices shall be performed at:

- High dose rate (1krad(Si)/h or more)
- Low dose rate (some tenth of rad(Si)/h)
- High dose rate and temperature annealing



Question 19:

TDE means

- Total Dose Equivalent
- Time Dependent Effect
- True Dielectric Effect

Question 20:

Are dose rates recommended by MIL-STD888J Method 1019.9 and ESCC22900-5

- Really different
- Exactly the same
- Quite similar

Question 21:

The 1h maximum delay between end of Cobalt 60 irradiation and start of the electrical characterization can be extended when:

- Devices are transported in dry ice
- The DUT is in CMOS or BiCMOS technology
- All devices input outputs are set to 0V



Question 22:

When performing TID irradiation with Co60, which situation is acceptable?

- The DUT is very close to the source
- The electronic devices close to the DUT are shielded with lead
- The DUT is set to cryogenic temperature

Question 23:

According to the standards, a proton beam can be used to:

- Study the SEE response of a device
- Study its TID behavior
- Study its TNID behaviour

Question 24:

After irradiation with high energy protons, devices become radioactive for

- A few minutes
- Days or months
- They don't.

Question 25:

When performing a SEE test, which information is the less important?

- The ion LET
- The ion specie
- The Ion range

Any other question?





RADSAGA

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie-Sklodowska-Curie grant agreement number 721624.