Irradiation Test Progress and Review

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Content

Ongoing and future projects
Quad CMOS LC Osc.
  - TID (primary focus)
  - SET/SEL
Rad-hard Capacitance-to-Digital Convertor
  - SEU/SEL (Primary focus)
  - TID
Project progress

65nm Quad Osc

- Tested at RADEF (Heavy ion, proton)
- Future Test: X-ray (TID), Laser beam (SEU/SEL)

65nm Cap.-to-Dig Sensor

- Future Test: Gamma/Co60 (>100 rad/s)
- Target Total dose (>1 Mrad)

Mar-May’2020

May’2019

Oct-Dec’2020

SEL: >80 MeV⋅cm²/mg,
SET/SEU: >50 MeV⋅cm²/mg

(SEU/SEL)

Mixed (Preferably Heavy ions)
Radiation Testing of Quad Osc.

**Control Board**  
**Clock Gen.**  
**DUTs**

DUT with the control board mounted for Heavy ion beam (left) and proton beam (right)

**Future Test Planned:**  
- X-ray (Geel, KU Leuven)  
  Frequency variation, Quadrature Quality, Phase Jitter  
- Laser beam (Geel, KU Leuven)  
  SET, SEL
Radiation Testing of Sensor

Test chip tape-out in August’2020.

Radiation Test Planned:
Gamma/Co60 (>100 rad/s)
Target Total dose (>10 Mrad)

SEU/SEL(Mixed, Preferably Heavy ions)
SEL: >80 MeV·cm²/mg, SET/SEU: >50 MeV·cm²/mg
Thank you