WP07-JRA3 Cumulative radiation effects on electronics - Overview of WP7

Jerome BOCH

RADNEXT 3rd Annual Meeting – 10-11 June 2024
https://indico.cern.ch/event/1348465/

WP7 members

- Université de Montpellier
- ISAE-SUPAERO
- Université de Liège
- Université Jean Monnet Saint-Etienne
- ATRON
- Airbus Defence & Space

Jérôme Boch
WPL

Vincent Goiffon
Deputy WPL

Alexandre LE ROCH
Deputy WPL

WP7 structure

The main objective is to understand the physical mechanisms behind the damage caused by TID and TNID and to propose test methodologies adapted to the use of electronic components and systems in radiative environment.

<u>Two main technical tasks are studied:</u>

- **Task 7.1: Coordination and communication**

- **Task 7.2: The effects of ionizing dose (TID = Total Ionizing Dose)**
  PhD recruitment from October 2021 (36 months) at UM
  ↳ end in October 2024

Vincent GIRONES

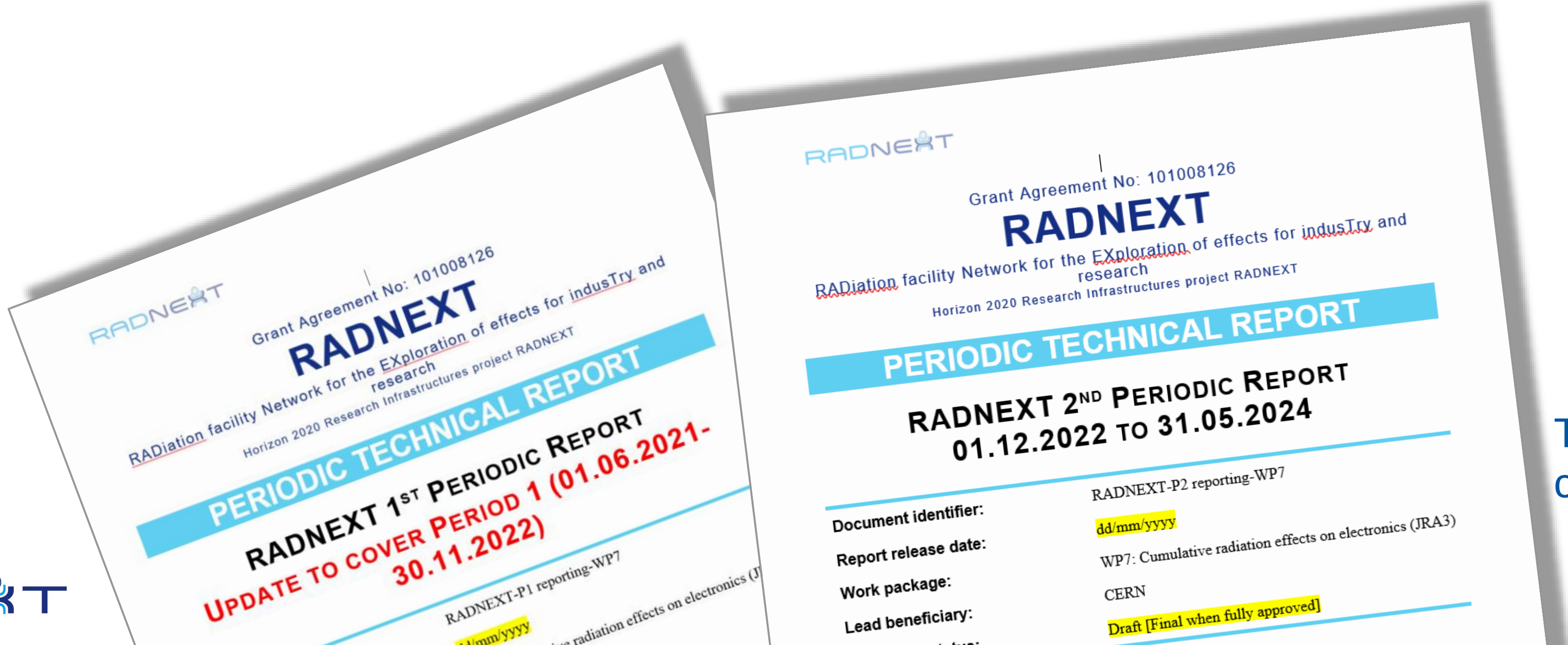
- **Task 7.3: The effects of non-ionizing dose (TNID = Total Non-Ionizing Dose)**
  Postdoc recruitment from October 2022 (12 months) at ISAE-SUPAERO
  ↳ finished

Maxence GUENIN

WP7 milestones, deliverables and reports

MS24	X-ray ATRON Facility modelling	2023/05/31
MS25	Comparison of X-ray / cobalt experimental data	2024/05/31
MS30	Beginning of TNID irradiation campaign	2024/05/31

D1	Comparison of X-ray / cobalt experimental data	2024/05/31
D2	Published list of tested components against cumulative effects	2024/05/31
D3	Final TID results and guidelines for dose testing with X-ray facilities	2025/03/31
D4	Final TID results and guidelines for dose testing with X-ray facilities	2025/03/31


RADNEXT
Grant Agreement No: 101008126
RADNEXT
RADiation facility Network for the EXploration of effects for indusTry and research
Horizon 2020 Research Infrastructures project RADNEXT
PERIODIC TECHNICAL REPORT
RADNEXT 1ST PERIODIC REPORT
UPDATE TO COVER PERIOD 1 (01.06.2021-30.11.2022)
RADNEXT-P1 reporting-WP7

RADNEXT
Grant Agreement No: 101008126
RADNEXT
RADiation facility Network for the EXploration of effects for indusTry and research
Horizon 2020 Research Infrastructures project RADNEXT
PERIODIC TECHNICAL REPORT
RADNEXT 2ND PERIODIC REPORT
01.12.2022 TO 31.05.2024

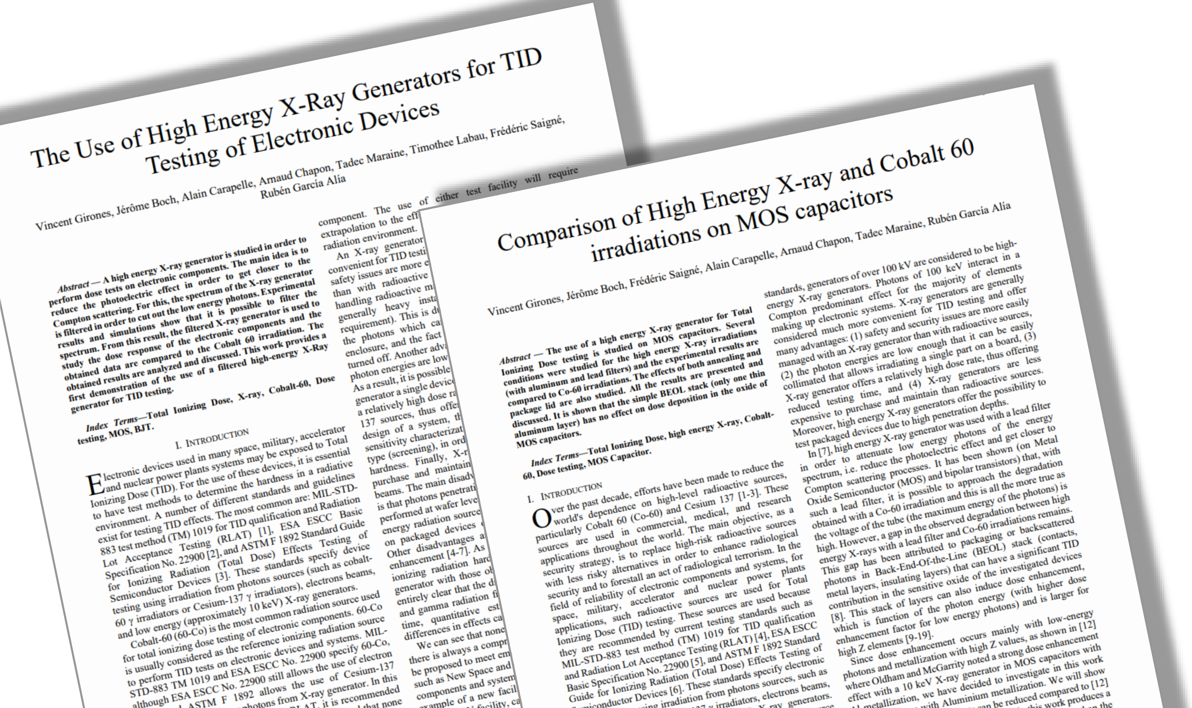
Document identifier:	RADNEXT-P2 reporting-WP7
Report release date:	dd/mm/yyyy
Work package:	WP7: Cumulative radiation effects on electronics (JRA3)
Lead beneficiary:	CERN
	Draft [Final when fully approved]

The report on the second period is currently being written

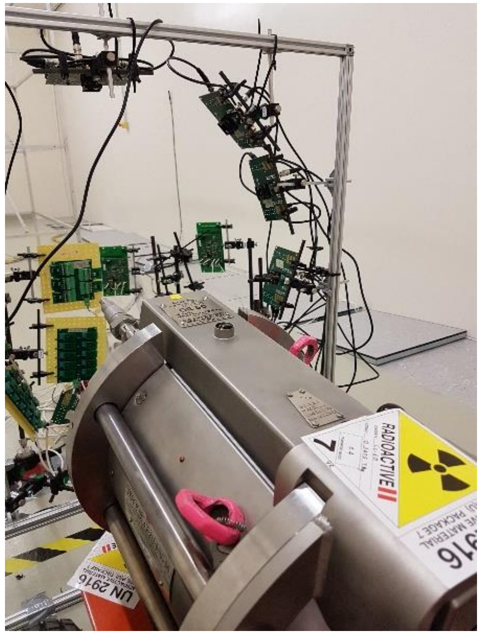
WP7 publications

- Journals: 2 IEEE TNS (2023, 2024)

- Conferences:
  - ✓ 2 poster presentations in RADECS (2022, 2023)
  - ✓ 1 poster presentation SERESSA 2022
  - ✓ 1 poster presentation DEM2024



Thanks for your attention!



Cobalt 60 Irradiator
Source: UM

3.5 MeV e-beam Accelerator
Source: ATRON