

# Linac3 Availability Statistics 2023

# „Information“ I

These slides are a template to summarize the availability of your machine in 2023. Please correct and complement the slides considering following questions:

- What are the main events & reasons impacting availability?
  - Does the data show them and is it matching your expectations?
  - Is any crucial aspect not visible in the data that we should have a closer look at?
- What is the outlook for next year?
  - Are you expecting some interventions over the YETS that might improve availability next year?
  - Could certain circumstances lead to an availability degradation?

# „Information“ II

- There will be additional questions on each slide.

- All charts can be regenerated from

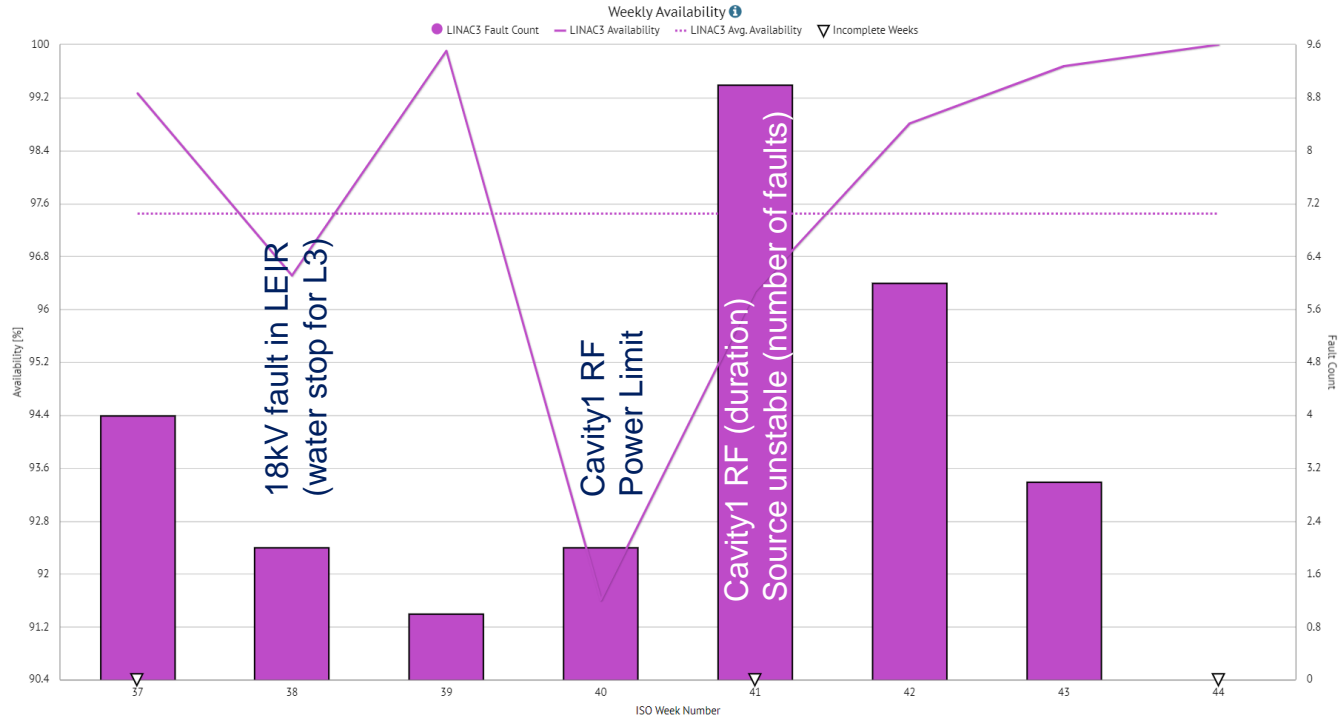
[https://aft.cern.ch/dashboard?timePeriod=%257B%2522timePeriodType%2522%253A%2522fixed%2522%252C%2522startTime%2522%253A%252211092023090000%2522%252C%2522endTime%2522%253A%252230102023060000%2522%257D&excludedPeriods=%255B%257B%2522startType%2522%253A%2522date%2522%252C%2522endType%2522%253A%2522date%2522%252C%2522start%2522%253A%25222023-10-12T04%253A30%253A00Z%2522%252C%2522end%2522%253A%25222023-10-12T13%253A30%253A00Z%2522%257D%255D&accelerator=LINAC3&hadStates=BLOCKING\\_OP&excludedFaultStates=NON\\_BLOCKING\\_OP%252CUNDERSTOOD%252CSUSPENDED&dashboardId=928182](https://aft.cern.ch/dashboard?timePeriod=%257B%2522timePeriodType%2522%253A%2522fixed%2522%252C%2522startTime%2522%253A%252211092023090000%2522%252C%2522endTime%2522%253A%252230102023060000%2522%257D&excludedPeriods=%255B%257B%2522startType%2522%253A%2522date%2522%252C%2522endType%2522%253A%2522date%2522%252C%2522start%2522%253A%25222023-10-12T04%253A30%253A00Z%2522%252C%2522end%2522%253A%25222023-10-12T13%253A30%253A00Z%2522%257D%255D&accelerator=LINAC3&hadStates=BLOCKING_OP&excludedFaultStates=NON_BLOCKING_OP%252CUNDERSTOOD%252CSUSPENDED&dashboardId=928182)

- For further inspiration what to put in the slides, please have a look at <https://indico.cern.ch/event/1104980/>

# Considered Times

- Availability counting normally starts once beam has to be delivered for downstream machine (lions to LEIR Aug 16th), but in the case of LINAC3 the counting starts from when data was put in AFT
  - → 11-09-2023 09:00:00 - 01-11-2023 08:00:00
- Excluded time periods:
  - Source refill: 12-10-2023 06:30:00 - 12-10-2023 15:30:00

# Weekly Availability by Destination



# Global Availability Stats

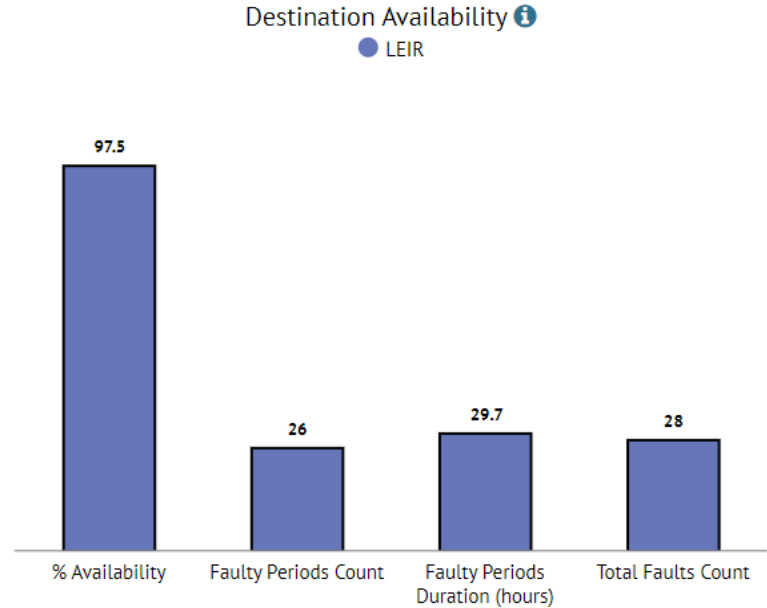
## Global Availability

**97.5 %**  
**(7 weeks)**

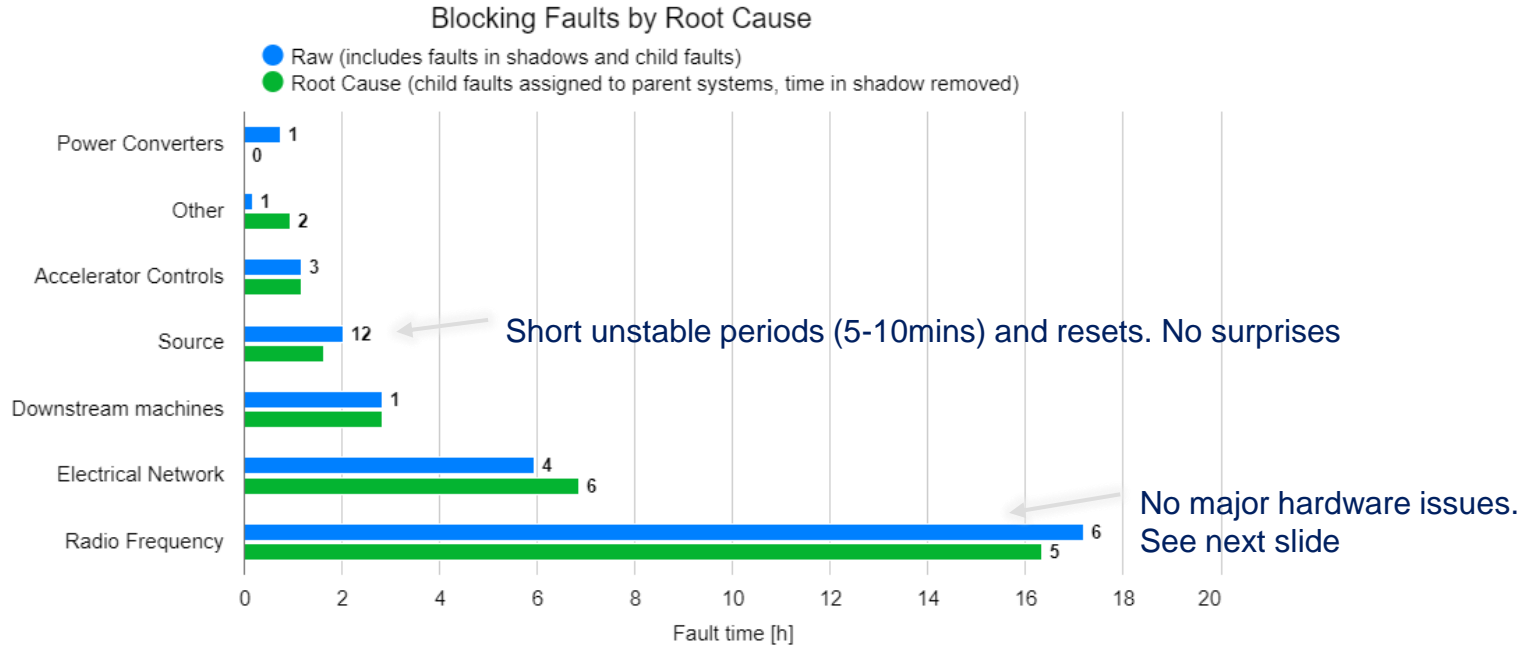
A high availability

2018: 92.7% (5 week physics run)

2022: 97.3% (2 week physics run)

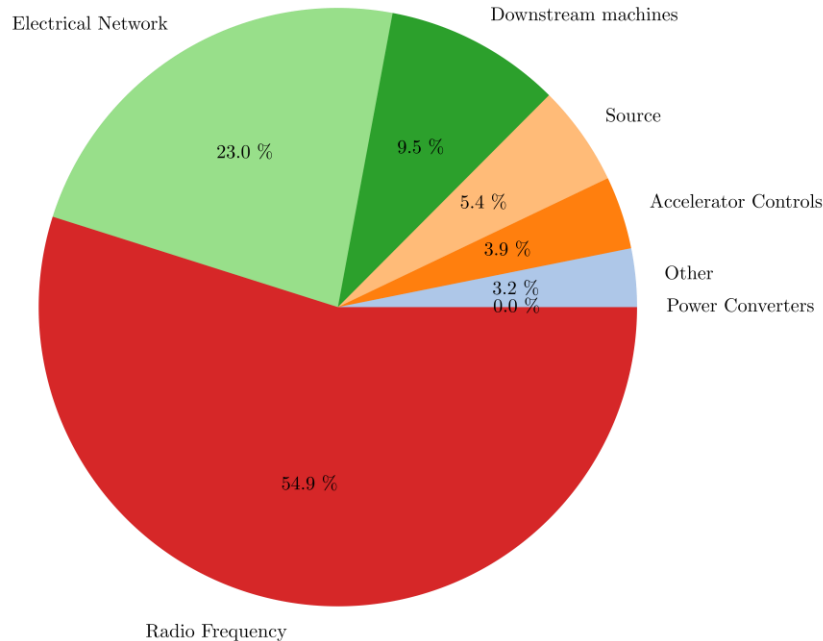


# System Downtime



# Unavailability by System

## LINAC3 Unavailability (2.5%)



### RF

New amplifiers for RFQ and Cavity1.  
No major hardware problems with these amplifiers.

Issues with sequencing/interlocks etc, while the RF team learn about the faults experienced in operation.

Modifications will happen in the YETS.

### Source

Overall excellent performance.  
Unstable periods 5-10 minutes. Insufficient instrumentation of the source and the beam to diagnose reasons for instabilities. Proposal prepared for new ions.

No other equipment displayed faults demonstrating a long term issue.



# Summary & Conclusion Slides

- Linac3 had high availability for 2023.
- Improvements in RF systems foreseen.
- Improved source and beam diagnostics needed to better understand instabilities.
- In 2024, two run periods (oxygen for LHC and Pb).