



# L4 Spare RFQ Project – 3MeV Modulator Strategy

Suitbert Ramberger

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# Introduction

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- Project Scenarios
- Modulator Requirements
- Today's Decision
- Outlook

# Purpose of the Meeting

- Clarify the options for an RFQ modulator for the 3MeV test-stand – only
- Without focusing on the Linac4 machine – but taking Linac4 options into account
- Decide on the best strategy for the 3MeV test-stand
- Make dependencies to the Linac4 machine explicit
- Understand schedule and budget implications

# Spare RFQ Project Scenarios

Two project scenarios are to be taken into account today:

- The **current** Spare RFQ Project foresees:
  - Testing RFQ2 with RF and with beam for few months
  - Designing and building an RFQ3 (project framework to be updated accordingly)
  - It does not foresee for operating a 3MeV beam-line for source or LEBT R&D.
- An **extended** Spare RFQ Project could provide for in addition:
  - Conditioning and testing of an RFQ3 with beam
  - Continuous running of a 3MeV test stand for source and LEBT R&D
  - Conditioning and testing at higher duty-cycles for RFQ R&D and future projects.

# Spare RFQ Project – Modulator Requirements

- The **current** Spare RFQ Project requires:
  - Availability of a standard 3MeV modulator for few months in 2022
  - Linac4 repetition rate is sufficient
  - Shorter than nominal Linac4 pulse length is acceptable
- An **extended** Spare RFQ Project could require either:
  - Availability of a standard 3MeV modulator for few months during LS3
  - Availability of a standard 3MeV modulator continuously
  - Availability of an ESS modulator with higher duty cycles for few months or continuously from 2025.

# Spare RFQ Project – Today's Decision

Today's decision needs to focus on the **current** Spare RFQ Project requirements.

It needs to fit with a (likely) Linac4 strategy.

Proposal:

- Request a 3MeV modulator w/ standard L4 controls interface for few months in 2021 and 2022
- Offer for testing 3MeV modulator upgrades (longer pulse length) on the test stand

Expectations from Linac4:

- Linac4 machine requires a reliable spare modulator strategy independent of Spare RFQ project
- Linac4 machine provides budgets for modulator upgrades as required for the machine.

# Spare RFQ Project – Outlook

Seeing the mutual benefits between the Linac4 machine and the Spare RFQ Project:

- The Spare RFQ Project could propose to add a deliverable: 3MeV modulator testing
- Schedules for the 3MeV modulator delivery would be defined by the Spare RFQ Project
- The “additional” task must not lead to project creep in the Spare RFQ Project
- Note: the Linac4 machine would need 2x 3MeV modulators which both could be tested