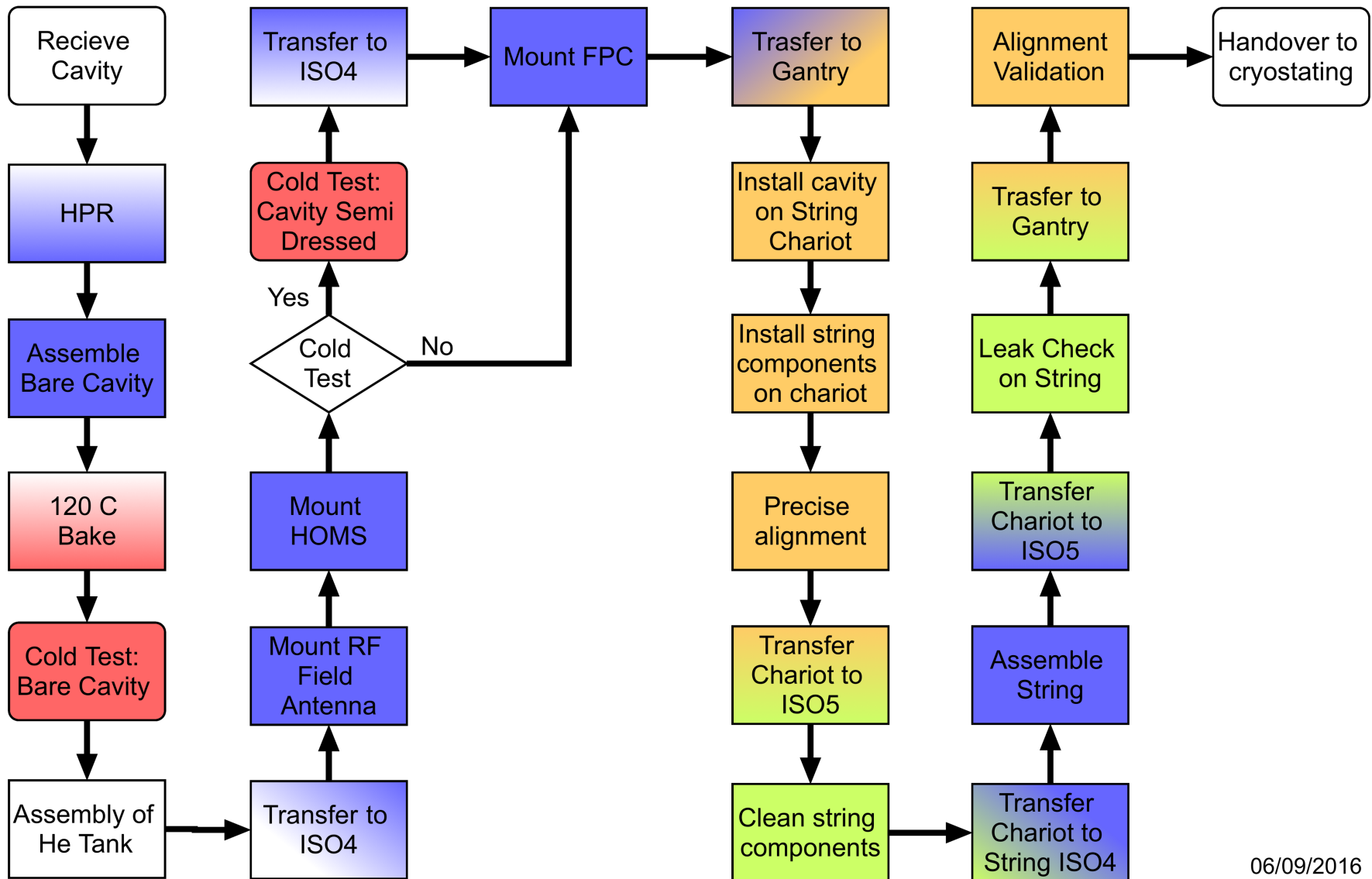


# Cleanroom workflow & Schedule Issues

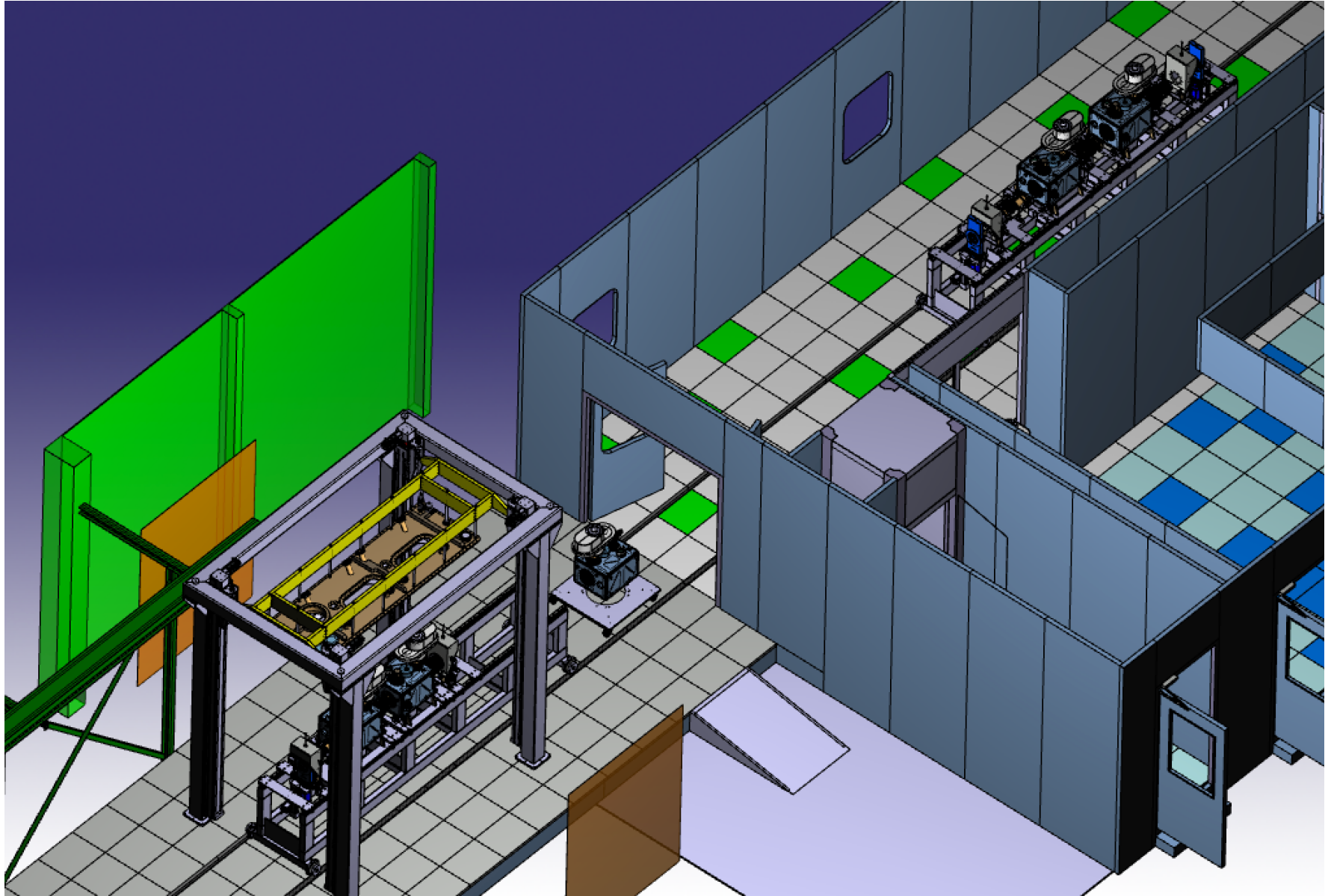
**A. Macpherson & Ilan Ben-Zvi**

# Overview of Cavity workflow at SM18

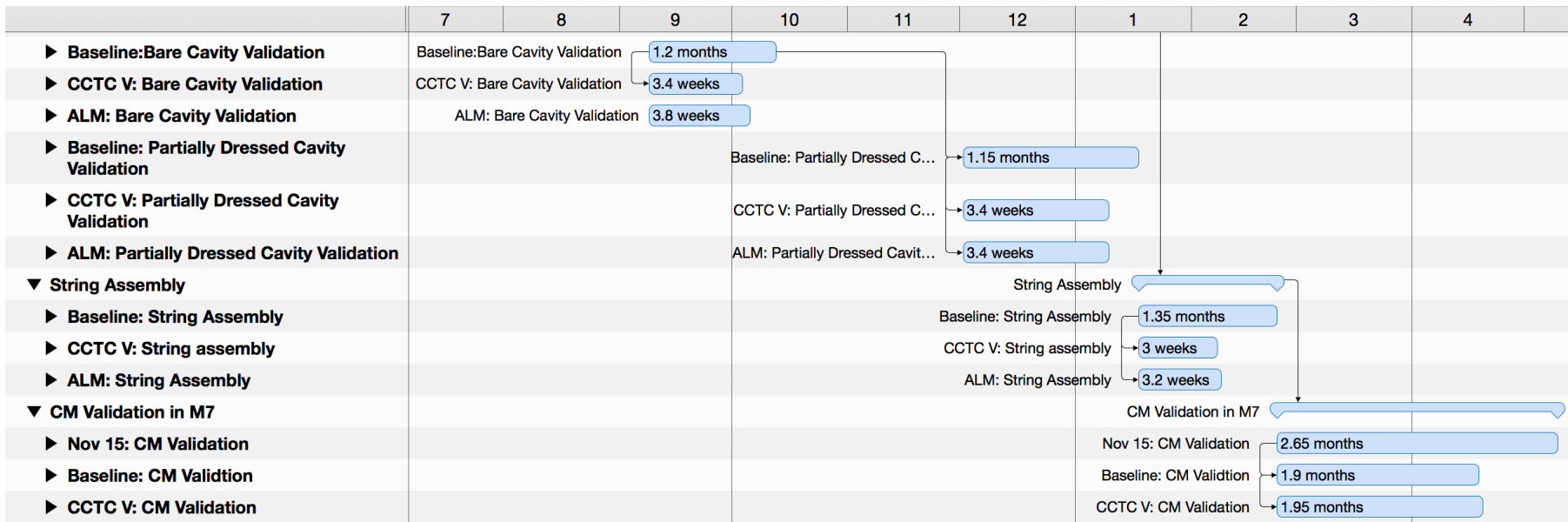
## Cleamroom Assembly Workflow Critical Path



# String assembly workflow



# Schedule evolution



## • Proposal for Schedule Overview

- Bare Cavity Validation: 3.8 weeks (was 1.2 months)
- Partially Dressed Cavity Validation: 3.4 wks (was 1.15 months)
- String Assembly: 3.2 weeks (was 1.35 months)
- CM Validation in M7: 1.9 months (was 2.65 months)

## • Revised SM18 workflow:

- No major reduction in time, but includes 1 wk contingency

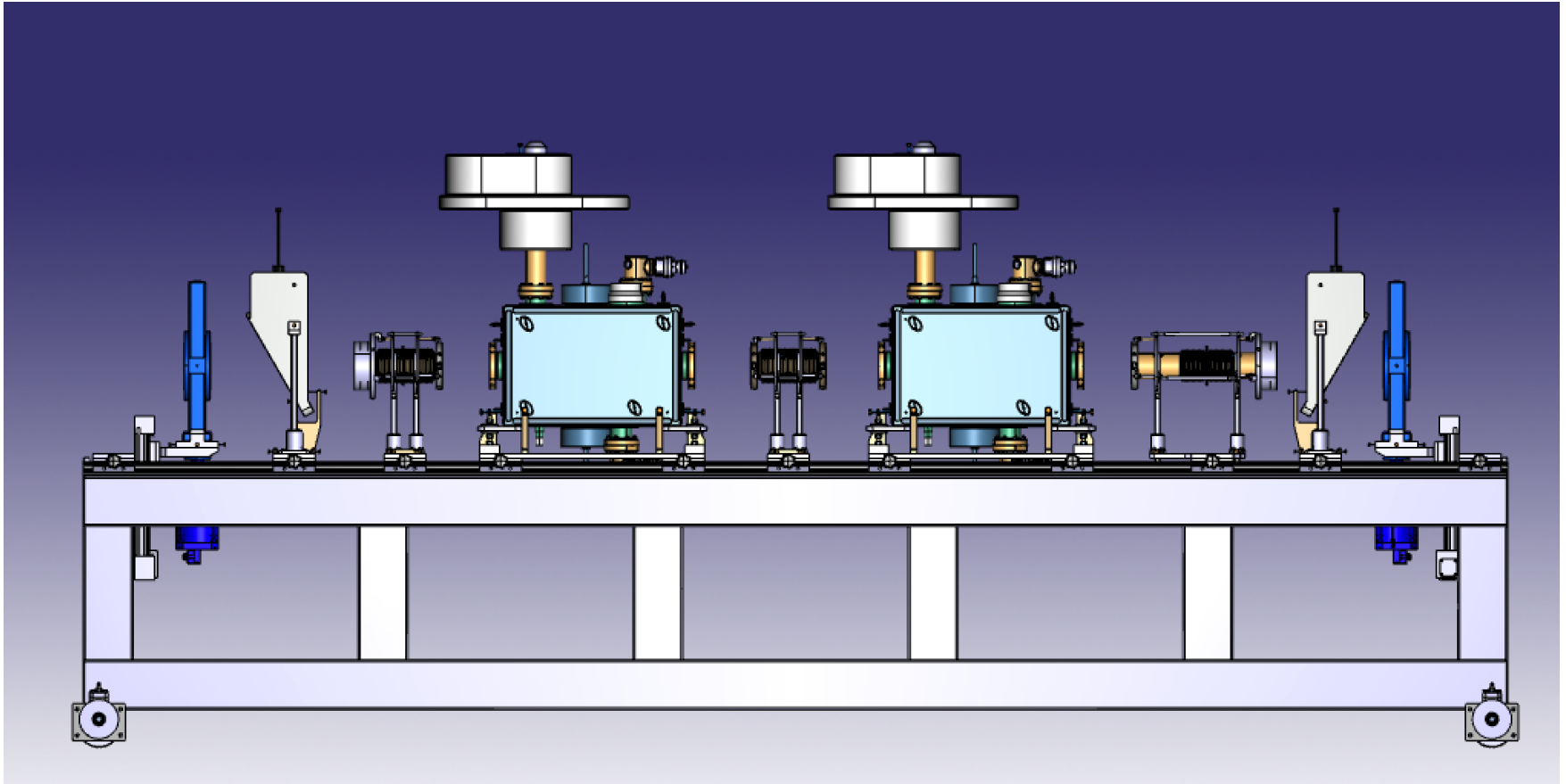
# Simplified workflow

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- **Revision and clarification of workflow**
  - after clean room tooling discussion on 23rd August
- **Main changes proposed**
  - Alignment now entirely outside clean room
    - removes ~2 weeks from string assembly planning
  - Gantry used for pre-assembly of string on chariot
  - FPC now mounted in the HPR ISO4 area
  - Simplified FPC mounting sequence.
    - reduced manipulations and reduced risk
- **Cryomodule testing**
  - Reduced to 3 wks of RF tests (FPC conditioning: 1 wk)

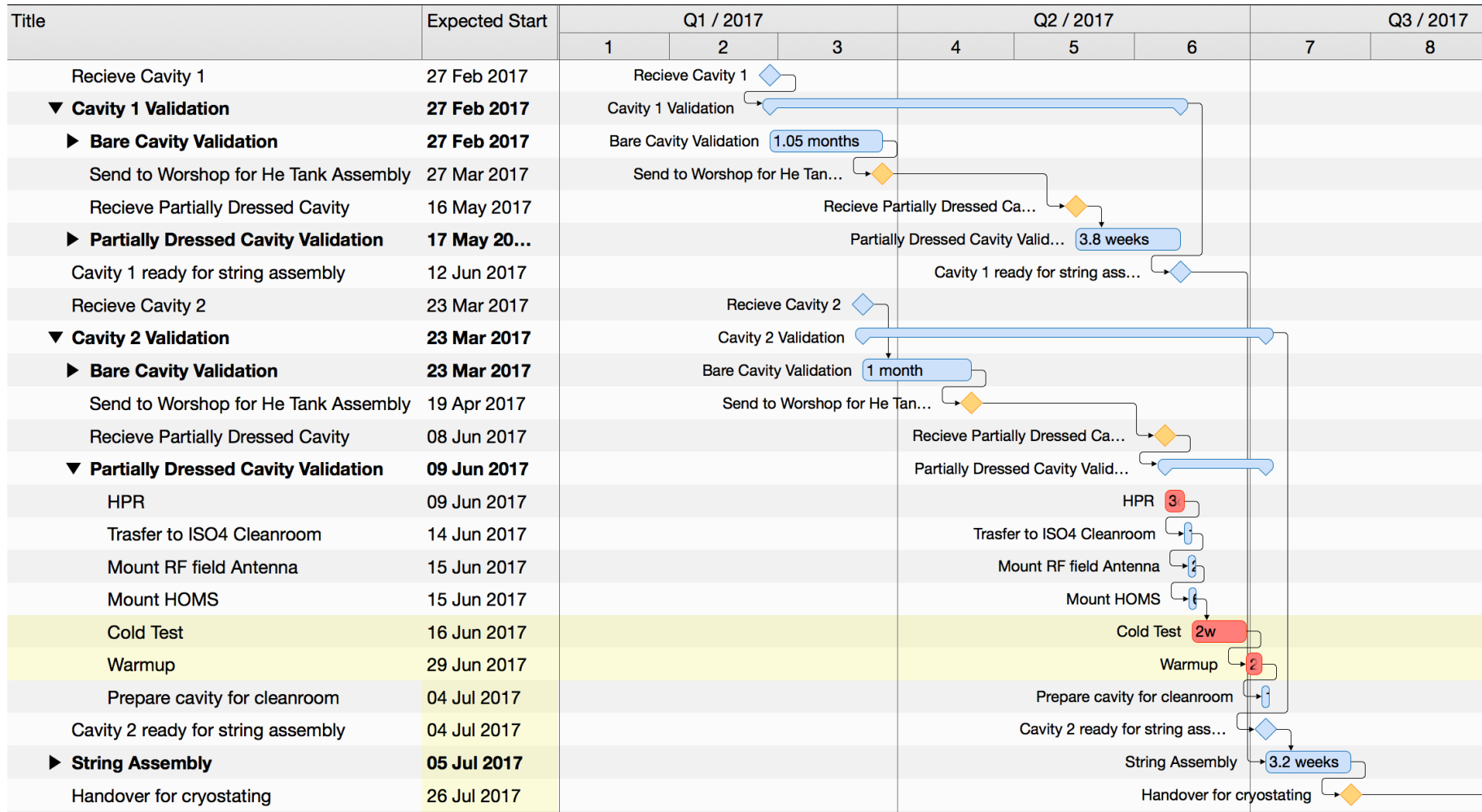
# String Assembly

- **Pre-assembly on string chariot in Gantry area**
  - Requires Gantry area to be inside a ISO7/6 cleanroom
  - Full alignment with objects mounted on chariot rails
  - Once chariot loaded it is rolled into ISO5 for cleaning



# Cavity Validation and String assembly

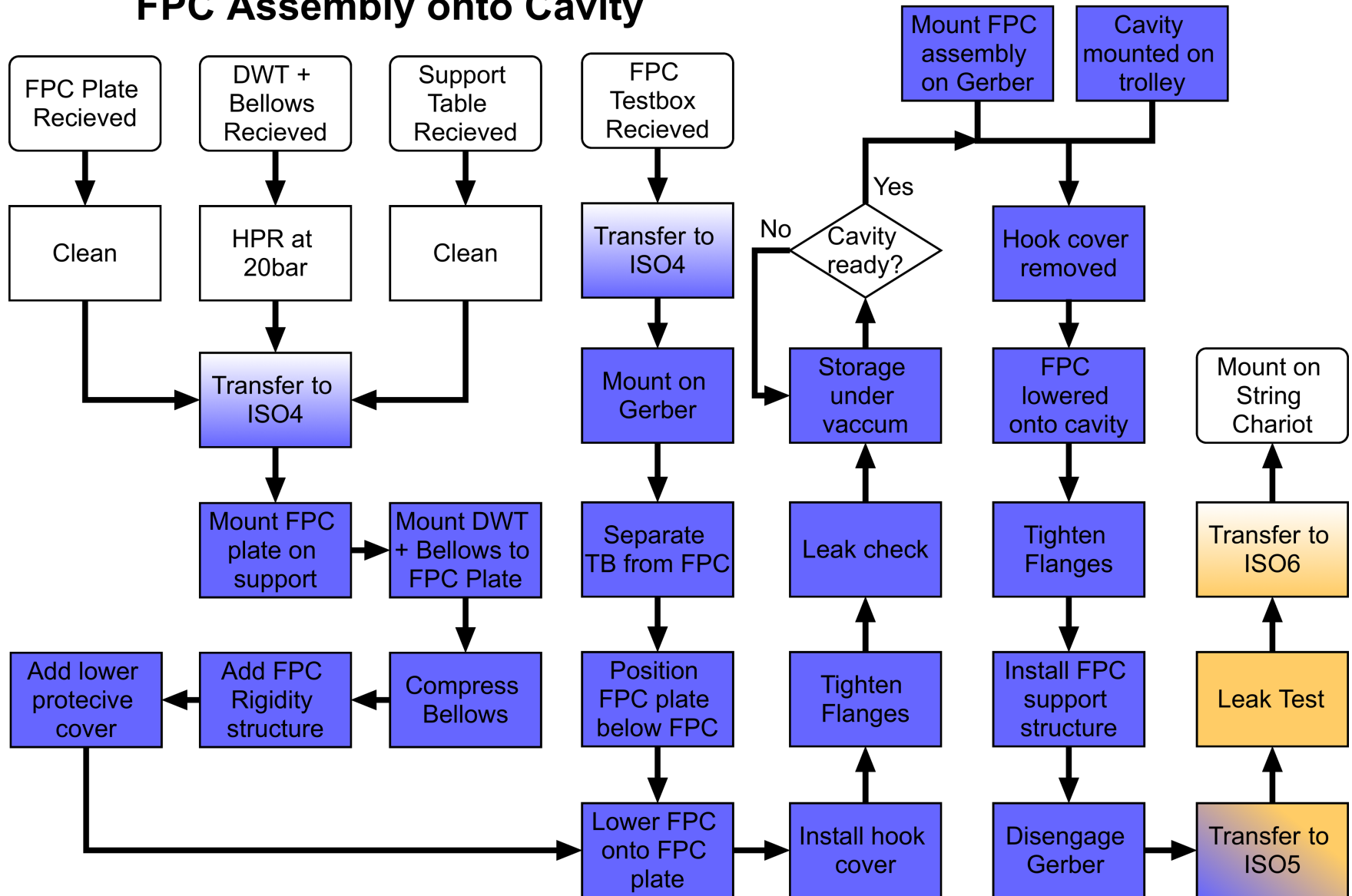
- Still includes 2 cold tests per cavity



# String Assembly: after tooling meeting input

06/09/2016

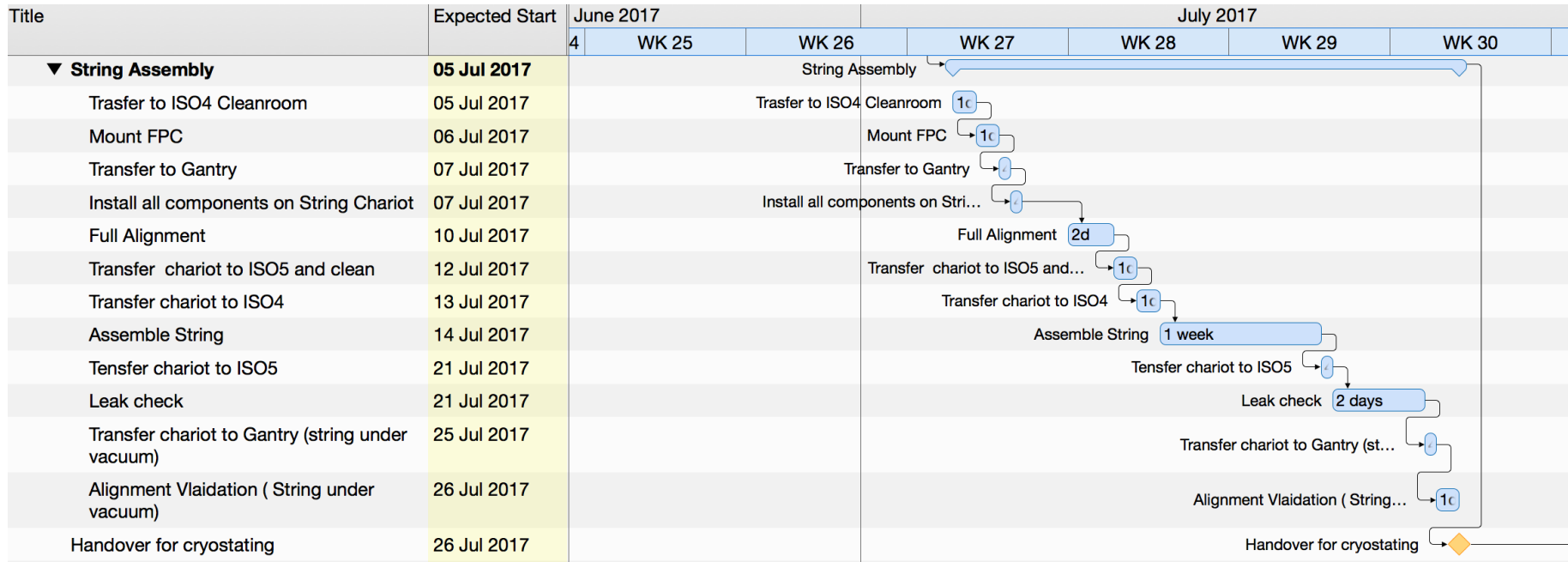
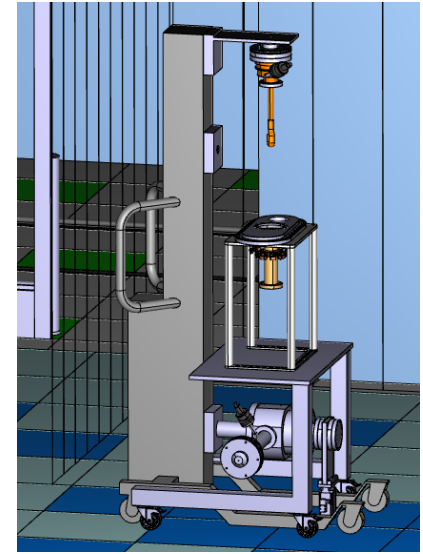
## FPC Assembly onto Cavity



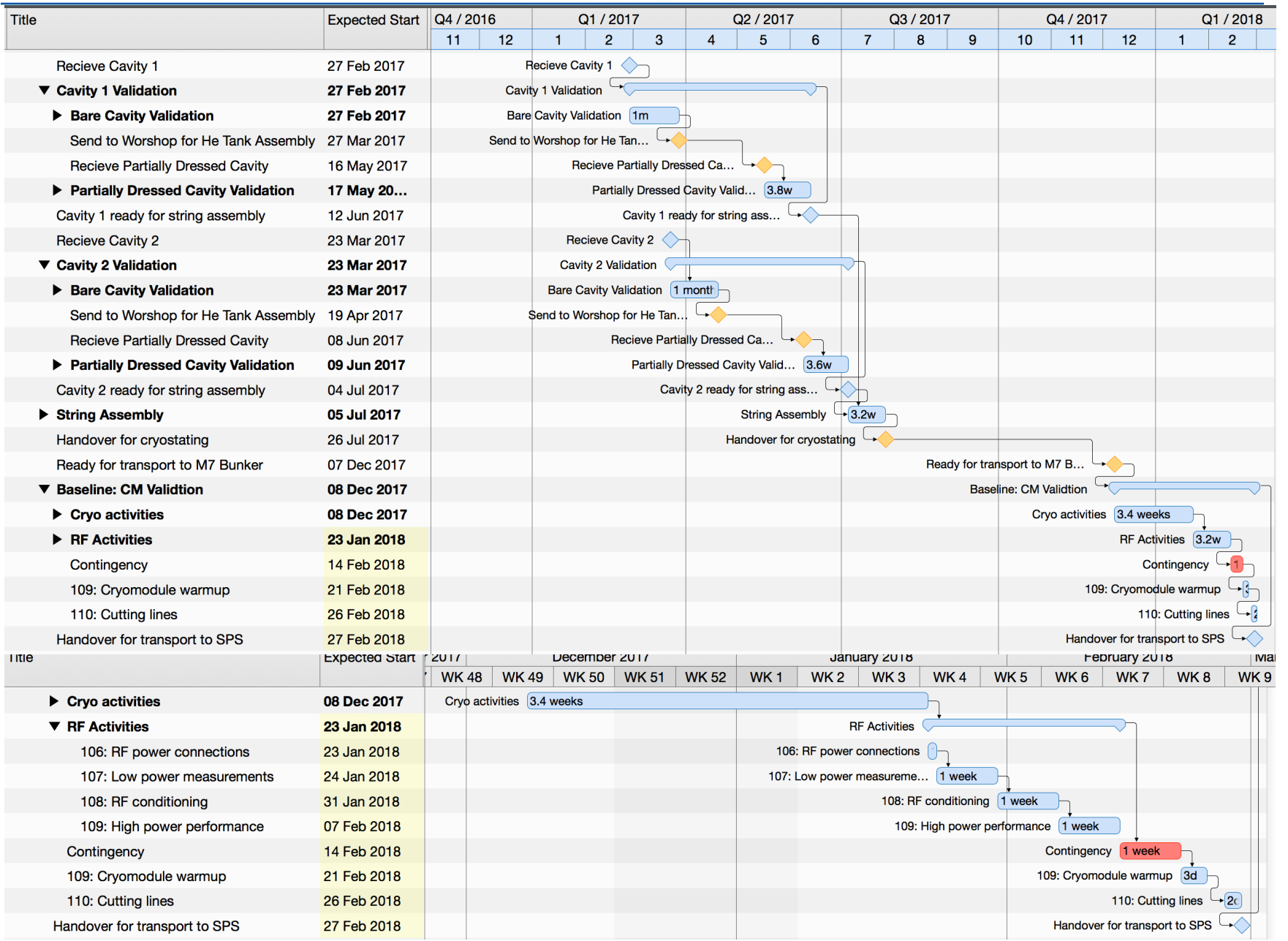


# Proposed String Assembly

- Simplified FPC workflow
- Use Gantry to pre-assemble string
- No alignment in cleanroom
- Minimise lifter transfers



# Schedule & Cryo module testing



# Where can we reduce further?

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- **It is difficult to cut the SM18\_RF schedule much more**
- **Reduction of ~3 wks on Cavity 2**
  - remove cold test of partially dressed cavity
- **Suppress CM cold test in SM18\_M7**
  - Increased risk
  - No point suppressing RF test and not cryo/leak tests
    - If suppress CM test => cryo/leak test in SPS
- **Cavity 1 to Cavity 2 delay**
  - Almost optimal, as interleaved in terms of SM18 team
    - => not sensible to advance Cavity 2 wrt Cavity 1
- May be able to trim a few days on partially dressed cavity assembly, as still have to work through the HOMS installation
  - => preparing for cleanroom tooling review on Oct 12th