



# WP3 planning evolution (since January 2024) and outlook for the next 12 months

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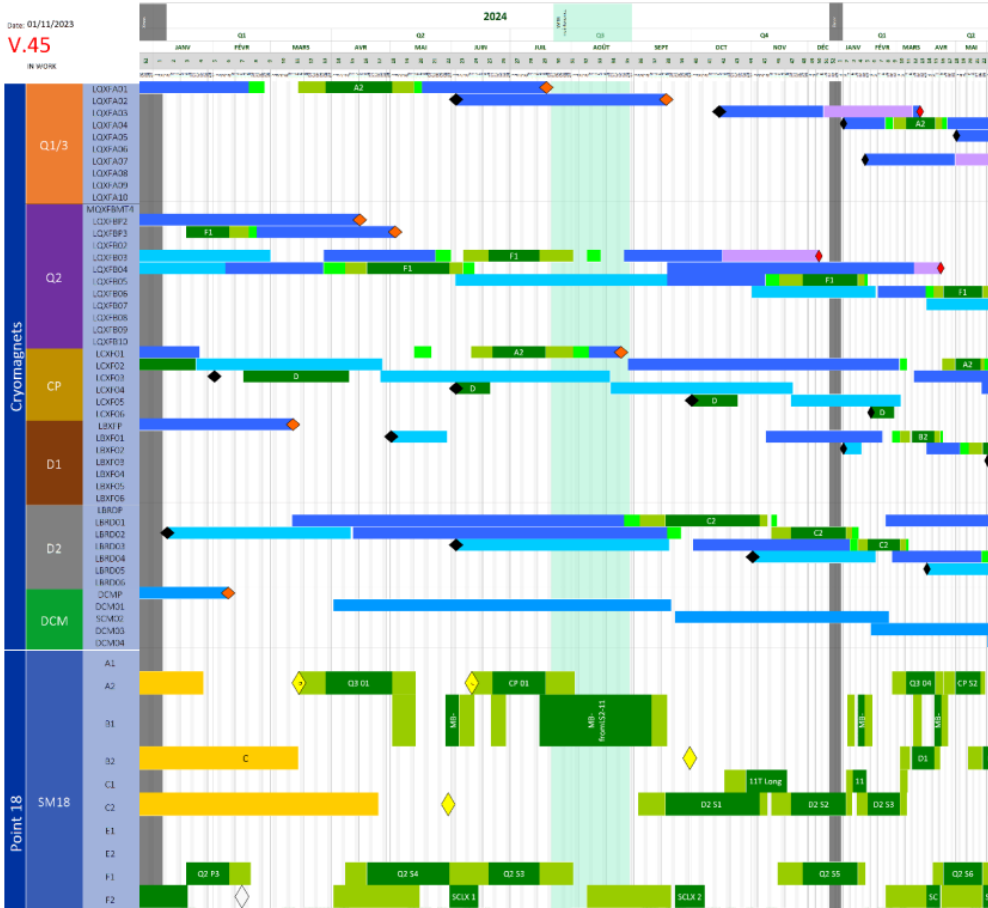
# What's new since January

- F1 test bench operational since December 2023
  - Three magnets tested: **MQXFBP2, MQXFBP3 and MQXFB04**
  - Test bench is fully operational
    - Capability of having of up to 2 quenches per day
    - Test at 4.5 K effective
    - Ramp rates up to 100 A/s
    - Reasonable cool-down and warm up times
- With MQXFB04, we have the **first MQXFB magnet directly integrated in the final cold mass and tested in F1 (April 2024)**
  - This considerably reduces the workload on cold mass assembly, tests in SM18 and reduces risk related to cold mass disassembly
- Issues have been found in the **configuration of the final Q2 cold mass for test**, requiring analysis, interventions and a second test on MQXFBP2
  - This test will go after MQXFB04, and before MQXFB03 final cold mass → MQXFB03 test in final configuration is delayed to after summer, but it is not on the critical path

# What's new since January

- **A2 test bench close to completion** (two months of delay with respect to what presented in January review), test of first AUP cryomagnet foreseen for June 2024
  - The CP test on A2 bench is shifted to after the summer cryo shut-down
- Issues with **electrical integrity have been found for D2 first series magnet MBRD1** → magnet is ready to be shipped back to Genova for repair
  - The second series magnet MBRD2 has been delivered at CERN
  - However, preparation of test bench for D2 is not on the critical path as four months ago, test of first available D2 cold mass will be shifted to end of 2024

# Planning November 2023



- Test bench readiness
  - A2 test bench (Q1/Q3): March 2024
  - C2 test bench (D2): May 2024
  - B2 test bench (D1): Sept 2024
- Tests dates
  - Q3 test: April 2024
  - MQXFBP3 test: January 2024
  - MQXFB04 test: April 2024
  - MQXFB03 test: June 2024
  - MQXFB05 test: December 2024
  - CP test: July 2024
  - D2 test: September 2024



# Status and outlook of vertical test

- Vertical test station is required for MCBXF (nested correctors) and MCBRD (CCT correctors) – they both need ClusterD
  - The timeline of nested corrector got longer after the termination of the contract with industry – therefore we expect one magnet every two months in the period 2024-2025: this is relaxing the pressure on ClusterD
    - Total is a minimum of 6 short plus 5 long nested correctors
  - According to the baseline, we should test one more MCBRD corrector (the second one made at CERN with components from China, named MCBRD11) – the other six magnets to be manufactured MCBRD05 to 10 will be tested in China
  - We are retesting systematically the MCBRD, since this test is quite fast (one week) – we did it for MCBRDP2 and MCBRD04
    - This strategy could continue to test all MCBRD at CERN (six more magnets) in the 2024-2025 period
  - 5 MQML to be tested for Q10

# CONCLUSIONS

- MQXFB04 was tested according schedule presented in November, and MQXFB05 is in advance of three months (priority given to virgin magnets)
- Test on F1 bench of the first final cold mass of MQXFB has put in evidence some fabrication issues that are being addressed
  - This requires a second test on MQXFBP2
- A2 test bench readiness is on the critical path, with two consequences:
  - CP test has to be moved to September
  - Little or no contingency for the test of Q3 before the summer shut down
- Test bench readiness for D1 and D2 are not on the critical path
  - They do not involve magnets for the string
- Test of the D2 first series cold mass will have three months delay due to issues with MBRD1