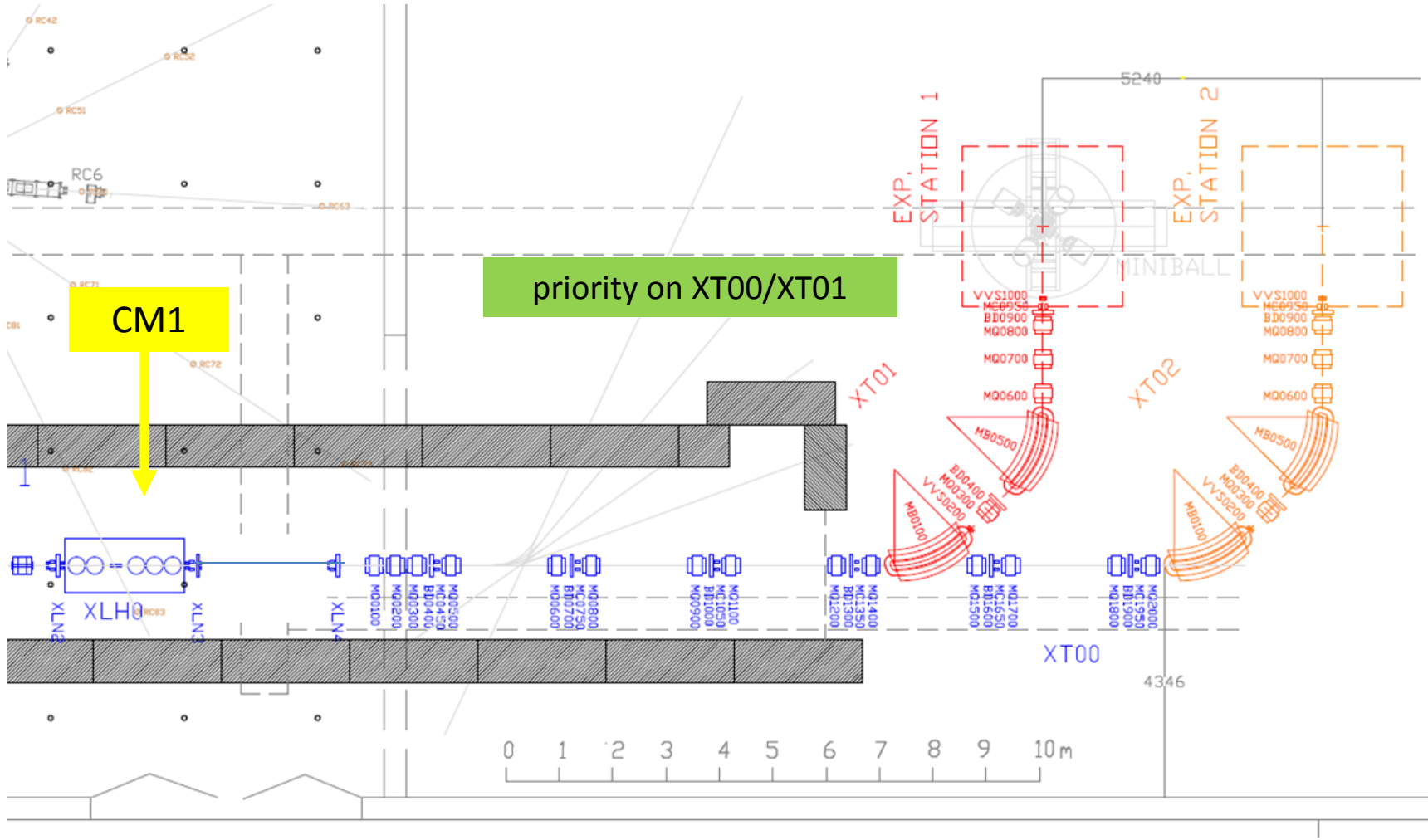
HIE-ISOLDE installation progress and HW/C plan

Walter Venturini Delsolaro
on behalf of the HIE-ISOLDE Teams

Main activities ahead

- Installation and Commissioning of the HEBT
  - NC Magnets
  - Diagnostic Boxes
  - Vacuum chambers
  - Survey and alignment
  - Software, Controls and Interlocks
- Installation and Commissioning of the Cryogenics Facilities
  - Warm compressors
  - Cold box
  - Distribution lines, Dewar and Jumper boxes
- Installation and Commissioning of CM1 in the Linac
- Machine Checkout
- Beam Commissioning

To be installed and commissioned this year



Status of the installation

- General infrastructure in good shape (CE, EL, CV)
- HEBT: all magnet supports, cabling, and piping done
- Magnets:
  - Dipoles: all 6 at CERN, 2 accepted, remaining to be tested
  - Quadrupoles: 18/24 at CERN, 12 tested, 8 installed
  - Steerers: all accepted, 3 installed
- All magnets and DB for XT00 (tunnel part) installed
- All 6 Short Diagnostics Boxes installed
- All 9 LDB at CERN, acceptance tests progressing
- Power converters:
  - Dipoles: 2/7 produced, one tested
  - Quadrupoles: 3/20 produced, 2 ready, expecting +6 end February
  - Steerers: 30/30 produced, 6 ready for powering
- RF amplifiers and cabling in place
- Cryogenics facilities progressing well
  - Warm compressors, Cold box, Dewar, and jumper boxes all in place
  - Work ongoing to close the transfer lines

HEBT installation status (XT00 / XT01 / XT02, B170)

Cables, pipes, supports all in place

On mezzanine racks and crates to be filled up

Cryogenics installation status

Warm compressors in B198 being commissioned
Cold box in B199 installed; LHe Dewar being connected to the distribution lines

Jumper boxes positioned
All internal lines leak tested
Transfer lines welding ongoing


MQ.1100
XT00

REX re-installation and -commissioning status

REX (NC linac, injector for HIE ISOLDE) being consolidated
RF ON after Easter; 9-gap amplifier on 15 June (backup solution, OK for light ions).
Original 9-gap amplifier scheduled to be back here end July.
One month interleaved RF/Beam commissioning starting 15 June

HW commissioning preparations

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CH1211 Geneva 23
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EDMS NO.	REV.	VALIDITY
1461273	0.0	DRAFT

REFERENCE: HIE-LMH-HCP-0001 v.1

Date : 2015-01-14

Hardware Commissioning Procedure

Hardware commissioning of the HIE-ISOLDE High Energy Transfer Lines

This document describes the sequence of tests for the hardware commissioning of the HIE-ISOLDE high energy transfer lines.

DOCUMENT PREPARED BY:	DOCUMENT CHECKED BY:	DOCUMENT APPROVED BY:
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Date : 2015-01-14

Hardware Commissioning Procedure

Test Procedure and Acceptance Criteria for the HIE-ISOLDE Transfer Lines Magnets

This document describes the sequence of tests and the parameters to be recorded for the commissioning of the HIE-ISOLDE high energy transfer lines magnets.

DOCUMENT PREPARED BY:	DOCUMENT CHECKED BY:	DOCUMENT APPROVED BY:
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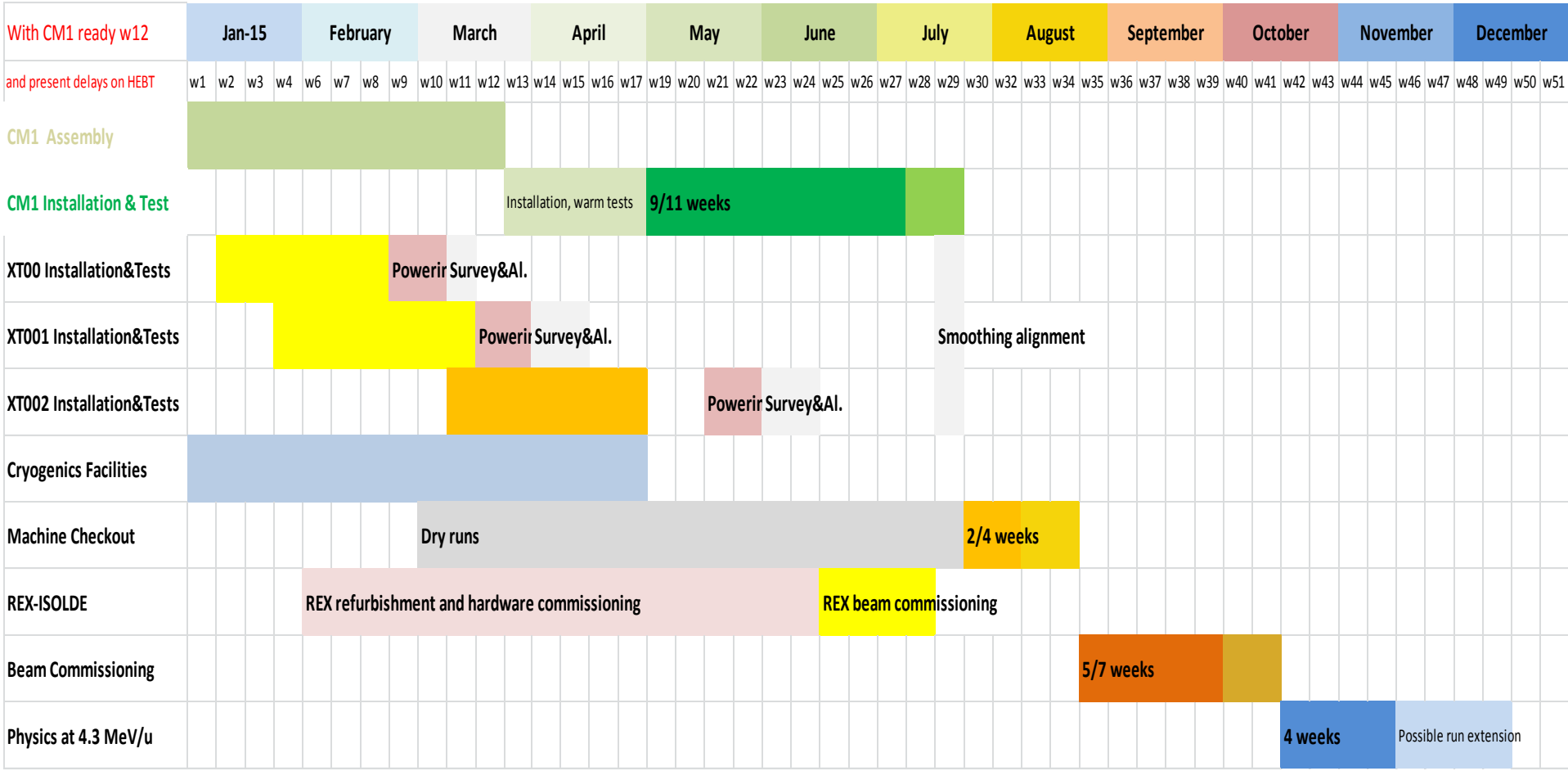
CM commissioning activity breakdown

Activity	Estimated time
Pump down	Done before
Final interlock tests	1 day
First Cool down and RF conditioning above Tc	3 days
Survey	2 days
Heat load measurements	2 days
LLRF tests	10 days
RF conditioning at cold	5 days
Solenoid tests: current leads, training	2 days
Thermal cycles (warm up- cool down)	5 days
Alignment checks	1 day
Extensive RF and magnetic tests and measurements	14 days
Total	**45 days (~ 9 weeks)**

RF tests and measurements	Time est.
Calibrations	1 day
Q vs E measurements	3 days
Solenoid stray field tests	2 days
Tuning system tests	5 days
Microphonics, Lorentz detuning	3 days

Schedule


With CM1 ready w12
Jan-15
February
March
April
May
June
July
August
September
October
November
December
and present delays on HEBT
w1 w2 w3 w4 w6 w7 w8 w9 w10 w11 w12 w13 w14 w15 w16 w17 w19 w20 w21 w22 w23 w24 w25 w26 w27 w28 w29 w30 w32 w33 w34 w35 w36 w37 w38 w39 w40 w41 w42 w43 w44 w45 w46 w47 w48 w49 w50 w51
CM1 Assembly
CM1 Installation & Test
Installation, warm tests
9/11 weeks
XT00 Installation&Tests
Powerir
Survey&Al.
XT001 Installation&Tests
Powerir
Survey&Al.
Smoothing alignment
XT002 Installation&Tests
Powerir
Survey&Al.
Cryogenics Facilities
Machine Checkout
Dry runs
2/4 weeks
REX-ISOLDE
REX refurbishment and hardware commissioning
REX beam commissioning
Beam Commissioning
5/7 weeks
Physics at 4.3 MeV/u
4 weeks
Possible run extension

Summary

- **Installation and Commissioning of the HEBT**
  - ✓ NC Magnets
  - ✓ Diagnostic Boxes
  - ✓ Vacuum chambers
  - Survey and alignment
  - Power converters
  - Software, Controls and Interlocks
- **Installation of the Cryogenics Facilities**
  - ✓ Warm compressors
  - ✓ Cold box
  - ✓ Dewar and Jumper boxes
  - Distribution lines
- **Commissioning of Cryogenics**
  - ✓ Warm compressors ongoing
  - Cold box
  - Distribution lines, Dewar and Jumper boxes
- **Installation CM1 in the Linac**: March 2015
- **CM cold tests** May-July 2015
- **Dry runs** of individual systems whenever possible
- **Machine Checkout** at the end of July
- **Beam Commissioning** as from week 35 (end of August)