



Planning of HIE-ISOLDE Phase 2 Until Completion

Y. KADI

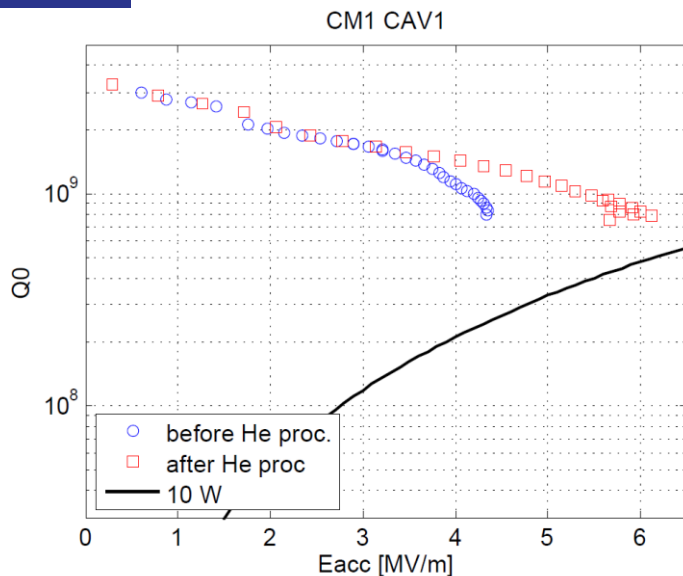
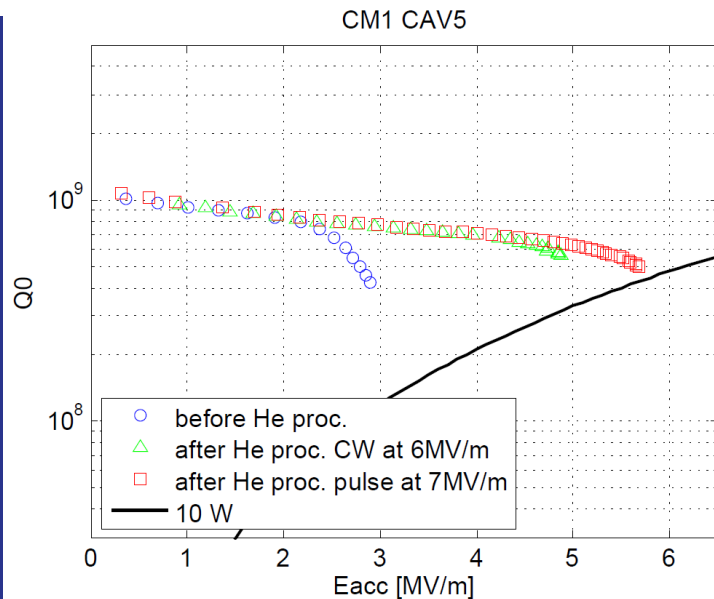
for the HIE-ISOLDE Project Team

ISOLDE Collaboration Committee Meeting

CERN, 7 February 2017



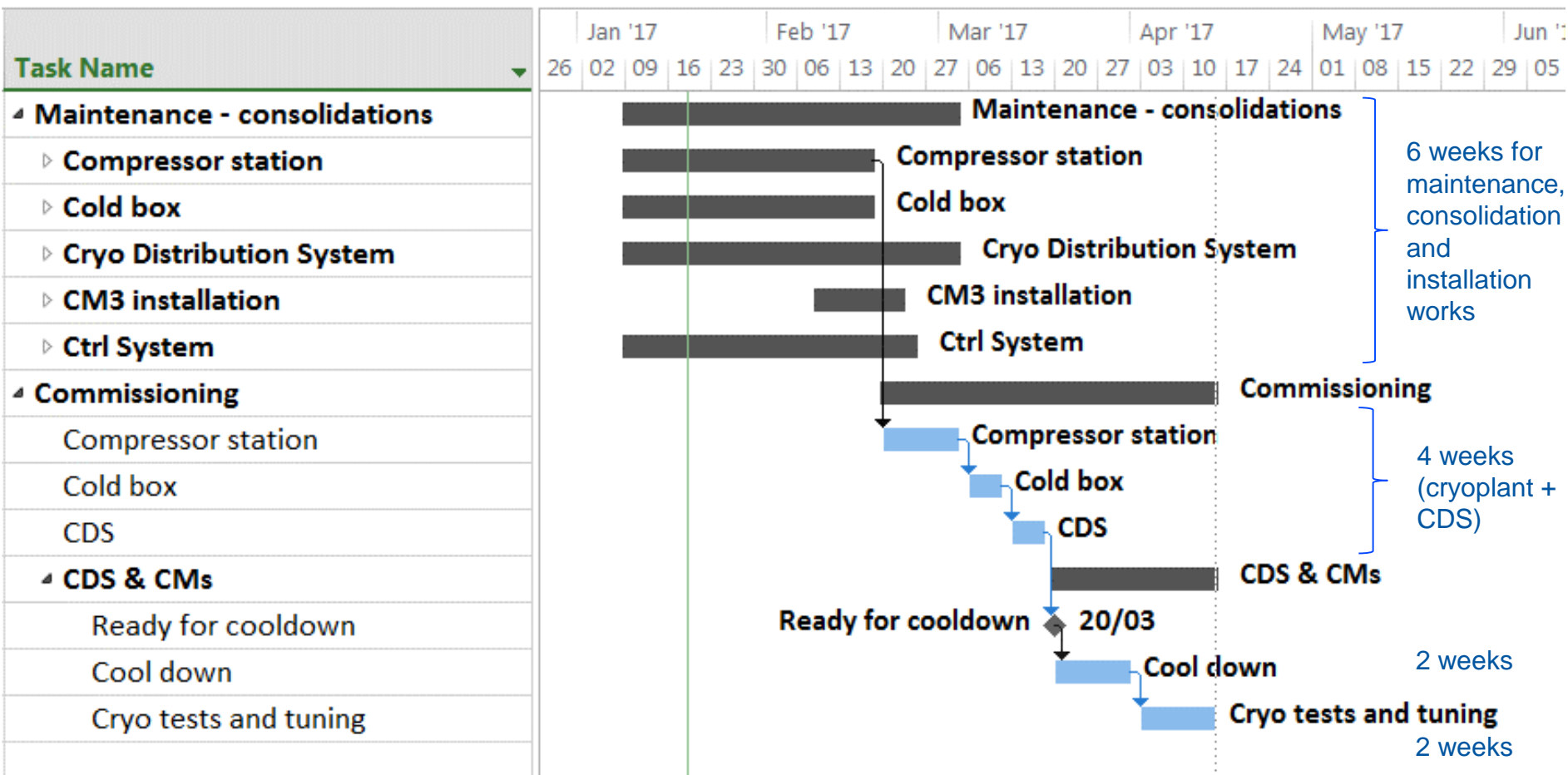
Phase 1: Re-Commissioning



Re-commissioning work after the physics run:

- ✓ He processing in situ of the two “sick” cavities was demonstrated
 - No need to remove CM1
- ✓ Cryogenic heat load measurements
 - Nominal flow was reached ~ 156 g/s (instead of 140 g/s)
 - Patches to the ctrl system to cope with warm-up phase and CP limitation
 - Commissioning of LHe level gauges in each CM
 - CMs static heat load test
 - Capacity test with max heating in CMs
 - Dewar filling test
- ✓ Leak detection of CM2 (at warm)
 - No leak was found

EYETS Planning



<https://indico.cern.ch/event/596173/>

Actions plan for EYETS – Cryo Tests/Commissioning

- Recommissioning of the cryo-plant (compressor station and refrigerator) including a capacity test
- Commissioning of the Cryo Distribution System (CDS) :
 - Shield cooling
 - Heat load evaluation
- Commissioning of the CDS with 3 CMs and the dewar :
 - Cooling and filling of the 3 CMs and dewar
 - Capacity test with maximum heating power in the 3 CMs
 - => will allow to assess the operation with a 4th module or help to draft a necessary consolidation plan

Issues emerged during the cooldown process

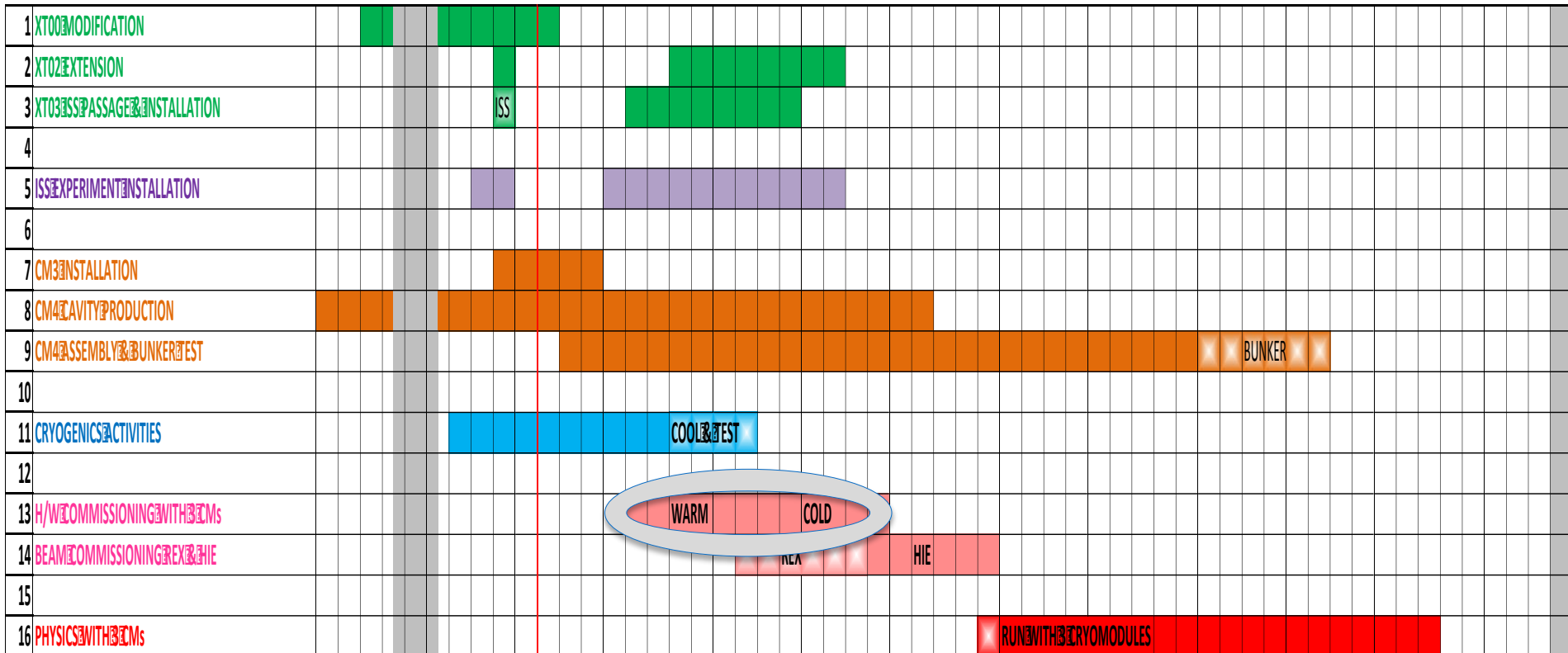
- Several **pollution issues at the restart of the compressor** station
 - H₂O pollution
 - Air leaks
 - Compressor stopped to renew gear box oil
- Automatic cooldown processes had not been fully commissioned **last year**
→ we were mostly running in **manual mode** (with one dedicated operator)
- The TE-CRG operation team requested some **modifications to the automatism** in order to **ensure the safety of the cryo-modules**
- These modifications were implemented and needed to be tested
- **Cool down of the 4.5 K circuits** (including cavities) started in week 25
- Cold mass was < 15 K on Friday 25 June.
- Still problems stabilizing the system during filling 2 cryomodules with liquid
-
- **These issues so far caused 4 weeks delay on the planning**

2017 Overall Planning

WEEKS	Dec-16				Jan-17				Feb-17				Mar-17				Apr-17				May-17				Jun-17				Jul-17				Aug-17				Sep-17				Oct-17				Nov-17				Dec-17							
	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51

Shutdown 2016-2017 BASELINE

TODAY



HW commissioning sequence

- 4.1. INTERLOCK TESTS
- 4.2. PUMP DOWN PROCEDURES
- 4.3. RF, INSTRUMENTATION AND ELQA CHECKS BEFORE COOL DOWN
- 4.4. LLRF TESTS
- 4.5. COOL DOWN PROCEDURES
- 4.6. ALIGNMENT MONITORING AND CORRECTION
- 4.7. RF CONDITIONING ABOVE TC
- 4.8. RF TESTS AT COLD
- 4.9. SOLENOID TESTS
- 4.10. HEAT LOAD MEASUREMENTS
- 4.11. THERMAL CYCLES

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EDMS NO.	REV.	VALIDITY
1511269	0.0	DRAFT

REFERENCE

HIE-O-HCP-0001

Date : 2015-01-14

Hardware Commissioning Procedure

Hardware Commissioning Procedure for the HIE-ISOLDE cryomodules

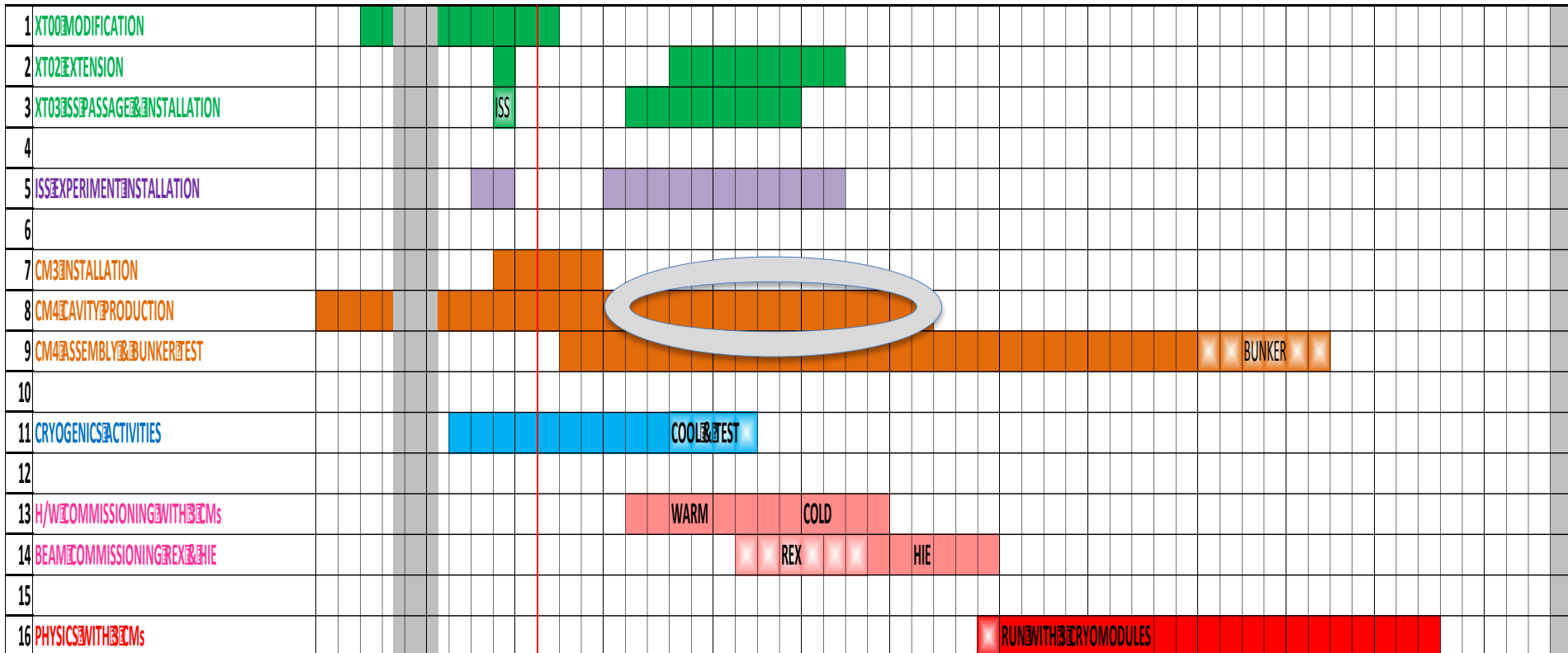
This document describes the sequence of tests and the parameters to be recorded for the hardware commissioning of the HIE-ISOLDE cryomodules.

2017 Overall Planning

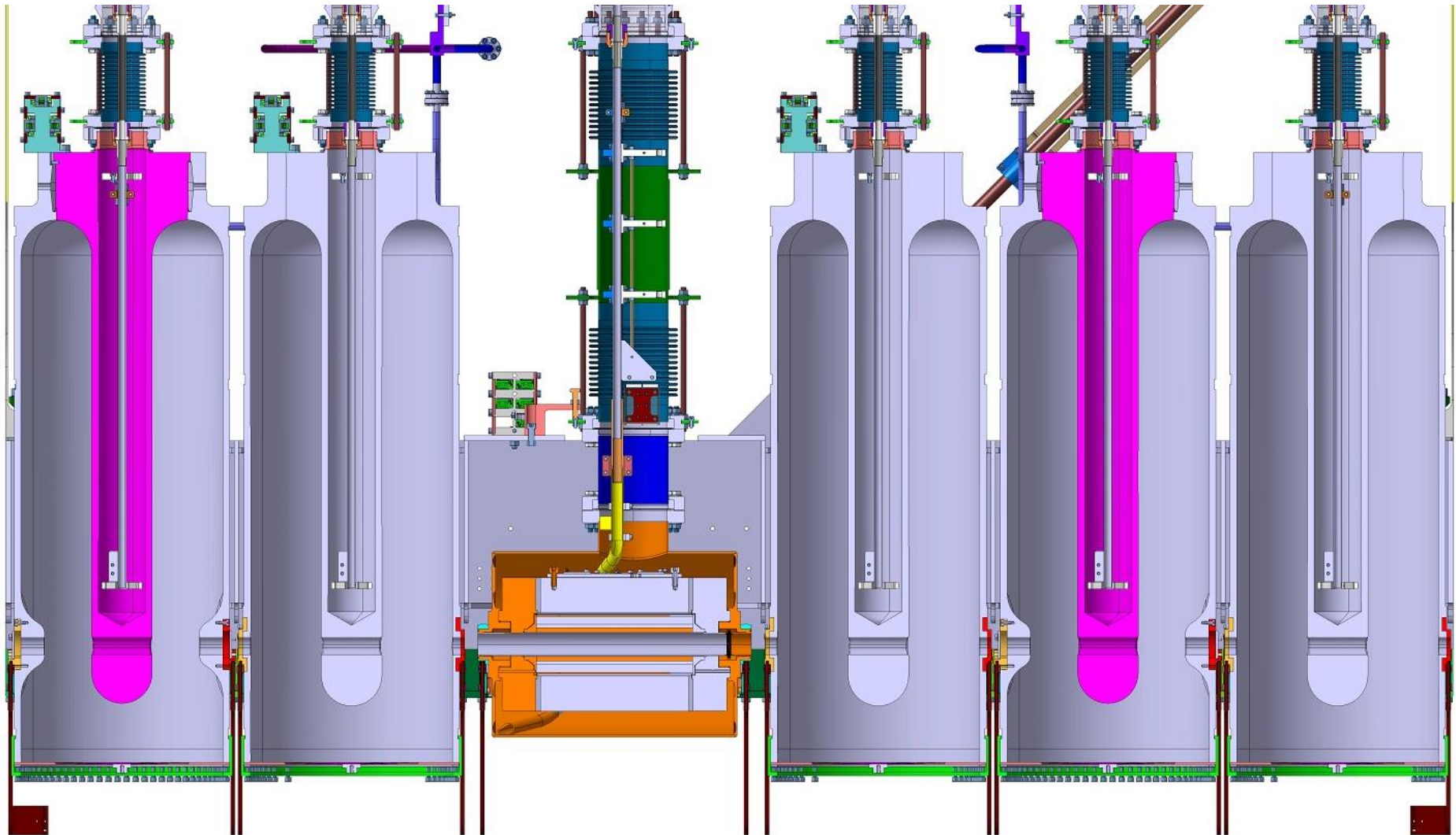
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Shutdown 2016-2017 BASELINE

TODAY



CM4 configuration

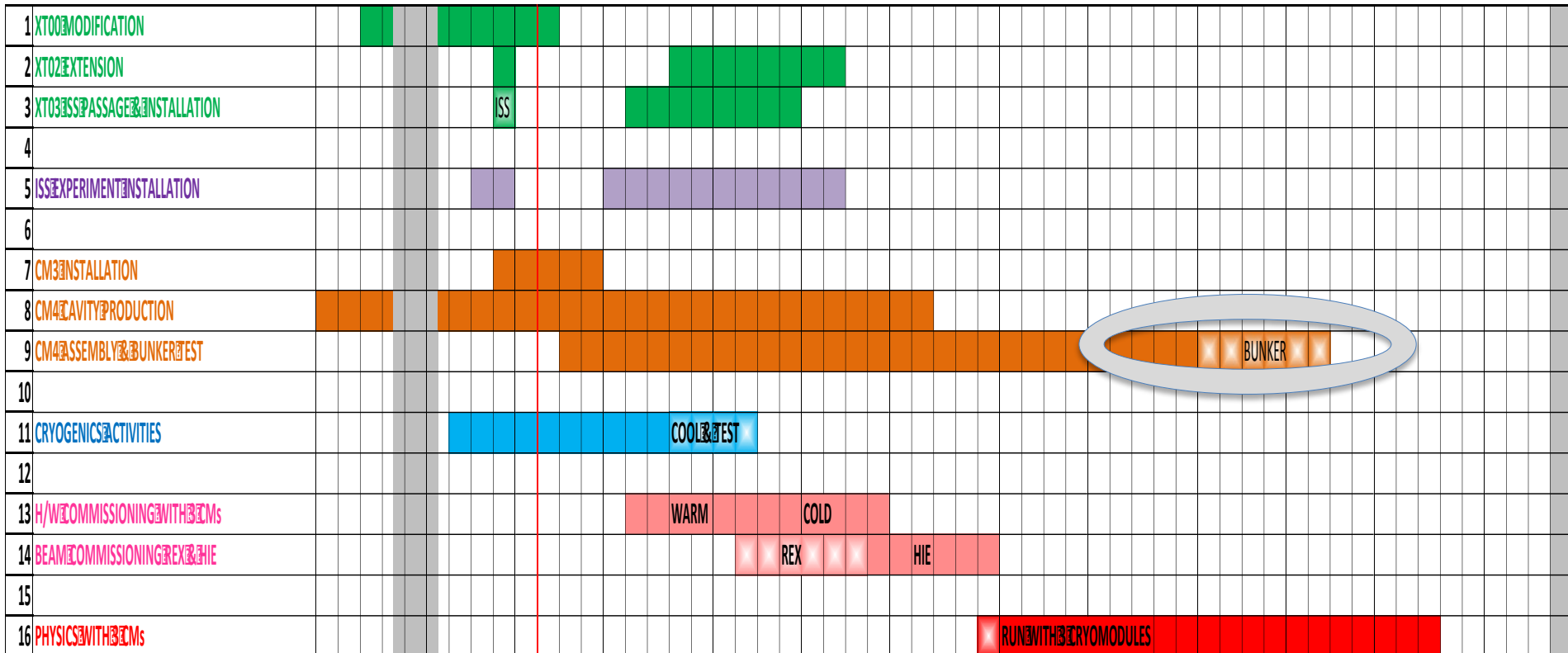


2017 Overall Planning

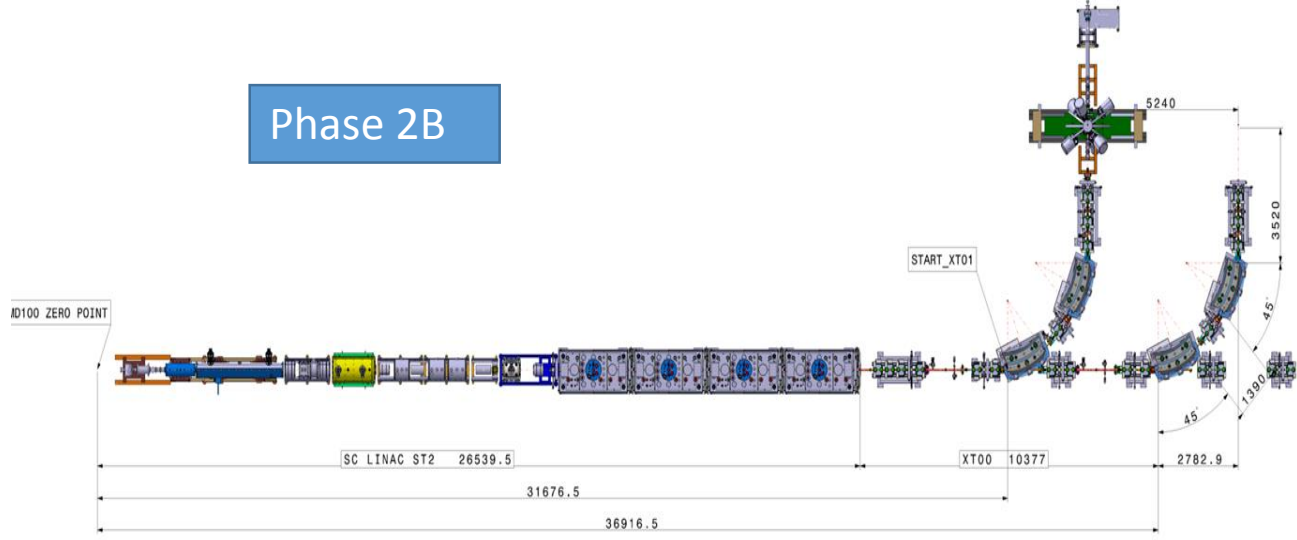
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Shutdown 2016-2017 BASELINE

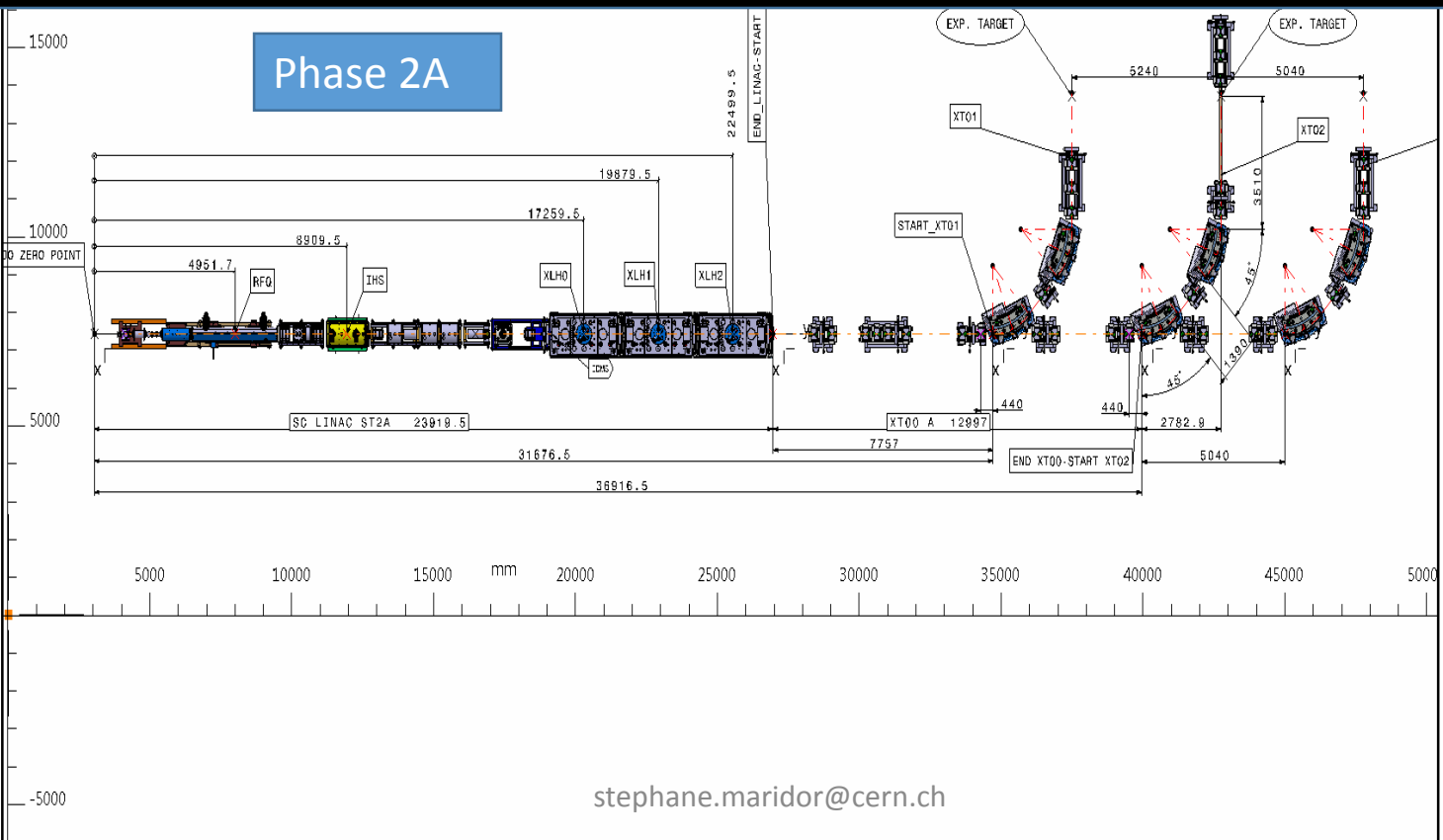
TODAY



Phase 2B



Phase 2A



Overall Summary

- **Phase 1 is now completed.**
- **Quite successful Physics Run in 2016**
- **Schedule for 2016/2017 Shutdown:**
 - ✓ Installation of CM3
 - Installation of 3rd beam line + ISS magnet on XT02
 - Cryogenics maintenance & consolidation
- **Remaining Phase 2 activities:**
 - Hardware and Beam commissioning with 3 CMs
 - Process CM4 cavities & spares
 - ✓ Last RI cavity meets specs after change of weld parameters – all remaining cavities now at CERN
 - ✓ CERN produced cavities (QS22 and QS23) almost finished
 - ✓ Production Seamless cavities also progressing well
 - CM4 assembly started



Thank you!

