

Powering/Tracking test in SM18 second phase (or one bis!)

Stéphane Sanfilippo

- *Objectives*
- *Status of SM18*
- *Schedule proposal*

Objectives

- ***Qualification of the Field Model (MB, MQ) for nominal cycle***
 - ***Correction of b_3/b_5 using MCS and MCD spool pieces***

To deliver adequate spool pieces current setting to cancel b_3 and b_5 during the selected machine cycle (done in phase I but correction procedure to be improved)

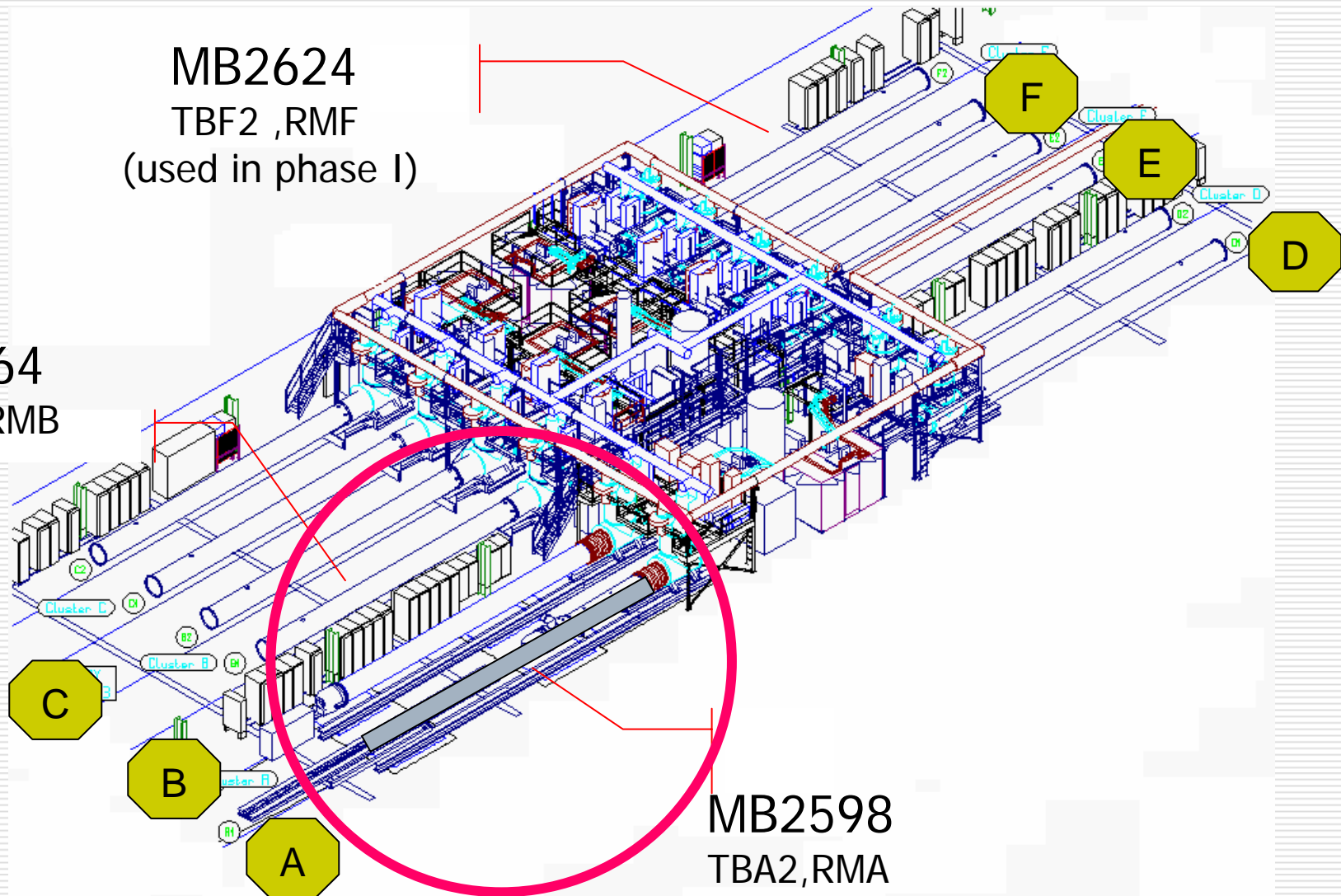
Check the field error prediction capability of FIDEL (snap-back compensation field during the start of the ramp..) (done in phase I)
 - ***MB/MQ and MB/MB tracking***

To deliver MB and MQ current ramp settings maintaining $b_2/b_1 \sim 0.45$ within 10^{-5} and $b_4/b_1 \sim 1$ within 10^{-4} (not done in phase I)
- ***Test of the model prediction in case of deviation from nominal cycles :***
 - Change w.r.t the pre-cycling conditions (flat top, pre-injection, quench, abort..) (not done in phase I)

Test station situation

MB2624
TBF2 ,RMF
(used in phase I)

SSS 064
TBB1 , RMB
(in test)



MB2598
TBA2, RMA
(already tested not used in phase I)

Improvements

□ ***Cryogenic limitations***

- Capacity to work with 2 (maybe 3) magnets at 1.9 K at the same time

□ **Hardware**

- Rotating coils for the MB2624 measurements changed
- Rotating coils for the SSS064 and MB2598 re-checked (no missing sector)
- Magnetic measurement chain re-checked for the three benches

□ ***Software and powering cycles***

- Magnetic measurement program modified by AB/CO
Able to read the current in “manual mode” of measurements
- Granularity of the load-line measurements for the modeling :
Implementation of a detailed load line cycle (proposal of N. Sammut)

Schedule

Test bench	17/09/07	24/09/07	1/10/07	8/10/07	15/10/2007	22/10/2007	29/10/2007
TBA2 (MB2598)			Cool down	Magnetic Meas	Powering & Tracking Test		
TBB1 (SSS064)	Cool down	Magnetic Meas			← Test →		
TBF2 (MB2624)		Cool down	Magnetic Meas		← Test →		

- ❑ Magnetic characterizations of the SSS064 (1 week)
- ❑ Complementary measurements (detailed load-line, extended tests) on MB2624 and MB2598 (1 week each)
- ❑ Start of the test, week 42, middle October
- ❑ Three weeks of tests (could be extended by one week)
- ❑ Test program : Cycles defined for the previous run with the same priorities.
 1. Tracking b1/b1 and b2/b1
 2. Sextupole and decapole compensation by corrector
 3. Impact of the powering history