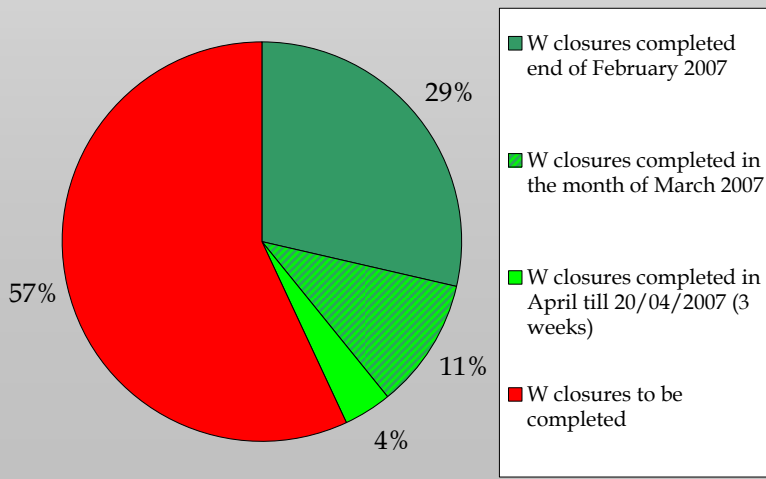
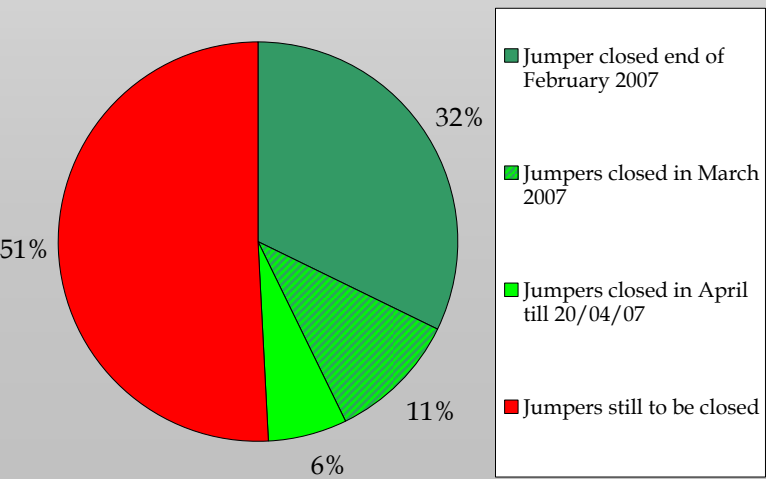
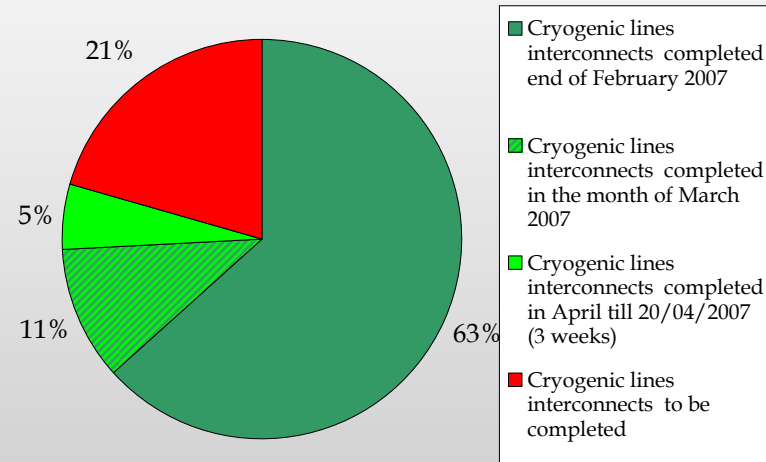
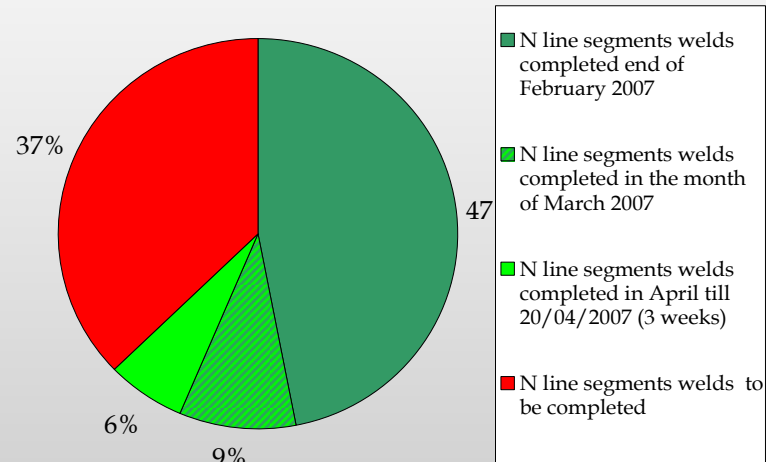
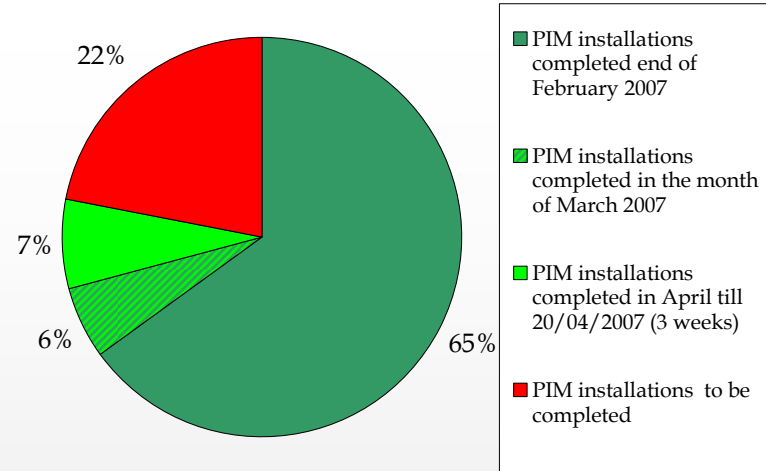
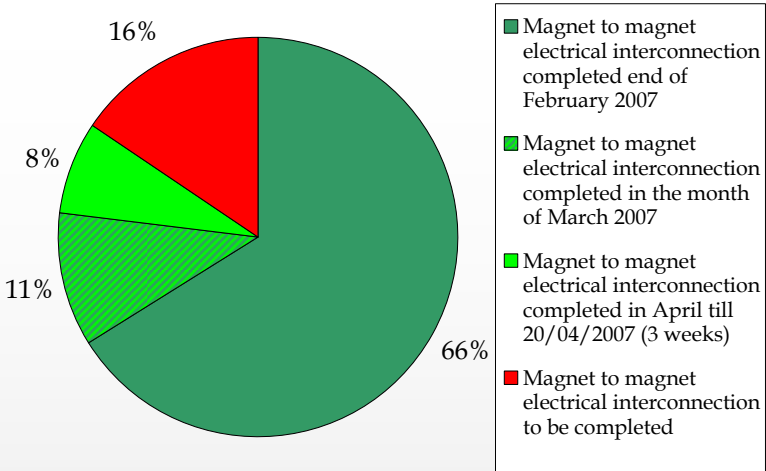


Cryomagnet interconnects status

Summary

- LHC magnet interconnect cockpit
- Sector by sector
- Verification of brazing repair procedure
- Planning issue
- Meteo-interconnect

In this moment the worksites are open in 7 sectors. The delay to enter in 1-2 were reduced from 5 weeks to 2.5



Status sectors 8-1 4-5

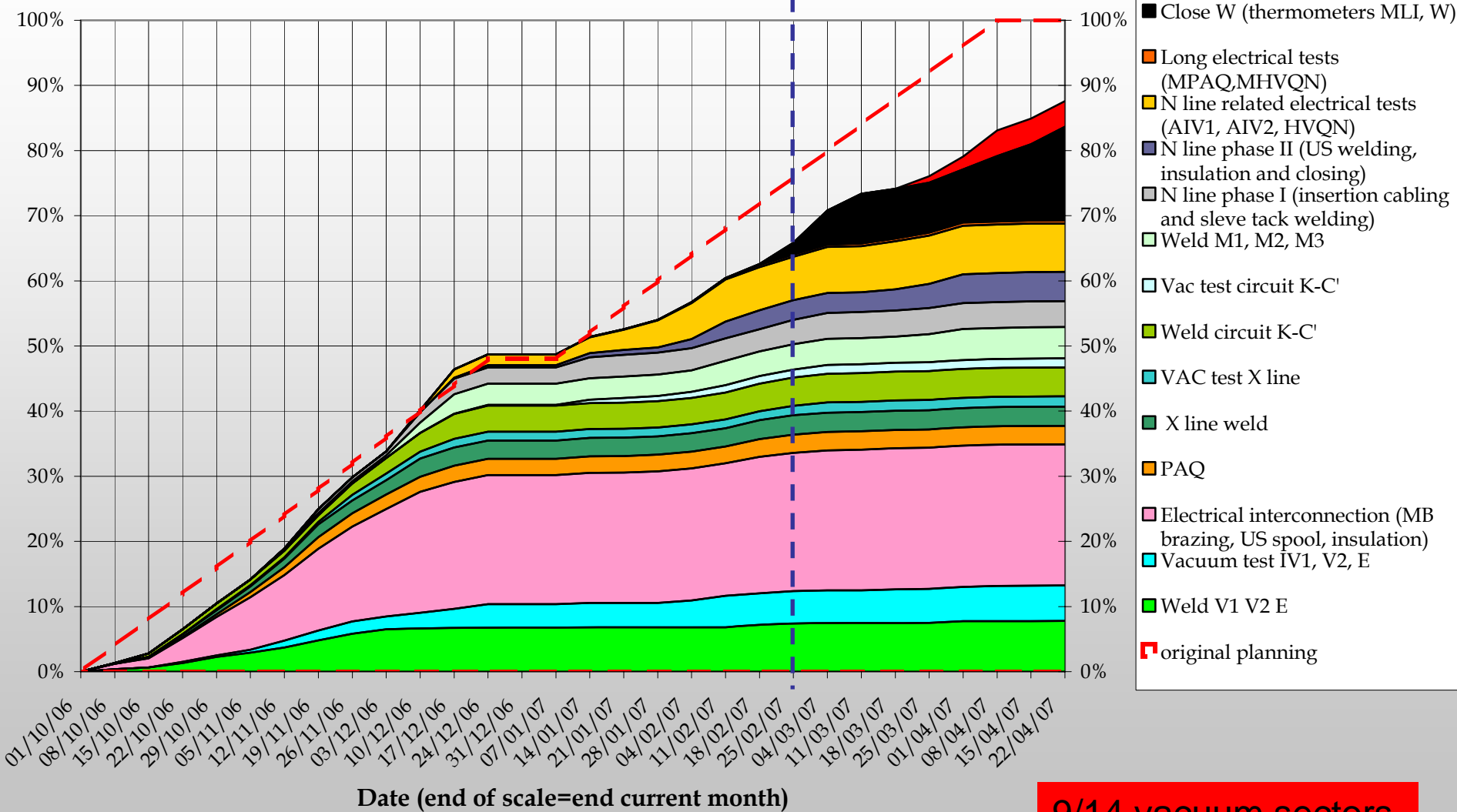
	Sector 4-5	Sector 8-1
Tested leak tight	12 (6 leaks found)	9 (2 leaks found)
Under test	1	0
To be provided	1 (to be provided this morning)	4+1 repaired

8-1 complete closure next week

4-5 complete closure today and repair Q11L5 with closure IC on Friday

Maric 25/02/07

Sector 3-4 general advancement view 22-Apr-2007

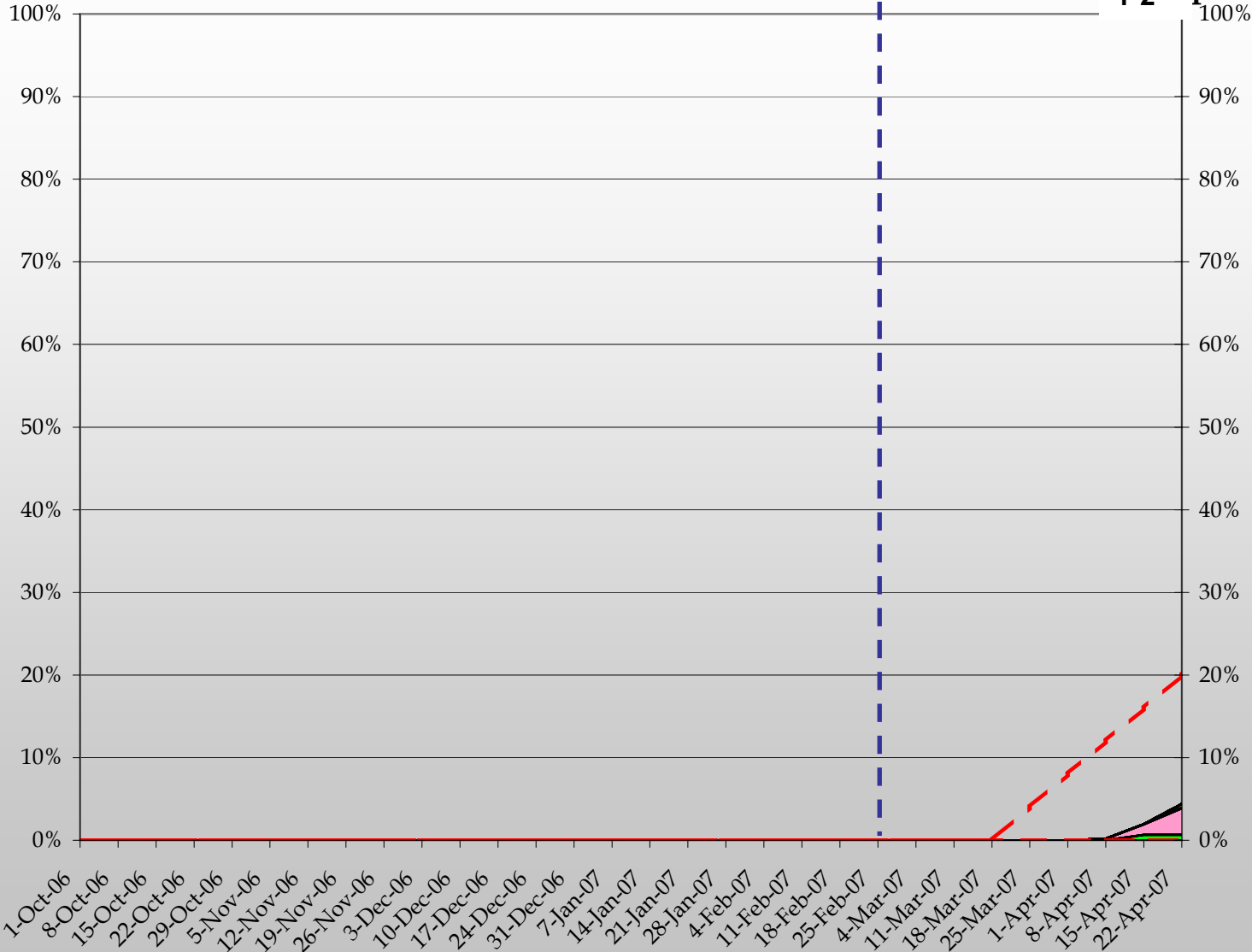


9/14 vacuum sectors provided and in tests

Maric 25/02/07

Sect 1-2

production rates 22-Apr-2007



- Jumper
- Close W (thermometers MLI, W)
- Long electrical tests (MPAQ, MHVQN)
- N line related electrical tests (AIV1, AIV2, HVQN)
- N line phase II (US welding, insulation and closing)
- N line phase I (insertion cabling and sleeve tack welding)
- Weld M1, M2, M3
- Vac test circuit K-C'
- Weld circuit K-C'
- VAC test X line
- X line weld
- PAQ
- Electrical interconnection (MB brazing, US spool, insulation)
- Vacuum test IV1, V2, E
- Weld V1 V2 E
- Or planning

Brazing is used for the spools bus bar when

- 2nd repair with Ultrasonic Welding fails
- There is no access to the IC because of
 - QRL position
 - Electrical boxes (blue ones) position
- Special interconnect (DFBA with last magnet)
- CERN repair action

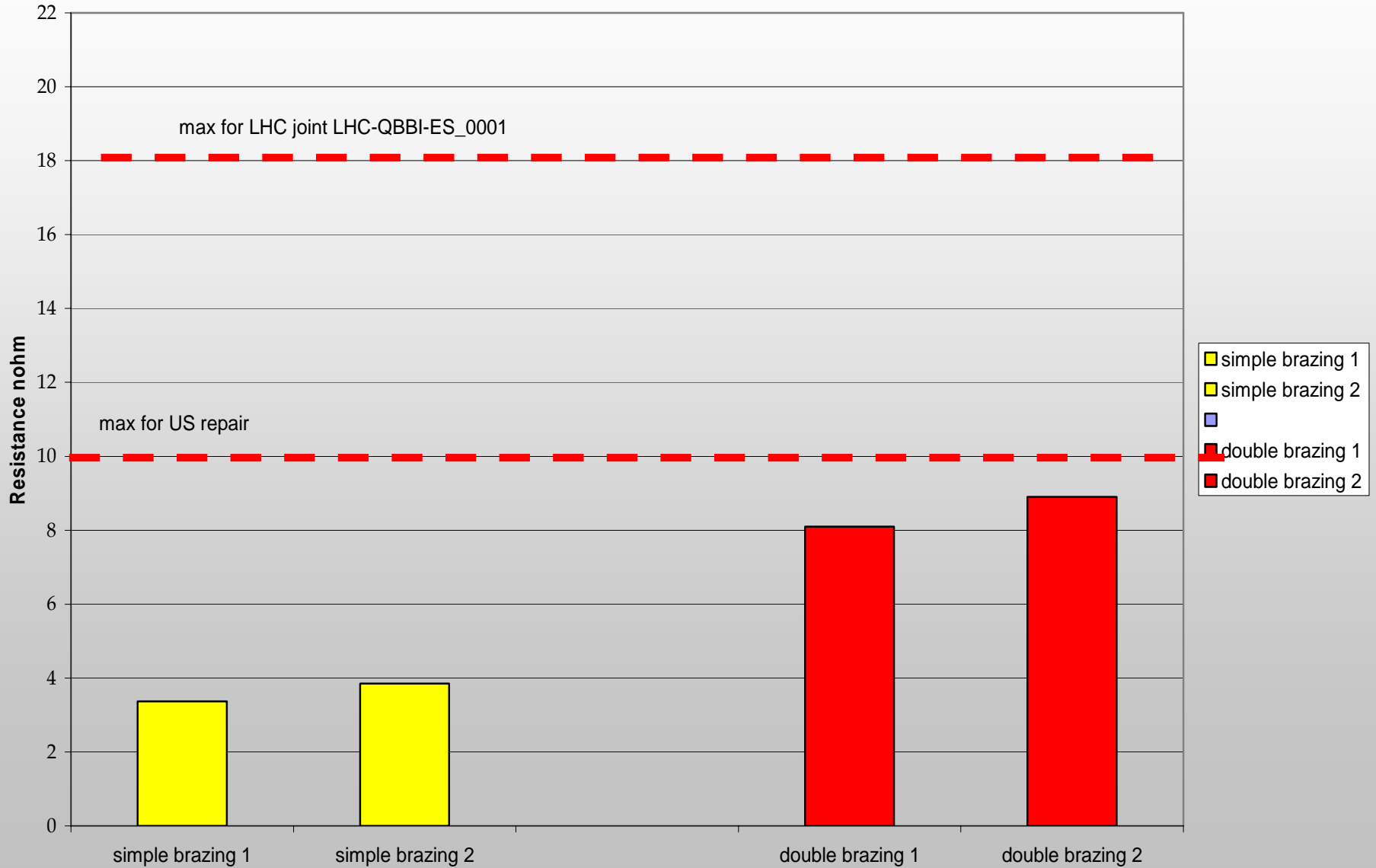


Simple brazing.
Superposition length >50mm



If there is not enough conductor ..
double brazing.
Each superposition length >50mm

Result of electrical tests



Results of mechanical tests

Test procedure and requirements

- Stand > 5000 cycles between 50 and 500 N at 4 K
- Provide tensile strength > 250MPa after cycling

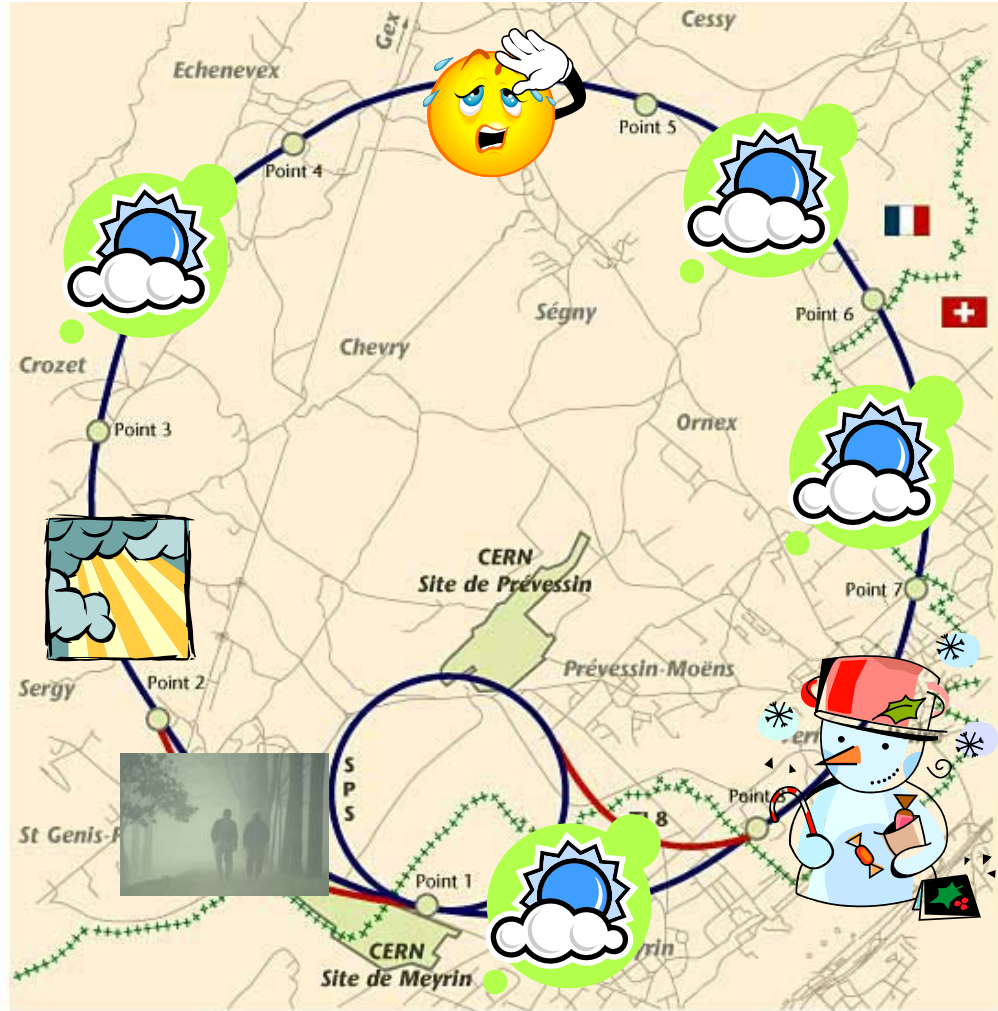
Repair type	Stand 5000 cycles	Tensile strength > 250 MPa
US	Yes	Yes
Brazing simple	Yes	Yes (260MPa-310 MPa)
Brazing double	Yes	Yes (280MPa-310 MPa)

These results are obtained on samples prepared in the workshop with the same technique used in the tunnel. Verification of possible effects of in situ work are being carried out

Planning Issues

- Sector 2-3: the Q11R2 has a potential short circuit. The magnet can only stand the engineering run. We propose to wait for the new cold mass (tunnel week 31) to close sector week 35 with new unit. In the meanwhile the cold mass will be used as electrical bridge to move ahead nearby activities
- Beam dump: the region DS L6 (5-6) and DS R6 (6-7) need to be completed in order to close the beam dump. The DS R6 has started and it will be paused end of this week (2 weeks waiting for the DFBA). After it will be completed week 26-27 . Ds L6 is waiting for interconnection cryostat. From the moment it is in place we need at least 12 weeks to close the region (week 30). We propose to pause beam dump activities and restart them in week 30.

Meteo interconnect



Temperature increase estimate for M-line 600 A splices

- Assumptions:**

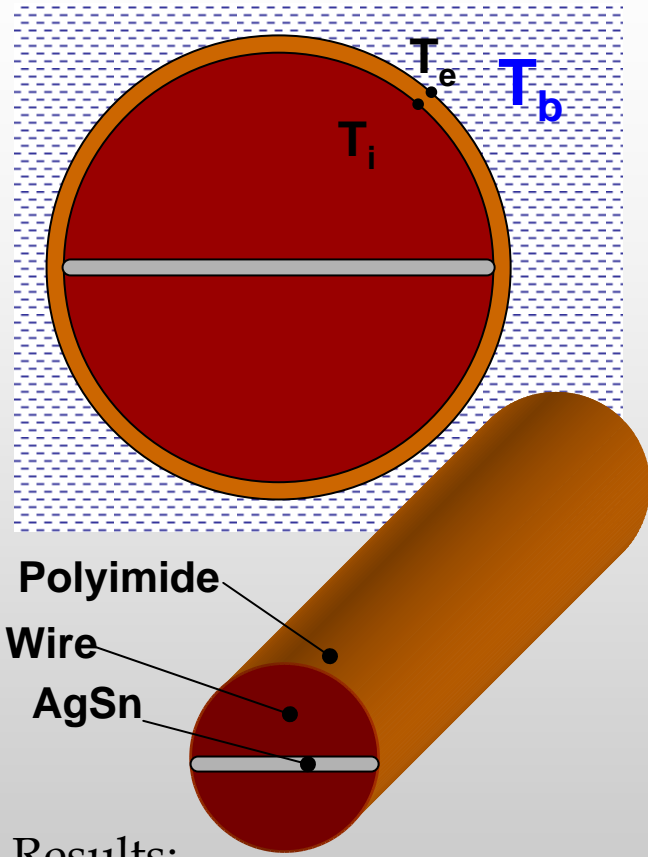
- isothermal He II bath, 1.9 K
- isothermal wire+joint (Cu+AgSn)
- 0.2 mm thick polyimide sleeve
- negligible thermal contact resistance between wire and polyimide sleeve
- no longitudinal heat conduction (conservative)
- joint length 50 mm

- Thermal resistances:**

- Polyimide conductivity:
 $K(T) = 4.638e-3 * T^{0.5678}$ [W/m-K] [Lawrence]
- Polyimide He II Kapitza:
 $\alpha = 47.43$ [W/m²-K⁴] [Baudouy]

- Joint ohmic resistance:**

- 10,18,100 $\eta\Omega$



Results:

ρ [$\eta\Omega$]	Q [mW]	T_e [K]	T_i [K]
10	3.6	1.902	1.968
18	6.5	1.903	2.022
100	36	1.917	2.532

Thermal Model:

