

RAT in P4 - *Status of Sector 45* - Preparation of Cool-Down

HARDWARE COMMISSIONING COORDINATION - WEEK 22

01st June POINT 4 (2485 2-001 SX4)

Present: A.Bouillot, P.Denis, J.J.Gras, P.Maesen, S.Pelletier, L.Poyet, B.Perea Solano, M.Solfaroli.

Sector 45 & Sector 34 (B.Perea/M.Solfaroli for HC)

Installation

- The bake-out of D5R4 and E5L4 will be performed on wk23. BI will then transport the telescope Monday week 24 instead of week 23.
- S.Pelletier informed about the NCRs for the different teams:
 - ✓ V.Chareyre should take care of the missing connector for AT/MEL cable.
 - ✓ All the cryo-instrumentation cables have been pulled, but some of them still need to be tested by TS/EL.
 - ✓ Current Leads Heater Instrumentation - everything is fixed for Sector 45 but there are still non-conformities in Point 3. S.Pelletier will look at that as soon as the campaign for 45 finishes.
 - ✓ Beam Instrumentation - BGI's cables need to be pulled, but this will only take place after the cool-down.

Vacuum -Cryogenics (A.Bouillot/P.Cruikshank)

- Leaks:
 - ✓ CM of the Q7. A.Bouillot pointed out that they are waiting for the green light from AT/VAC in order to continue in searching the leak or closing everything.
 - ✓ The leak in 15L5 envelope has been repaired and validated.
 - ✓ Weld repairs have been made on the DSL envelope at Q4 and Q5. The volume is being re-evacuated and will be validated early next week.
- The vacuum/cryo interlock tests will be organised in the coming week
- A.Bouillot informed they are not ready to install the new puppet (not validated yet). A new prototype will be delivered today and consequently will be tested on Monday and Tuesday and if validated the pieces will be machined wk24. The installation will therefore be carried out after flushing.
- Flushing will start next week purging and filling the line, depending on the decision on the leak in Q7.

Beam Instrumentation (J.J.Gras)

- Everything is in line with the installation and commissioning of the BSRT to be carried out during weeks 24-25.
- J.J.Gras informed that TS/EL finished UPS installation in surface and pointed out that an inspection visit for the electrical equipment will be performed by Guy Salomon. This concerns the full LHC machine.

- D.Gerard informed that for the leak on the flexible at the level of the BGI's magnet they (AB/BI) will check the situation on Monday morning.

Cryo-Instrumentation (A.Suraci)

- RF instrumentation and SCADA system: AB has to install a F.O/Cu coupler. A.Suraci informed that they are still working on the SCADA, a new download of program should be made next week.
- Manipulation of cryo valves in DFBs LSS4R and LSS5L (wk17-wk18) (A.Suraci)
- On Monday, If the pressure is realized an automatic test with all the cryo-valves both on the DFBs and in the arc will be carried out on Monday
- The mobile test bench is still on going (~65% of the ARC tested)
- Some control cables of the temperature sensors has been installed

Radio Frequency (P.Maesen)

- The Radio Frequency Warm Recovery Line is being enlarged at some connections. This need was detected during the leak and pressure tests, and should be finished by Tuesday wk23. Afterwards, further leak-tightness tests of these zones should be performed (A.Bouillot).
- As of Monday 4th June power tests at the klystrons should re-start as soon as the power is back.
- They wait for vacuum connection between their cavities (in particular the left side). This should be in place before the cool-down. *Installation confirmed after the meeting that the installation of the vacuum pipes is foreseen for wk23-wk24 and the bake-out of the area wk25.*

Current Leads (P.Denis/L.Poyet)

- Current lead heater functional tests:
 - ✓ Non-conformities in the DFBAI are to be sorted out before the functional tests of the current lead heater can finished.
 - ✓ Two cables need to be re-tested for the DFBAH.
 - ✓ They have been completed for the DFBLD LSS5L, DFBMK,L,G.
- Alain Jacob will place the galvanic insulation on the DFBAH LCM next week.
- P.Denis has done final connection of the 120 A Power Cables on the DFBLD.

60A Orbit Correctors (M.Solfaroli)

- The 8 x 60 A Power Converters in Arc45 went through the 8h-Heat Run tests last Wednesday 30th May from 17:30. Everything worked fine and all the PCs passed the test. They will be pre-connected by Sylvain either today or on Monday; Philippe Denis will go behind in order to release the circuits as soon as possible for the EIOA.
- ELQA-DOC is being finished and non-conformities being corrected.

Open Issues

Current Leads

- 15.01.07 Current Lead heater functional tests LSS5L (DFBAI) and LSS4R (DFBAH) (L.Poyet)
- 22.05.07 NCRs CL heater cables DFBAI (S.Pelletier)
- 22.05.07 NCRs CL heater cable DFBAH (S.Pelletier)
- 27.04.07 Connectors of the cables No 1421742, 1421737, 1421731 don't have the right convention for cabling (S.Pelletier)

QPS

- 31.01.07 LSS5L DFBAI, DFBL, DFBXE continuity/assignment cables and HVT - non-conformities to be repaired by J.Mourao and TS/EL(R.Denz)
- 31.01.07 LSS4R DFBAH, DFBMK/L/G continuity/assignment cables and HVT - non-conformities to be repaired by J.Mourao and TS/EL(R.Denz)

Cryogenics

- 01.06.07 PLC Programming for Radio Frequency Cryo-Instrumentation (A.Suraci)
- 10.05.07 Isolation of DBX jumpers in view of the cool down (insulation vacuum) (J.P.Tock)
- 30.03.07 RF instrumentation and SCADA system will be carried out week 15 and 16 (A.Suraci)
- 13.04.07 Manipulation of cryo valves in DFBs LSS4R and LSS5L (wk17-wk18) (A.Suraci)
- 30.03.07 Mobile test bench tests in Arc45 (wk15 on) (A.Suraci)
- 16.02.07 Manipulation of cryo valves in sector 45 - compressed-air problem with 3 or 4 valves and coherence tests (A.Suraci)
- 16.02.07 Connection of the temperature sensors and control cables (A.Suraci)

Beam Instrumentation

- 11.05.07 Installation of the BSRT - wk 23/wk 24 (J-J.Gras)
- 13.04.07 BGI Commissioning (J-J.Gras)

ELQA

- 16.05.07 NC 842369 in MCB Circuit Q5R4
- 16.05.07 NC 842358 in Q5, Q6 L5 - Wrong polarity of 120 A circuit (M.Zerlauth)
- 16.05.07 NC 842336 - Continuity error in instrumentation cable Q10R4 (TS/EL)
- 16.05.07 NC 842324 - Abnormal resistance on the current lead DFLDS.30R4.2 (AT/MCS)
- 09.05.07 NC 839924 - Short-circuit in cable Q17L5 (1507116) IFS box to 60 A PC rack (pins1&2) (TS/EL)
- 20.04.07 ELQA-TP4A in LSS4R and LSS5L (D.Bozzini/V.Chareyre)
- 22.02.07 Non-conformity (EDMS 816458) at the level of the cable trays installed above the DFBXE (D.Bozzini)

Energy Extraction

- 16.03.07 Verification of the connection of the 13kA EE-quench detectors arc (K.Dahlerup-Petersen)

Power Converters

- 20.03.07 60 A Orbit Correctors (S45)-50kHz/26V RPLA34L5.RCBH33 (H.Thiesen)

AOB

- 22.05.07 Warm Magnet commissioning in P5 will start with ELQA activities wk 21
- 23.03.07 DFBXE *T* sensor boxes from D.Bozzini, grounding of the 120 A cables, insulation vacuum of the current leads, the coating of the insulator.
- 27.03.07 Installation of the control equipment (second half of June) in sector 34 and 45 (2wk each) (S.Infante)

Open Issues (followed by TS/IC)

- 27.03.07 Inner Triplet repair in LSS5L

AC non-conformity

- 13.11.06 Non-conformity of the crates of cryo instrumentation in Sector34 and Sector 45 (inrush current) (A.Suraci: ready next year)

DC cabling

- 23.03.07 Cabling campaign LSS4L & LSS4R for Beam Instrumentation wk13 (S.Pelletier)

Warm Vacuum - NEG Activation

- 23.03.07 RF vacuum pipe installation wk 23-24. NEG-Activation wk 25 (P.Maesen)
- 05.02.07 NEG Activation in D5L4 in LSS4L (Wk 23)

WorldFip

- 10.05.07 Installation of two connection boxes for the Radiation Monitoring WorldFip in Point 3 (A5R3 and UJ32) (C.Dehavay-J-C.Guillaume)
- 23.03.07 Short or missing WorldFip Cables for Cryo, QPS, PO, BI in the arc 34 (x10) and 45 (x10) (S.Pelletier)

Other issues

- 10.05.07 Installation of MQKA in LSS4L - wk 22 (L.Ducimetiere)
- 12.02.07 Activity on the water pressure valves for the ACNs

Closed Issues

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| 60 A Orbit Correctors (S45)-grounding problem (J.Pierrelot) | 11.05.07 |
| Re-positioning of the cables in LCM of the DFBAH (4R) (B.Lebeau) | 23.05.07 |

Leak and pressure tests of the RF Warm Recovery Line (A.Bouillot)	18.05.07
Power balance in point 4 (weeks 20-21-22)	25.05.07
Two water-cooled cable crossed in DFBML in LSS4R - wk21	23.05.07
120A mechanical connection DFBAH (P.Chambouvet/P.Denis)	23.05.07
60 A Orbit Correctors (S45)-2 nd Heat Run (A.Solfaroli)	30.05.07
BGIs Installation LSS4L & LSS4R	11.05.07
ELQA-TP3 in LSS4R (D.Bozzini/V.Chareyre)	20.03.07
LSS4R Replacement of the heat exchanger cables (S.Pelletier)	27.04.07
Modification of the DFB side of the cables 1513712 and 1513713 (DTH06 instead of DTH09) (S.Pelletier)	27.04.07
Current lead cable non-conformities : 1515511 1515512 1515513 1515514 1515516 (L.Poyet + J.C.Guillaume)	27.04.07
LSS5L test on the heat exchanger cables (S.Pelletier)	27.04.07
CL Insulation Vacuum DFBLD in LSS5L (P.Denis)	20.03.07
Visualization of the cameras in the field control room in UA43 due to breakage of the door (C.Ducastel)	27.03.07
Water leaks at the level of the BCTs to be repaired (J-J.Gras)	13.04.07
CL Insulation Vacuum in LSS3R (P.Denis)	13.04.07
CL Insulation Vacuum DFBAI LSS5L (P.Denis)	13.04.07
Radio Frequency: heater connections and 8 capillaries for pressures sensors	30.03.07
Check of the 6kA and 13kA cable presentation in LSS4R (P.Denis)	12.02.07
Pre-mounting 600-120A in DFBAI LSS5L (TS/EL)	09.02.07
Pre-mounting 120A in DFBMk/L/G LSS4R (TS/EL)	06.02.07
Polarity Tests of the 120 A in DFBAH, DFBMK, DFBML and DFBMG in LSS4R (TS/EL)	29.01.07
Pre-mounting 600-120A in DFBAH (TS/EL)	26.01.07
120A mechanical connection DFBAH, DFBMK/L/G (P.Chambouvet/P.Denis)	09.03.07
CL Insulation Vacuum DFBAH, DFBML/K/G in LSS4R (P.Chambouvet)	09.03.07
Current Lead heater functional tests LSS4R (P.Chambouvet)	09.03.07
60 A Orbit Correctors S45 - 1 st 24h Heat Run - wk12 (M.Solfaroli)	23.03.07
Renco intervention on the 13kA EE System LSS5R (K.Dahlerup-Petersen)	27.03.07
Cable inversion at the fans of the 13kA EE System LSS5R/LSS4L (K.Dahlerup-Petersen)	27.03.07
Re-installation of Cryo-Instrumentation boxes in arc45 (P.Fessia)	05.04.07
CL Insulation Vacuum in LSS4L (P.Denis)	05.04.07
60 A Orbit Correctors (S34)-Individual System Tests-wk17(J.Thomson)	04.05.07

Re-positioning of the DC water-cooled cables by Flohe on the DFBAH and DFBLM (LSS4R) (B.Lebeau/F.Moro) 04.05.07

Closed Issues (followed by TS/IC)

Installation of the roof at the level of the RF Cavities-wk20 (C.Fernandez) 22.05.07

Jacks and spacers in Q5-D4.R4. QN-LHC-4R-QBQM.5R4 NC on supporting system of the Magnets D2-Q5 (S.Weisz) 21.05.07

NEG Activation in A6L5 in LSS5L 25.05.07

BGIs connectors wk15 - problem vacuum leak A6R4 (S.Pelletier) 23.05.07

Non-conformity for damaged BPM.22R4 Sector 45 (J-J.Gras) 02.05.07

Access & Safety cable (4 short cables + 1x3km cable) Thursday-wk 22 (S.Pelletier) 25.05.07

Re-positioning of WC cables after the CV works on the DFBAH and DFBLM in LSS4R: 1408479 DFBLM;1408463 DFBAH;1408465 DFBAH;1408459 DFBAH 23.05.07

LSS4L Cabling by Flohe - 1 cable to be changed DFBA - wk21 (B.Lebeau) 23.05.07

DFBLD mechanical works LSS5L (wk15) 11.05.07

Pressure Tests on DFBAI and DFBLD (LSS5L) (A.Bouillot) 11.05.07

BPM Schottky electronics installation (wk19) 11.05.07

NEG Activation A5L5 LSS5L 11.05.07

NEG Activation A6R4 LSS4R 11.05.07

Global Leak and Pressure Tests Sector 45 13.05.07

Pressure Tests on the DFBAH 08.05.07

wk12-13 fiber installation campaign for the experiments in LSS5L 13.04.07

Installation of instrumentation cables of D3L4 (arc 34) (S.Pelletier) 27.04.07

Pulling profibus cables in UA47 and USC55 (S.Pelletier) 27.04.07

Inversion of the *cosses* of RB circuit in UA43 (J-C.Guillaume) 13.04.07

Installation of UPS PIC boxes (E.Barbero) 13.04.07

Cooling and ventilation annual maintenance 23.03.07

Cryo instrumentation racks installation in Arc 45 (A.Suraci) 16.03.07

Correction of two water-cooled cables on the DFBAI - Flohe (LSS5L) 16.03.07

Non-conformity of the AC cabling of the crates under the magnets. This concerns ACR, MEL & VAC. 16.03.07

Interconnections around DFBAI, Q5-DSL, Q4-DSL 16.03.07

Local leak and pressure tests on DFBLMs (A.Bouillot) 09.03.07

Water-cooled power cable joints replacement by Renco in UA43 and UA47 09.03.07

Interconnection and WRL connection DFBMK/L/G (LSS4R)	16.02.07
Interconnections around Q6-DSL (LSS5L)	26.01.07
Cabling 600A and 120A in DFBAI, 120A in DFBL in LSS5L(INEO)	09.02.07
13-6kA cabling at the DFBML in LSS4R (Flohe)	06.02.07
Cabling 13-6kA in DFBAI and DFBX in LSS5L(Flohe)	19.01.07
Cabling Q6, Q7, Q8, Q9 and Q10 in LSS5L (INEO)	26.01.07
Cabling of the 600-120A in DFBAH,120A in DFBMK, DFBML and DFBMG, Q6, Q7, Q8, Q9 and Q10 in LSS4R (INEO)	26.01.07
Installation of two power outlet (required by worldfip) in the arc 45	09.03.07
Interconnection and WRL connection DFBAH (LSS4R)	09.03.07
WorldFip Tests in Arc 45 (week 08) (J.Thomsen)	09.03.07
Cabling 13-6kA in DFBAH, DFBMK\G in LSS4R(Flohe)	09.03.07
NEG activation in E5R4 and D5R4 in LSS4R	09.03.07
Interconnections around DFBAI, Q6-DSL	23.03.07
Cooling & Ventilation annual maintenance P4 (F.Moro)	30.03.07
NEG Activation in A7R4 (DFBAH) w13 or wk14	30.03.07
Installation and activities on the DFBL - meeting in the field	30.03.07
Local leak and pressure tests on DFBAH (A.Bouillot)	04.05.07
Qualification of WorldFip Segments in Sector 34 and Sector 45 - wk 15 (C.Dehavay)	04.05.07
Installation of the RF Power Converter Transformers (P.Maesen)	04.05.07
Connection of the QUI (surface to QRL) wk 11 & wk12 (A.Bouillot)	04.05.07

Milestones: Test Schedule Sector 45 and Sector 34 (foreseen dates provided by TS/IC)

Sector 45	Sector 34	TASK
Wk 10-11	Wk 18-19	AB/PO short Circuit tests
Wk 17-18	Wk 28-29	ELQA-TP4A
Wk 19	Wk 25	Interconnections+Vacuum
Wk 19	Wk 34	Interconnection DFBL
Wk 19-20-21-22	Wk 34-35-36	Pressure Test + Consolidation
Wk 23-24-25		Flushing
Wk 26		Cool Down Sector 45
Wk 34		Powering Tests

E.Barbero/C.Fernandez/M.Solfaroli/B.Perea