

VSC LS2 Overview of activities

LHC experimental vacuum activities 22nd of June 2020



Experimental installation schedule

- **ATLAS experiment**

- Mechanical installation of the C-side by October 2020 will be very likely postponed;
- Expected installation of the A-side by Q1 2021; C-side Q3 2021 (to be confirmed);
- Revision of the installation schedule foreseen for Chamonix meeting (confirmation by 1st of October);

- **ALICE experiment**

- Installation of the IP2.X foreseen by week 36 (starting from 31/08/2020)
- Preparation for the bake-out by week 38 (14/09/2020);
- Bake-out of the IP2.X by week 39 – 40 (from 21/09/2020);
- Followed by the Neon injection and post-bake-out mechanical activities upstream of IP2 (7/10/2020);

Experimental installation schedule

• CMS experiment

- Mechanical installation by Q1 2021 (for the moment by the end of January / beginning of February);
- Extraction of the forward assemblies still during the 2020 – will be discussed with TC;
- Target is to have CMS bake-out done by end of Q1 2021;

• LHCb experiment

- VELO RF boxes installed after the COVID restart (tank on the atmospheric pressure);
- Some punctual activities ongoing (dipole supports dismounting; VELO inspection);
- SMOG 2 installation foreseen by week 32;
- VELO vacuum system mechanical intervention from week 33; 34 and 35;
- Then ICM tests by the September 2020;
- Installation of the UX85 chambers followed by bake-out foreseen by January 2021 (to be confirmed);

Installation readiness



LHC experimental beam vacuum

- Beryllium experimental vacuum chambers**

	Production	Acceptance	NEG coating
ALICE central chamber	Complete	Complete	Complete
CMS central chamber	Complete	Complete	Complete

ALICE central chamber



Ready for installation

CMS central chamber



Before final NEG performance test

LHC experimental beam vacuum

- Remaining production and post-production activities

Aluminum chambers



Production

Complete

9+3 chambers
for CMS

Acceptance

Ongoing

50% complete
≈ 2 months to go

NEG coating

Ongoing

33% complete

Standard LHC vacuum components



Production

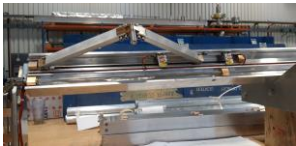
Ongoing

ALICE components ready
LHCb components ready

Acceptance

Ongoing

Structural supports for vacuum chambers



Production

Ongoing

ATLAS components ready
ALICE components ready

Final assembly

Ongoing

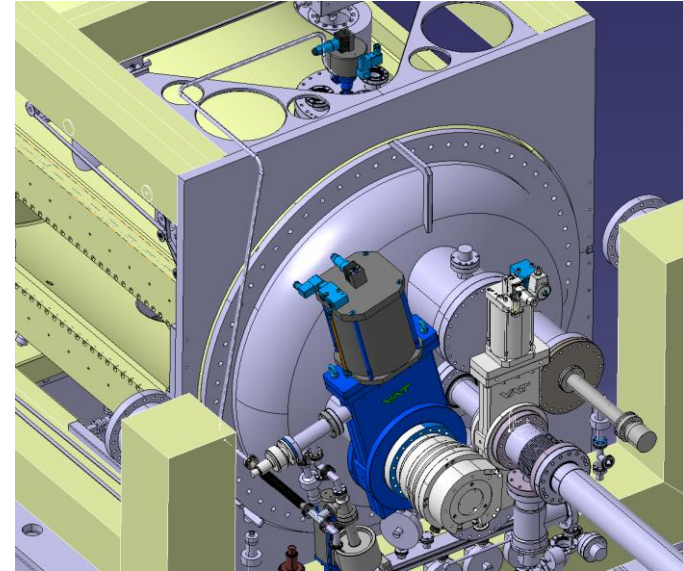
Equipment installation readiness

- ALICE – ready for installation;
- LHCb – ready for installation;
- ATLAS – ready by July;
- CMS – ready by August;

Remaining activities are well within the foreseen installation schedule.

LHC experimental beam vacuum

- **LHCb VELO and SMOG 2 activities**
 - VELO equipped by new Mk2 RF foil (NIKHEF team);
 - Vacuum equipment for VELO upgrade ready for installation;
 - Vacuum interface for the SMOG2 including Gas Feeding System ready for installation in Q3-2020;



Ongoing and foreseen activities

Ongoing activities – this week

- UX activities

- LHCb UX85
 - Removal of the load cells within the LHCb dipole;

Ongoing activities

- **ATLAS experiment**

- Mechanical assembly of the final VT supporting assemblies (113 – Piotr);
- Issues with the Kapton cabling peel-off – to be fixed together with ICM;
- Functional tests when ready (July 2020);
- Installation tooling tests on the mock-up (July – August 2020);

- **ALICE experiment**

- Central chamber VC2C ready for installation;
- Sector valve for RB26 including VGPB and VGRB ready for installation (week 27);
- Maintenance of the GIS TMP (to be dismantled by next week)

Ongoing activities – this week

- **Laboratory activities**

- Vacuum & NEG acceptance
 - TB2 Stainless steel – stand-by waiting VC5FP assembly;
 - TB1 NEG – acceptance test of the VVGRWA with VAZAF;
 - TB3 NEG – reference test before VC5C;
- Mechanical activities
 - ATLAS - Mechanical assembly of the final VT supporting assemblies (113 – Piotr);
 - CMS – reparation of the forward pumping screens (to be completed today);
 - CMS – preparation of the supports for the coating of the HF-CT2;
- SMOG 2 Injection setup complete – first injections ongoing;

Ongoing activities – next week

- **Laboratory activities**

- Vacuum & NEG acceptance
 - TB2 Stainless steel – vacuum acceptance of the VC5FP assembly (hopefully on Tuesday);
 - TB3 NEG – Redo the zero; then VC5C NEG acceptance;
- Marble table
 - Inspection of the VC5C before the NEG acceptance;
 - Inspection of the HF-CT2 #1 before the NEG coating;
- NEG coating – 1st HF-CT2 chamber; assembly of 3 forward pumping chambers (TBD)
- Other (Mechanics; bake-out wrapping; other tests)
 - ATLAS VT supports; HF-CT2 #2 wrapping; GFS lines bake-out installation; SMOG2 tests;

Ongoing activities – next week

- **UX activities**

- **ALICE UX25 and RB26 (LHC)**

- Remove the GIS TMP for the maintenance (Julien, Didier);
- Installation of the new VVGRWA valve instead of the VVGSW in RB26;

- **LHCb UX85**

- Assistance with VELO RF boxes – residuals of the paint on the boxes;
- Removal of the rest of the dipole supports (to be checked with TC);
- Inspection of the VELO bake-out system (TBD when exactly);

- **CMS UX55**

- Inspection of the forward region cabling status and patch-panel location;