

Status of the PSB IST

LIU Commissioning Coordination Committee

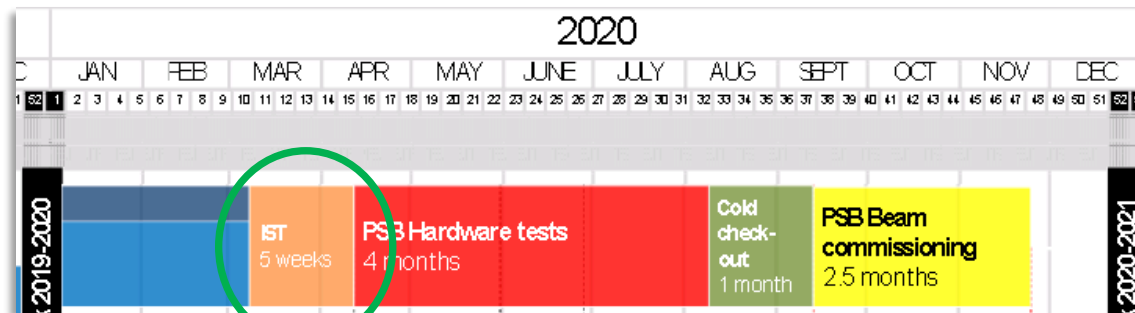
31st May 2019

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Presented by G.P. Di Giovanni

PSB IST

- **Goal:** Collect information for scheduling, including safety aspects.
 - Type of test, sequence, duration, prerequisites, risk and compensatory measurements.
 - **Deadline: end June 2019.**
- The PSB HW commissioning coordinators worked to gather the necessary information and presented the current list at the LIU-PSB TCM, <https://indico.cern.ch/event/813464/>
 - Validated the list of tests and made sure that no test was overlooked.



5 weeks: from Monday 09/03/2020 to Friday 09/04/2020

PSB IST

IST Inventory		
Equipment Group	Systems	Comment
BE-BI	All	Waiting feedback
BE-CO	FEC - Middleware	Local OASIS cable connection
	External Conditions	Local test
	SIS	No IST. Done in HW Comn.
BE-ICS	Booster Safety Chain	Software test
BE-RF	Finemet	Fence the tested area
	Transverse FeedBack	Local test. No access tunnel.
EN-STI	Beam Stoppers	New Beam Stoppers
TE-ABT	Kickers / Septa / Bumpers / Distrib. /Strip. Foil	Earlier start for SF and BT.SMV
TE-EPC	Auxiliary Pow. Conv.	Detailed planning. Anticipate tests as much as possible
	POPS-B - BR.MPS	No IST. Tests in B245 with dummy load from B237
TE-MPE	BIC	Loca test
	WIC	Tests will follow EPC schedule
TE-MSB	Magnet	Follow EPC schedule or HW commissioning
	B-Train	Local test. No coativity
TE-VSC	Vacuum	No IST

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BE-BI will provide the necessary information to assemble the list of IST and HW tests beg. June

BE-BI System Inventory							Tests		
System	Sub System	Machine Location	FEC	Responsible	New LIU	EDMS	IST	HDW + Dry Runs	OASIS Checkout
BLM	LHC_IC	Ring + Transfer Lines	CFV-361-blminj	Ch.Zamantzas					
	Flat IC	Ring	CFV-361-BLMFIC	Ch.Zamantzas	X				
	Diamond	1L1	?	?	X	2054235			
BCT	DC	8L1 + 9L1	CFV-361-BCTDC	P.Odier					
	Fast	LT + LTB	CFV-361-BCTF1	J.C.Alicia-Santamaria					
	Fast	BI	CFV-361-BCTF2	J.C.Alicia-Santamaria					
	Fast	BI + WatchDog	CFV-361-BCTF3	J.C.Alicia-Santamaria					
Sem_Grid	Fast	BT + BTM + BTY	CFV-361-BCTF3	J.C.Alicia-Santamaria					
	Fast	BT + BTM + BTY	CFV-361-BCTF3	J.C.Alicia-Santamaria					
?	Injection	Ring3_4L1	?	?	X	1415820			
	BTM		CFV-361-BIBTM	G.Focker					
BPM	Injection		CFV-361-BINST1	?					
	Injection	LT + LTB	CFV-361-BPMI1	M.Bozzolan					
	Injection	BI	CFV-361-BPMI2	M.Bozzolan					
	Injection	BI	CFV-361-BPMI3	M.Bozzolan					
	Ring	Ring	CFV-361-BPMPSB	J.Belleman		1078894			
	Extraction	BT + BTM + BTP + BTY	CFV-361-BPMBE2	M.Bozzolan					
Q_Measurement	Ring	3L1 + 12L1	CFV-361-BQPSB	T.Levens					
	Ring	3L1 + 12L1	CFV-361-BQPSBR1	T.Levens					
	Ring	3L1 + 12L1	CFV-361-BQPSBR2	T.Levens					
	Ring	3L1 + 12L1	CFV-361-BQPSBR3	T.Levens					
	Ring	3L1 + 12L1	CFV-361-BQPSBR4	T.Levens					
BTV	Injection	BI	CFV-361-BTV1	S.Burger	X	1898693			
	Ring Injection+ extraction region	BI + BR + BE	CFV-361-BTV2	S.Burger	X	1899080			
	Extraction	BT + BTM	CFV-361-BTV3	S.Burger	X	1908091			
	Extraction	BTY	CFV-361-BTVISO	S.Burger					
Wire Scanners	Ring - H plan	4L1	CFV-368-BWSPSB	J.Emery	X				
	Ring - V plan	11L1	CFV-368-BWSPSB	J.Emery	X				
SCRAPER	Injection	BI.SMV10	?	?	X	1460868			
H./H0 Minotor	Ring	1L1	?	?		1069244 1580006			
	BTP Wide Band Pick-Up	Extraction	BTP	?	?	1259212			

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**Prerequisite for tests is that the Rack Power Supply (CANALIS) must be powered.
[Expected 13/01/2020]**

- BE-ICS: Connection of new EIS.f to PSB Safety Chain and PASS program update
- **3 days without Access in the machine
(from 24/02/2020 to 20/03/2020)**

PSB IST

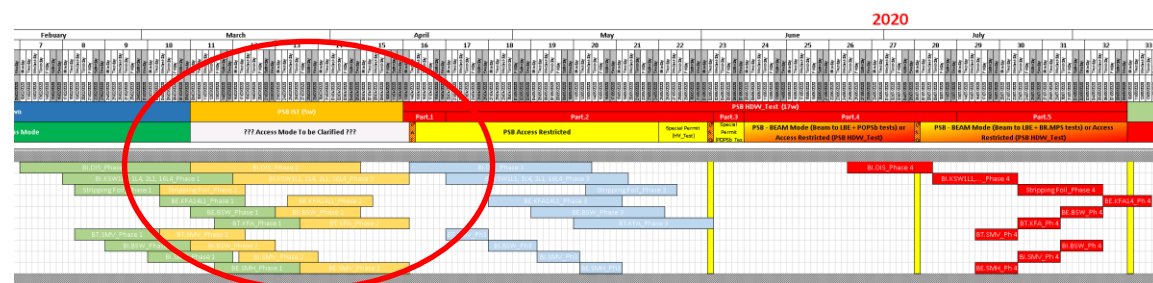
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- **High-Level Finemet tests start during LS2 (mid November 2019)**
 - Demi water and electrical network required.
 - Access should be possible.
 - Fence the tested area.
- **Low-Level RF experts tests will follow the testing done for the HLRF.**
- **TFB:**
 - Check-up cables connection and length with a network analyser.
 - Amplifier commissioning in local.

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- TE-ABT detailed commissioning organised in 4 Phases.
- IST needed for **Phase 2** and possibly **Phase 1 (tbc)**.
- **Starts earlier for some equipment such as Stripping Foil, BT.SMV (04/03/2020)**
- **Pulse the system in local mode at Low Voltage.**

PSB IST

- TE-EPC commissioning follows a check-list of 14 steps!
- Two batches of tests:
 - Step 1 to 8: not connected to magnet → IST**
 - Step 9 to 14: connected to magnet → HW Commissioning**
- **LT / LTB commissioning scheduled in 2019 during LBE Run.**
- **BI/BR/BE/BT/BTM/BTP and BTY.BVT101 commissioning during the IST period.**
- **Electrical Hazard. May require closed access.**

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Planned Date	Responsible														Status					
	EPC	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	EP	
2017-Apr-13	X																			
2017-Apr-13	/A			X																
2017-Apr-13				X	X															
2017-May-15			X																	
2017-May-15			X																	
2017-May-15			X																	
2017-May-15			X																	
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- For information: POPS-B and BR.MPS are scheduled during the HW commissioning from 02/06/2020 to 10/07/2020.
- BIC modification to be tested beginning 2020: Local test with no interference to shutdown activities; missing input will be tested during HW commissioning. Still plan to integrate in the planning.
- TE-VSC specialist commissioning scheduled during Jan. 2020 and depending on equipment availability.

Summary

- List of ISTs prepared and discussed with equipment experts.
- Three systems flagged to require safety regulation:
 - Finemet cavities (BE-RF).
 - Beam transfer equipment (TE-ABT).
 - Auxiliary power converters (TE-EPC).
- The PSB HW commissioning coordinators have prepared a similar template used for the Linac4 LBE run.
 - Still outstanding is the list for BE-BI. To be finalized beginning June.



From Shutdown Activities to Hardware Commissioning

1. Schedule all activities of tests from individual system to multiple systems

- Get the information for scheduling, including safety aspects
 - The Experts of system in each groups must provide the information to EN-ACE and BE-OP
 - The information about the tests must include the [sequence of tasks](#), [duration](#)
 - Each task (or group of tasks) must include [prerequisites](#) (General Services, Controls, Ethernet, Vacuum, HV Circuits locked-out by the network separation procedures*, etc...)
 - The [risks generated](#) by the tests must be defined with [compensatory measures](#) (Ex. HV all around the machine → machine closed)
 - **Deadline: end of June 2019**
*[*PSB-E-PRD-0001](#), [PS-E-PRD-0001](#), [SPS-E-PRD-0001](#)*
- Schedule the tests in the shutdown or hardware commissioning time window
 - The tests will be scheduled by EN-ACE and BE-OP according to the information provided as defined above
 - For each machine, the persons in charge to schedule the tests are the [Facility Coordinator\(s\)](#) and the [Re-commissioning Coordinator\(s\)](#), working together
 - Dedicated meeting could be organized with Experts of systems if necessary
 - The schedule(s) of tests to be performed in the Shutdown time window will be stored in MS Project Online and managed by EN-ACE
 - The schedule(s) of tests to be performed in the Hardware Commissioning time window must be stored in MS Project Online to reach the objective 2 and managed by BE-OP (support from EN-ACE can be provided if necessary)
 - Any tests that require to close access of the overall machine will be scheduled during the Hardware Commissioning
 - **Deadline: end of July 2019**