

## Individual System Tests (IST)

Individual System Tests: [LHC-%-TP-%](#) (LHC procedures)  
Hardware Commissioning: [LHC-%-HCP-%](#) (LHC procedures)

### Infrastructure, General Services and Safety Systems

- **BE-ICS**
  - Access safety systems
  - Alarms
  - Fire detection systems
- **EN-EL / HE / CV / SMM**
  - AC Electrical Distribution
  - Alignment systems
  - Handling and Lifting systems
  - Pressure tests
  - Ventilation tests
  - Water cooled cables
- **TE-CRG / VSC**
  - Cryogenics systems
  - Vacuum systems

### Accelerators Equipment and DSO Test

- **BE-BI / RF**
  - Beam instrumentations
  - BLM
  - RF systems
- **EN-SMM / STI**
  - Beam stoppers
  - Collimators
  - Dumps
- **EP**
  - Experimental detectors
- **HSE-RP**
  - Radiation monitoring systems
- **TE-ABT / EPC / MPE / MSC**
  - Kickers
  - Septa
  - Power converters
  - Interlocks
  - MSC magnets
  - Machine protection systems
  - Warm electrical circuits
  - Superconducting electrical circuits
- **DSO**

Non-exhaustive list of ISTs followed-up during hardware and beam commissioning WG

# SHUTDOWN PERIOD (coordination EN-ACE)

# HARDWARE COMMISSIONING PERIOD (coordination BE-OP)

Work interventions

Hardware Permit

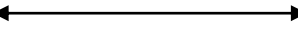
Mise hors tension partielle par le Facility Coordinator

- PSB-E-PRD-0001
- PS-E-PRD-0001
- SPS-E-PRD-0001

Remise en tension par le Facility Coordinator

- PSB-E-PRD-0001
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- SPS-E-PRD-0001

(IST)



- Any tests should be performed in the HWC period

*“IST of systems impacted by separation of powering network to be carried out during hardware commissioning period” (ref. IEF 12/10/2018)*

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Introduction of the IST Period in the LS2 Master Schedule: **"If time insufficient: 6 weeks IST period at the end of shutdown foreseen for each machine"** (ref. IEFC 12/10/2018)  
→ The name of this period should be changed to avoid confusions

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*“If even longer time is required or period in the middle of LS2: organisation/safety to be discussed in LS2C with compensatory measures” (ref. IEFC 12/10/2018)*

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- Any tests before the HWC period must be confirmed by BE-OP as a prerequisite of the HWC

- List of tests being defined and scheduled in Project Online (collaborative work between facility coordinators and re-commissioning coordinators)
- List and schedule to be validated by the HBC WG

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- Any tests before the HWC period must be confirmed by BE-OP as a prerequisite of the HWC
- **Any tests before the HWC period that generate potential hazards must be described in a procedure including risk analysis with compensatory measures**

- List of tests being defined and scheduled in Project Online (collaborative work between facility coordinators and re-commissioning coordinators)
- List and schedule to be validated by the HBC WG
- List of procedure to be defined by the HBC WG chairman, facility coordinator, re-commissioning coordinator and LIU PSO
- Template to be proposed by the LIU PSO
- Procedure to be defined by the Groups in charge of the tests
- **Approval process to be defined**
- Follow-up to get the procedure released during HBC WG
- Procedure to be attached in IMPACT request (“Tests” type)

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- Any tests before the HWC period must be confirmed by BE-OP as a prerequisite of the HWC
- Any tests before the HWC period that generate potential hazards must be described in a procedure including **risk analysis with compensatory measures**
- If the test require the **"remise en tension"** of some circuits related to the procedure listed above, request shall be done to **LS2 SSO and ...**

- List of tests being defined and scheduled in Project Online (collaborative work between facility coordinators and re-commissioning coordinators)
- List and schedule to be validated by the HBC WG
- List of procedure to be defined by the HBC WG chairman, facility coordinator, re-commissioning coordinator and LIU PSO
- Template to be proposed by the LIU PSO
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- Follow-up to get the procedure released during HBC WG
- Procedure to be attached in IMPACT request ("Tests" type)

- The tests shall be part of the schedule validated in HBC WG, if not, this must be first validated in HBC WG

**...presentation of the request and validation at the LS2C (ex. power converters in 363)**

*"If even longer time is required or period in the middle of LS2: organisation/safety to be discussed in LS2C with compensatory measures" (ref. IEFC 12/10/2018)*

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- Template to be proposed by the LIU PSO
- Procedure to be defined by the Groups in charge of the tests
- **Approval process to be defined**
- Follow-up to get the procedure released during HBC WG
- Procedure to be attached in IMPACT request (“Tests” type)

- The tests shall be part of the schedule validated in HBC WG, if not, this must be first validated in HBC WG before the request go to the LS2C SSO or LS2C meeting

## Follow-up by the HBC WG

...presentation of the request and validation at the LS2C (ex. power converters in 363)

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Individual System Tests (IST)

- Any tests that require to close the machine has to be performed during HWC period

ISTs period

GENERAL

RESTRICTED (Automatic)

- Patrol?
- People in CCC?

RESTRICTED

SPECIAL PERMIT

CLOSED

Constraint must be defined in the IST procedure depending on the risk analysis

Access Procedure: CPS-Y-PRD-0001

IMPACT Intervention Period: "Shutdown"

"..."

"Operation"

Intervention period type = Shutdown

Intervention period type = Operation