



# Online check lists

Half Sector Test

Chiara Bracco, [Greta Guidoboni](#), Bettina Mikulec

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# Online check lists

**DEF:** Online tool with **list of operations** to be performed in order to:

- Guarantee the correct machine startup.
- Provide an history of the results.

## 1) DISPLAYED ORDER of operations

- Chronological and grouped in phases.
- Type and grouped in categories like magnets, interlocks, beam instrumentations, ...

## 2) DEFINITION of operations

- Target(s):
  - *Device* (magnets, beam instrumentation...)
  - *Functionality* (setup cycles for machine operations, beam setup,...)
- Test(s) : anything acting on the target.

## MACHINES

LHC

LINAC

ISOLDE

- GPS
- HRS
- REX

SPS

CPS

LINAC<sub>4</sub>

- HST

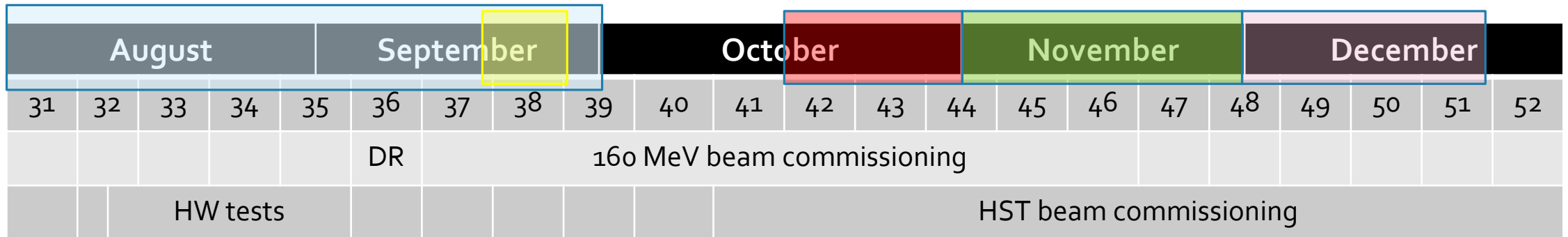
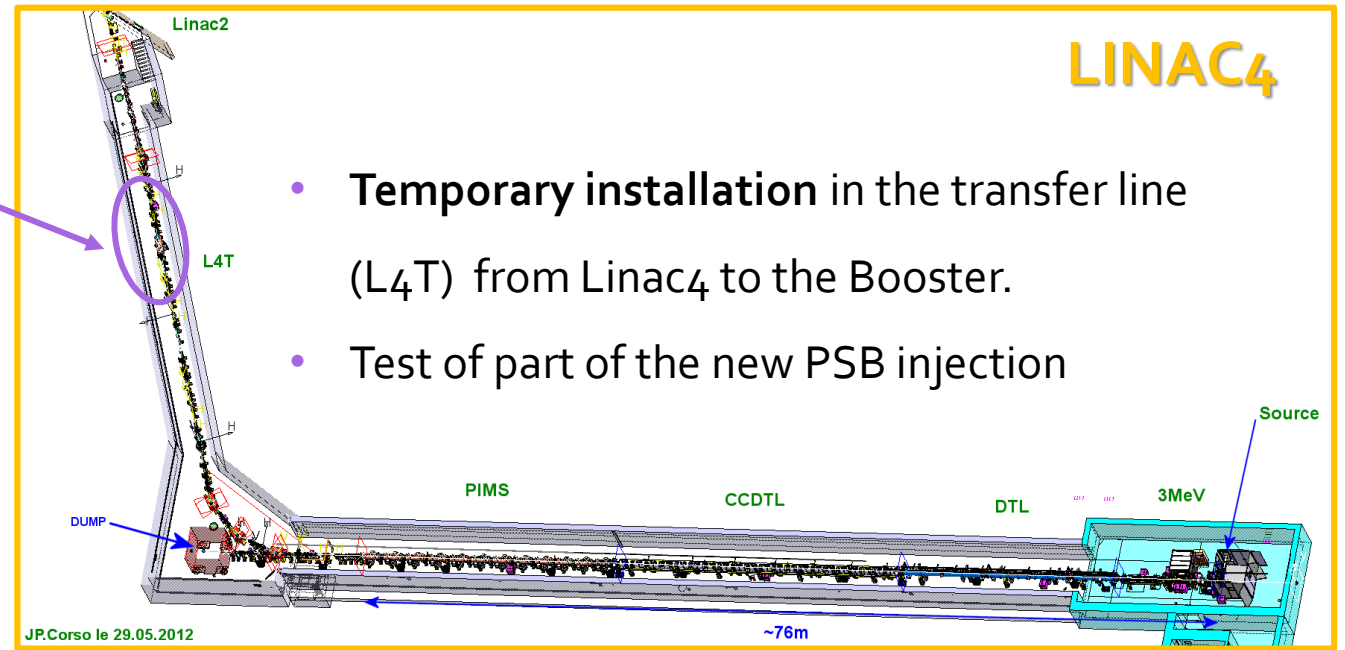
## AREAS

- List of operation  
(example in chronological order)*
- a) Phase1
    - 1. Operation
  - b) Phase2
    - 1. ...
    - 2. ...
  - c) ...

# Half Sector Test (HST)

## 5 PHASES. Combination of:

- Hardware commissioning
- Operation setup of a new machine (Linac4)
- Beam measurements



2) Pre-Requisites with 160MeV beam to L<sub>4</sub> dump

4) HST LI beam measurements

1) Pre-Requisites without beam

3) Steer LI beam to HST

5) HST HI beam measurements

# HST interface: Phases

Link

The screenshot shows a web browser window with the URL [https://op-webtools-test.web.cern.ch/machine\\_checkout/#/tests](https://op-webtools-test.web.cern.ch/machine_checkout/#/tests). The browser's address bar is circled in red and labeled "Link". The page title is "Machine Checkout". The navigation bar includes "Machine & Area", "Tests", and "Admin". The user is logged in as "GGUIDOBO".

The main content area displays "LINAC4" with a large downward arrow and "HST" below it. A list of phases is shown, each with a progress bar at 0% and a dropdown arrow:

Phase	Progress	Action
1) PRE-REQ: No Beam	0%	▼
2) PRE-REQ: 160 MeV To L4 Dump	0%	▼
3) Steer LOW Intensity To HST	0%	▼
4) LOW Int. Beam Meas. @ HST	0%	▼
5) HIGH Int. Beam Meas. @ HST	0%	▼
6) Optional Measurements	0%	▼

A red circle around the first dropdown arrow is labeled "Click to open the list of operations". A red bracket on the left side of the phase list is labeled "Phases Chronological sequence".

At the bottom right, there is a "Send feedback" button.

# HST interface: List of Operations

Machine Checkout

EN English (United Kingdom) United Kingdom Help

https://op-webtools-test.web.cern.ch/machine\_checkout/#/tests

Cerca

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Machine & Area Tests Admin

GGUIDOBO

none Clear selection Add results

## ↓ LINAC4

HST

1) PRE-REQ: No Beam 0%

- a) Setup cycles
- b) Apply PSB Timing imitation
- c) YASP Configuration
- d) Magnet configuration
- e) Chopper scheme
- f) HW commissioning

2) PRE-REQ: 160 MeV To L4 Dump 0%

Send feedback

*List of operations  
Chronological sequence*

Click on it to see the target(s) and test(s)

**WAIT!**  
do all the operations have the same type of description?

# HST interface: Type of Operations

## DEFINITION of operation

- Target(s):
  - *Device* (magnets, beam instrumentation...)
  - *Functionality* (setup cycles for machine operations, beam setup,...)
- Test(s) : anything acting on the target.

1) **DEVICE CHECK**: group of devices that undergoes the same type of tests

	Targets	Polarity check	OASIS	...
Magnet check	Bending			
	Quadrupoles			
	Correctors			

- **Target**: devices
- **Test**: list of tests to be performed

How it looks like on the interface



# 1) Device check

The screenshot shows a web browser window with the URL `https://op-webtools-test.web.cern.ch/machine_checkout/#/tests`. The page title is "Machine Checkout". The browser's address bar shows the URL and search results for "horaire d'ouverture mma saint genis". The page has a navigation bar with "Machine & Area", "Tests", and "Admin" tabs. The user is logged in as "GGUIDOBO".

The main content area displays a checklist for "1) PRE-REQ: No Beam" with a progress bar at 0%. The checklist items are:

- a) Setup cycles
- b) Apply PSB Timing imitation
- c) YASP Configuration
- d) Magnet configuration
- e) Chopper scheme
- f) HW commissioning

Below the checklist is a table for device checks. A red "Target" label is overlaid on the table. The table has columns for "1-Polarity check", "2-Oasis", and "3-Other". The "Device" column is crossed out with a red line.

Target	<del>Device</del>	1-Polarity check	2-Oasis	3-Other

At the bottom of the page, there is a "Send feedback" button and a progress bar for "2) PRE-REQ: 160 MeV To L4 Dump" at 0%.

# HST interface: Type of Operations

## DEFINITION of operation

- Target(s):
  - *Device* (magnets, beam instrumentation...)
  - *Functionality* (setup cycles for machine operations, beam setup,...)
- Test(s) : anything acting on the target.

1) **DEVICE CHECK**: group of devices that undergoes the same type of tests

	Targets	Polarity check	OASIS	...
Magnet check	Bending			
	Quadrupoles			
	Correctors			

- **Target**: devices
- **Test**: list of tests to be performed

2) **TO DO list**: List of operations to be performed

### Pre-Requisites without beam

- a) Setup 2 new cycles:
  1. L4 dump destination
  2. HST destinations
  3. Test PPM operation
- b) Apply PSB master timing for L4 operation

**2 descriptions**



# HST interface: Type of Operations

## DEFINITION of operation

- Target(s):
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1) **DEVICE CHECK**: group of devices that undergoes the same type of tests

	Targets	Polarity check	OASIS	...
Magnet check	Bending			
	Quadrupoles			
	Correctors			

- **Target**: devices
- **Test**: list of tests to be performed

2) **TO DO list**: List of operations to be performed

### Pre-Requisites without beam

- Setup 2 new cycles:
  - L4 dump destination *targets*
  - HST destinations
  - Test PPM operation
- Apply PSB master timing for L4 operation

- **Target**: functionalities
- **Tests**: done/not

Des. 1

## 2) TO DO LIST

# Des. 1

Machine Checkout

EN English (United Kingdom) United Kingdom Help

https://op-webtools-test.web.cern.ch/machine\_checkout/#/tests

Cerca

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Machine & Area Tests Admin GGUIDOBO

none Clear selection Add results

# LINAC4

HST

1) PRE-REQ: No Beam 0%

a) Setup cycles

Target	<del>Device</del>	Test results	<del>Test01</del>
1-L4 dump destination			
2-HST destination			
3-Test PPM operation			

b) Apply PSB Timing imitation

c) YASP Configuration

d) Magnet configuration

Send feedback

Click here to open the test description

## 2) TO DO LIST

# Des. 1

Machine Checkout x Posta in arrivo (38) - greta... x + EN English (United Kingdom) United Kingdom Help

https://op-webtools-test.web.cern.ch/machine\_checkout/#/tests

horaire d'ouverture mma saint genis

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Machine & Area Tests Admin GGUIDOBO

none Clear selection Add results

Use the number as a correspondence with the target

LINAC4  
HST

**TEST DESCRIPTION**

1) PRE-REQ: No Beam 0%

Using the SEQUENCE MANAGER, setup 2 new cycles with 2 different destinations:

a) Setup cycles

1. cycle to **Linac 4 main dump**, which can be a copy of the 160 MeV commissioning cycle (named MD1)
2. cycle to **HST**

Device	Test01
Using OASIS and AQN:	
1-1.4 dump destination	
1. Verify the device operation in <b>PPM mode</b> (using OASIS and AQN).	
2-HST destination	
3-Test PPM operation	

Close

b) Apply PSB Timing imitation

c) YASP Configuration

d) Magnet configuration

Send feedback

# HST interface: Type of Operations

## DEFINITION of operation

- Target(s):
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- Test(s) : anything acting on the target.

1) **DEVICE CHECK**: group of devices that undergoes the same type of tests

	Targets	Polarity check	OASIS	...
Magnet check	Bending			
	Quadrupoles			
	Correctors			

- **Target**: devices
- **Test**: list of tests to be performed

2) **TO DO list**: List of operations to be performed

### Pre-Requisites without beam

- a) Setup 2 new cycles:
  1. L<sub>4</sub> dump destination *tests*
  2. HST destinations
  3. Test PPM operation
- b) Apply PSB master timing for L<sub>4</sub> operation

- **Target**: ?
- **Tests**: action in the list

Des. 2

## 2) TO DO LIST

# Des. 2

CERN Machine & Area Tests Admin GGUIDOBO

none Clear selection Add results

# ↓ LINAC4

HST

1) PRE-REQ: No Beam 0%

a) Setup cycles

Target <del>Device</del>	1-L4 dump dest	2-L4T dest	3-Test PPM operation
Setup cycles			

b) Apply PSB Timing imitation

c) YASP Configuration

d) Magnet configuration

e) Chopper scheme

f) HW commissioning

Send feedback

Keep the name of the operation

## 2) TO DO LIST

# Des. 2

CERN Machine & Area Tests Admin GGUIDOBO

none Clear selection Add results

# LINAC4

HST

1) PRE-REQ: No Beam 0%

Target	Device
Setup cycles	1-L4 dump dest

a) Setup cycles

b) Apply PSB Timing

c) YASP Configuration

d) Magnet configuration


e) Chopper scheme

f) HW commissioning

Send feedback

## LINAC4

HST



### TEST DESCRIPTION

Using the SEQUENCE MANAGER, setup a **new cycle** with following features:

- copy the 160 MeV commissioning cycle (called MD!)
- name: **HST-L4dump**
- destination: Linac4 main dump

One description per test!

Keep the name of the operation

# Short SUMMARY

## Machine checkout

- Definition
- Description: machines, areas, list of operations

## Half Sector Test

- Identification of lists of operations
- Definition: targets and tests.
- Type: Device check / To Do list (2 descriptions).

Is it the same for the other machines?

*...discussion?*

*Any other idea, suggestion, request, deadline?*

## Next steps

- ❑ Import data:
  - structure of the .csv file
  - Add category/group/device/tests from the interface (Admin)
- ❑ Add results:
  - Possibility of multiple selection
  - Possibility to add a tag (eg: blocker)
  - Weighted tests?
- ❑ Export data

...

### HST requests:

- Add weight to the tests
- Keep element order as in the input file
- Remove unicity of a device

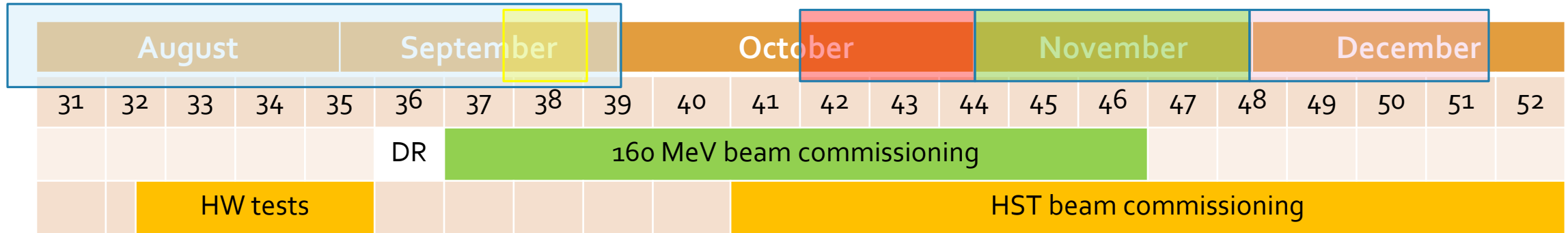
# Thanks for your attention!

Thanks to Emanuele Matli and Przemyslaw Piotr Hardyn  
for the great job on the interface!





# Half Sector Test: Phases



## Pre-Requisites with 160MeV beam to L<sub>4</sub> dump

- Check ppm operation
- Vary beam current (chopper)
- Identify min. current for BCTs and BPMs

## HST LI beam measurements

- Aperture check
- BSW chicane tuning
- Stripping foil efficiency
- Ho/H- sensitivity/dump calibration
- Vary beam current (chopper) and beam size

## Pre-Requisites without beam

- Setup 2 new cycles: L<sub>4</sub>dump and HST destinations
- Apply PSB master timing for L<sub>4</sub> operation
- Configure YASP
- Plug in magnet settings for the 2 new cycles (include PSB beam size at TKSTR)
- Prepare table for chopper patterns
- Hardware commissioning (without beam)

## Steer LI beam to HST

- Check instrumentation
- Beam position measurement before and after HST
- Check BSWs functionality
- Send beam to L<sub>4</sub>T dump and check the dump
- Check beam interlocks
- (OPT) kick response

## HST HI beam measurements

- Same tests as for LI

### *Optional:*

- tests with permanent STKR
- Kick response
- optics measurement in L<sub>4</sub>Z