East Area Secondary Beam Control
User Guide
Revised version after LS1
L. Gatignon / EN-MEF
5 January 2015
From where

- The East Area secondary beam lines are controlled from the EBCR. This room is located on the first floor, above the T10 control room, downstream of the T11 area. You can access this room easily from the big gate (Porte 18) on the Bldg 251/252 side.

- Many beam elements can be controlled from the user control rooms.
Tools for Beam Control

• There is a PC for magnet control (both beam and spectrometer magnets) and detector readout

• A series of racks allows to control collimators, vacuum, access signals from the barracks and get timing signals
For experts:

DRIFT CHAMBERS

VACUUM CONTROL

For users:

COLLIMATORS
TIMING AND OTHER SIGNALS

Two more racks provide timing signals and connections with the user barracks.

Communication with user barracks

Communication with APRON (primary beam electronics and RP barrack)

Timing distribution
Magnet and detector control

Magnets and detectors are controlled and read from the Linux PC in the EBCR or from the beam computers in the user control rooms.

- Magnets and detectors are controlled from the CESAR beam control program.
- The use of Cesar is described in the Control Summary Sheets (quick User Guide: http://sba.web.cern.ch/sba/Documentations/docs/Controls-Summary-Sheet.pdf also available as plastified sheets in the EBCR.)
Magnets: Which current?

Lists of currents for each energy are available in the green folder. Whenever you change energy, all currents must be modified using the knobs. Normally the sign of the current corresponds to the sign of the beam particles (except possibly for ZT9.QFO03 – ask your liaison physicist)

Please check carefully that you are changing the right rectifier in the right beam!

(In each knob the name of the magnet contains the name of its beam line, e.g. ZT9.BHZ1)

Do not use the currents in the old printed User manuals. They are obsolete.

Please consult the liaison physicist if you have special beam requirements, e.g. different focusing of the beam.

L.Gatignon, 05-01-2015

East Area Secondary Beam Controls User Guide
Collimator control

• Find the crate controlling the collimators in your beam line

• If you want to open to (-x, +y) mm, dial 50+x/2 and 50+y/2 with the thumbwheels

• Push on the red STROBE buttons

• The final position in mm is shown on the LCD screens. Push STROBE again if the setting reached is not precise enough.

• The horizontal collimators usually define \( \Delta p/p \) with typically \( \Delta p/p = \pm 1\% \) for \( \pm 5 \text{ mm gap} \) (see User manual). The vertical collimators control the angular acceptance and hence the beam flux and the divergence at your detector. Check in the green folder.
Vacuum control

• The vacuum control is regularly checked by experts from the AT/VAC group.
• However, the user can check the vacuum in his beam line in case of problems.
• Typical values are in the few $10^{-2}$ mbar ballpark.
TIMING SIGNALS

- The detailed documentation is available in the paper document inside the module.
- The North branch (T9, T10, T11) uses EASTA cycles, the T7 line and IRRAD the EASTC cycles. DIRAC uses EASTB.
Communication with barracks

- There are several cable connections between the user barracks and the EBCR. The name of the barrack is written on the blue panels above each patch panel.
- Please check the labels for the correspondence between the barrack and EBCR connectors.
Information from the PS machine

Activate EA Vistar from the General menu in the Java Console Manager:

The white curve shows the shape of the spill over its 400 msec length.

The green dots indicate the intensity per spill for the different Target telescopes.
The Vistar on the TV screen shows the overall state of the PS (+ cycles):

<table>
<thead>
<tr>
<th>Magnet current</th>
<th>Inst. Intensity</th>
<th>Active cycle</th>
<th>Cycle intensity</th>
<th>Comments from the operators</th>
</tr>
</thead>
<tbody>
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<th>SFTPRO</th>
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<th>ZERO</th>
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<td>LHCPIL</td>
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<table>
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<tr>
<th>CPS User</th>
<th>8.79 E10</th>
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<td>MTG-Level: 1</td>
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</tbody>
</table>

Further Information

• There is a web page: http://cern.ch/gatignon/EastArea
• The access system operation is described in http://cern.ch/gatignon/EastArea/Access.html
• Call the CCC (76677) for operational problems (24 hrs/day, 7 days/week)
• Call your liaison physicist (L.Gatignon, 163554) for other questions and requests (during working hours)