

SPS injection interlocking – 4th meeting

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GMT

The General Machine Timing (GMT) document - <https://edms.cern.ch/document/1823413/1> - written by J.C.-Bau was discussed. The document presents an initial risk analysis. It can be split in two parts:

- Possible issues at the generation of the GMT – direct connection of GMT generation to BIC or different BICs, depending on the criticality of the different machines. This is presently done by changing the timing information and via this stop certain beams, it does not use the BIS.
- Possible issues at the timing reception side. The diagnostics on the reception side possibly needs to be extended. The user will receive this information and the user will connect to the BIS. The errors to be checked on remain to be defined.
- It was confirmed that for EPC the timing information is critical. Other possible critical systems: the SBDS and the BLMs. Others?

Action: Verena and Jan will follow-up on defining the criticality for the SPS of the different timing users and their dependence on the timing.

SPS Injection BIS

Ivan recalled the SPS injection BIS inputs. Action: Verena to check on the TT10 Vacuum, which is already part of the ring BIS interlocks. Presently for the ring BIS, operation can mask all BIS channels, no use of SBF.

Open questions / discussion:

- The SPS injection BIS will only take into account TT10 and SPS injection interlocks. It will not include TT2 interlocks.
- The BHZ switching magnet is slow (presently 1 sec, to be upgraded to 0.5 sec). It received information in a synchronous manner, to change field only without beam. This will often allow one more shot after the system interlock requirement arrives. This beam would then end up on the SPS injection dump.
- Stopping the beam at the LINAC4 source will also act later due to the delays in the different accelerators. However, the timing system could be used for this using the SIS. The SIS can read the different BIS in the accelerator chain and act accordingly via the timing system → this will need improvement of the so called 'gadget' developed by ABT (<https://wikis.cern.ch/display/TEABT/SPS+to+PS+Inhibit>). To be detailed in a future meeting.
- The timing system presently surveys the switching magnet BHZ. David is worried about the criticality of the BHZ magnet (power converter) which is not made a critical system. Do we interlock on the State of the BHZ magnet or on the current being with tolerance?
- The SPS injection dump steering presently controlled by the MKP. It is (must be?) connected to the ring BIS to prevent switching on with circulating beam. Do we keep the MDSH.119 controlled by the MKP?