

Report from EATM

Experimental Areas Technical Meeting

Monday, 4.09.2017

COMPASS TB meeting

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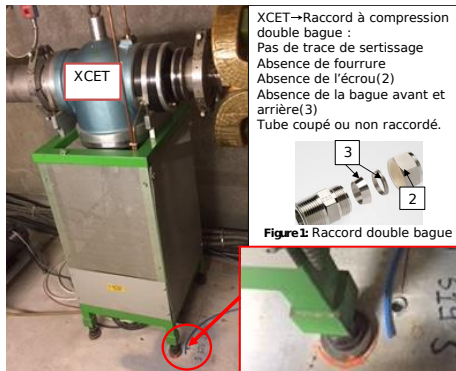
Dates & other news:

- ▶ AUG test next year: probably 21.02.2018 t.b.c. mid September
- ▶ 2018 run will probably start on 9.04.2018
- ▶ BA82 additional cooling added, (BA82 = magnet power converter building)
to be commissioned (probably during next TS)
- ▶ Report on the CO₂ shortage in June (D. Jaillet, 85th EATM)
- ▶ Report from SLAWG working group (M. Fraser, 86th EATM)



CO₂ shortage in June.

- ▶ middle of June: leak of CO₂ inside H8
 - ▶ CO₂ pipe disconnected at XCET 042.519 (threshold Cherenkov counter)
 - ▶ double ring fitting not correctly installed
 - ▶ estimated leak 12 m³/h - used up entire supply over the weekend (1.8t)
-
- ▶ proposed: installation of flow-meters in different sectors of North Area to monitor consumption
 - ▶ LS2: renovation of 908 (remote pressure monitoring, ...)



Recent improvement in extraction losses:

- ▶ ZS2 cathode mechanically misaligned, (= 1 of 5 cathodes of the extraction septum) protruding by $\sim 2\text{mm}$ into extracted beam
- ▶ beam-induced heating effects on cathode probably caused out-gassing, sparking and higher losses
- ▶ after retracting cathode in mid-June more stable (low-loss) operation

In addition lots of studies of future extraction techniques, e.g. crystal-assisted extraction (UA9);

dedicated slow extraction workshop in November at CERN

(<https://indico.cern.ch/event/639766/>)



Extra slides

- ▶ SPS extraction losses



LSS2 normalised losses

ZS re-alignment by
TE-ABT: 9/5/2017

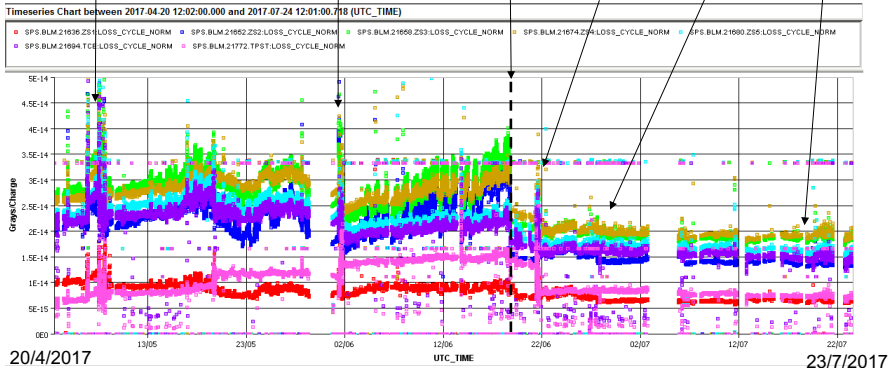
ZS re-alignment by
TE-ABT 2/6/2017

ZS Tank 2 cathode
retracted by 2 mm

All ZS cathodes retracted
a further 1.4 mm
V = -220 kV -> -230 kV

ZS re-alignment by
TE-ABT 22/6/2017

Gaps profiled:
V = -220 kV



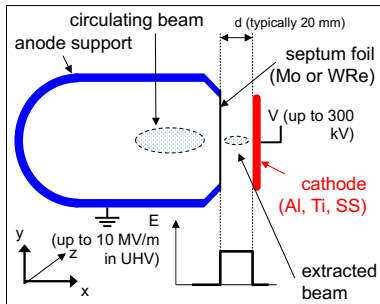
2E13 ppp and 18 s rep rate:
correlated to time structure in
Normalised losses

3E13 ppp and 18 s rep rate

Stable (low-loss)
operation

Solution for elevated loss levels

- Misalignment corrected by retracting ZS2 cathode by 2 mm:
 - Turns out that high extracted flux is a useful diagnostic tool!
 - Beam-based realignment of the other ZS tanks was easier afterwards
 - Tank 2 is “new” on the beam line... exchanged in last year’s YETS (Feb ’16)
 - Cause of misalignment not understood



- We don't have much margin on gap for extracted beam:
 - Gained in efficiency by retracting all cathodes (limited by voltage)
 - We have profiled the gaps, opening upstream and closing downstream to keep voltage at -220 kV
 - Investigating change in optics with and without Q-split (LSS6)