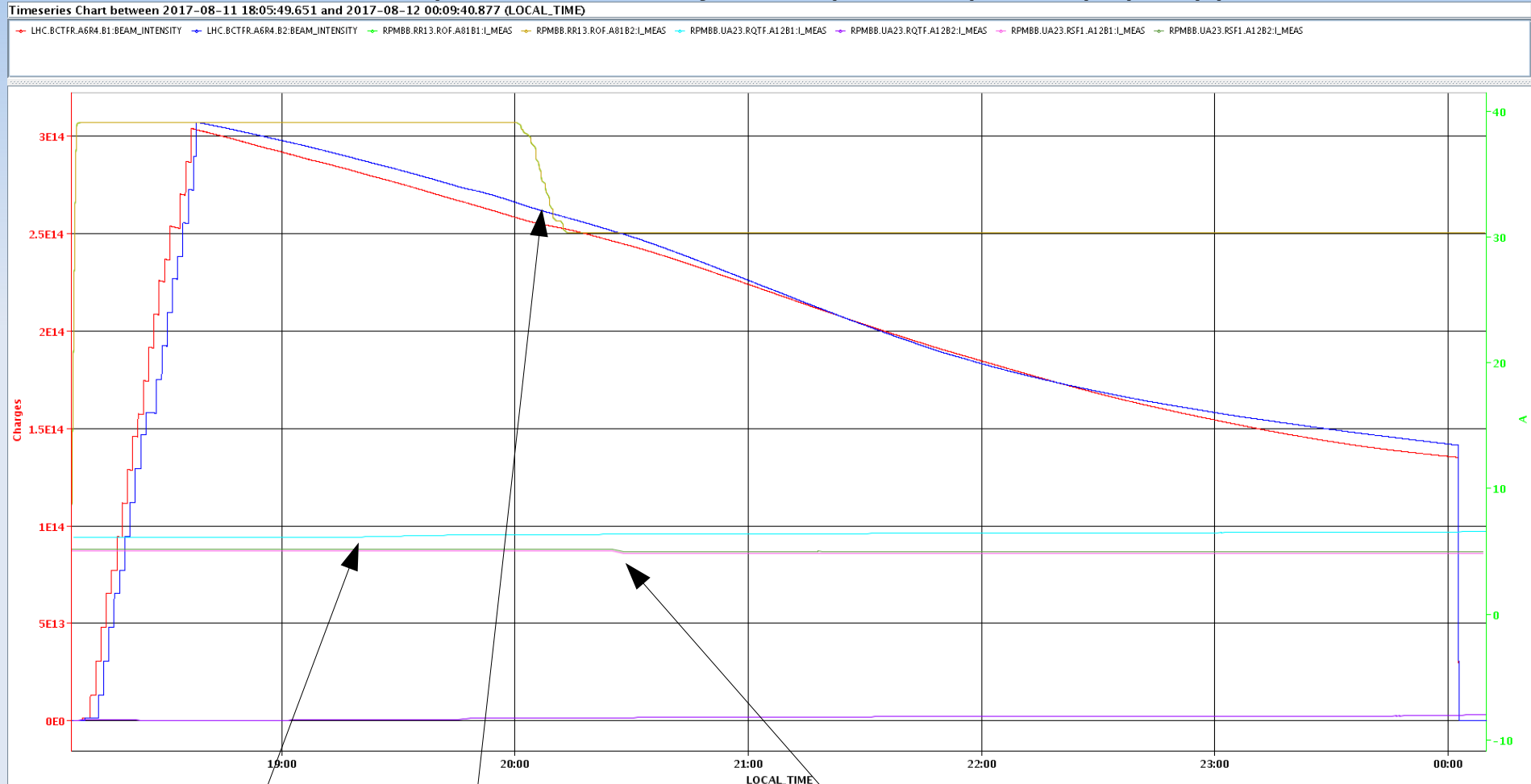




Octupole strength needed for beam stability at injection



Lifetime optimisation at injection (fill 6017) Y. Papaphilippou et al.



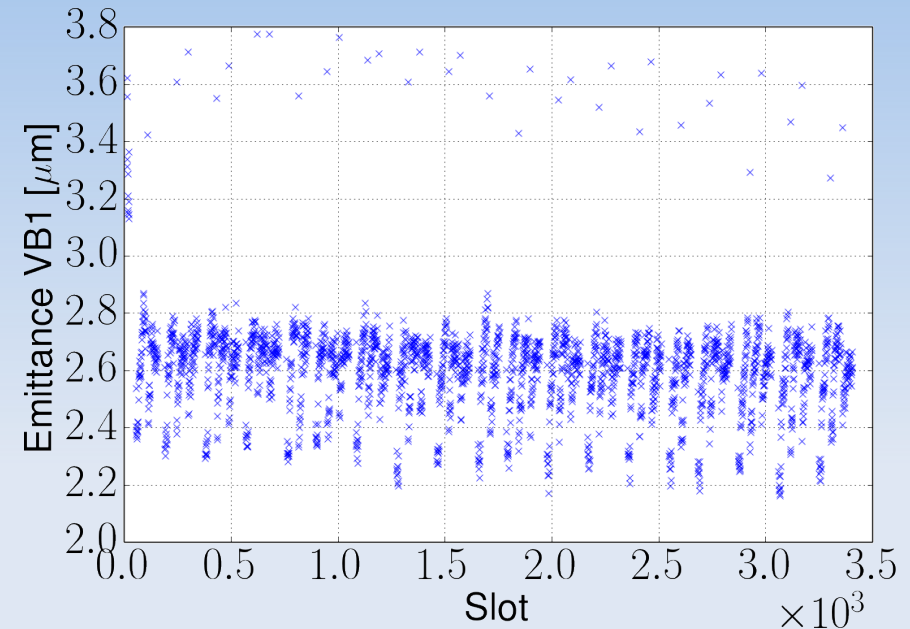
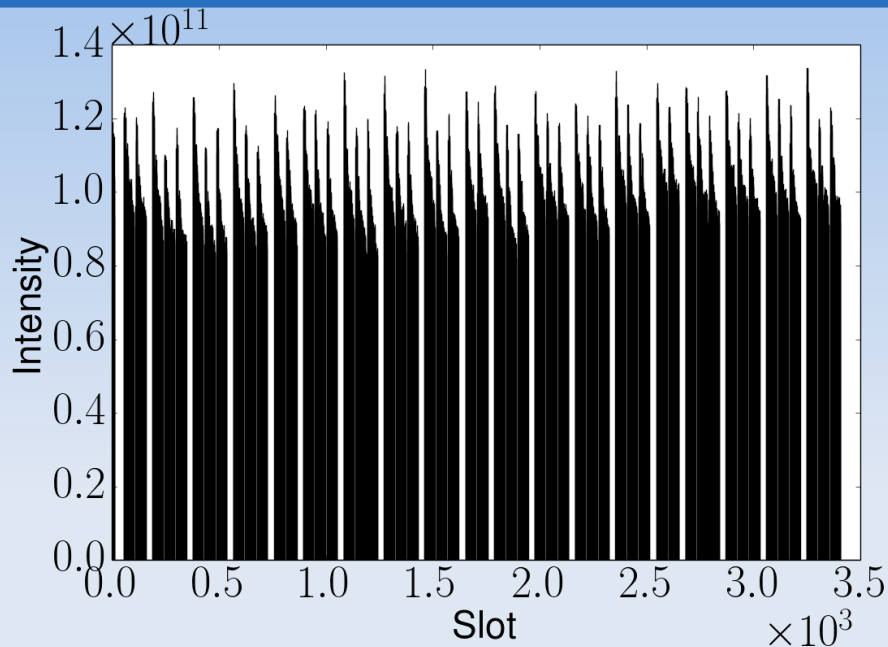
Tune optimisation

Octupole reduction
40 → 30 A

Chroma reduction
-3 units



Comparison to regular injections for physics



- The beam quality was already significantly deteriorated when the octupole and chromaticity reduction were performed
 - Test : $0.9\text{E}11 \text{ p} / 2.7 \text{ } \mu\text{m} \rightarrow < 30 \text{ A}$ is needed
 - Typical injection : $1.15\text{E}11 \text{ p} / 1.8 \text{ } \mu\text{m} \rightarrow > 46.5 \text{ A}$ needed
- Assuming a linear dependence on the beam brightness, the two observations are compatible (A threshold at 24 A expected during the test with reduced brightness)

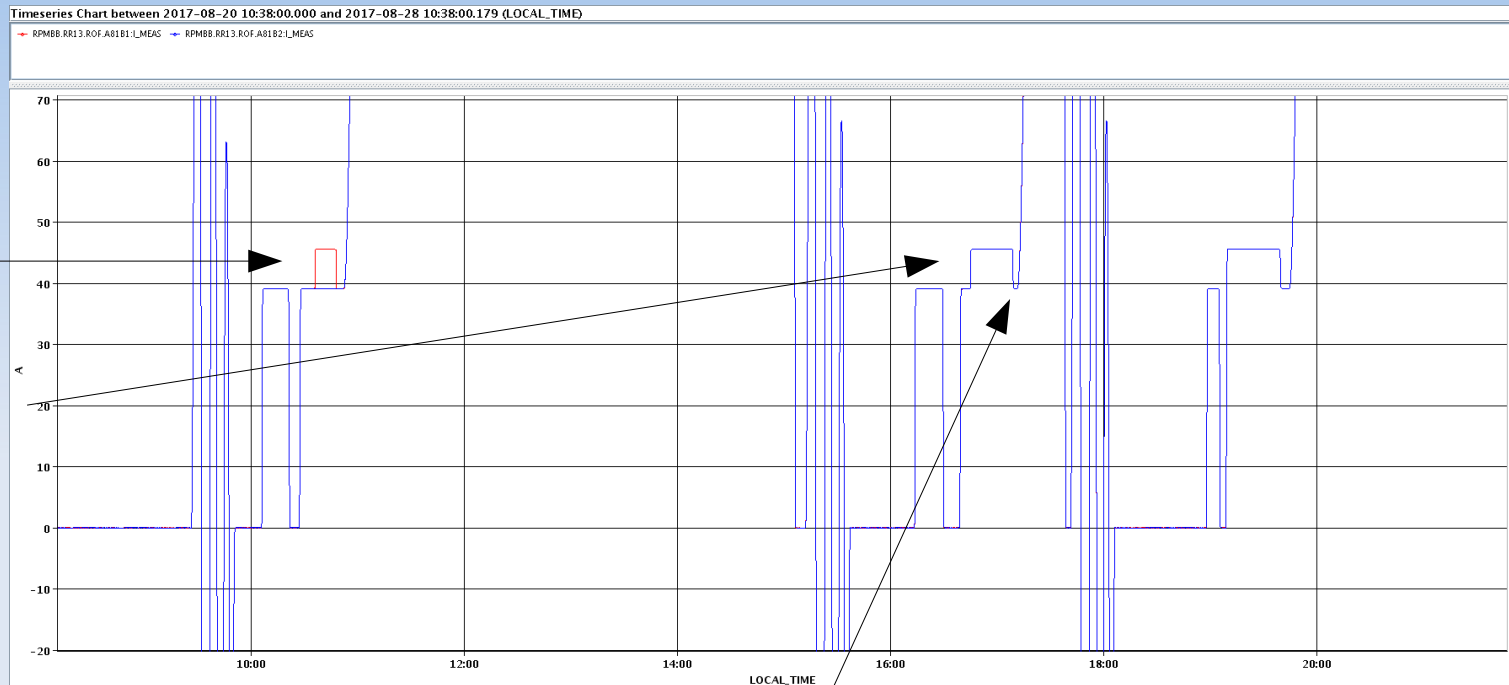


Octupole current evolution at the beginning of the ramp



Test on B1

Implementation
for operation on
both beams



- An increase of the octupole strength at injection was implemented to compensate for the reduction of the emittance
 - This increase was not incorporated during the ramp, to be discussed with OP
 - Few minutes transition period with reduced octupole could result in instabilities, TBC