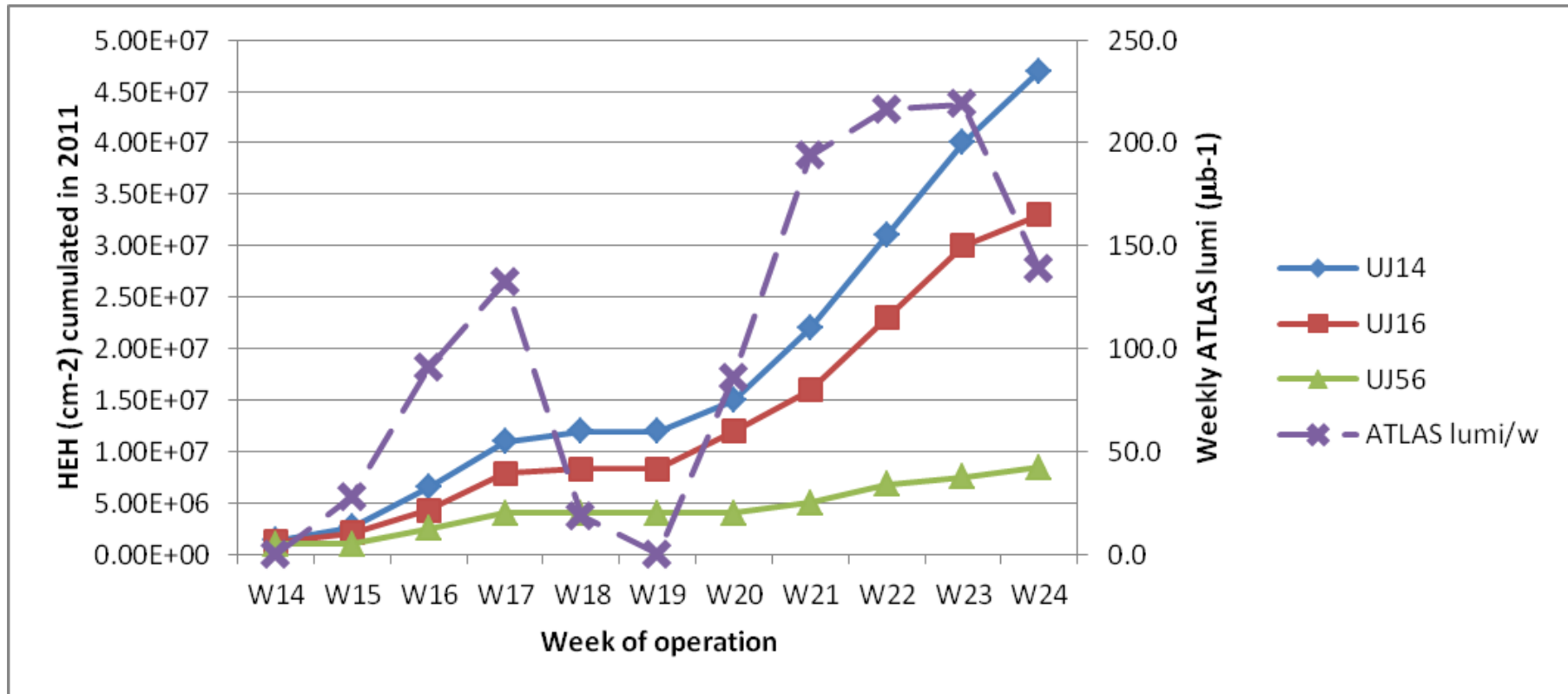


REPORT FROM THE MCWG, 6TH R2E PROJECT MEETING

M. Calviani (EN/STI) – on behalf of the MCWG ([link](#))

Evolution of radiation levels

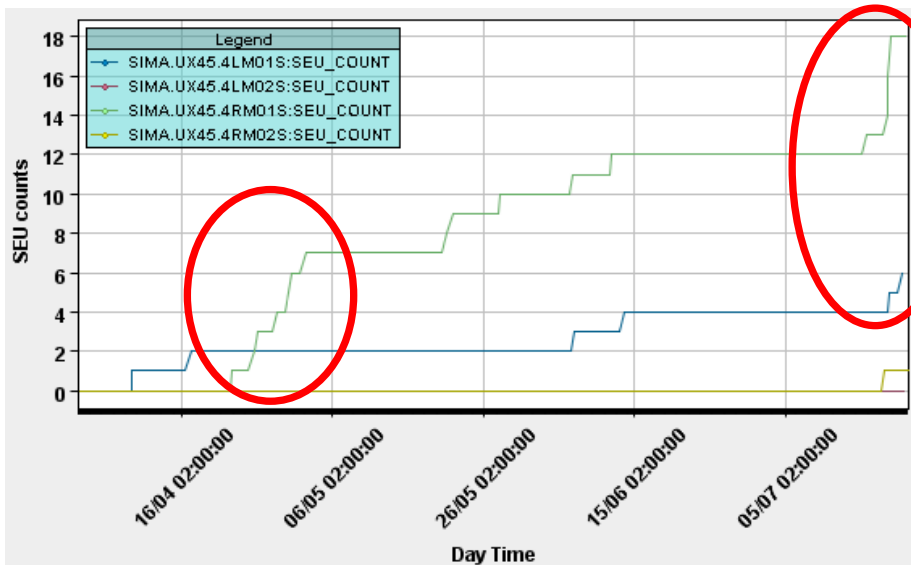
2



Last week of full physics was **W25** (end of June): afterwards **MD** + **TS** + **recovery from TS** (longer than usual) → **W29 (this one)** will start again lumi production

P4-UX45 issues

3



Radiation levels in P4 are driven by beam-gas induced radiation

- First increase during the **scrubbing run** in April
- Second sharp increase during the last few days, due to **pressure increase in all P4**

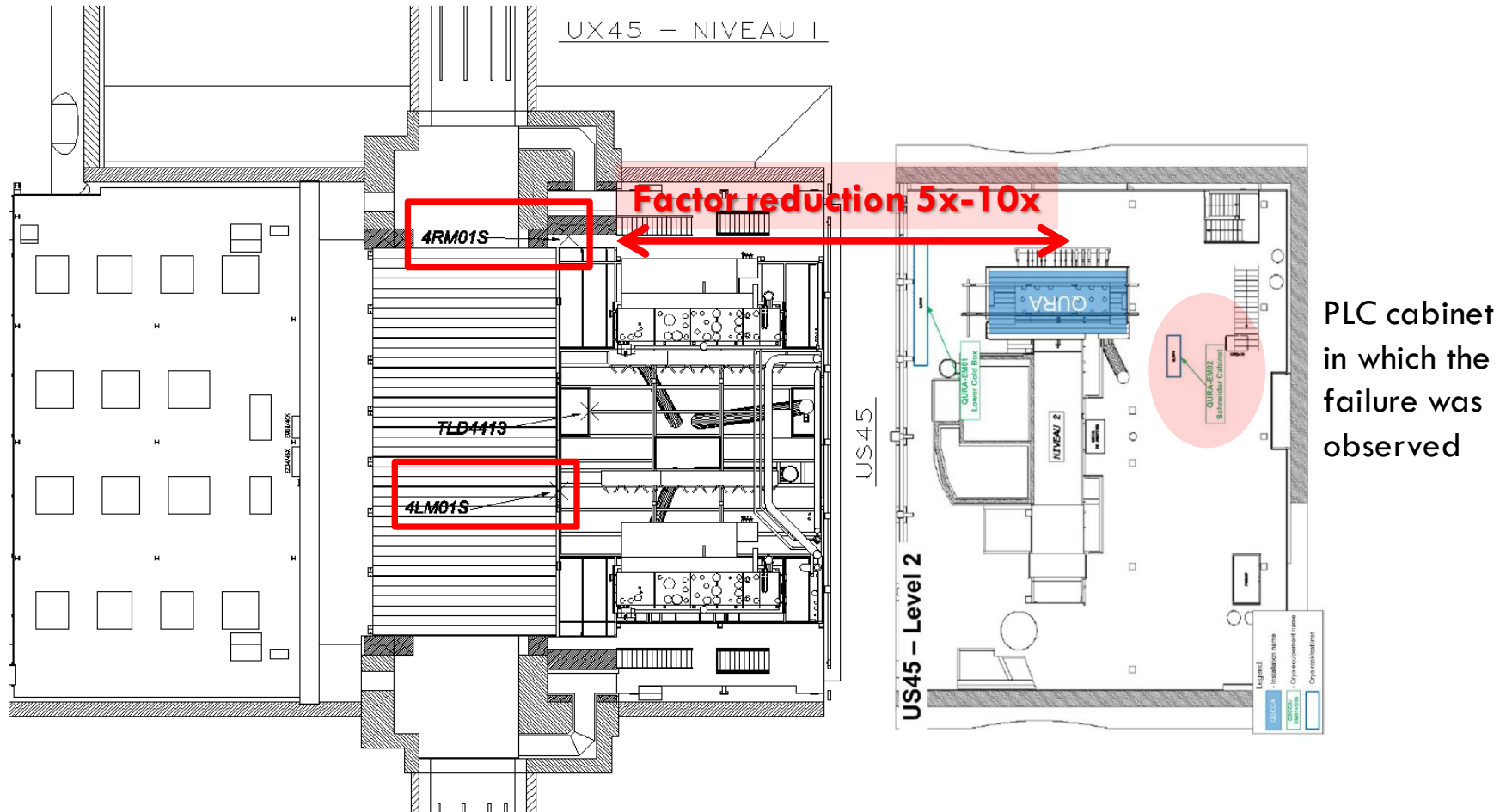
4RM01S: 18 counts (6 in the last days)
4LM01S: 6 counts (2 in the last days)
→ RadMons are set to 3V: R factor determination critical → possible range $\sim 10^5$ - 10^6 cm⁻²/2011



- 1) Failure of CRYO PLC in US85: Radiation levels are $\sim 10x$ lower, approaching atmospheric levels integrated over a year...
- 2) Follow-up: evolution of vacuum pressure with 25ns operation → could pose problems for UX45 equipment!!

UX45/US45

4

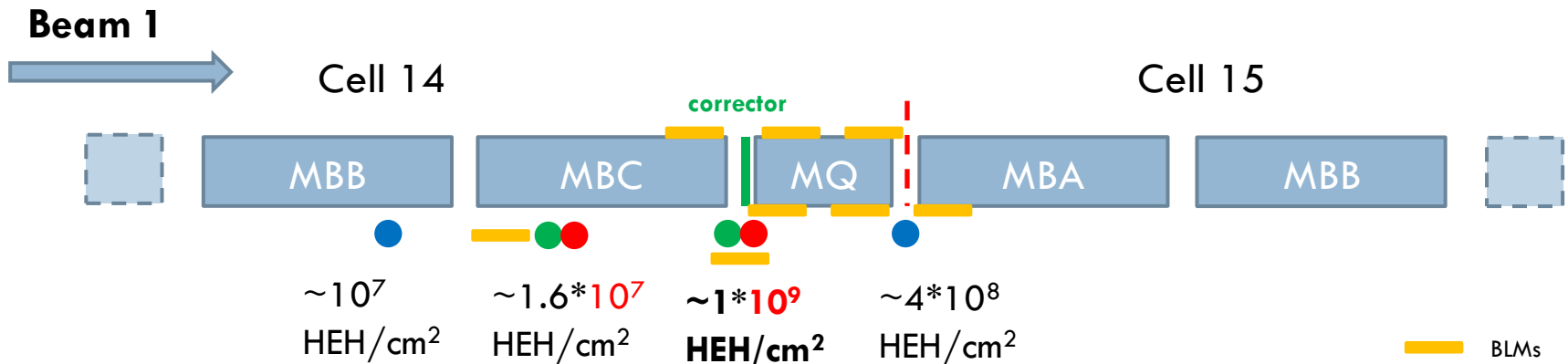


- Standard weekly report will be produced starting from next week (since W26-27-28 were mainly without beam)
- Insertion of the UX45 in the “watched” list
- During the last week of lumi physics continuous failures of PLC in P8 (US85 cumulated levels $\sim 1.5 \cdot 10^7 \text{ cm}^{-2}/2011$, UX85 $\sim 8 \cdot 10^7 \text{ cm}^{-2}/2011$)
- **Next MCWG topics:**
 - Review of **radiation levels** around the machine during 2011 operation
 - Review of the **R-factors** measured by RadMons around the machine
 - Possible new installation of BatMons/FIP RadMons in the LHC
 - Investigation of the possible PATL use for R2E applications with DGS/RP

LHC-MD for R2E

6

- LHC-MD performed in the night between 3rd and 4th July 2011
- Preliminary results presented during the LSWG meeting 19th July
<https://indico.cern.ch/materialDisplay.py?contribId=10&materialId=slides&confId=146925>
- Main outcomes:
 - Evolution of the **R factor** and **gradient of radiation levels**
 - Evaluation of the **RadMon SEU counts/ BLM dose ratio** → application in the ARC + **confirmation of the rad levels variation** between beam axis and ground tunnel level
 - First comparison between the RadMon and BLM evaluated dose



H4IRRAD status (cern.ch/h4irrad)

7

- H4IRRAD installation in **full operation**
- **1st irradiation slot** lasted from 17th June to 27th June – strongly affected by the TAX issue
 - commissioning + GTOs + FGCs + 60A and 120A PCs + various component tests
- **2nd irradiation slot** (longer than initially planned) started the ~10th July and will last until 25th July
 - still FGCs, Delta-Sigma + 60A, 600A and 4/6/8 kA PCs (water cooled!) + general components tests
- **3rd irradiation slot** is foreseen to begin 18th October until 6th November (before ion run) – mainly for EN/EL equipment
 - Circuit breakers + battery chargers + inverters + PLC system (UPS for the moment on hold...)

Remarks:

- It is really a test area... difficult access in the target zone with the problem of cutting beam for H2
- Secondary proton beam monitoring accuracy questioned by additional calibration
- Very good collaboration between EN/STI and TE/EPC for the realization of the tests

TE/EPC rack preparation 11th July

8



TE/EPC racks descent into the target area

9

