

## Minutes of the HL-LHC WP2 Task 2.4

### 29<sup>th</sup> (VIDYO) meeting on Wednesday 30/09/2015 (11:00-12:30, 6-R-018)

**Task 2.4 members:** Alexey Burov (AB), Alessandro Drago (AD), Alessandro Gallo (AG), Andrea Mostacci (AM), Alessandro Vivoli (AV), Benoit Salvant (BS), Bruno Spataro (BrunoS), David Alesini (DA), Deepa Angal-kalinin (DAK), Elias Metral (EM), Elena Shaposhnikova (ES), Fabio Marcellini (FM), Fritz Caspers (FC), Frank Zimmermann (FZ), Gianluigi Arduini (GA), Giovanni Rumolo (GR), Hugo Alistair Day (HAD), John Jowett (JJ), Kevin Li (KL), Luigi Palumbo (LP), Mauro Migliorati (MM), Michel Martini (MM), Mikhail Zobov (MZ), Nicolas Mounet (NM), Nicolo Biancacci (NB), Oliver Boine-Frankenheim (OBF), Olga Zagorodnova (OZ), Oscar Frasciello (OF), Paul Goergen (PG), Rainer Wanzenberg (RW), Uwe Niedermayer (UN), Wolfgang Hofle (WH).

**Present/Excused:** AB, AD, AG, AM, AV, BS, BrunoS, DA, DAK, **EM**, ES, FM, FC, FZ, GA, GR, HAD, JJ, **KL**, LP, MM, MichelM, MZ, NM, **NB**, OBF, OZ, OF, PG, RW, UN, WH, **Na Wang**, **GianniI**, **JuanEM**, **RamaC**.

#### 1) General information (EliasM):

- BenoitS excused (not here today) and LeeC is at the CCC to work on the ADT and Head-Tail monitor at injection.
- E-cloud meeting last Friday where the baffles (this was one action) were discussed => The effect of the LHC beam screen baffles on the e-cloud build up was studied in detail by AnnalisaR => Do we really need to shield the pumping holes?
  - o Yes, we need them as otherwise, 1) they contribute significantly to multipacting, 2) the heat load can be non negligible => Need to have them for both LHC and HL-LHC.
  - o Note that these baffles should be in CuBe, which should scrub as Cu.
- NicoloB will give a talk at the WP2 TL meeting this Friday on “Crab cavity HOM impedance requirements and transverse damper upgrade”.
- Info from OlgaZ:
  - She prepared a report about wakefields and HOMs calculations for the ALICE chamber (the results of the calculations were presented at the WP2 meeting 01.10.2014). She will send me a draft version of this report after Rainer’s review. She is preparing also a report about wakefields calculations for the LHCb VeLo (the results were presented at the WP2 meeting 29.04.2015). This report will be ready soon.
- Today
  - Preparation of the talks for the coming LIU-HLLHC meeting on 15/10/15 and discuss in particular the
    - Impact of a 800 MHz RF system in the transverse plane and review

the advantages/disadvantages of such a system globally (longitudinal + transverse);

- Impact of a 200 MHz RF system: advantages for e-cloud and impact on transverse / longitudinal plane.

- Round table.

- We will have another meeting on 14/10/15 (the day before the LIU-HLLHC meeting) to review all the talks => <https://indico.cern.ch/event/450501/>.

- Any other point to discuss?

## 2) Preparation of the talks for the coming LIU-HLLHC meeting on 15/10/15:

- Reminder on talks foreseen:

1) 25 ns operation and MDs in the LHC – findings and consequences for the LIU and HL-LHC? by GianniL

- Summary of the 2015 experience => Currently critical instabilities at injection only.

- Summary of the meeting last Friday with cryo / vacuum, experts.

- In contact with the relevant people.

2) Further Impedance reduction in the injectors: What can it bring us? by BenoitS

- In contact with the relevant people.

3) Lower or higher harmonic RF system in LHC? by JuanEM

- In contact with KevinL who is running some simulations. Ongoing.

- KevinL showed some slides. Reminder: the scaling of the LHC TMC1 for 0 chromaticity and no ADT can be found in slide 16 of [http://indico.cern.ch/event/55195/contribution/7/attachments/980349/1393466/CollimationDrivenImpedance\\_ConceptualDesignReviewLHCPhaseIICollimation\\_02-04-09\\_v2.pdf](http://indico.cern.ch/event/55195/contribution/7/attachments/980349/1393466/CollimationDrivenImpedance_ConceptualDesignReviewLHCPhaseIICollimation_02-04-09_v2.pdf) => It goes with bunch length times synchrotron tune. This was checked in simulations by Simon white in his talk “Impact of a 200 MHz RF system” at the 6<sup>th</sup> LHC crab cavity workshop => See slide 5 of <https://indico.cern.ch/event/269322/session/11/contribution/59/attachments/482483/667216/CC13.pdf>.

4) Wide-band feedbacks by KevinL => KevinL showed also some slides of these studies

- 1) Double RF system

- This is for 7 TeV.

- 200 + 400 => Use the minimum stable emittance for 6 MV (see KEK talk from JuanEM). To be validated by RamaC.

- KevinL used 2.5 eVs for all his studies where he should use more (see point above).

- 2) Wideband system => Motivations for all the machines, etc.

**3) Round table and status of the different activities (everybody): impedance, feedback, e-cloud, interplay with beam-beam, beam stability, etc. :**

- NicoloB showed some slides which will constitute the backbone of the talk he will give on Friday at the WP2 TL meeting.

**4) Next meeting**

- The next (30th) Task 2.4–2.7 VIDYO meeting will take place on Wednesday 14/10/2015 from 11:00 to 12:30 in the room 6/R-018 for the CERN people. The agenda is

1) General information (EliasM)

2) Review of the talks for the coming (tomorrow) LIU-HLLHC meeting

*Minutes by EliasM, 01/10/2015.*