



RTML KOM Close-out

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Global Design Effort



Identified High-Priority RTML Issues

- Common housing / integration aspects
 - **Evaluation and documentation of key critical issues**
 - **Identify what may change (site-specific issues)**
 - **Plan to accommodate these in EDR**
- Beam dynamics – specifically emittance preservation (tuning)
 - **Collimation efficiency / halo generation another noted issue.**
 - **Complete lattice needed for beam dynamicists**
 - **(Note many beam dynamics issues identified in RTML)**
- Vacuum, magnet systems engineering re-evaluation needed for better value estimate
 - **Consolidation of requirements**
 - **Best performed after initial lattice iteration**
 - (need for 'frozen' baseline lattice)
- Timing (LLRF) issues
 - **Tight specifications for bunch compressor**
 - **'global' tolerance budget and beam dynamics issues need to be understood: meeting of relevant experts needed**

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RTML Specific Issues

- ACD: Ultra-short bunch compressor
 - **Specify criteria for adoption as BC**
 - **Define outstanding work and time scale**
 - *Identify impact on CFS etc.*
- Bunch compressor tunability
 - **What is the cost impact?**
- Integration:
 - **CFS will own integration related WPs**
 - **Work closely together with Integration Group**
 - Quote: Ewan and PT will do all the work!
 - **CFS cost-optimised geometry should be design driver (where possible)**
 - Optics should follow unless it becomes impossible or too expensive
 - Iteration will be necessary.
 - **(Don't forget e+ source interference)**
 - Identify strategy/method of allocating 'volumes' in tunnel space for individual systems.
 - **Consider using 3D CAD from start (-> management decision)**

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RTML Specific Issues (cont.)

- Dump designs
 - **Size and required infrastructure for 220 kW dump**
 - CFS impact
 - DRX dump currently missing in RDR
 - **Cost implications – are all dumps really required**
 - MPS functionality? Commissioning issues.
 - Value engineering!
- Extended service tunnel for turn around – needed primarily for safety egress? Re-evaluate.
- Power supply configuration (one magnet one quad) should be re-evaluated -> Value engineering
 - **Need for accommodating energy scaling?**



RTML Specific Issues (cont.)

- Magnet prototyping
 - **Spin-rotation solenoids**
 - **SC quadrupoles (cryomodule)**
 - Possible European contribution from CIEMAT known to PM office
 - **Q20L200 (large quantity – value engineering)**
 - **Wide dipole – if needed**
- Vacuum system (long return line) requirement (20nTorr) extremely tight
 - **re-evaluate (beam dynamics)**



RTML Specific Issues (cont.)

- Beam experiments
 - **LLRF related: phase stability, beam-loading compensation**
 - Investigate possibilities at FLASH
- Developing RTML WBS
 - **Terse and clear definitions of WPs**
 - **Goals and milestones**
 - **Time-line with dependencies (schedule)**
- WP Allocation
 - **PM office / EC action item**
 - **Cornell RTML 'bid' will be considered in global context (PMs together with Solyak)**



RDR->EDR: General Comments

- Initial work will be to consistently document the baseline
 - **Reflected in WBS (Work Packages)**
- Efforts to standardise requirements documentation will soon be underway
- These (and other baseline-defining) documents will be placed into EDMS under Change Control
- Traceability of accelerator design requirements to technical (engineered) solutions will be mandated.
 - **Engineering Management / EDMS Office**



Towards October GDE Meeting

- Consolidate and document WP descriptions
 - **PM office will provide template examples**
 - **Include estimate of needed resources**
 - ***Special case: Beam Dynamics WPs should be reported to Simulation Group.***
- Include suggested coordinators / resource / institutes
 - **Cornell would appear here**
 - **Include critical WPs even if you have no identified interested resources**
- PM office will review WP
 - **Input from integration office and other areas**
- Final WP WBS should be presented at October meeting
 - **Time in parallel sessions for fine-tuning and final discussions.**