Cables, Racks & Crates and more…
Status and plans for future

WP02.4.1, WP02.4.2, WP02.4.6, WP02.4.7, WP02.6.4

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Task overview

- **WP02.4.1 Cable Plant** (Cables types, Coaxial cables, Fiber links, Analog Signal cables, Power cables, Patch Panels, Cable installation, Cable Plant location and space negotiations)
- **WP02.4.2 Racks and Crates** (Rack standard, Rack power, Rack cooling, Rack EMI, Rack location and space, Intra Rack cabling, Crate standards, Power Supplies for Crates, Crate location and space, System cabling between racks)
- **WP02.4.6 System Integration** (Infrastructure and other subsystems interface)
- **WP02.4.7 Installation in XFEL** (planning, scheduling, installation)
- **WP02.2.1.1.20 Temperature stabilization of coax cables** (concept, space negotiations, prototype?)
- **WP02.6.5.9 Radiation Immunity** (Radiation Shielding)

Tasks status

- **WP02.4.1 Cable Plant** – the length of Cellflex cables estimated for Tunnel and Injector Complex, prices for coax cables, connectors and installation known, preliminary request for cables space prepared
- **WP02.4.2 Racks and Crates** - Racks standards has been discussed with several manufacturers with cost estimation, Rack power and cooling estimated very roughly – leak of feedback, Rack location and space have been proposed – space negotiations can start, Crate standards has been discussed with a few manufacturers with cost estimation, Power Supplies for Crates and subsystems under discussion, Crate location in racks have been preliminary fixed, necessary space in racks have been estimated.
- **WP02.4.6 System Integration** – comparison and cost estimation between distributed and centralized LLRF System done, requests for infrastructure done, integration of Piezzo System in ATCA Crate discussed.
- **WP02.4.7 Installation in XFEL** – not touched, too early stage
- **WP02.2.1.1.20 Temperature stabilization of coax cables** – two concepts have been prepared, more detailed designs are in progress
- **WP02.6.5.9 Radiation Immunity** – space for radiation shielding in Tunnel foreseen, looking for person, who can simulate radiation dose in Tunnel and design the shielding.

Achievements

- **Presentations on LLRF Weekly Meetings:**

  30.10.08 „First attempt to discuss LLRF System installation in the XFEL tunnel"

  06.11.08 „Distributed LLRF System possible design"

  04.12.08 „Costs comparison between centralized and distributed LLRF System"

  11.12.08 „XFEL TGA, LLRF requirements to the infrastructure"

- **LLRF Requirements for TGA (Technische Gebäudeausrüstung) released**

DESY

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Plans for next 3 months and deliverables

- **More precision power consumption estimation.**
- **Clarify the space and power needs for Step Motors Drivers (CG).**
- **Prepare presentations (dates are preliminary):**

  „Two concepts of coax cables temperature stabilization in Injector Complex" – 22.01.09

  „Possible LLRF cables routes in Injector Complex – requests for wall openings (holes) in XTIN & XSE buildings" – 05.02.09

  „Costs of LLRF System – more precision estimation" – 05.03.09

  „Rack standards for XFEL Tunnel and Injector Complex" – after „Rack for XFEL Meeting" in March 2009

- **Release a paper (report): „Cables, racks and Crates for LLRF System – requests for space, cabling, power, cooling and infrastructure" – end of March**

Conclusions

After 3 months of work we can assume ~5% realization of the subtasks mentioned above.

All LLRF subsystems (i.e. Piezzo, Transient Detection and other) are in development phase so a lot of details are not known yet and it is very difficult to set milestones or deliverables precisely. To fulfill the tasks we need a very close cooperation with outside groups and within LLRF group. The progress of tunnel layout design and all liniac subsystems design are the crucial points for our tasks.

Based of our best knowledge we have to prepare quickly requirements to the infrastructure and other systems. At the end of March 09 we should present written requirements (paper/report) to the XFEL Technical Coordinators.