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| **Name of Meeting**:  XFEL Working Group for LINAC operations | |  | | **Date:** | | 01.12.2011 | |
|  | |  |  | **Location:** | | 362/30b | |
|  | |  |  |  | |  | |
| **Meeting Chair:** | | **Participants** | | **Distribution List:** | | | |
| H. Schlarb | | Kay Rehlich, Wolf-Dietrich Moeller, Matthias Clausen, Lutz Lilje, Julien Branlard, Holger Schlarb, Stephan Choroba, Michael Dressel, Tobias Schnautz, Richard  Wagner, Bernd Petersen,  Missing: none | | Wolf-Dietrich Moeller, Bernd Petersen, Stefan Choroba,  Holger Schlarb, Lutz Lilje, Kay Rehlich, Brunhilde Racky, Richard Wagner, Hans-Joerg Eckoldt, Markus Huening, Winfried Decking, Torsten Limberg | | | |
| **Minutes taken by:** | |
| H. Schlarb / J. Branlard | |
| **Review by:** | |
|  | |
| **Status:** draft | |
|  | |  | |  | | | |
| Topic: | | 3rd Meeting of working group for XFEL linac operations | | | | | |
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| Agenda: | | Approval of last meeting minutes High level RF presentation  Discussion | | | | | |
|  | |
| No | Action Item | | | Due | Responsible | | Ref. |
| 1 | Review of minutes from last meeting, no objections | | |  |  | |  |
|  | shift of Coupler/Interlock talk one week later | | | 19.01.2012 |  | |  |
|  | Additional info after question/discussions:  - He pressure changes will be very slow such that the cavity piezo FB system will keep the detuning below the 20Hz expected from +-0.3mbar (specified) pressure instability  - cryo load of individual RF station needs to be evaluated when installed in XTL  - for this purpose, a characterization of the cryo-properties of the accelerator section is needed  - it is not easily visible if a cavity has a much smaller Q0 if degradation occurs during the transition from AMTF to XTL. Currently it is assumed that the cavity properties (unloaded Q) remain the same. | | |  |  | |  |

| **No** |  | **Keyword** | **Description** | **Responsible** | **Date** | **Status** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 |  | HLRF presentation | Presentation about High Power RF System | Richard Wagner |  |  |
| 2 | I | Klystron test | - It was noted that the waveguides are routed through a different path for the gun and for the first acceleration modules (I0)  - all klystron will be tested in Hall 2:  - these tests should include noise measurements:  🡪 series measurement starts April 2012  🡪 requires a LLRF system setup for measurements  🡪 action from the LLRF group is required |  |  |  |
| 3 | I |  | - open question: modulator test with 10kV load (before pulsed cables are connected to klystron)  - open question: when does the module installation can really begin (date/infra-structure installation) | MKK |  | O |
| 4 | I | Klystron commissioning | - klystron can only be installed after the RF module string (4 modules) is completed and "Schiebemuffen" are closed  - HF interlock in XTL will be installed for klystron commissioning  - klystron will be switch to load operation for initial commissioning  - klystron belongs to "Stoerstrahler", where the nearby window requires controlled area  🡪 cross-check installation works / XTL klystron commissioning required  🡪 work on cryostring should be completed to avoid space conflicts of installation equipment  🡪cabling (all) work should be completed before klystron commissioning (input from rack meetings)  - requirements for klystron commissioning in XTL:  🡪 Ethernet/software/master oscillator/timing [LLRF system]  🡪 klystron commissioning is envisioned during later afternoon/night time (when other tasks are minimal) |  |  |  |
| 5 | I | XTL installation sequence | 1. Important: wireless LAN is mandatory at very early stage (Q1/2013) for vacuum group 2. Modules installation 3. Racks installation (all racks for 1 RF station in 1 block) 4. Cabling starts 5. Water installation (has to be installed after modules, to be confirmed)  🡪 open question to be clarified with MKK 6. Klystron + transformer  \* connection of pulsed cables (remark: requires to remove concrete plates)   \* klystron interlock  \* klystron commissioning on load  5. Waveguide connection to accelerator modules  6. MPS Interlock tunnel (connection + commissioning)  7. RF coupler processing can start  Remark: vacuum + LLRF will not be available operable until racks are installed! |  |  |  |
| 6 | I |  | Open question: installation sequence can be done by RF section (4 modules) or by cryo string section (12 modules)  🡪 cabling can start after 4 modules are installed   * Operations can start when the cryo string is completed |  |  | O |
| 7 |  | Commissioning of RF system | - Commissioning of RF systems is done when attached to accelerator modules:  - personnel interlock for tunnel needs to be ready  - start with warm coupler processing  🡪 expected duration of coupler processing is likely to be very short (few days)  🡪 most of the time is required for system checks (cables, interlock, electronics)  🡪 this time should be used also to commission LLRF cables and signals (60% of signals, likely cavity probes also)  - cool down of accelerator module |  |  |  |
| 8 | R |  |  |  |  |  |
| 9 | I | RF operations | RF operations:  \* waveguide increase temperature up to 60deg with corresponding phase shift  \* not too large rise times of pre-amplifier drive signals causing klystron interlocks  \* slow ramping of RF after klystron trip |  |  |  |
| 10 | A |  | To do:  - installation of a uTCA LLRF station in the klystron test stand  - combine with klystron life time management effort | J. Branlard,  V. Ayvazyan,  W. Wierba | April 2012 | O |
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