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| **Name of Meeting**: |  PPR Rack Shielding | **Date:** | 11.12.2012 |
|  |  |  | **Location:** | 1e/EG503 |
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| **Meeting Chair:** | **Distribution List (Invited people):** |
| Norbert Meyners, MEA1/WP33 | Stakeholder: A. Leuschner (D3) A. Hoppe (D5) A. Witzig (D5, Fire extinguishing) W. Decking (CLC) M. Hoffmann (TC) F. Czempik (WP33/MEA) D. Lenz (WP33/MEA, Transport and Handling) E. Negodin (TC, Racks) M. Steckel (Racks, Cableing) W. Wierba (WP02, LLRF Cable)K. Oliwe (MSK/WP02 LLRF Cable)R. Wagner (WP01/RF) Th. Witt (WP34/IT) J. Eckoldt (WP34/Magnet power supplies) J. Liebing (Racks, Cableing) H. Sokolinski (Racks, Cableing) cc: Hans Weise, PL     Markus Hüning, TC     Valery Katalev, WP01/RF     Dirk Noelle , WP17/Diagnostic    Armin Brand, XPOVia WWW and EDMS  |
| **Minutes taken by:** |
| Norbert Meyners, MEA1/WP33 |
| **Review by:** |
|  |
| **Status:** draft ~~released~~ |
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| Topic: | PRR Rack Shielding |
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| Agenda: | * Introduction
* Presentation of rack shielding
* Possible cable ways
* Discussion
* Release
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| No | Action Item | Due | Responsible | Ref. |
| 10 | Change load on rack | 31.12.12 | E.Negodin |  |
| 11 | Change water connection racks | 31.12.12 | E.Negodin |  |
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| **No** |  | **Keyword** | **Description** | **Responsible** | **Date** | **Status** |
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| 1 | I | Participants | Norbert Meyners, MEA1/WP33Dennis Lenz, MEA1/WP33Evgueni Negodin, TCMarkus Hoffmann, TCRichard Wagner, WP1/MHFpThorsten Witt, WP34/ITKrzysztof Oliwa, MSK |  | 11.12.12 | C |
| 2 | I | Introduction | The item of this meeting is the shielding of racks in the XTL tunnel below the modules and behind the LINAC, but without the one in BC-sections. In previous discussions a shielding of 20cm heavy concrete at the top and the downstream face without doors at the sides have been settled. (See 1. protocol of meeting from 13.12.2011 "Rackabschirmung" 2. Material and simulations results: EDMS D\*2603891.) | N.MeynersM.Hoffmann | 11.12.12 | C |
| 3 | I | Rack Shielding | Design | (See slides) The rack shielding is made of 1 T-block and several Z-blocks for the top and two wall blocks. This modular design allows to cover rack container with 2 racks or 3 racks and also every combination of this containers by leaving out the inner walls i.e. 6 fold racks. The top blocks rest on 100mm spacer on the racks. The distance of 100mm is agreed with LLRF.The distance to the hanging module is 150mm (minus tolereances).The L-shape of the wall blocks (1. Version) have changed back to simple ashlar (dt. Quader) not to occupy additional space. The wall blocks will instead be equipped with angles for a stable stand. All walls will be attached to the container for a safe stand.All blocks will be equipped with in-casted rails (Halfenschienen) at the sides to allow to attach cable trays etc..After circulation of the 1. version it was notice that the space at the side of 150mm (3-fold racks) was too small. So the design has been adapted to get 200mm gaps at the sides of the 3-rack container (2.version).The gaps at 2-rack container were only 50mm and will increase to 125mm. If necessary the container could be placed asymmetric inside the shielding.  | D.Lenz | 11.12.12 | C |
| 3 | I | Rack shielding | Cable ways | (See slides) There are several patch panels at the top and at the side of the container to connect the racks depending on the needs. The cables could be guided on the cable trays attached to the shielding, but the way along the modules is not decided.The cooling water is connected at the side and guided inside the container with two hoses to the heat exchanger. The containers are connected to the 18-degree water at the tunnel wall. | E.Negodin | 11.12.12 | C |
| 4 | I | Rack shielding | Installation | The rack shielding will be installed after the cabling of the racks. All blocks have threaded sleeve for lifting or attaching a traverse.The space to the installed modules is small (150mm – 60mm=90mm.) | D.Lenz | 11.12.12 | C |
| 5 | I |  | Discussion: |  |  |  |
| 6 | D | Prototype | A prototype will ordered soon and the installation will be done in the XTL tunnel. | D.Lenz | 11.12.12 | C |
| 7 | D | Cable space | The gaps at the sides of a 3-rack container will be 200mm.  | D.Lenz | 11.12.12 | C |
| 8 | D | Cable space | The gaps at the sides of a 2-rack container will be 125mm. (If needed the shielding will placed asymmetric around the container.) | D.Lenz | 11.12.12 | C |
| 9 | D | Cable space | The gaps at the top of a 3-rack container will be 100mm.  | D.Lenz | 11.12.12 | C |
| 10 | A | Change load on rack | The rack specification should be changed to take a load of 1t distributed on the four corners. | E.Negodin | 11.12.12 | C |
| 11 | A | Change water connection racks | The water connection of the container should be changed from the side to the rear side. Such that comes out directly at the heat exchanger, avoiding the water hoses in the container. | E.Negodin | 11.12.12 | C |
| 12 | D | Amount | Shielding for 123 3-rack container (incl. 2 6-rack locations)Shielding for 11 2-rack containerShielding for 2 3-rack container as spare.Shielding for 2 3-rack container with reduced height (16U)(It should be easy to produce shorter wall blocks for the two 16U rack units before the BC-chicanes.)(We should think of to buy the moulds from the supplier.) | E.Negodin | 11.12.12 | C |
| 13 | D | Delivery | The first batch should be at DESY in January 2014. The production could last until winter 2015. | D.Lenz | 11.12.12 | C |
| 14 | D | Thicker downstream wall | Mr. Leuschner made the point that the downstream wall (200mm) is too thin for a full hit of lost particles, because of the gaps in between the different shielding cubicles. He recommends a thickness of 800mm.Decision: We stick to the presented concept.Different simulations demand a reduction factor of 10 and 200mm heavy concrete gives already a factor of 30. The assumptions used in Leuschner’s simulation were worst case, so high beam losses that it will be noticed in the cryo load. Second his simulation should compare the old and the new shielding concept and show that they are equivalent.The risk is acceptable. If the dose measurements in the racks show the need of additional shielding this can and will added later. | M.Hoffmann | 11.12.12 | C |
| 15 | D | Release | The production of a prototype and the full set of rack shielding can start. | All | 11.12.12 | C |
| 16 | D | Protocol | The presentations and the protocol will be published in INDICO. | N.Meyners | 21.12.12 | C |
| 17 | D | Protocol | The presentations and the protocol will be published in EMDS. | A.Brand | 15.01.13 | C |