

<b>Name of Meeting:</b>	Cold BPMs (for XFEL)		<b>Date:</b>	17.09.03
			<b>Location:</b>	DESY, Build 30
<b>Meeting Chair:</b>	<b>Participants:</b>		<b>Distribution List:</b>	
D. Nölle <a href="mailto:Dirk.Noelle@desy.de">Dirk.Noelle@desy.de</a> 9-2579	M. Jablonka, CEA J. Kruse, MDI O. Napoly, CEA D. Nölle, MPY M. Wendt, MDI		Pariticipants R. Brinkmann, MPY A. Schwarz, HERA-B H. Weise, MIN R. Wichmann, MPY	
<b>Minutes taken by:</b>				
D. Nölle				
<b>Review by:</b>			H.D. Brück MKS4 C. Magne, CEA A. Matheisen, MKS3 W.D. Möller, MHF B. Petersen, MKS1 H. Schlarb, MPY S. Vilcins, MDI K. Zapfe, MVP	
Participants				
<b>Status:</b>				
Approved				
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**Additional Remarks:**

Feed-throughs under cryogenic environment are a hot topic. For the large numbers that will be required for XFEL, standardization of these items would be good. Therefore, a meeting or series of meetings would be helpful in order to look for existing standards or to define a common standards.

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No		Keyword	Description	Responsible/ Info by	Info to	Date	Status
1	I	Module 2* Status	<p>The common goal is to have the reentrant cavity BPM currently under construction in module 2* (ACC1). The status of the monitor is,</p> <ul style="list-style-type: none"> <li>• Mechanics OK</li> <li>• Vacuum OK</li> <li>• Check of particle counts, this week</li> <li>• Check of electric properties, next week</li> </ul> <p>This test using an network analyzer is essential to make sure, that the RF properties of the monitor are OK.</p>	<p>D.Nölle</p> <p>M. Jablonka</p>			
2	I  S  I	Feed Throughs	<p>During construction one of the biggest problem was the problem of feed-throughs. 6 feed-throughs made from stainless steel have been provided by CEA.</p> <p>They have been designed by CEA made by PMB, have been specified for cryogenic environment, and tested at the company. .</p> <p>At DESY an additional cryo test has been made, with the result that 3 out of 5 feed-throughs broke.</p> <p>PMB had assured that using stainless steel was adequate for the tests. A written note, describing the exact acceptance procedure at DESY might have avoided this failure</p> <p>In order to complete the monitor, from TTF1 reentrant cavities BPMs have been disassembled, in order to reuse their feed-throughs. 12 feed-throughs (8 titanium, 4 stainless steel) have been tested concerning cryo and</p>	<p>D. Nölle</p> <p>M. Jablonka</p> <p>D. Nölle</p> <p>M. Jablonka</p> <p>D. Nölle</p>	MKS3/ MVP		

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No		Keyword	Description	Responsible/ Info by	Info to	Date	Status
	S S A		<p>electrical properties, 2 pairs of titanium feed-troughs (slightly different types) have been selected and assembled (one pair horizontal, one vertical).</p> <p>The inspection and following tests of these feed-throughs have shown:</p> <ul style="list-style-type: none"> <li>• Again breaks during cryo test.</li> <li>• Electrical problems, inner connectors getting loose during the unscrewing of SMA cabling or in the ultrasonic bath</li> <li>• Green dirt and traces from sparks. Sparks on the vacuum side, green dirt inside and outside</li> </ul> <p>A possible reason for the spark traces could be that the BPMs have been operated without load due to cable or termination. In this case high voltage can be generated by the beam, resulting in sparking at the antenna. This possibility should be checked.</p> <p>It would be good to change the feed throughs from a special designed to a commercial available product</p> <p>As there will be a large number of feed-through at liquid He temperature for the XFEL, it seems that it would be worth to look for common standard types.</p> <p>A meeting to fix such standards would be helpful. D. Nölle is trying to organize a meeting on this topic.</p>	<p>J. Kruse</p> <p>M. Jablonka</p> <p>M. Jablonka</p> <p>D. Nölle</p>	H. Schlarb	ASAP	
3	I	Design	During the meeting on cold cavity BPMs on Aug 28 <sup>th</sup> 03 several remarks about the design of the monitor have been made, i.e. to construct it out of 2 flanged parts in order to ease assembly and cleaning and to change the	D. Nölle			

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No		Keyword	Description	Responsible/ Info by	Info to	Date	Status
	S  D  A		<p>interface to the adjacent components.</p> <p>This has to be discussed in a meeting with the designer of the monitor (C. Magne) and the people responsible for vacuum, clean room treatment, adjacent components and module assembly. Since the reentrant is the hot candidate for the XFEL modules, the interface to the adjacent elements has to be optimized for this BPM. This is especially true for the interface to the quadrupole block (alignment of quad and BPM axis)</p> <p>D.Nölle has the task to organize such a meeting for the beginning of November. (Remark A meeting on feed through should be organized for the same visit.)</p>	All       D. Nölle		Nov. 03	
4	S	XFEL Commitment	The CEA group of O. Napoly et al. is very interested in the production of the cold BPMs for XFEL. But until there is no commitment on the political level, there will be only limited personnel and financial resources.	O. Napoly	PM		
5	S	XFEL Requirements	<p>The XFEL will require about 120 cold BPMs. This amount of hardware needs industrial production. The units need to be delivered tested and ready for installation to the module production.</p> <p>The requirements for industrial production have to be one of the driving forces for the ongoing development. Again, a written note describing the acceptance tests should be provided, e.g. exactly specifying the thermo cycles.</p>	D. Nölle, M. Wendt      Jablonka		MKS3/ MVP	
6	S	BPM Test	A BPM test facility in TTF2 was considered to be very	All			

No		Keyword	Description	Responsible/ Info by	Info to	Date	Status
		Facility	helpful for the optimization of the reentrant cavity BPM, as it can shorten the distance between the prototype tests.  Furthermore this facility can be used to test other developments, e.g. the cavity monitors from Zeuthen.				
7	S	New Modules	In the next time (1-1.5 years from) now, 3 new modules will be assembled: <ul style="list-style-type: none"> <li>• Spare module of the old module type</li> <li>• Spare module of the new module type</li> <li>• High gradient module for ACC6</li> </ul> Currently there is only one monitor of the old cavity type available. It would be good, if these modules could also be equipped with reentrant cavity BPMs.  The interest at CEA is clear, but necessary funding is open.	D. Nölle          O. Napoly			
8	S I	Electronics	CEA has applied (successfully) for funds for the development of a new electronics for the reentrant cavity BPM within the CARE project, submitted to the EU. It is foreseen to develop a digital readout. One possibility is to improve the hybrids, another is to lengthen the RF response time. The latter would allow for a simpler electronics, but would require changes on the monitor hardware.  It has to be checked, if the allocated money is sufficient to produce new monitors in addition to the electronics.  A problem is that the 4 years funding period of the CARE	O. Napoly			

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			<p>program is different from the preparation schedule of the XFEL, where decisions have to be taken in 2 years from now.</p> <p>The monitor in ACC1 will be operated with the old TTF1 electronics. For this electronics it has to be checked, if it can be operated with a 9 MHz beam.</p>	M. Jablonka?			
9	I	Additional topics	<p>Dark Current Monitor: The work concerning the dark current monitor for TTF2 is going on.</p> <p>At least 3 of these monitors are required for TTF2. They need to have 63CD/CF flanges, the fixed flange has to point "to the gun"</p> <p>Toroid Protection System: The work for the toroid protection system is going on, based on the agreements of the last meeting. At the end of the prototyping, thus before production the next project meeting is required. In the current schedule the hardware will be ready for installation in Feb. 04.</p>	<p>M. Jablonka</p> <p>D. Nölle</p> <p>M. Jablonka</p>			
	<p>↑ A = Action D = Decision I = Information R = Recommendation S = Statement</p> <p>* PM = Project Management C = Closed P = Postponed V = Void</p>						↑