



20th International Workshop on DEPFET Detectors and Applications

DEPFET – IB Meeting

Lessons from past few months

Machine and Belle II Schedule

Items to be addressed

DEPFET Common Fund

AOB

The April 2016 Combined Beam Test @DESY was a big success:
2 „final“ PXD modules, 4 layers of SVD (both CO2 cooled)
equipped with Kapton, „patch panel“ and 10m power lines + P/S
configuration from data base, slow control

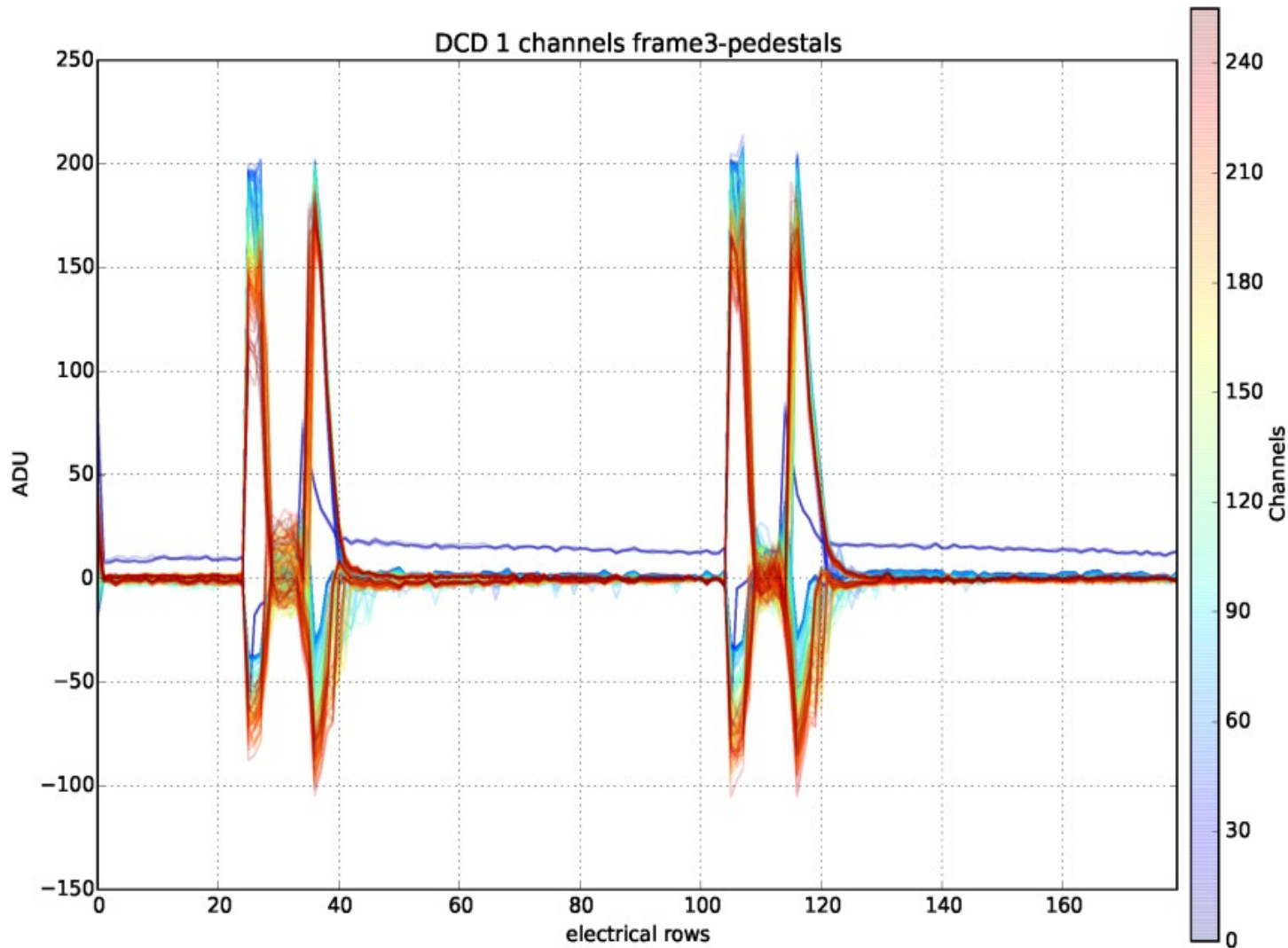
Still many things to
improve before we can
deploy BEAST 2

Most important:

- communication and documentation
- watch connector issues

DESY Test Beam

Important Issue: Pedestal restoration after switching back to normal



This should be achieved ideally within 1 μ s

(reason for degradation of Clear pulse along the balcony identified and fixed in Al2 / Cu layers for PXD9-7)

Gated Mode operation with analog common mode correction

The committee is pleased to see improved coordination between the Pixel Detector (PXD) and Silicon Vertex Detector (SVD) groups for the assembly activities and encourages them to extend this effort to the operation aspect. They should establish a unified procedure for the operation of both detectors, since the working environment and control system of the two are strongly coupled.

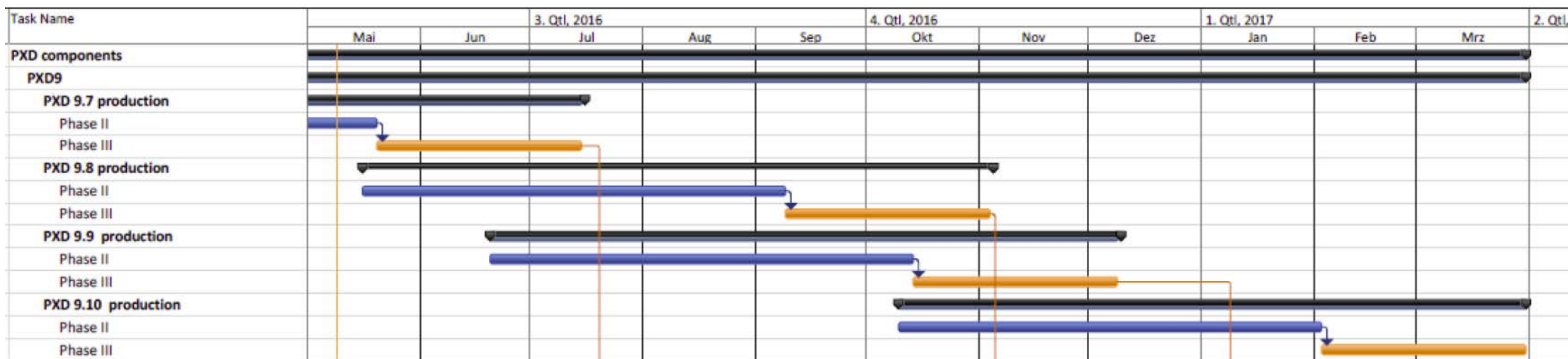


Combined Beam Test
@ DESY

VXD Commissioning Leader:
Carlos Marinas
Deputy:
Katsuro Nakamura

Belle II management (EB) still has
to approve the leadership team

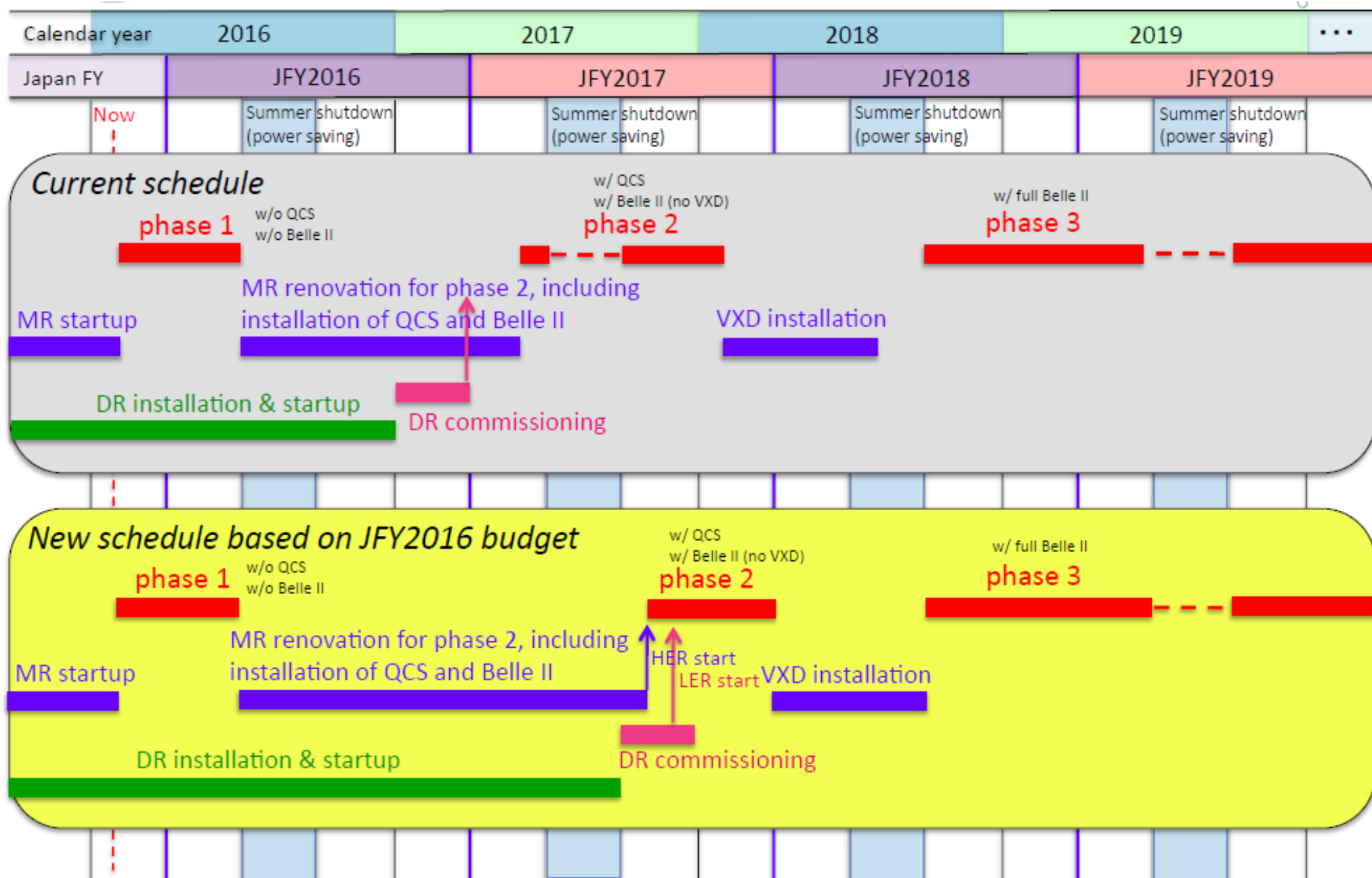
Due to delay in the production of the final ASICs, the construction schedule of the PXD is very tight without contingency for the start of the Phase 3 physics run in October 2018. The committee urges the PXD group to examine carefully the production plan in detail to ensure that nothing has been forgotten and to see whether some contingency can be generated.



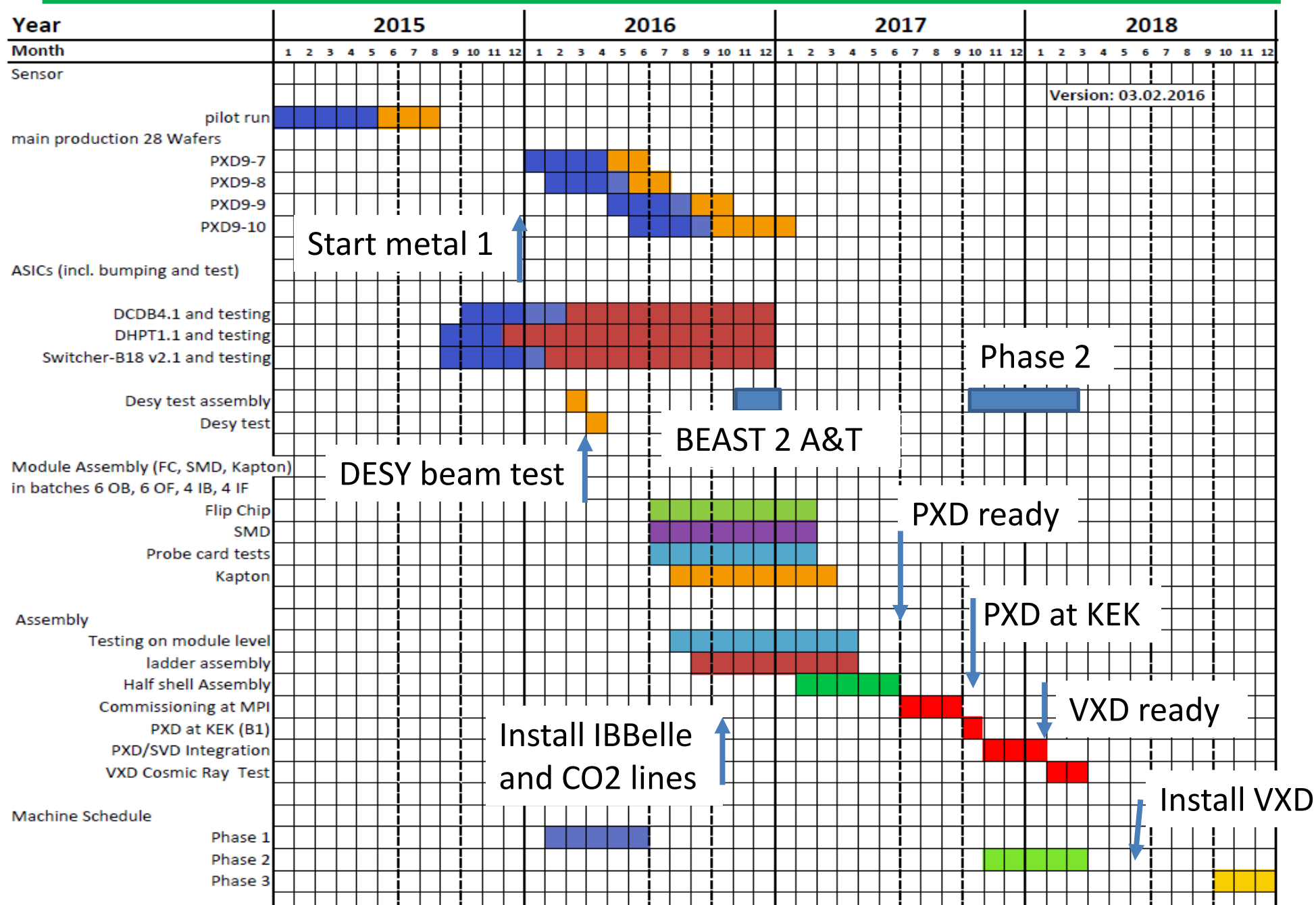
after Gated Mode studies with PXD9-6 pilots: metal layout now optimized,
Main production could be started.

How to „generate contingency: reduce to only 3 batches (instead of 4):
PXD9-8 (on hold), 9: 9/6 wafers, PXD9-10: 7 wafers)

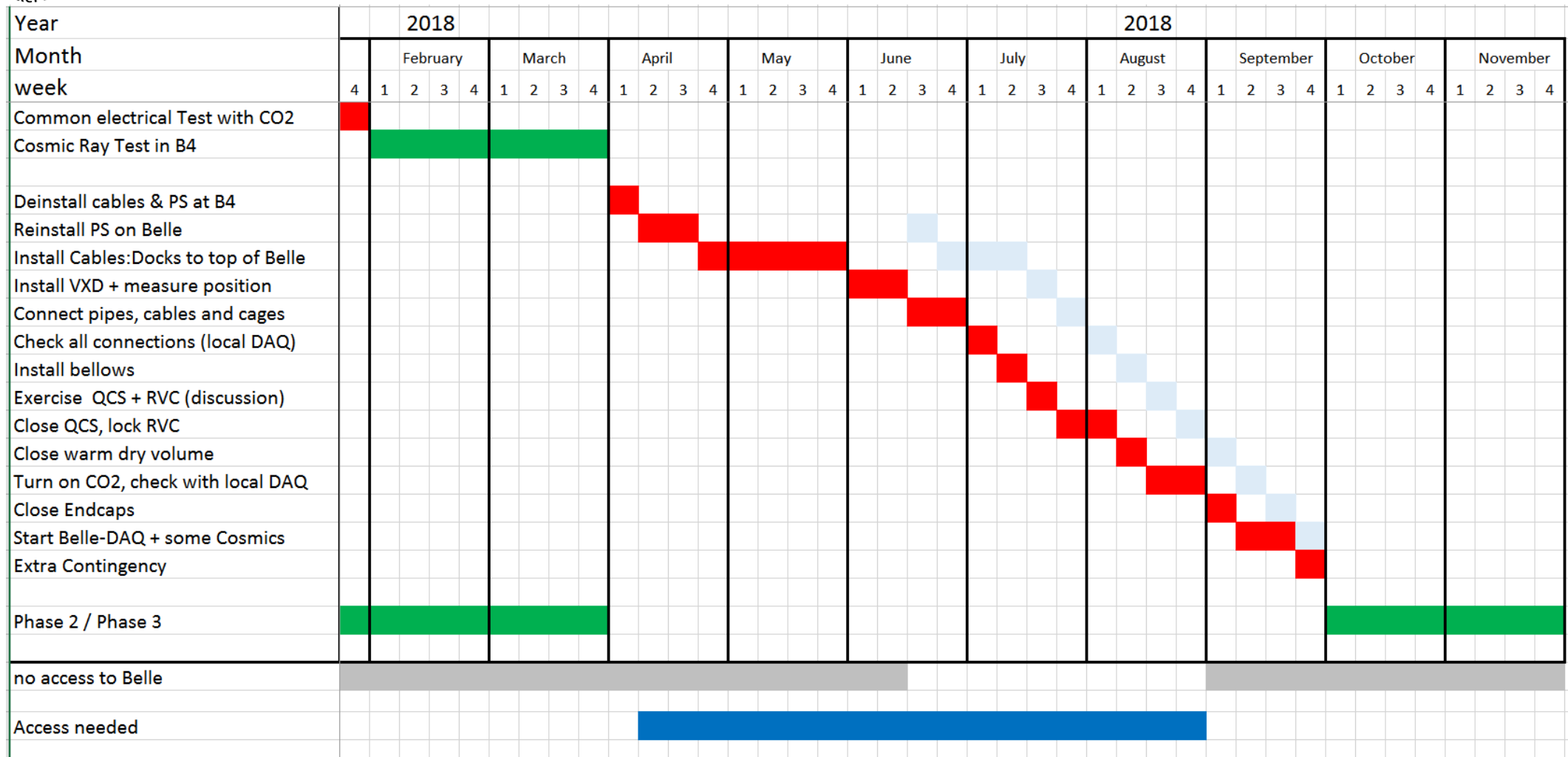
Update on Machine Schedule (Feb. 16)



Schedule and Milestones for PXD



Schedule shown at Feb. 16 BPAC



Very rough schedule presented at Feb. Meetings, is now substantiated with numbers:

We will need about 6 months from the end of Phase 2 to the start of Phase 3

Items to Address (I)

- Assessment of Sensor Production Readiness: metals are optimized, PXD9-7 being checked, same yield as for PXD9-6 we should (?) give „green light“ for PXD9-8
- PXD9-7 pre-production for BEAST 2 detector to be ready by Oct. 16
- ASIC situation:
 - DCDB 4.1 (4.2) (pre-tested at KIT) together with DHPT 1.1 on hybrid 5
 - > select DCDB by end of July
 - > DHPT 1.2 back by mid July, sufficient to test with DCDB4.x on hybrid
 - > Switcher bumping has a solution at HLL (pre-testing w/o bumps at KIT) HLL
 - > rework is on the way (to be needed only later for the main production) HLL
- New supplier (Kaupke) being qualified for Kapton: „better and cheaper“
- Last step (gluing 2 modules to a ladder) well advanced at MPI

Items to Address (II)

- Detailed planning of the QA during ladder production in progress (HGM +)
- testing of sensors (ASICs and SMDs mounted) carried out at HLL
- Kapton soldering, wire bonding + testing (water colling) done at MPI (man power to be investigated, help from outside ?)
- Mounting of ladders on SCBs under development (needed for BEAST 2?)
- PXD Half Shell test with CO₂: MARCO will come to MPI (spring 2017)
- Three months of testing period before the two PXD Half Shells are transported to KEK (September 2017)
- Design / construction of installation procedure, dock boxes etc. progressing

- Parallel to main production and ladder assembly need to prepare for BEAST 2
- Detailed planning of the BEAST 2 detector, including a final beam test at DESY (late fall of 2016) before transport to KEK
- Synchronize other components:
DHE firmware with clustering, DHH System with optical readout
ONSEN to accept and process clusters, software (2 full layers), SC
- Observation from presently running BEAST phase 1:
Slow control actions (retrieving PVs, looking at plots, developing / updating SC modules etc. for the CLAWS system) impossible at the moment.
- Same is true for looking at machine parameters provided by EPICS ...

Overview DEPFET Common Fund

Year	Contribution [k€]	Institute	
2009	22,00	Prague	
2010	80,00	Prague	
	30,00	Prague	
	6,40	Prague	
	25,00	MPI	
2011	32,50	Prague	
2012	2,00	TUM	Conf
	66,00	Prague	
2013	100,00	MPI	
2014	4,50	German univ	Travel PL
	20,00	KEK	CO2
	6,00	Krakow	CO2
	5,00	Vienna	CO2
	20,00	INFN	CO2
	58,21	LMU (Rest of BMBF Money)	CO2
2015	23,21	Tabuk	CO2
	50,00	DESY	CO2
	20,00	HD Uni	Slow Control
	570,82		
Expenses (k€)			
	322,92	PXD only (not KEK-PF)	
Status ("Haben")	247,90		

shown in Valencia,
Jan. 16)

Status as of Dec. 31, 2015

DEPFET Common Fund Sub Accounts

		Expend (k€)	
Grounding project ITA	A	52,19	
KEK-PF	B	0,00	(in = out)
IBBelle (CO2)	C	172,67	
Personnel + travel	D	98,06	
Electronics (since 2016)	E		
		322,92	

Payment from Photon Factory for DEPFET Ladders arrived:
165 k (as agreed in MoU)

Expenses for Photon Factory (to be reimbursed), Kaupke pre-production (E)

Balance as of today: 370 k€

Date / Place for next VXD Workshop : ?? September 2016
Santander ??

Date / Place for next DEPFET Meeting 2017: Ringberg Castle

And as a reminder: need to start the election procedure for the next PL