



LIU BWS budget update (electronics)

F.R. 21-Aug-2018

- General update / remarks on total costs
- Update on 2018 spending

Cables

	description	real costs	Payed 10.08.2018	Still to pay
PSB	Proto + TID (draft)	67,973	67,973	
PSB	Copper final (08.08.2018)	21,500		
PSB	Fibre final (08.08.2018)	18,840		
PSB	TOTAL	108,313	67,973	40,340
PS	Proto (copper + fibre)	32,739	32,739	
PS	TID	115,000	115,000	
PS	DEC	14,000	14,000	
PS	Fibre final (08.08.2018)	27,300		
PS				
PS				
PS	TOTAL	189,039	161,739	27,300
SPS	Proto (copper + fibre)	35,420	35,420	
SPS	Copper LSS5 (08.08.2018)	67,000		
SPS	Copper LSS4 (waiting for)	?		
SPS	Fibre LSS5 (waiting for)	?		
SPS	Fibre LSS4 (waiting for)	?		
SPS				
SPS	TOTAL	102,420	35,420	?
Grand Total (real)		399,772		

**Total injectors (estimation
2017~=EVM)**

580379

PS final cost:

PS	Length	Real Cost	Est. 2017	Decabling	Diff
PS54	185	32,739			
PS64	225	39,818			
PS65	215	38,048			
PS68	195	34,509			
PS85	195	34,509			
	total	179,622	240,086	14,000	46,464

Assuming 70k copper + 30k fiber missing for SPS → ~ 80k less than what estimated?

VFCs

Agreed for overall VFC procurement:

		<u>PSB</u>	<u>PS</u>	<u>SPS</u>
	# VFCs From Rhod file:	38	24	19
	#VFCs per scanner	4.75	4.8	4.75
		#VFCs	COST	
64026	LIU-PSB electronics production and cables	25	30000	
64027	LIU-PSB control electronics	13	15600	
64037	LIU-PS electronics production and cables	16	19200	
64039	LIU-PS control electronics	8	9600	
64048	LIU-SPS electronics production and cables	13	15600	
64058	LIU-SPS control electronics	6	7200	
	Total		97200	
	Total EVM foreseen		108000	
	Save		10800	

Will need 3 or 4 VFCs for scanner depending on final decision on ADCs

ADCs

- Assuming FMC ADC 2 Ch (FBCT) → BASELINE, t.b.c. after Oct tests
 - Pro: FW ~existing, spare policy
 - CONS: cost per channel
 - 6k per ADC comes from last batch. A new batch can be cheaper?

EVM								
GEFE foreseen		61,000.00			Digitize Optical disk @ VME		Option Digitize @ IntDrive	
ADC foreseen		46,800.00			Price per unit	#units	Cost	#units
Total Foreseen EVM		107,800.00		FMC ADC	6,000.00	51	306,000.00	34.00
				Missing budget			- 198,200	- 96,200

- Alternative
 - CO ADCs for optical disk
 - 4 Ch commercial ADC
 - Need new FW

Acq. Detectors

	Cost per unit	#units	Cost
PMTs	622.2	90	56000
PCBs	187.5	24	4500
Scintillators	250	24	6000
Total			66500
Foreseen in EVM			70500
Diff			4000

- Not counted here
 - Mech Housing (covered by ML Budget so far)
 - Optical filters
 - Other small expenses

Summary

Sub-component	Estimated balance w.r.t. previous estimations
Cables	+ 80 kCHF ?
VFC	+ 10.8 kCHF
ADC	-100 (200) kCHF
Detectors	+4 kCHF

CET vs categorized EDH orders

		Charged			Open			Pipeline			Total		
		CET	From Transactions	Diff	CET	From Transactions	Diff	CET	From Transactions	Diff	CET	From Transactions	Diff
64026	LIU-PSB electronics production and cables	3,274.8	2,455.3	- 819.5	5,439.2	6,294.2	855.0	21,371.8	21,371.8	-	30,085.8	30,121.3	35.6
64027	LIU-PSB control electronics	33,941.3	19,329.9	- 14,611.4	12,704.2	12,704.2	-	309.6	309.6	-	46,955.2	32,343.7	- 14,611.4
64037	LIU-PS electronics production and cables	134,487.1	133,940.8	- 546.3	5,362.1	5,932.1	570.0	14,247.9	14,247.9	-	154,097.1	154,120.8	23.7
64039	LIU-PS control electronics	33,965.2	19,695.3	- 14,270.0	3,858.2	3,858.2	-	835.0	835.0	-	38,658.4	24,388.5	- 14,270.0
64048	LIU-SPS electronics production and cables	4,054.5	3,599.2	- 455.3	6,138.1	4,046.4	- 2,091.7	11,891.9	11,891.9	-	22,084.5	19,537.6	- 2,546.9
64058	LIU-SPS control electronics	18,322.0	6,772.0	- 11,550.0	3,231.1	3,230.1	- 0.9	12.0	12.0	-	21,565.0	10,014.1	- 11,550.9

I think difference comes from M to P transfer for tech fellow

Totals

Column1	Budget Code Description	Charged to Budget Code (CHF)	Carry Over (CHF)	Annual Commitment (CHF)	Annual Open Commitment (CHF)	Payment Budget (CHF)	Pipeline (CHF)	Commitments incl. Pipeline (CHF)	Balance (Including Pipeline) (CHF)	Percentage Budget Used (Including Pipeline)	Balance (Excluding Pipeline) (CHF)	Percentage Budget Used (Excluding Pipeline)
64026	LIU-PSB electronics production and cables	3,274.77		8,713.95	5,439.18	42,000.00	21,371.81	30,085.76	11,914.24	72	33,286.05	21
64027	LIU-PSB control electronics	33,941.34	2,798.84	46,645.56	12,704.22	90,000.00	309.60	46,955.16	43,044.84	52	43,354.44	52
64037	LIU-PS electronics production and cables	134,487.09	1,552.56	139,849.18	5,362.09	154,000.00	14,247.88	154,097.06	97.06	100	14,150.82	91
64039	LIU-PS control electronics	33,965.23	681.96	37,823.42	3,858.19	57,000.00	835.00	38,658.42	18,341.58	68	19,176.58	66
64048	LIU-SPS electronics production and cables	4,054.48	2,328.85	10,192.56	6,138.08	233,000.00	11,891.93	22,084.49	210,915.51	9	222,807.44	4
64058	LIU-SPS control electronics	18,321.96	568.29	21,553.03	3,231.07	55,000.00	12.00	21,565.03	33,434.97	39	33,446.97	39
Grand Total:		228,044.87	7,930.50	264,777.70	36,732.83	631,000.00	48,668.22	313,445.92	317,554.08	50.00	366,222.30	42

N.B.

PMT order (56k total, pipeline) and HV ISEG order (~15k total, open commit.) already includes costs foreseen for 2019 in EVM.