3x1x1 operations: Status and plans

Laura Manenti & Laura Molina Bueno

Schedule proposed

lun	mar	mié	jue	vie	s
25	26	**27** Insulation space at atmospheric • **Capacitance measurements to see if the short is still present** • **Start warm-up of the HV setup dewar**	28 • **Grid pulsing** • **Anode pulsing to verify we do not have additional dead channels**	29 **Ramp up LEMs in liquid (grid floating)** **Improve HV grid connection in the parallel setup**	3
Change to the 100 kV PSU and with FFS terminated to ground power the cathode **2** **Ramp up LEMs in liquid (grid floating)**	**3** • **CRP motorisation regulation system** • **Check if the Grid-LEM short circuit disappears** • **Capacitance measurements in GAr**	4 • **Adjust CRP to the nominal level** • **Recalibrate Level meters** **Improve HV grid connection in the parallel setup**	5 **LEM HV test at the nominal LAr level**	6	7
9	10 **Improve HV grid connection in the parallel setup** **LEM HV test at the nominal LAr level**	11	12	13	1
16	17 **Improve HV grid connection in the parallel setup**	18	19	20	2
23 • **Noise tests disconnecting one by one all the different sensors**	24	25	26	27	2

Summary of activities until October, 4th and plans for October 5th

25	26	27	28	29
		• Insulation space at atmospheric • **Capacitance measurements to see if the short is still present** • **Open and dismount the HV setup dewar**	• **Grid pulsing** • **Anode pulsing to verify we do not have additional dead channels**	**Ramp up LEMs in liquid (grid floating)**

2	3	4	5	6
Change to the 100 kV PSU and with FFS terminated to ground power the cathode	• **Test of CRP motorisation regulation system and feedback from level meter, and come back to the previous position** • **PMT calibration measurements**	• **Check if the Grid-LEM short circuit has disappeared**	• **Test of CRP motorisation regulation system when the level decreases** • **Capacitance measurements in GAr** • **Progressively capacitance measurements while CRP is moving and comparison with the level meters values** • **Check if the Grid-LEM short circuit has disappeared**	• **Test of CRP motorisation regulation system when the level decreases**
	Ramp up LEMs in liquid (grid floating)			

Summary

Absolute Pressures 09h Mon 25 September - 16h Mon 02 October
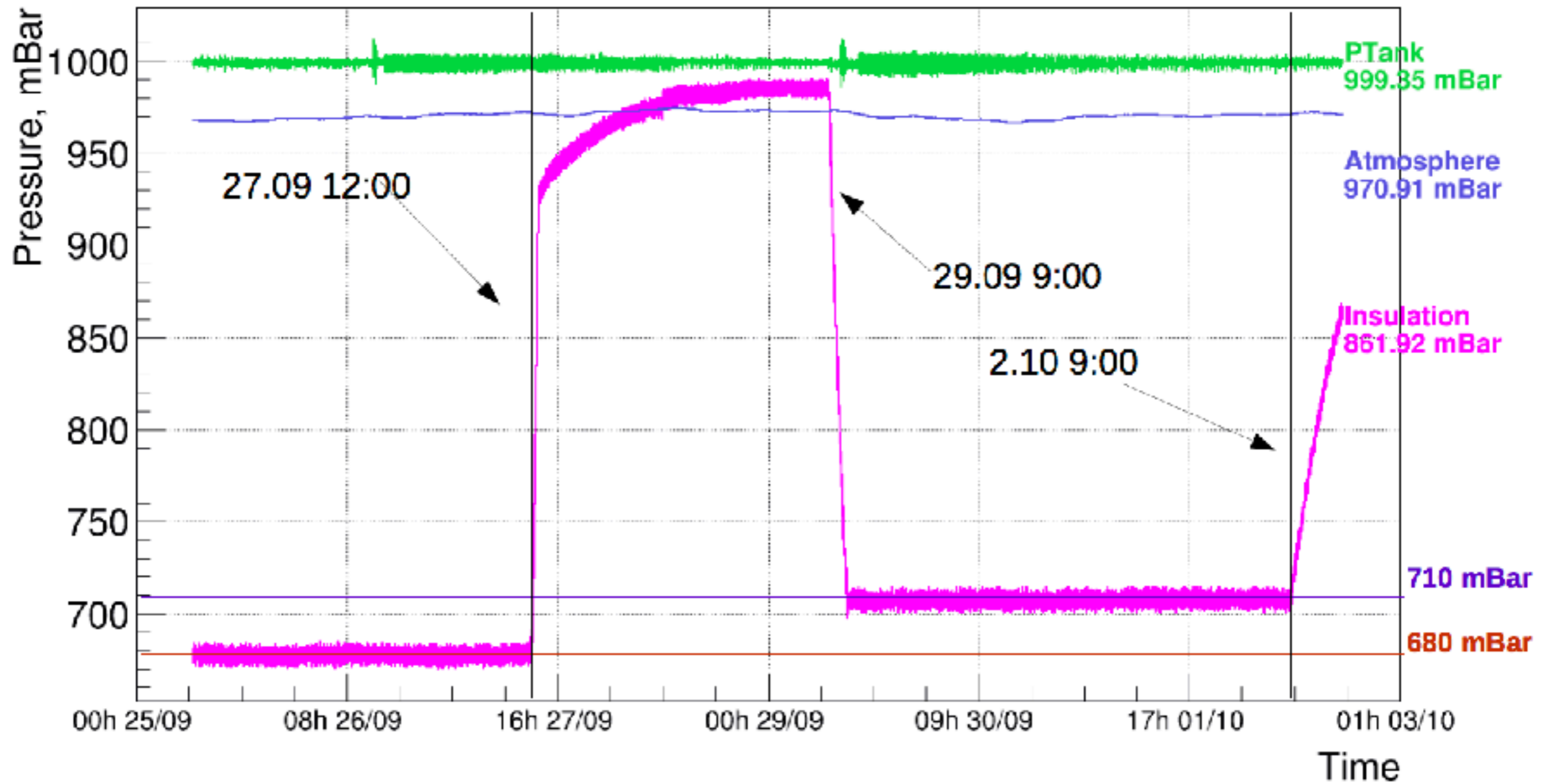
Summary

Anode and grid pulsing: http://lbnodemo.ethz.ch:2500/3x1x1/171001_222228/ anode_grid_pulsing_28sep2017.pdf

Problematic channels

	Flange pulsing June	Flange pulsing August	Grid pulsing August	Flange pulsing September	Grid pulsing September
View 0	41	41	41	41	41
	85	85	85	85	85
	98	98	98	98	98
				159	
	160	160	160	160	160
	170	170	170	170	170
	175	175	175	175	175
	180	180	180	180	180
	192	192	192	192	192
	194	194	194	194	194
				207	207
	312				
View 1	154	154	154	154	154
	225	225	225	225	225
	254	254	254		
				282	
	357				
	507	507	507	507	507
	831	831	831	831	831
	956				

- **Problematic channel**: channel whose integral or amplitude <50% of average within that chimney for flange pulsing or within that LEM for grid pulsing
- **Dead channel**: sees no or negative signal

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Summary

Anode and grid pulsing: http://lbnodemo.ethz.ch:2500/3x1x1/171001_222228/
anode_grid_pulsing_28sep2017.pdf
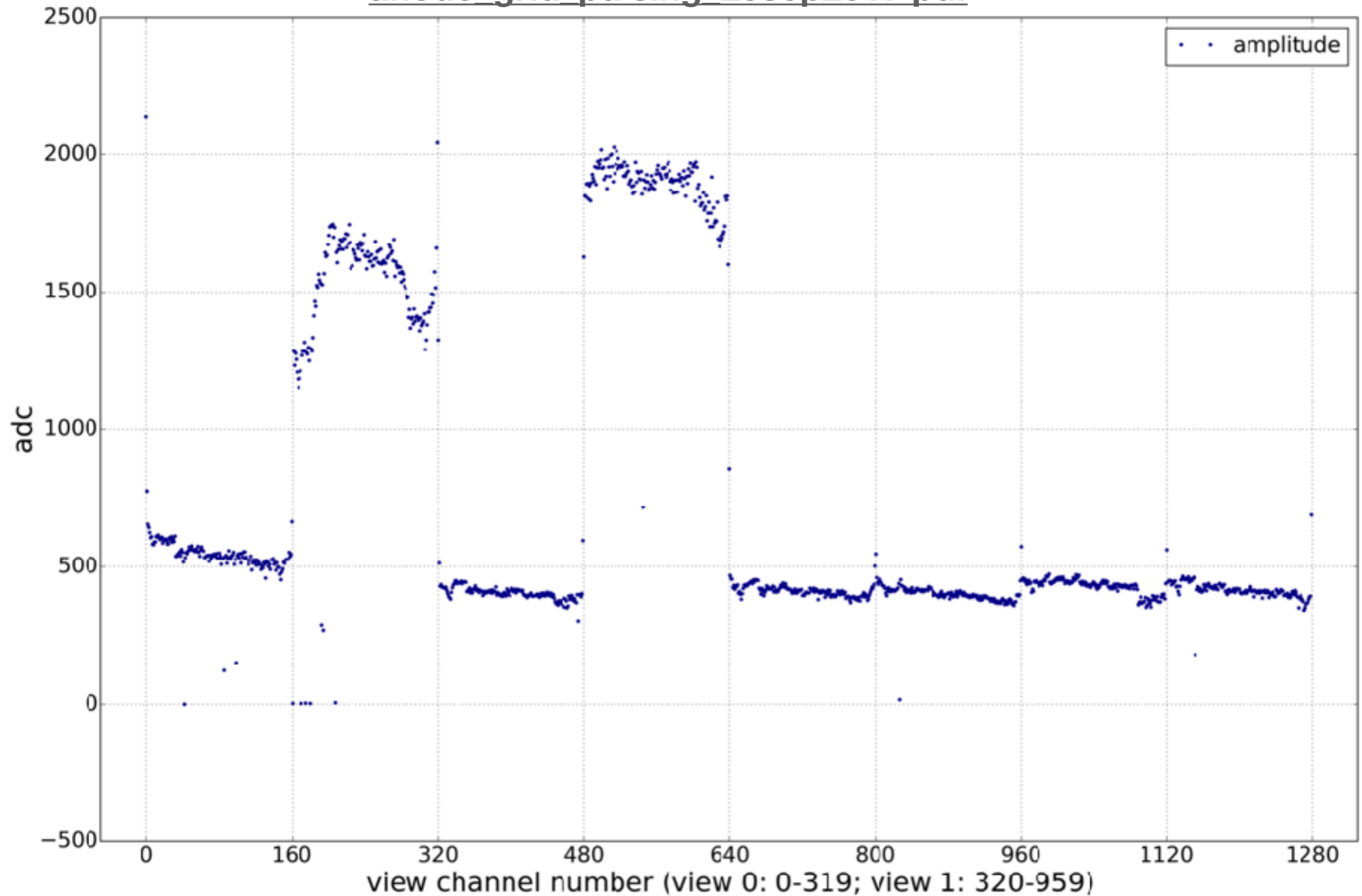
Summary

→Test of CRP motorisation on October 3rd, 4th and 6th.

→Capacitance measurement and comparison with level meter feedback (See Caspar presentation).

→On Thursday 5th, after the second movement of the CRP the short-circuit between the LEM and the grid disappeared.
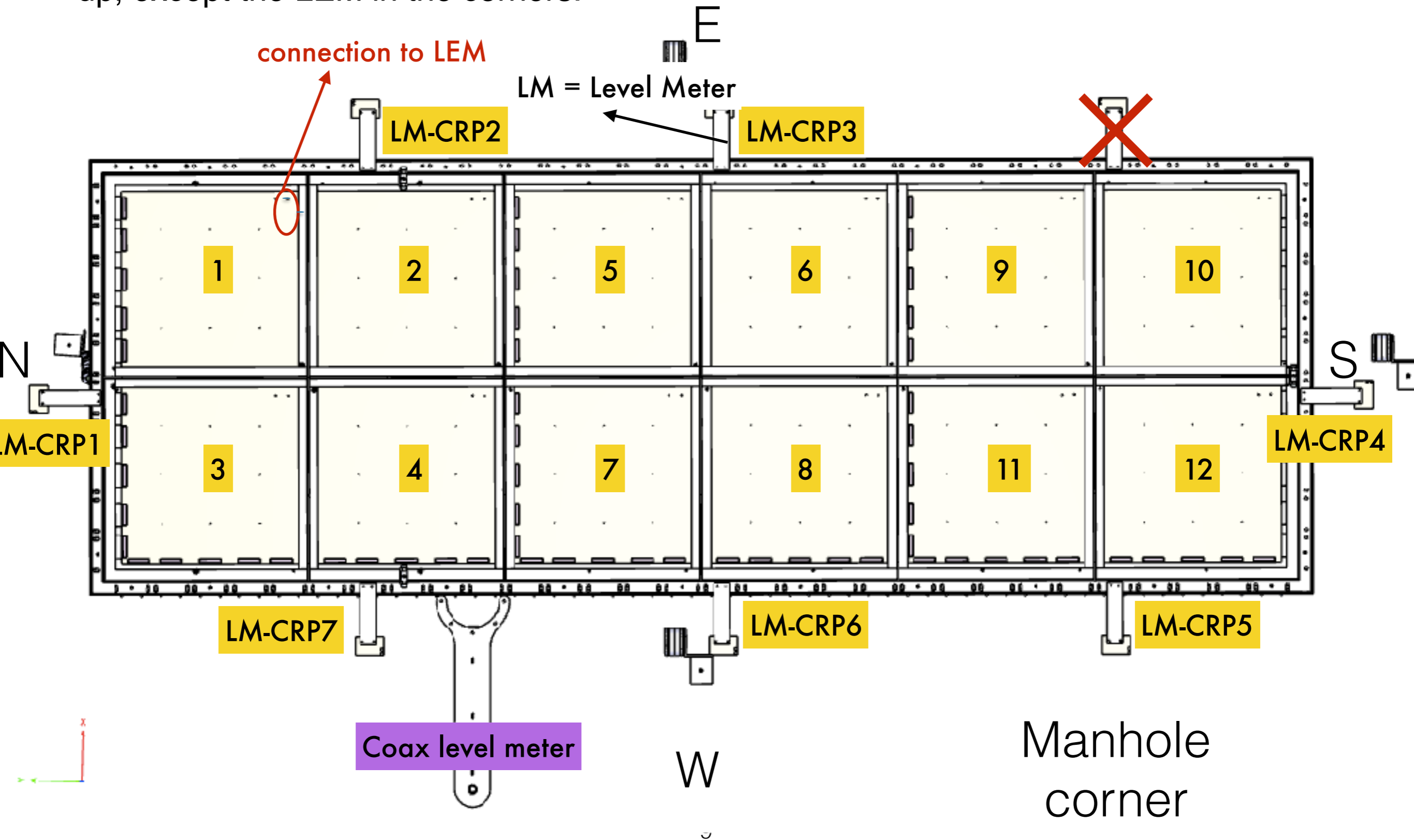
Summary

http://lbnodemo.ethz.ch:2500/3x1x1/419
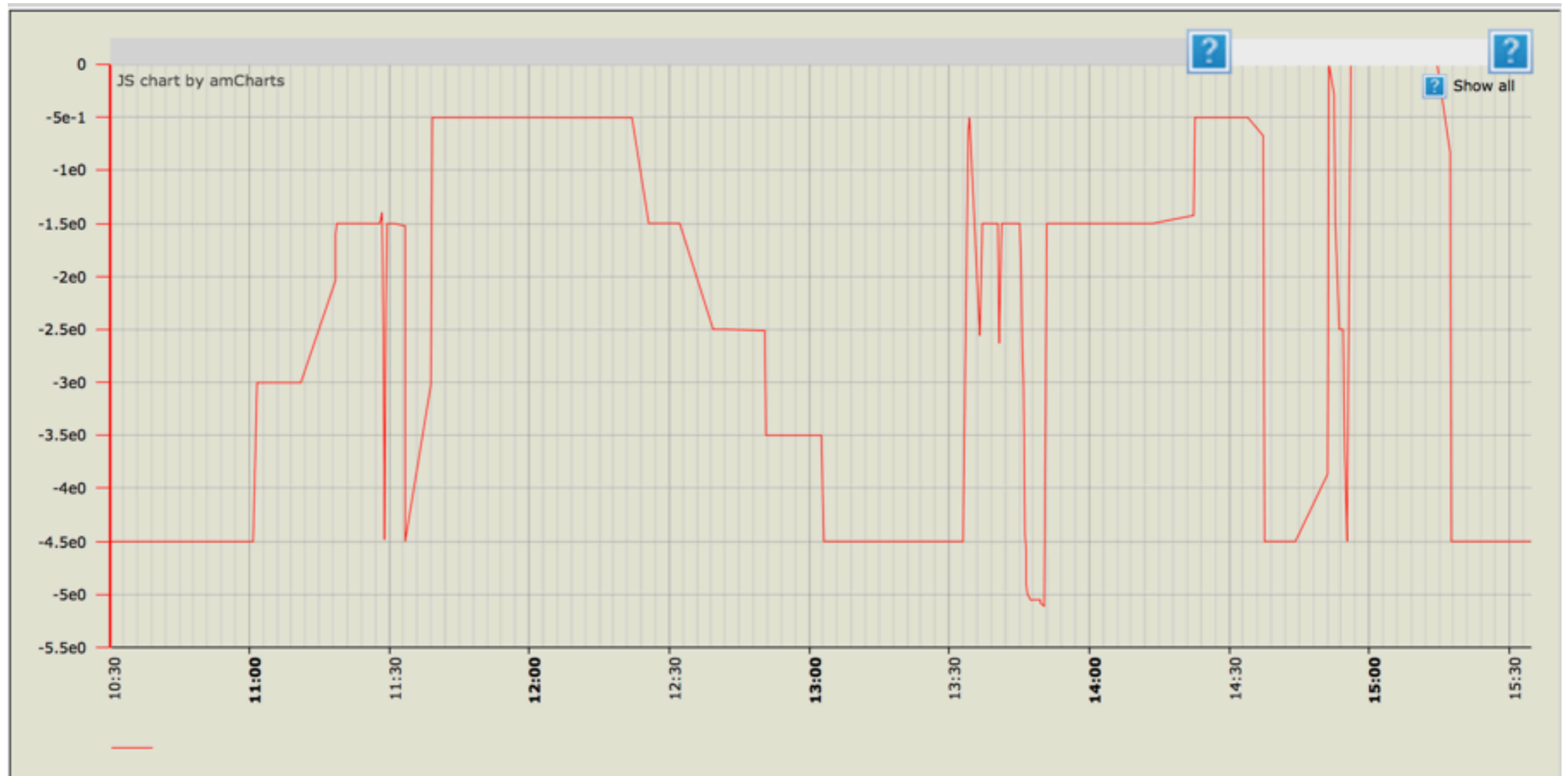
→The LEM HV connections reconnected through the resistor filter panel. We changed the old board (A1580HDE) used on CAEN power supply by the new one of the same type but with 16 inputs and a Radial connector (the one planned for ProtoDUNE-DP). We also closed the back of the DCS rack (CAEN power supplies are very sensitive to heat input and a lot of dust were present close to fans).
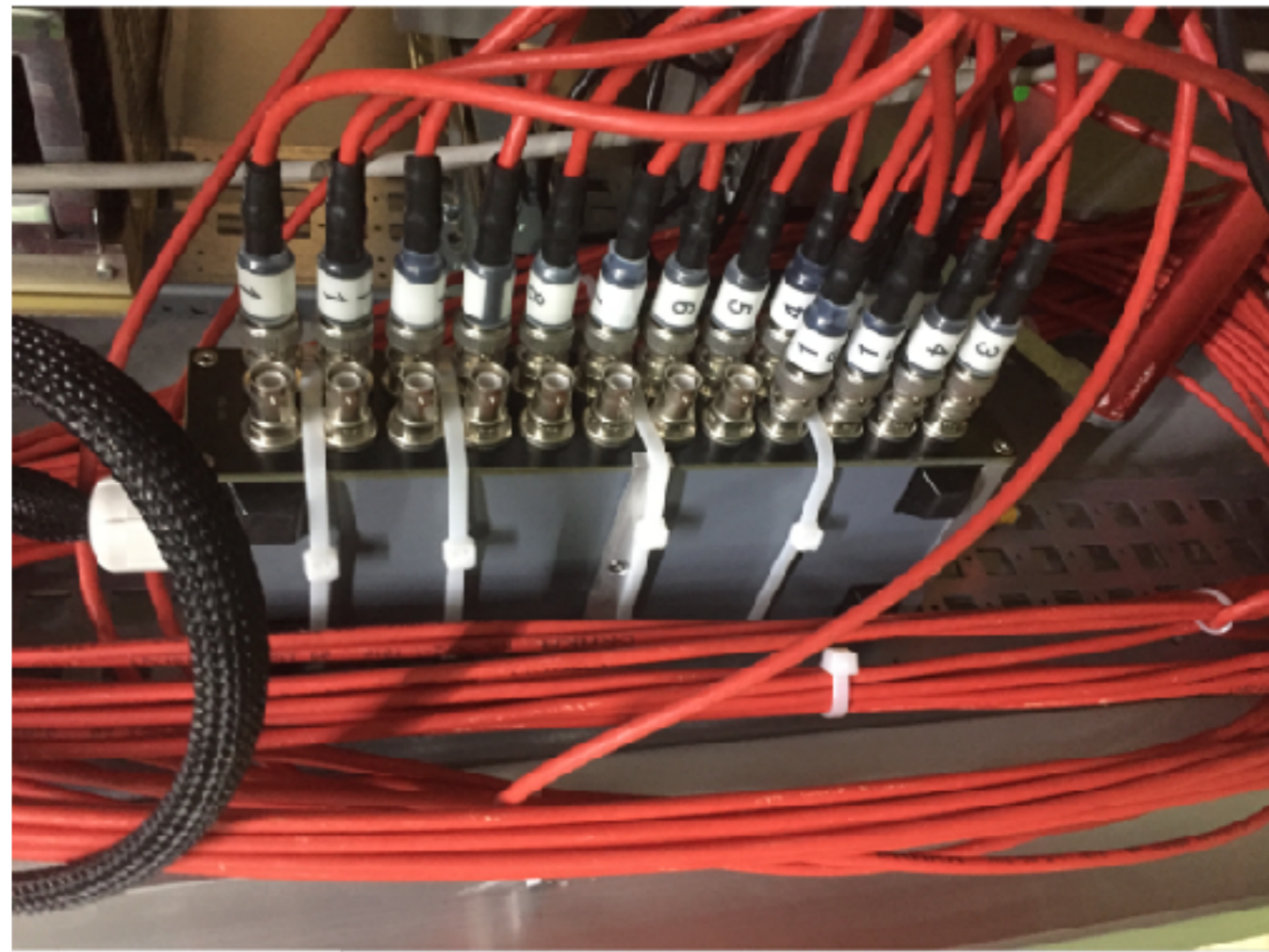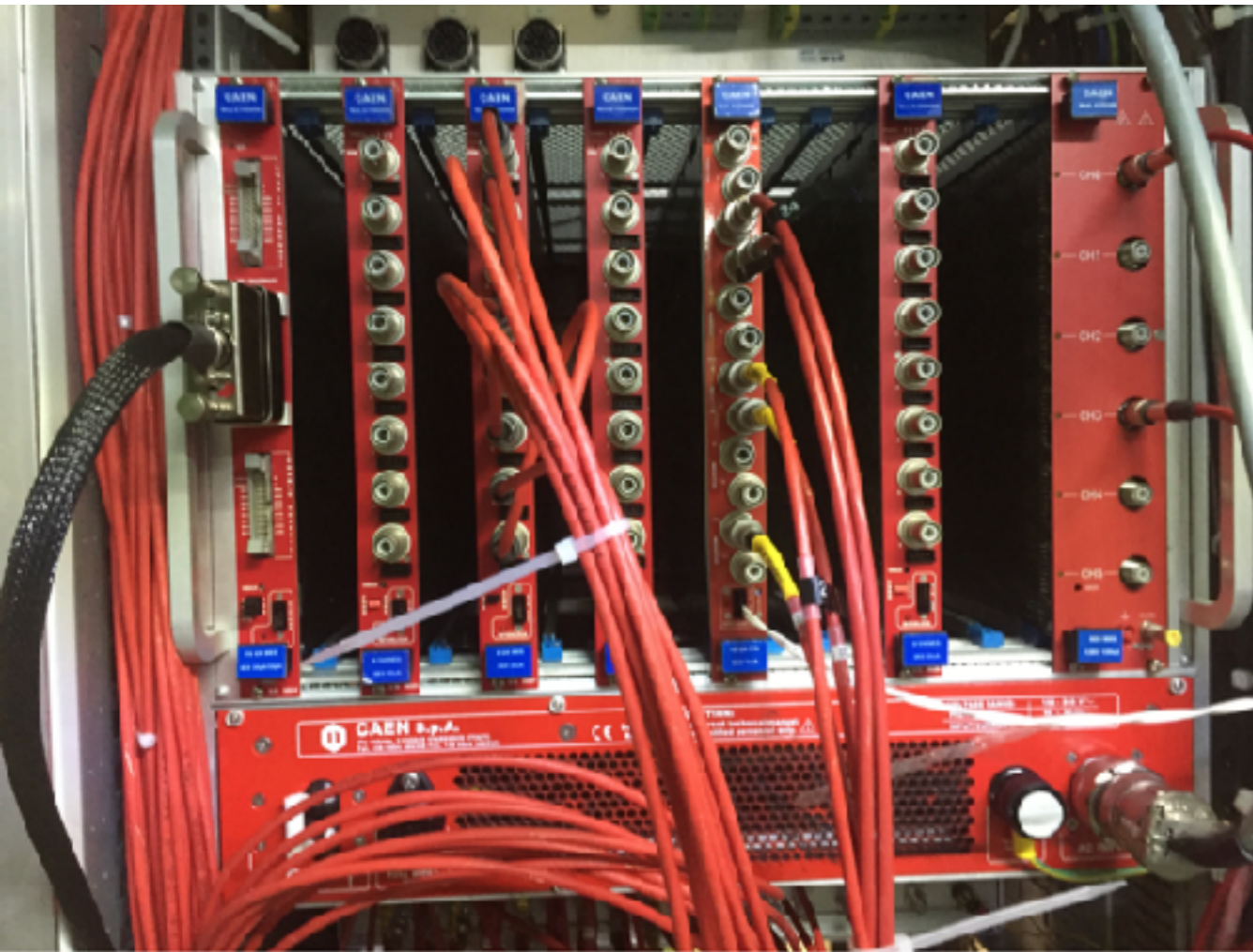
Summary

→LEM and induction field scan in liquid: Several tests were performed since last week. The maximum voltage applied was 4000V on LEM down and 800V on LEM up, except the LEM in the corners.

Summary

→**Some communication issues between PVSS and the CAEN power supply, and between PVSS and cryogenic system**

Yann restarted the middleware done by CAEN (it is a tool which convert raw information on the network to OPC-DA standard prtocol) and the peaks are not present.
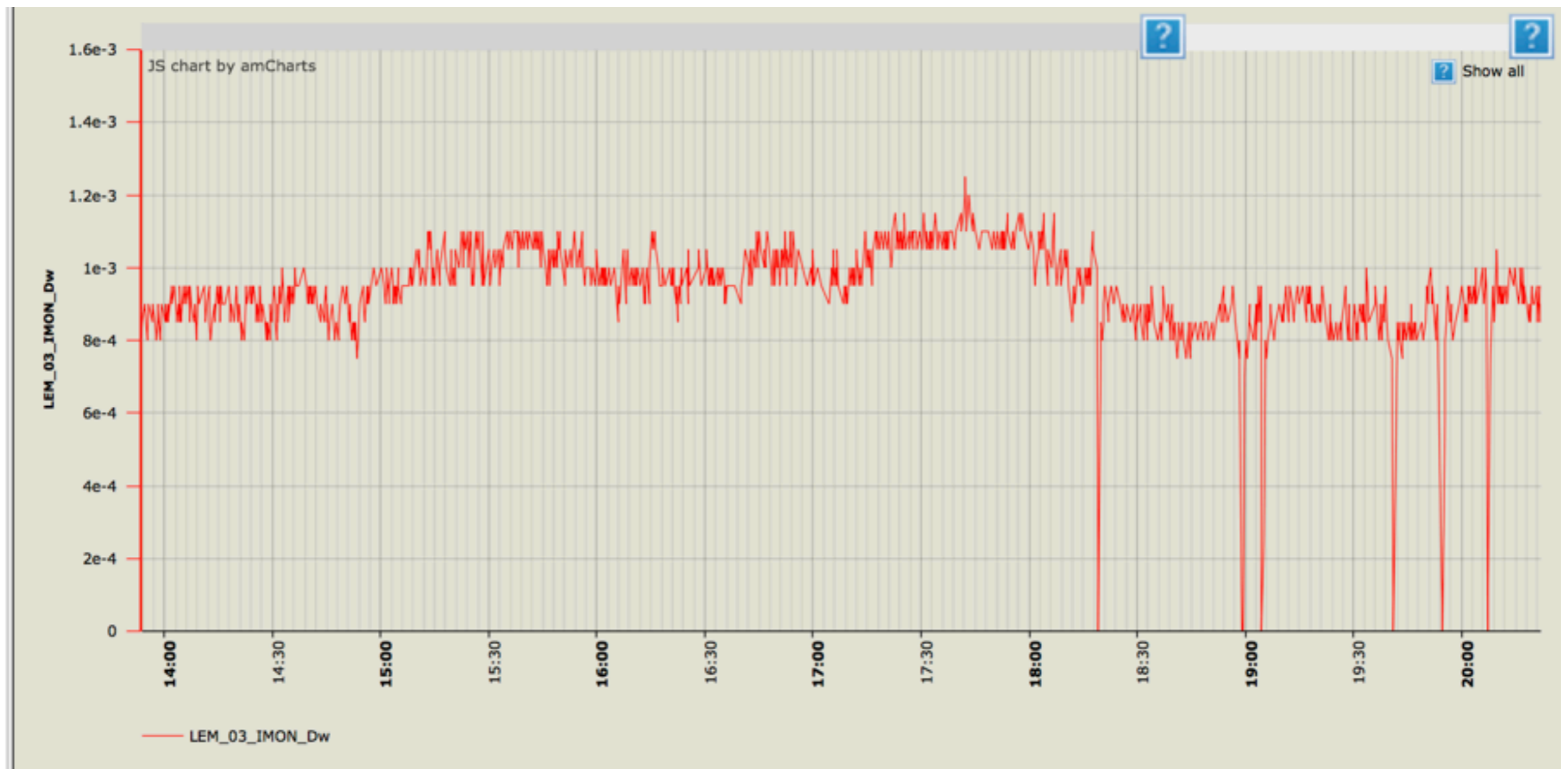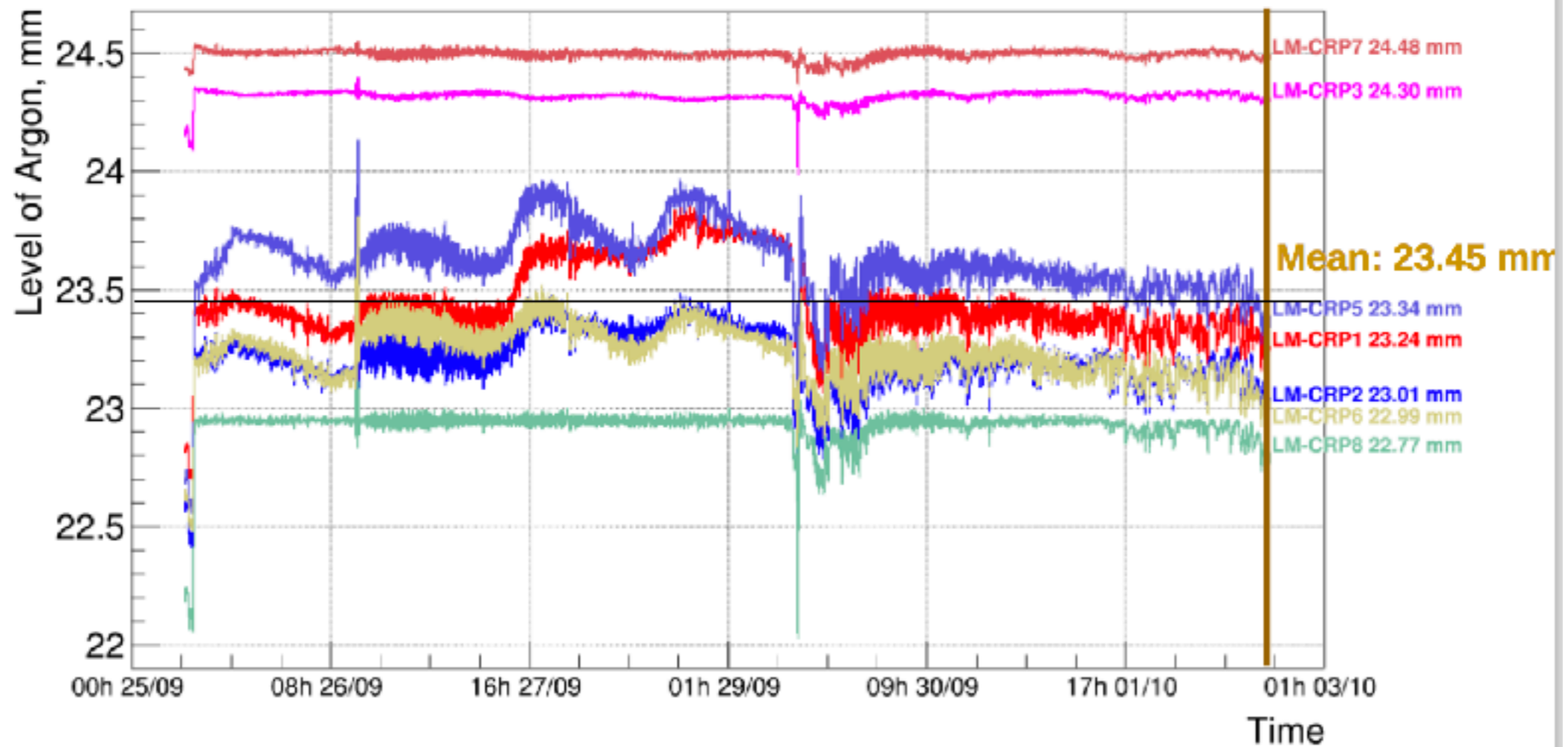
Back-up

Levelmeters near CRP

- 7 active levelmeters, average value is **23.45** mm at 2 October 17:00.

- Large oscillations, plots was smoothed for clearness
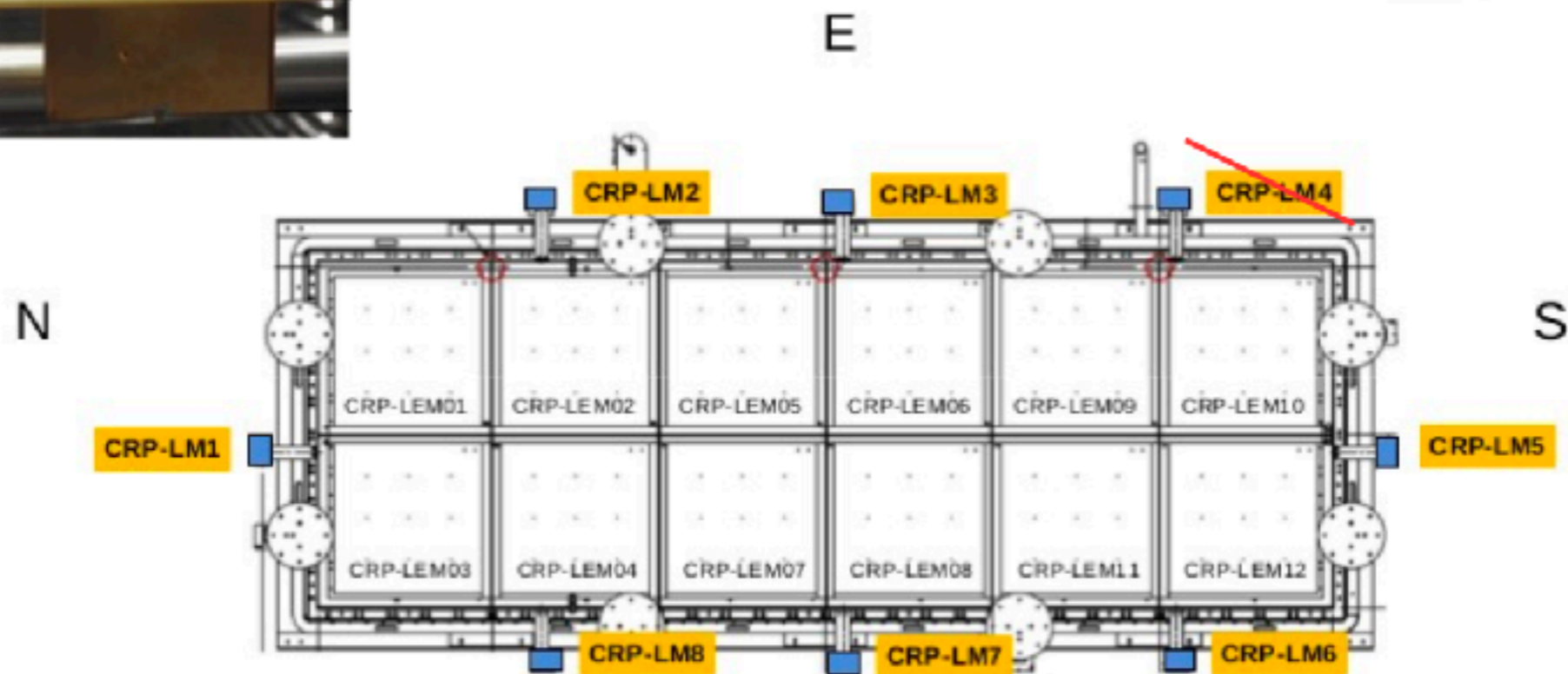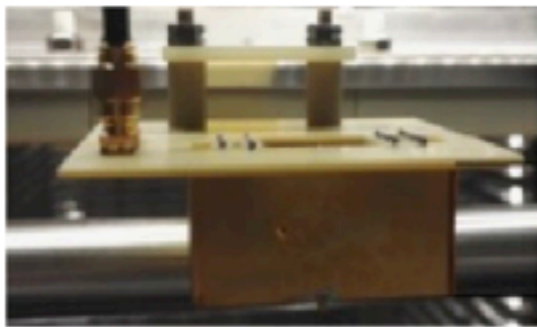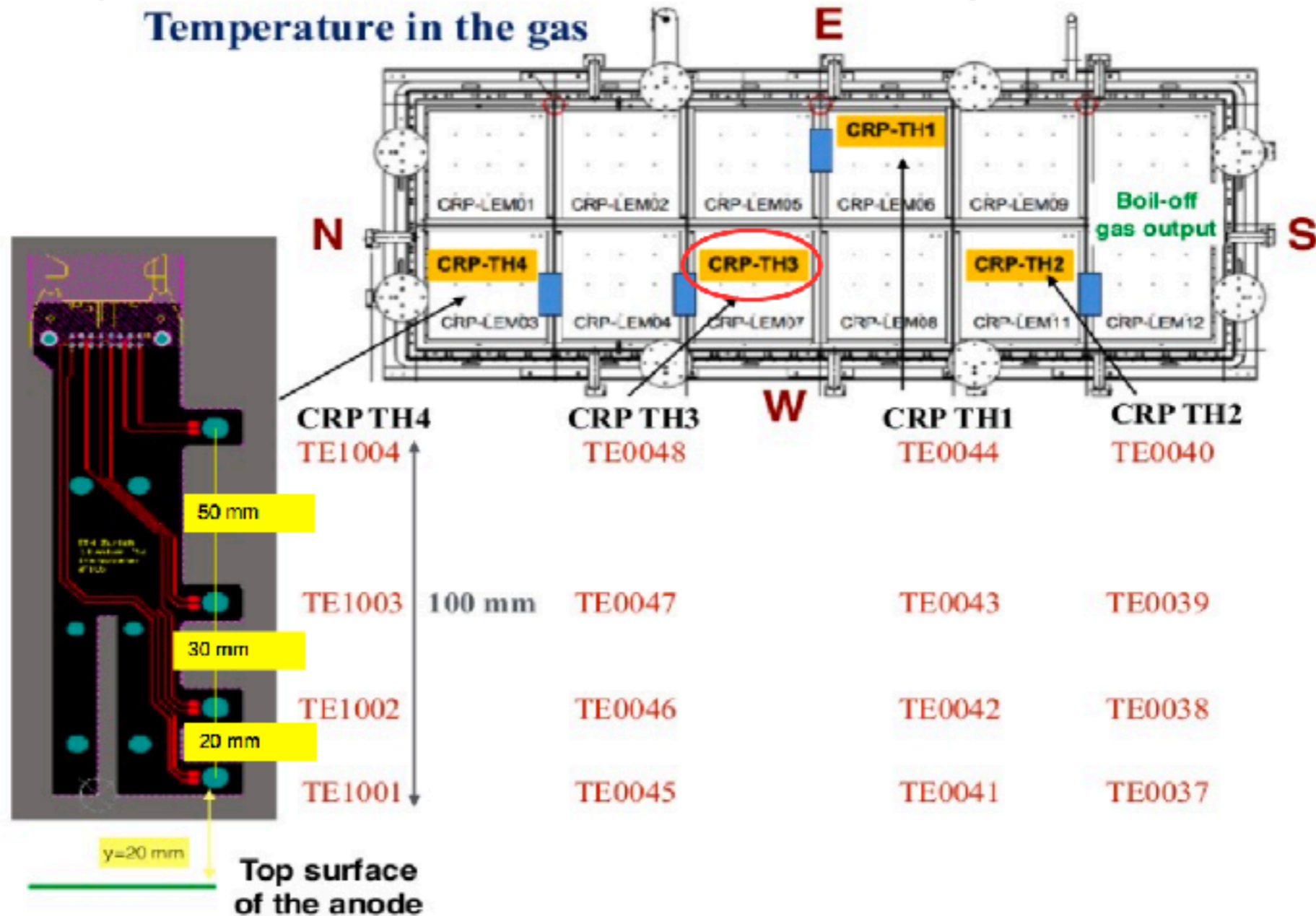
Levelmeters near CRP

CRP Levelmeters 09h Mon 25 September - 16h Mon 02 October

Temperature in GAr

- Temperature was up to **5 K** during the change of pressure
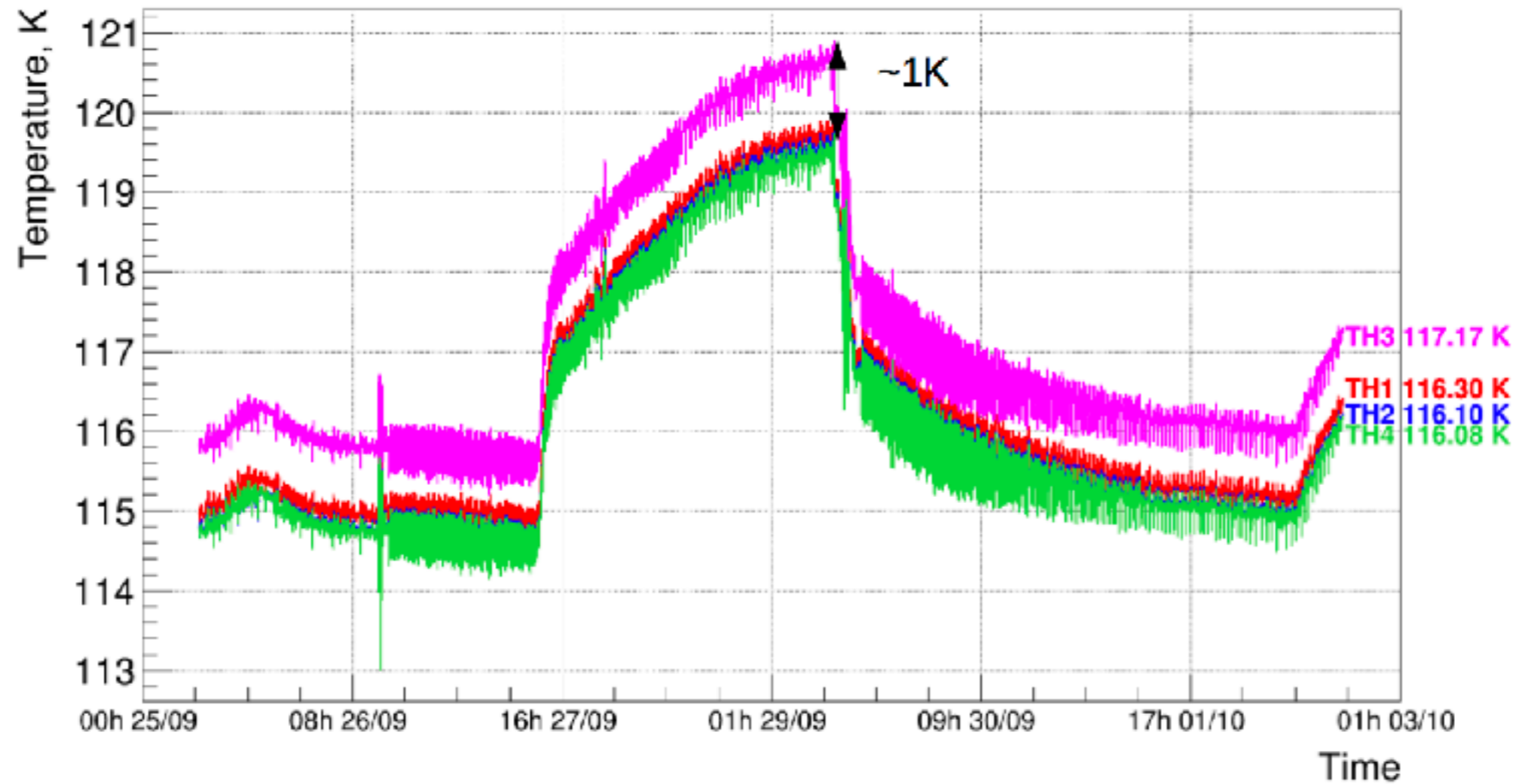- Temperature values at block **TH3** differs by 1 K from others

CRP TH4		CRP TH3	CRP TH1	CRP TH2
TE1004		TE0048	TE0044	TE0040
TE1003	100 mm	TE0047	TE0043	TE0039
TE1002		TE0046	TE0042	TE0038
TE1001		TE0045	TE0041	TE0037

Summary

Temperature in GAr

Temperature near CRP (20 mm) 09h Mon 25 September - 16h Mon 02 October

TH3 117.17 K
TH1 116.30 K
TH2 116.10 K
TH4 116.08 K

~1K

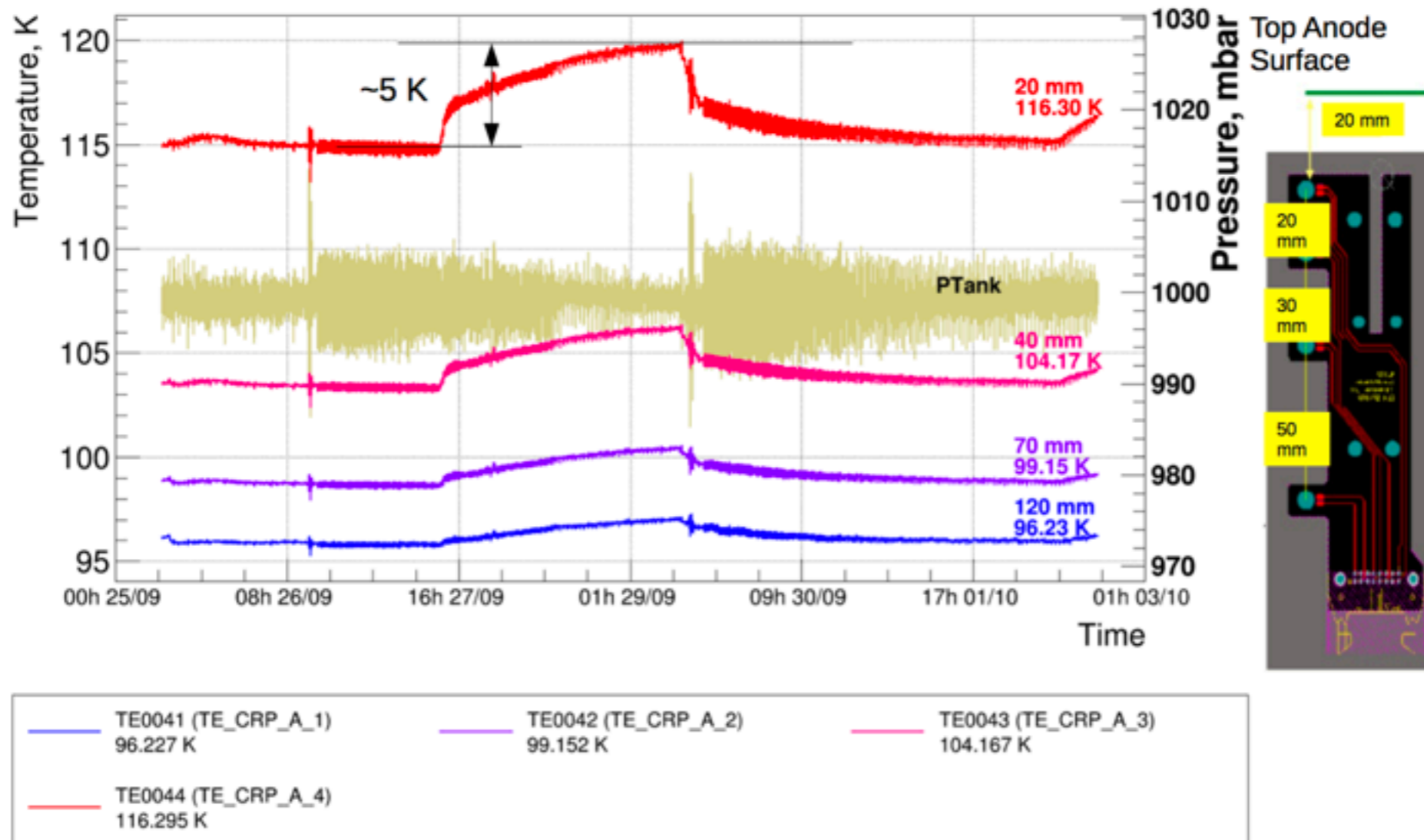|			
TE0044 (TE_CRP_A_4) 116.295 K		TE0040 (TE_CRP_B_4) 116.104 K	
TE0048 (TE_CRP_C_4) 117.174 K		TE1004 (TE_CRP_D_4) 116.079 K	

Temperature in GAr - TH1

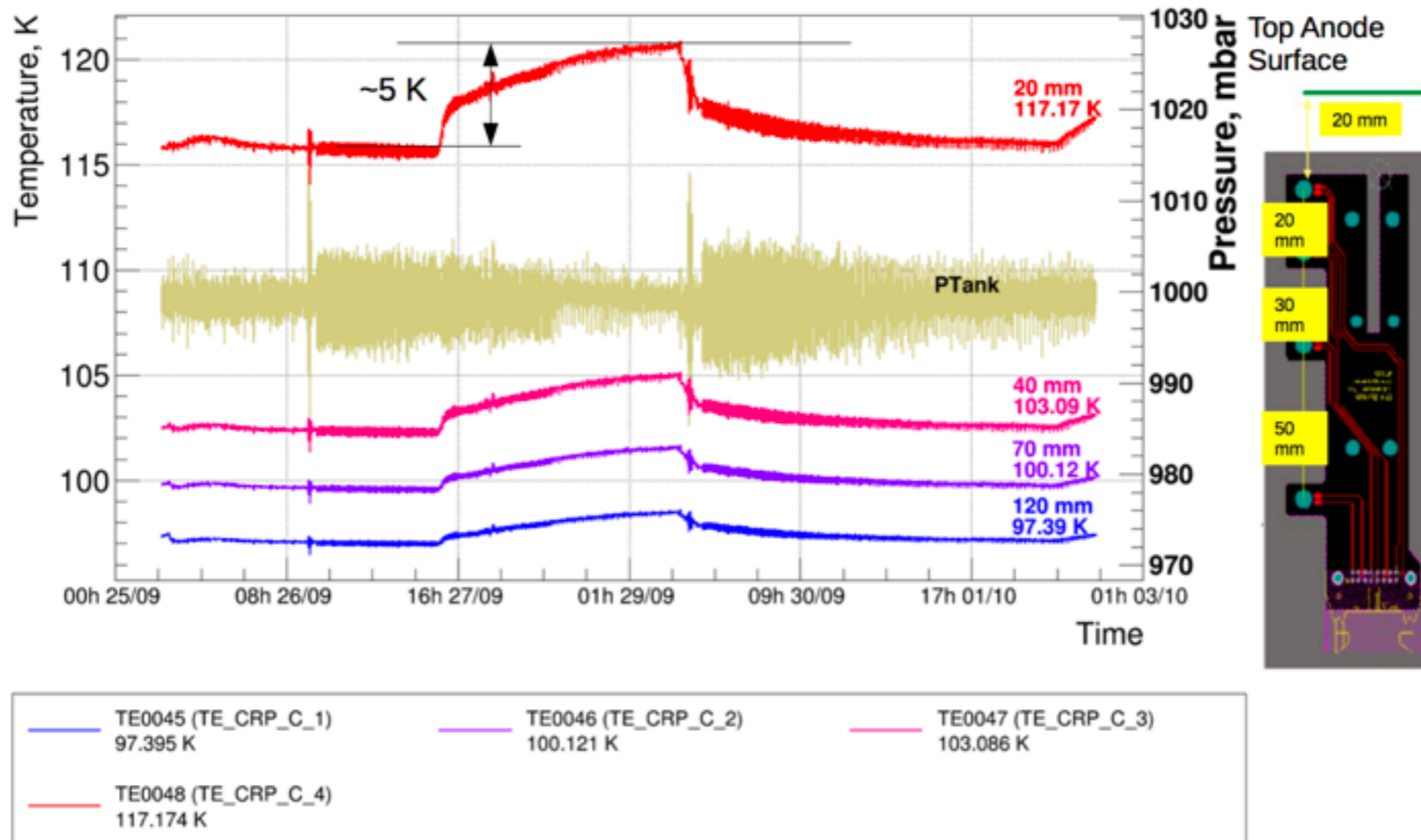CRP Temperature CRP-TH1 09h Mon 25 September - 16h Mon 02 October
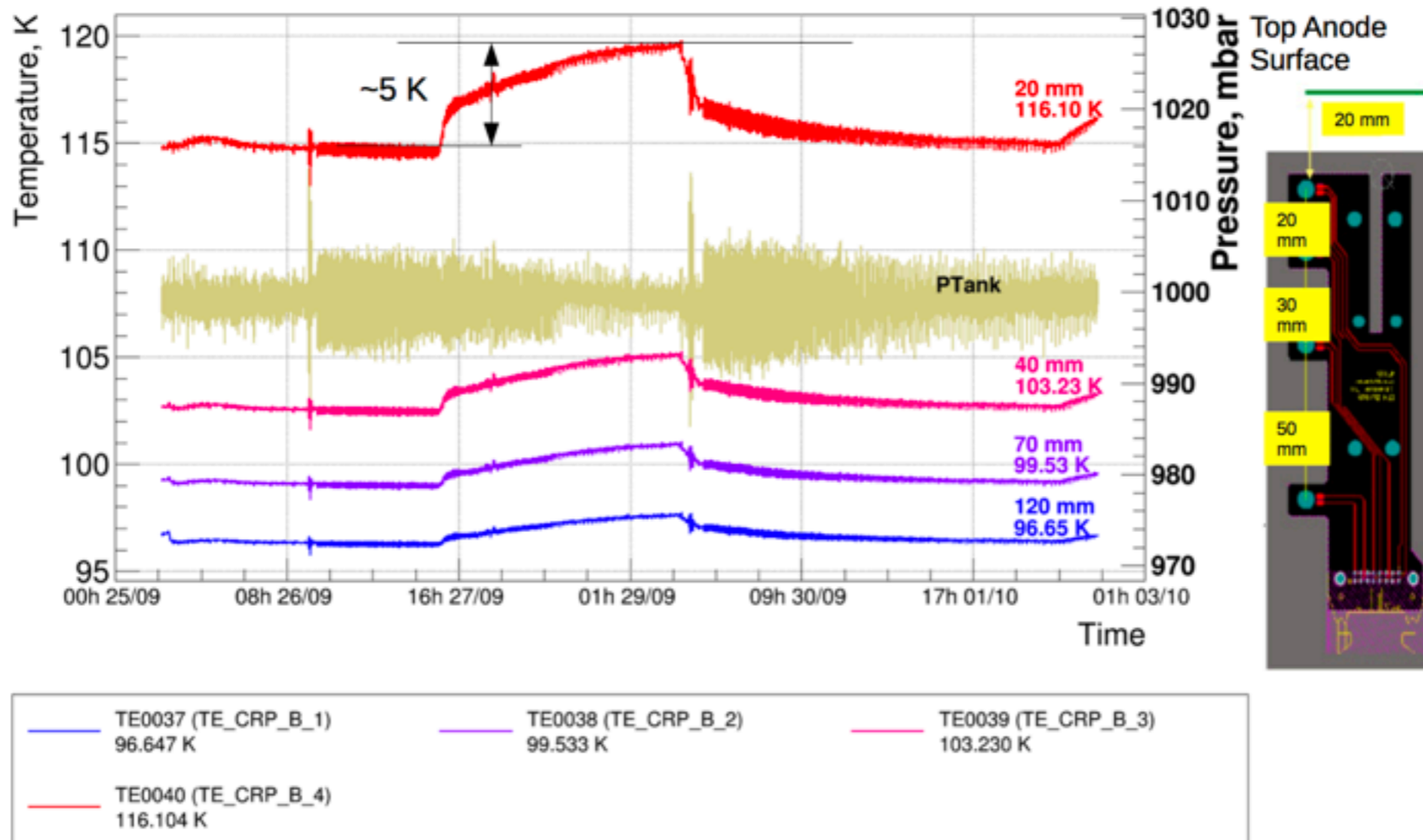
Temperature in GAr - TH2

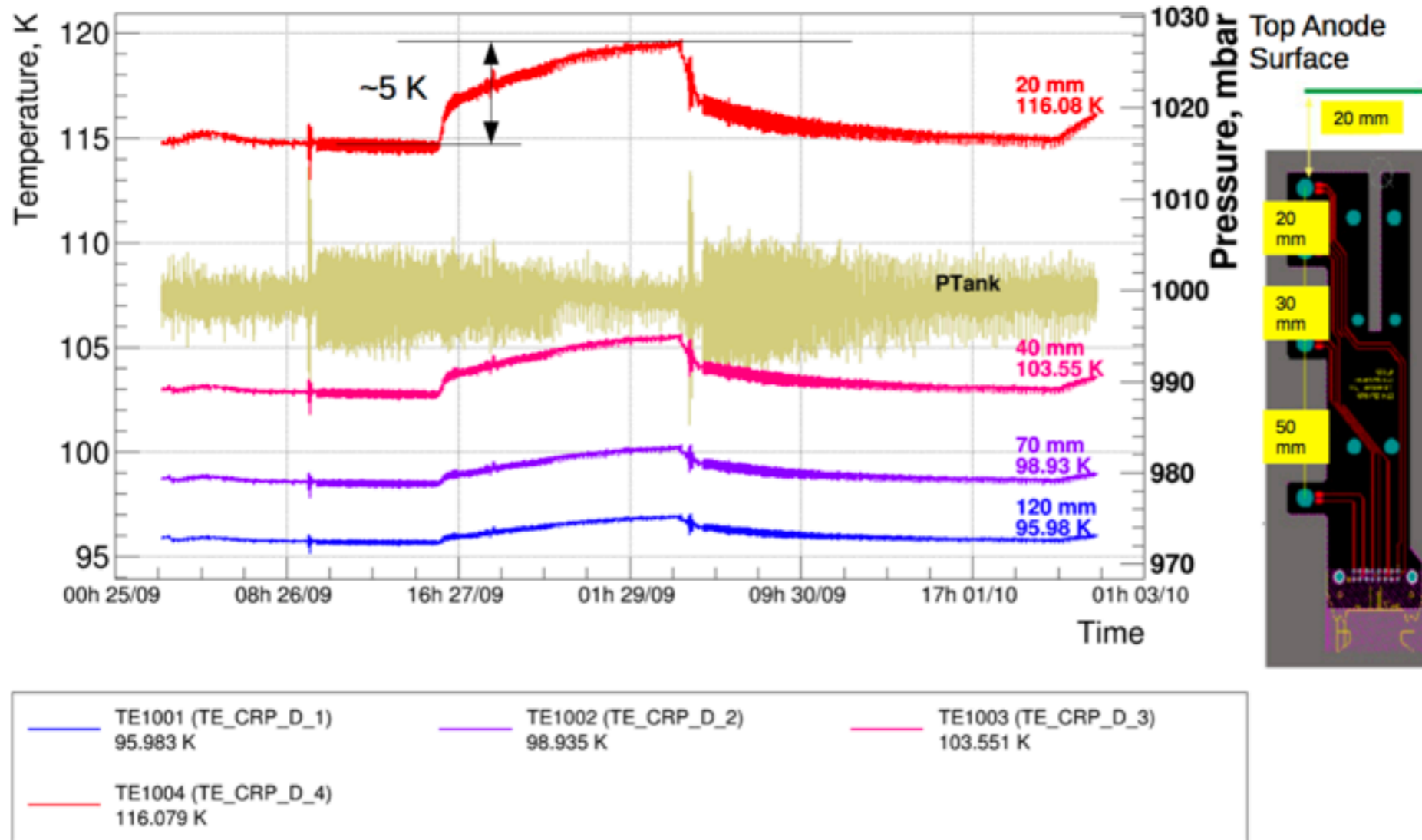CRP Temperature CRP-TH2 09h Mon 25 September - 16h Mon 02 October

Temperature in GAr - TH3

CRP Temperature CRP-TH3 09h Mon 25 September - 16h Mon 02 October

Temperature in GAr - TH4

CRP Temperature CRP-TH4 09h Mon 25 September - 16h Mon 02 October

Temperature in GAr

Temperature Ribbon Chain in Field Cage 09h Mon 25 September - 16h Mon 02 October