

PITZ Run Coordination Meeting

24.10.2013

Week 42

Conditioning Step	1	2	3	4	5	6	7	8	9	10
Rep.Rate (Hz)	5	5	5	5	10	10	10	10	10	10
RF pulse length (usec)	0/10\0	0/20\0	15/50\10*	15/100\10	0/10\0	15/50\10	15/100\10	15/200\10	15/400\10	15/650\10
Max.peak power (MW)	6.5*(5.5)	6.2	6.3	6.3	6.5*(6.4)	6.5	6.5	6.5	6.5	6.5
Reached on	11.10.13N	12.10.13A	15.10.13M	18.10.13A	19.10.13M	19.10.13M	20.10.13M			



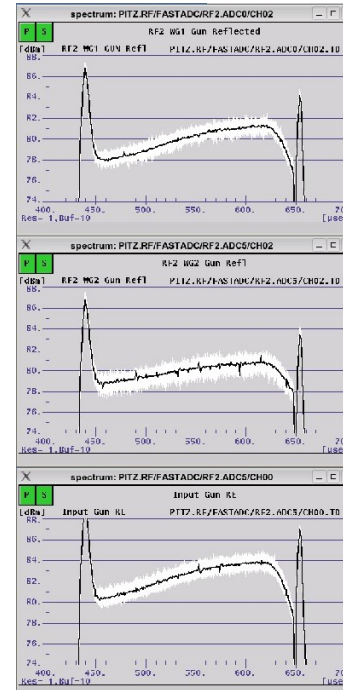
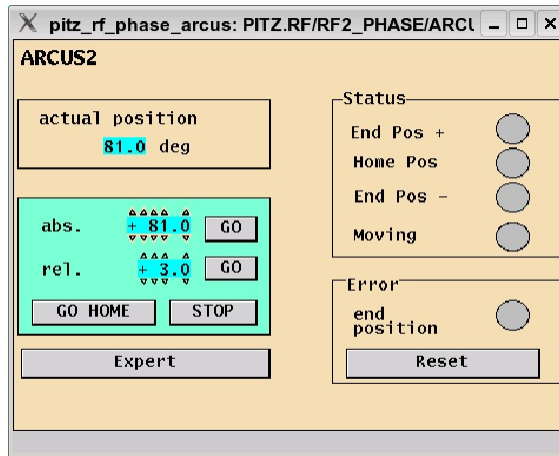
INB:

- While gun trip → back to 10us, SPT, margins
- Investigate ILs
- Margins for RF measurements
- E-detector – vacuum correlation
- 0.2MW/15min step
- Fire TSPs if needed

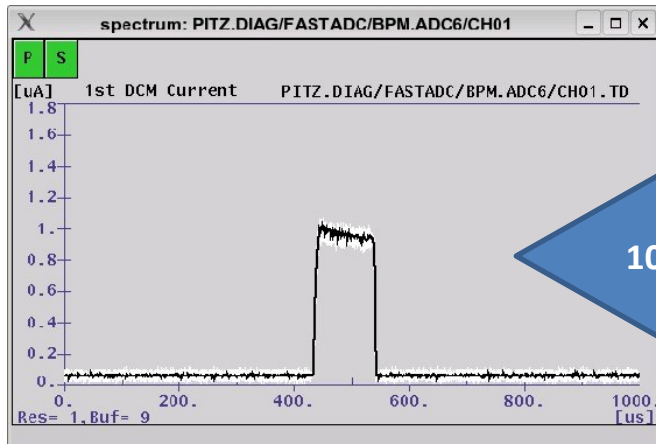
Week 42	Mon Oct-14	Tue Oct-15	Wed Oct-16	Thu Oct-17	Fri Oct-18	Sat Oct-19	Sun Oct-20	Week 43			
Morn. 7:00 to 15:30	Stephan Pathak	Stephan Pathak	Stephan Nozdrin	Shutdown works		Stephan Nozdrin	Stephan Nozdrin	Morn. 7:00 to 15:30	Kourkafas Pathak	Kourkafas Pathak	
Late 15:00 to 23:30	Otevre Kalantaryan	Otevre Kalantaryan	Otevre Kalantaryan			Otevre Kalantaryan	Otevre Kalantaryan	Otevre Kalantaryan	Late 15:00 to 23:30	Krasilnikov Prach B.	Krasilnikov Prach B.
Night 23:00 to 7:30	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning			Automatic Conditioning	Automatic Conditioning	Automatic Conditioning	Night 23:00 to 7:30	Automatic Conditioning	Automatic Conditioning

Week 42: Conditioning

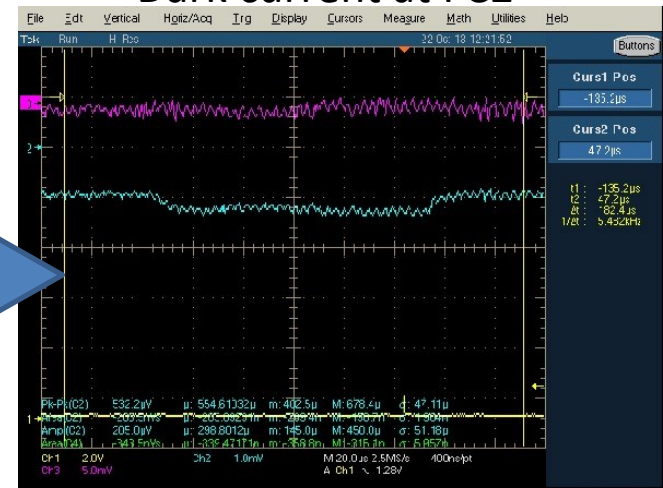
22.10.2013M: Phase shifter adjusted to 81 deg



DCM1 signal



Dark current at FC2



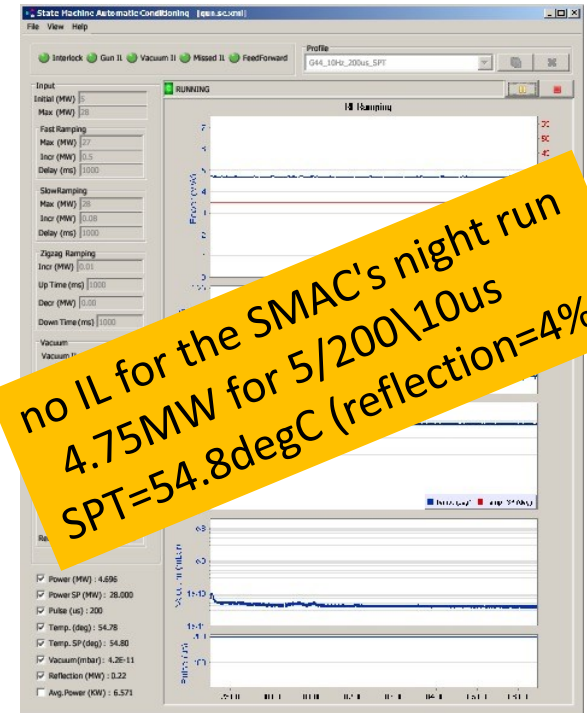
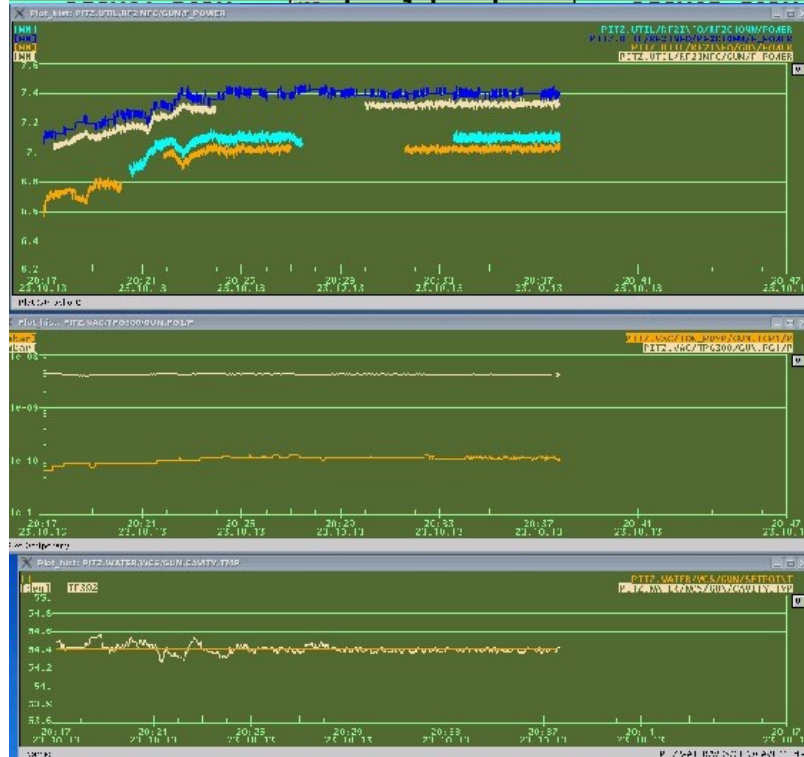
100us and 6.5MW in the gun

Week 42: Conditioning

23.10.2013M: Trials with higher peak power for short rf pulses

RF pulse length (us)	HV (kV)	SPPforw	SPT (degC)	peak power in gun (MW)	forward peak power (MW)	Reflection (%)	DCM1 (uA)	Comment
15/10\10	9.5	57	54	6.8	7	2.6-3	2	saturation
15/20\10	9.5	57-60	54.1	6.9	7.1	3	2.1	saturation
15/50\10	9.7	50	54.4	7.1	7.4	4.1	2.1	in progress

GUN		code	
no error		0	
forward power[MW]	7.388 MW	gradient[MW/n]	62.833
reflected power[MW]	0.282 MW	slope[dBm/nsec]	19.364
power[MW]	7.106 MW	reflection[%]	38.126



no IL for the SMAC's night run
 4.75MW for 5/200\10us
 SPT=54.8degC (reflection=4%)

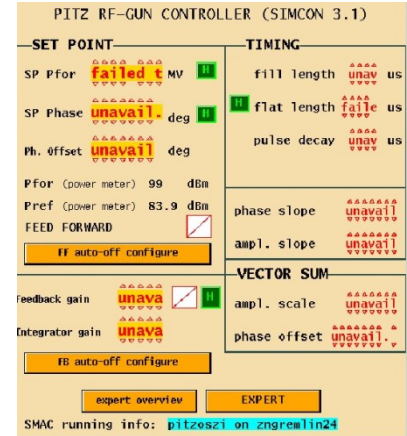
6.4MW in the cavity for 200us RF pulses

no channels	
forward power[MW]	6.604 MW
reflected power[MW]	0.200 MW
power[MW]	6.404 MW

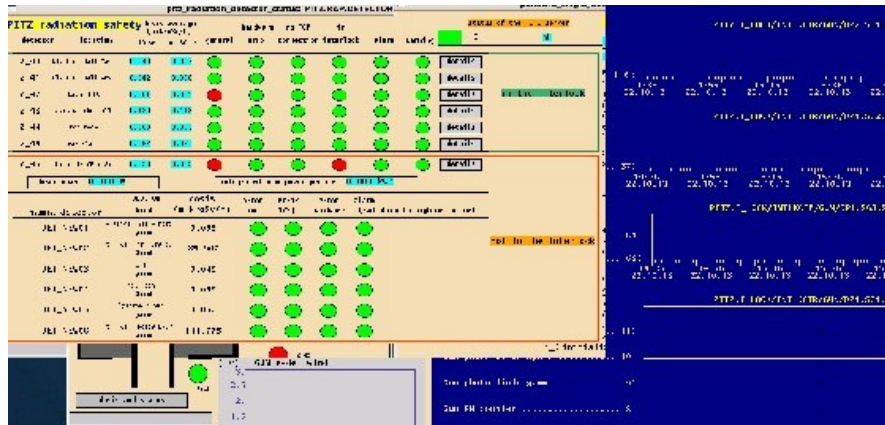
Week 41: Problems and observations

- RF 10MW directional coupler forward power measurements → no “long-term” jumps observed
- Vmepitz22 problems on the night 22-23.10.2013

Comment from RF expert: Please, never reboot / turn off the machines vmepitz22 and vmepitz20 without talking to one of the RF crew. Rebooting causes loss of firmware inside fpga and some settings have to be restored manually to get the rf control up again.

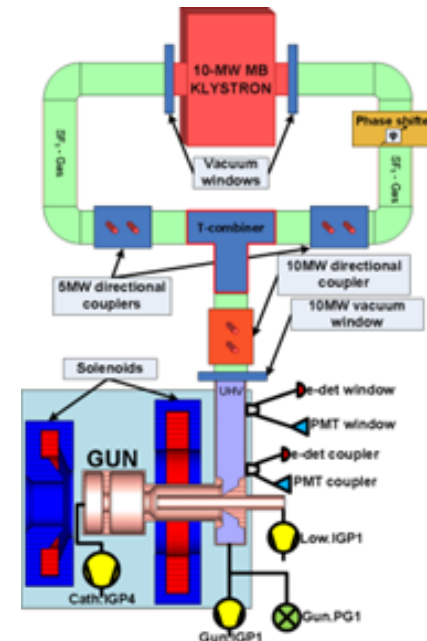
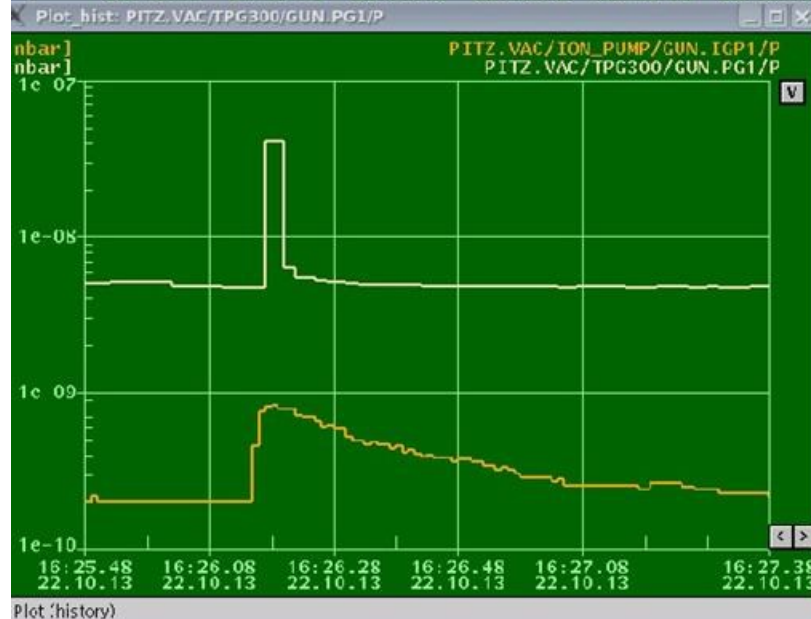
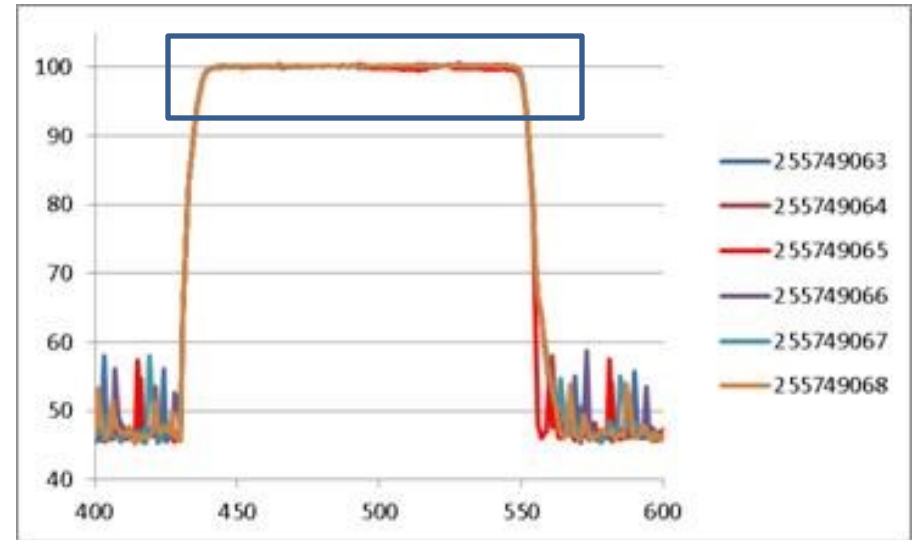
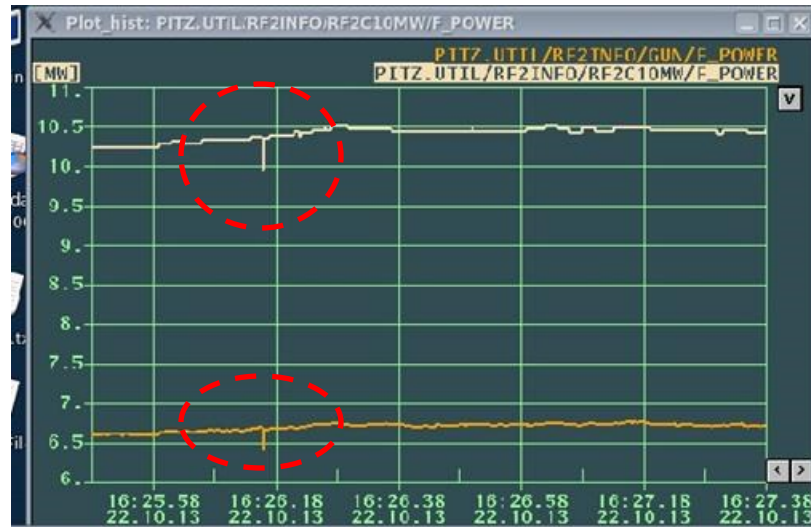


- LOW.V1 position is unknown → fixed
- Dark current measurements not possible → fixed for DCM1 and LOW.FC2 (LOW.FC1 on-going)
- Water history updating in DOOCS does not work → ???
- radiation alarm Z_42 (He3 error --> too small radiation level?)



Investigations on the power drop on 22.10.2013 at 16:26:15

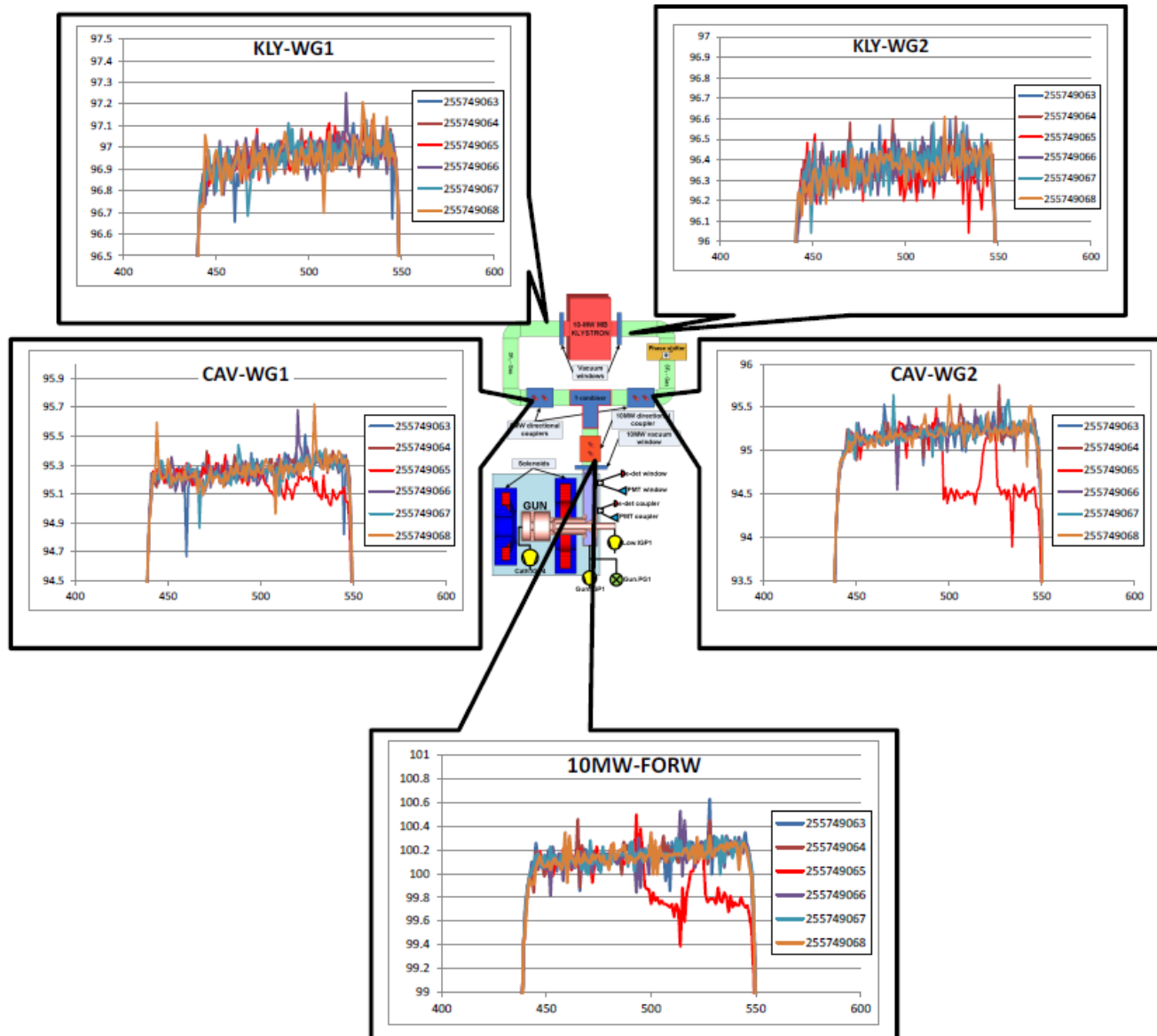
HV=9.3kV, 15/100\10us RF pulse length, SPPforw=50.1 (forward power according 5MW-server ~6.5MW), gun at resonance (SPT=54.2degC), reflection ~2.5-3%



Investigations on the power drop on 22.10.2013 at 16:26:15

Forward power signals

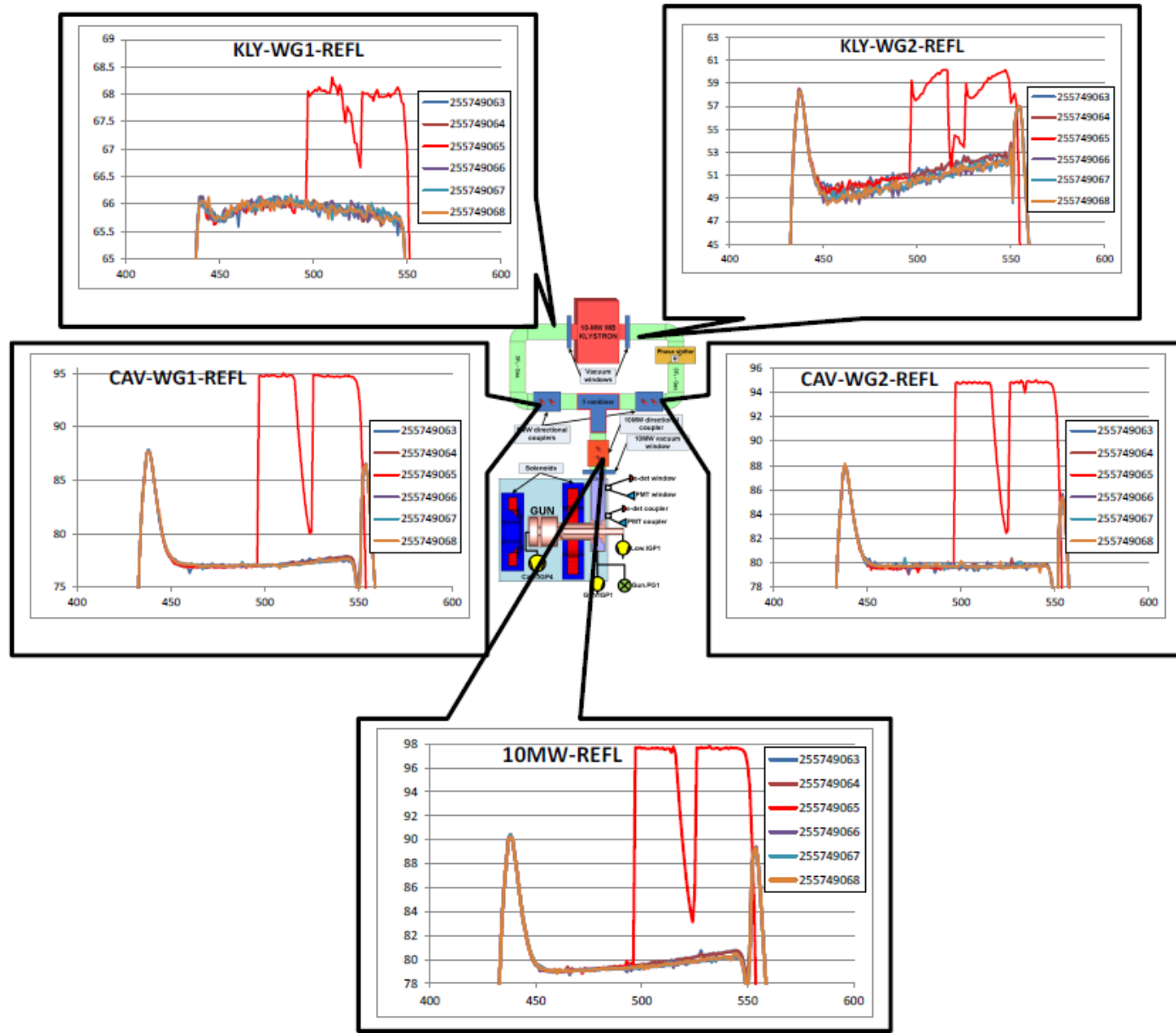
Event 255749065



Investigations on the power drop on 22.10.2013 at 16:26:15

Reflected power signals

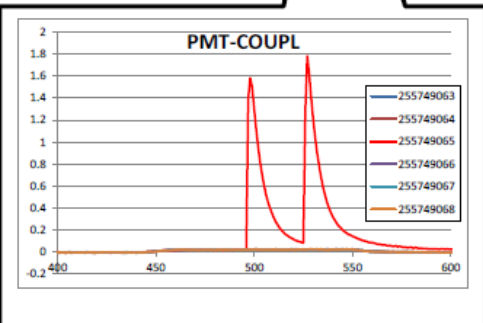
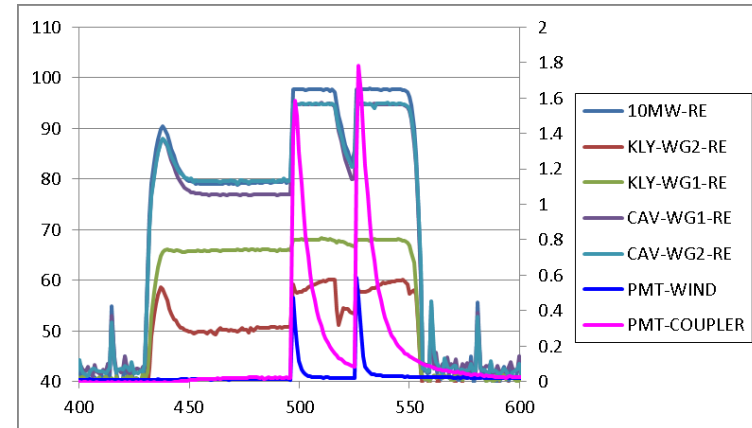
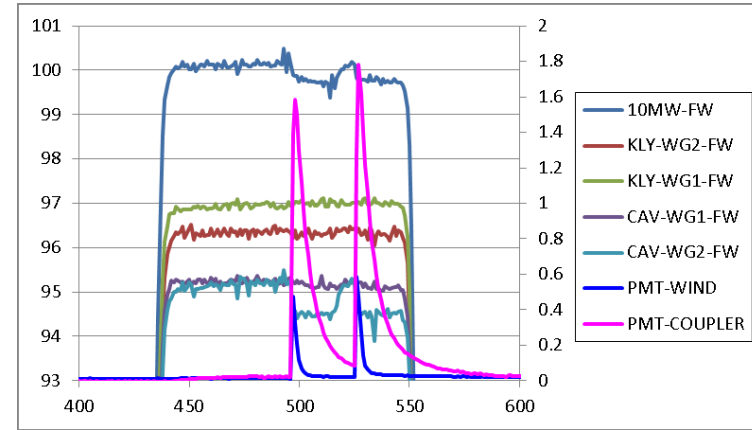
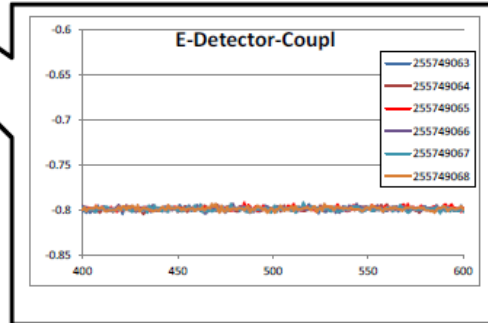
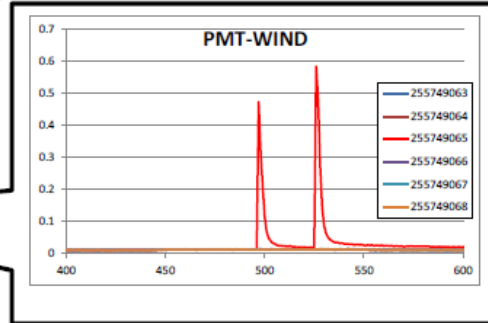
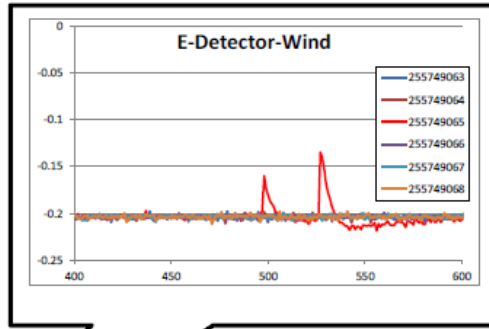
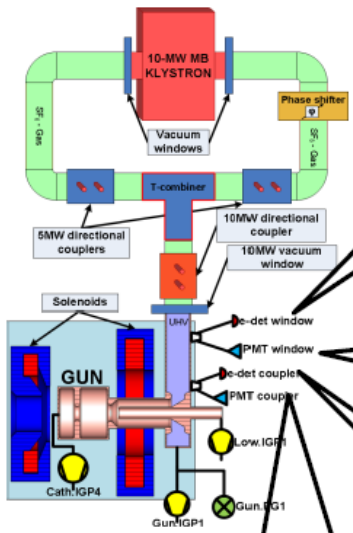
Event 255749065





IL signals

Event 255749065



Conclusion:

Short ("single-event") drops in measured power are very probably connected with vacuum and IL activities around the T-combiner. The IL signals are well correlated with distortion of RF signals measured around the T-combiner.

Plans

Conditioning Step			5	6	7	8	9	10
Rep.Rate (Hz)			10	10	10	10	10	10
RF pulse length (usec)			0/10\0	15/50\10	15/100\10	15/200\10	15/400\10	15/650\10
Max.peak power (MW)			6.5*(6.4)	6.5	6.5	6.5	6.5	6.5
Reached on			19.10.13M	19.10.13M	20.10.13M			

+Solenoid



!NB:

- While gun trip → back to 10us, SPT, margins
- Investigate ILs
- Margins for RF measurements
- E-detector – vacuum correlation
- 0.2MW/15min step
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RF pulse length (us)	HV (kV)	SPPforw	SPT (degC)	peak power in gun (MW)	forward peak power (MW)	Reflection (%)	DCM1 (uA)	Comment
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15/50\10	9.7	50	54.4	7.1	7.4	4.1	2.1	in progress

Week 43	Thu Oct-24	Fri Oct-25	Sat Oct-26	Sun Oct-27
Morn. 7:00 to 15:30	Gross Marchetti	Gross Marchetti	Gross Marchetti	Gross Marchetti
Late 15:00 to 23:30	Krasilnikov Prach B.	Krasilnikov Prach B.	Krasilnikov Prach B.	Krasilnikov Prach B.
Night 23:00 to 7:30	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning
	Krasilnikov	Krasilnikov	Krasilnikov	Krasilnikov

Week 44	Mon Oct-28	Tue Oct-29	Wed Oct-30	Thu Oct-31	Fri Nov-01
Morn. 7:00 to 15:30	Kourkafas Rublack	Kourkafas Rublack	Kourkafas Rublack	Kourkafas Rublack	Kourkafas Rublack
Late 15:00 to 23:30	Khojoyan Nozdrin	Khojoyan Nozdrin	Khojoyan Nozdrin	Khojoyan Nozdrin	Khojoyan Nozdrin
Night 23:00 to 7:30	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning	Automatic Conditioning
Resp. Phys	Khojoyan	Khojoyan	Khojoyan	Khojoyan	Khojoyan