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BG 64 kHz

23:22 #9646 pedestal
#9647 LED gain calib. w/o BG
#9648 LED gain calib with BG BG rate 64 kHz
HV error @ 0-1-9 ⇒Junk
#9649 same as #9648
HV error @ 0-0-9 ⇒Junk
#9650 same as #9648
HV error @ 0-1-9, 0-7-6 ⇒Junk
#9651 same as #9648
#9652 BG LED monitor : 200Hz
Qsum ~ 1.8×10^5

23:55 #9653 ⇒Junk
Connection broken to LPframework

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00:00 #9654

00:04 Circulation pump off

8:15 circulation pump started
HV error @ 0-0-9

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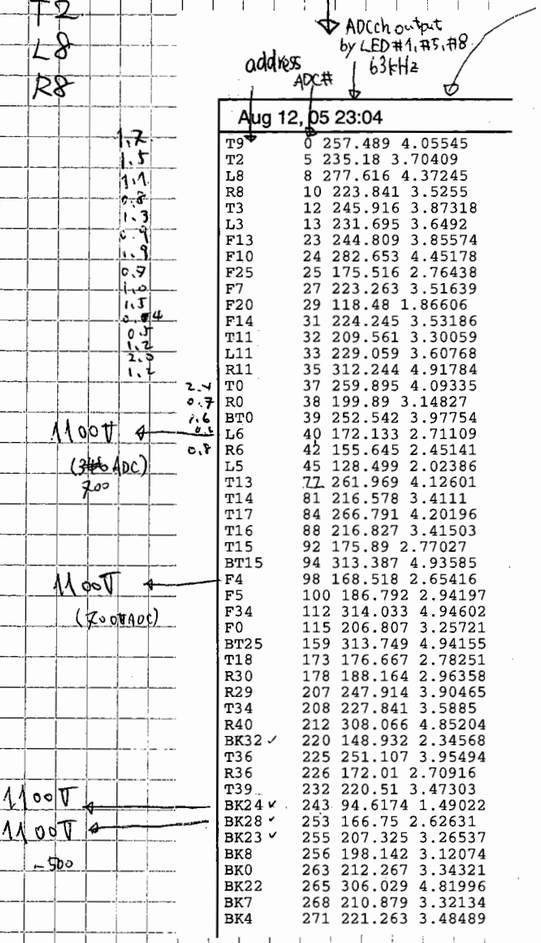
15:00 During rate dependence test,
almost all HV is set to 800V,
and there were ~60 PMTs which maximum current
is less than 5μA. We want to test 1μA~10μA region.
So, for ~50 PMTs, HV values to 1000V is set.

T9
T2
L8
R8

PMTs badlist



this will be 8 times larger
when HV is 1000V.

15:20

HV #0-5-7, #0-7-11, #0-13-3
↓
+13
+950V

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15:30 #9655 pedestal

#9656 LED #1, #5, #8

Background monitor

(LED #2, #6 disconnected)

→ trigger setting was wrong. Junk.

15:40 #9657 LED #1, #5, #8

Background LED monitor.

L6, F4, BK24, BK28 were low ADC counts.

→ 1100V

15:50 #9658 LED #1, #5, #8

Background LED monitor

T13 → 1000V → 950V

Several times hv error.

修:

16:03 #9660 LED #1, #5, #8

BG LED mon. ~ 10K events

LED BG 1kHz

16:11 #9661 const LED run without B.G.

LED (#2, #6) = (60, 71)

Qsum ~ 95000

16:13 #9662 const LED run with 1kHz LED B.G

16:18 #9664 pedestal with B.G.

LED BG 2kHz

16:20 #9665 BG monitor run

LED (#1, #5, #8)

Ⓡ Ⓛ Ⓣ

16:24 #9666 pedestal w/o B.G.

16:26 #9667 LED (#2, #6) const w/o. B.G. Qsum ~ 200000

16:30 #9668 LED (#2, #6) const with 2kHz B.G.

HV error #0-15-2

BK32

16:34 #9669 pedestal with 2kHz B.G.

16:36 #9670 BG monitor run ... forgot to disconnect #2, #6 30000 junk.

#9671 BG monitor run.

LED BG 4kHz

#9673 pedestal w/o BG

16:42 #9674 LED const (#2, #6) w/o BG

LED const (#2, #6) with 4kHz BG

HV error #0-0-11

#0-4-X

We changed HV 800V → 1000V, but these bad channels ~~gain~~ gain was not small. We should not go up HV value, but LED setting.

Now all bad channels set to 800V

other PMTs HV off.

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17:25 #9676 pedestal w/o B.G.

17:45 #9677 LED (#1, #5, #8) (71, 73, 83)
↓
BG monitor (76, 77, 87) Qsum. ~ 80000

ADC #40, L6 → 800V → ~~1100~~ 1100V (low gain)
#98, F4 → 800V → 1100V (")
#243 BK24 - 800V → 1100V (")
#253 BK28 800V → 1100V (")

1kHz LED run

17:50 #9678 const LED (#2, #6) w/o B.G Qsum ~ 12000
17:52 #9679 " with 1kHz B.G ~ 12000
17:54 #9680 pedestal with B.G.

17:56 #9681 LED BG monitor.

2kHz LED run

17:58 #9682 pedestal w/o. B.G.
18:00 #9683 LED const w/o BG
18:02 #9684 LED const with 2kHz B.G
18:05 #9685 pedestal with "

18:07 #9686 LED BG. monitor

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4kHz LED run

18:10 #9687 pedestal w/o B.G
18:11. #9688 LED const w/o B.G
18:13. #9689 LED const with 4kHz BG.
18:15 #9690 pedestal with B.G.

18:17 #9691 LED BG monitor

8kHz LED run

18:19 #9692 pedestal w/o B.G.
18:21 #9693 LED const w/o BG
18:23 #9694 LED const with 8kHz
18:25 #9695 pedestal with B.G.

18:27 #9696 LED BG monitor

16kHz LED run

18:29 #9697 pedestal w/o BG.
18:30 #9698 LED const w/o B.G.
18:33. #9699 " with 16kHz
18:35 #9700 pedestal with " B.G

18:38 #9701. LED BG monitor

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24 kHz LED run

18:40	#9702	pedestal w/o B.G
18:41	#9703	LED const w/o B.G.
18:43	#9704	LED const with BG 24 kHz
18:46	#9705	pedestal with BG.
	HV	#0-3-2 error
18:48	#9706	LED BG monitor

32 kHz LED run

18:50	#9707	pedestal w/o B.G
18:52	#9708	LED const w/o B.G
18:55	#9709	LED const with 32 kHz
18:57	#9710	pedestal with B.G.
18:59	#9712	LED BG monitor

48kHz LED run

19:02	#9713	pedestal w/o B.G
19:04	#9714	LED w/o B.G
19:06	#9715	LED const with 48 kHz BG
19:08	#9716	pedestal with B.G.
19:10	#9717	LED BG monitor

64 kHz LED run

19:15	#9718	pedestal w/o B.G.	megonln 01 Kernel Panic restarted.
19:17	#9720	LED const w/o B.G.	
19:37	#9721	LED const w/ BG	
	HV error #0-4-1.		
19:40	#9722	pedestal with BG	
19:43	#9724	pedestal no BG,	
	#9725	LED (#2, #6) with (59, 68, step 1) as first step.	

Rate dependence test finished //

HV setting to 10^6 gain. by using "050808_5.hv"
and manually for CAEN HV by using "050805_7.hv"

20:00	#9726	pedestal @ 10^6 gain
20:05	#9727	LED (#2, #6) → (59, 68, step 1)
20:10	#9728	∝
20:15	#9729	∝
20:25	#9730	CR

20:30 circulation stop

20:53 0.110 MPa Inner pressure.

We will test to stop refrigerator operation. and see how long the inner pressure go up. when PMT HV is "ON".

- compressor stop.
  (rotary valve power should be turned down manually).
- heater around refrigerator off.

~~23:48 #9732 CR~~

23:57 HV01 Down
→ automatically recover

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00:24 #9732 CR ⇒ 9:38 (~~Aug.~~14) stopped

00:30 0.123 MPa Inner pressure

- compressor ON
  rotary valve power ON
- heater ON

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9:00 Xe recovery tank weight. 513.08 kg

(Now, this is empty.)

→ 250ℓ tank cooling start

9:45 #9733 pedestal
#9734 LED
#9735 alpha
#9736 alpha

10:00 All hv off for xenon recovering

400ℓ tank
300ℓ left
LN2

Waveform Data Taking with Oscilloscope

- Using oscilloscope (TDS 5104), we take waveform of Xe signal (Cosmic ray or Environmental gamma). 1channel
- Self-trigger → Threshold −1.0 V
- PMT F10 (#15) – ADC 24 – splitter 0-3-1
- Use LabVIEW VI for data acquisition (multiGetWaveform.vi)

C:\Document and Settings\muegamma\waveform

waveform.dat ⇒ before splitter ~3000 events

waveform2.dat ⇒ after splitter 992 events

waveform3.dat ⇒ input of ADC (after Delay cable) 1115 events

Threshold −500 mV

0–880 events vertical ~~range~~ div 1 V

681–1115 events " 500mV

horizontal window 40ns × 10div
record length 2000 samples

15:45 Xe recovery started.

- Refregerater OFF
- Minco heater ON
- HV OFF OV filled with 0.5 atm N_2

16:00 400ℓ tank LN_2 filled.

- Notice

We need to take gas α data.

When SM bottom sensor ~~~~ becomes over the xenon liquid level
or the value of level meter becomes 0 (lower one),

Xenon recovery should be stopped and please change the operation mode
to refrigerator pressure control,
(0.17 MPa)
and stop the minco heater.

- Close the valve in front of 250ℓ tank
- stop the minco heater
- start refrigerator pressure control. and

don't forget to turn on the rotary value power.

- take α data. (HV should be turned on)
- after taking α data, don't forget to turn off HV.

xenon recovery restart →

- Inner volume pressure ~~~~ goes down, (~ 0.1 MPa)
  then evacuate outer vessel, and heater (bottom) control
- should be changed to temperature control.

- When xenon recovery finished,
  IV, OV will be filled with Nitrogen. ~ 1 atm.

21:00 400ℓ Lq.N_2 tank filled.

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4:43 SM bot: -84.7°C
lower level meter: 75%

- The temperature of 'SM bot' indicates temperature of GXe. 'SM bot' must be either 'SM mid' or 'SM top'. and gradually increases.

8:00 400ℓ LN_2 tank empty

6:20 400ℓ LN_2 tank filled

17:17 To read out flow meter, ~~~~ terminal connections were swapped @ yellow terminal.

SCS 520 35 ↔ 37

15:50 Xe recovering paused.
- lower level meter ~ 0.1
- Inner pressure ~ 0.148 MPa.

- Stop minco heater
- compressor ON (rotary valve also ON)
- Refrigirator control ON (pressure setting ~ 0.148 MPa)
- Close the valve of 250ℓ tank.

16:00
- HV ON by the file. "050808-5.hv"
  (10^6 gain setting).

Pressure setting 0.148 → 0.153 MPa

HV Error. ø-7-10 (L18.)
ø-12-10 (L37)

- temperature.

	SM bottom	HL up	HL down	Cold Head	Minco
	-75.02	-94.09	-93.72	-92.74	-103.05

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#9737

16:15 #9738 pedestal @ 10^6 gas xenon

16:26 #9739 LED @ 10^6

(#2, #6) = (59, 68, step1)

16:36 #9740 α @ 10^6 ~ 30K. 0.154 MPa.

HV error #0-0-9 (BT2)

16:44 #9741 α @ 10^6 0.154 MPa

16:51 #9742 α @ 10^6 0.155 MPa

16:57 #9743 α @ 10^6 0.155 MPa

17:07 #9744 α @ 10^6 0.155 MPa

17:12 #9745 α @ 10^6 0.155 MPa

17:20 #9746 α @ 10^6 0.156 MPa.

finish data taking. //

18:00 Xenon recovering restarted.

20:20 400ℓ LN_2 tank filled.

21:22 Peessure of LP. 0.1 MPa → START evacuating Outer ~~Ins~~ Insulation Layer.

21:54 Xe Recovery to half gallon tank START

22:10 250ℓ Xe tank valve closed.

0.011 MPa
−90°C
} Xe will be transferred to half gal. bottle.

Minco heater control → temperature mode → off.

23:50 0.004 MPa
−87.0 (HL TOP)
−84.01 (HL LOW)
} ⇒ Xe Recovery Finished!

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9:15 N_2 into IV ~ 1atm
OV ~ 0.8atm

File backup

- Source code, Etc... /afs/psi.ch/project/meg/2005_2
- Root files
  Midas files) ftp://meg@archiveftp/~/2005_2