Some Studies needed. March 21-27, 2001

1. Input the correct Fe source energy distribution. ✓
   - check input spectrum with 96-98 NRL TV data from Pablo. ✓
2. Analyze Boeing TV data to extract correct long tail amplifier pulse.
3. Run MC on Crab and Cyg X-1 simulated time-energy spectra.

Perfect Amplifier USA MC PSP Descending Cal. 3/23/01

NumPrimary = 3035180 NumSecondary = 355716
NumEscape = 125876
Area check: 1.9997337e-012 Length of Pulse = 10.0μs
NEVENTS = 3516772 count_deadtime = 191612
count_vetoed_dead = 50155 count_belowthreshold = 282
count_sametime = 14730
N_γ = 3225203, $N_\gamma H$ = 431615. $N_\gamma L$ = 339086.
Time series length = 805.3 seconds
Input rate = 4367 Cnt/sec. Detector rate = 4005 Cnt/sec,
Rate-Ch6 = 536 Cnt/sec. Rate-Ch4 = 421 Cnt/sec.

Perfect Amp Fit values
P1 +- DP1 = 1.7639079 +- 0.00097743892
P2 +- DP2 = -0.024563604 +- 0.0013823073
Chisq, CL = 78.631355 0.95848323
High channel Fit values
P1 +- DP1 = 1.9672515 +- 0.00097743892
P2 +- DP2 = -0.0035936617 +- 0.0013823073
High channel Chisq, CL = 108.52544 0.31067711
Low channel Fit values
P1L +- DP1L = 1.9765196 +- 0.00097743892
P2L +- DP2L = -0.0029527531 +- 0.0013823073
Low Channel Chisq, CL = 89.730146 0.80204948

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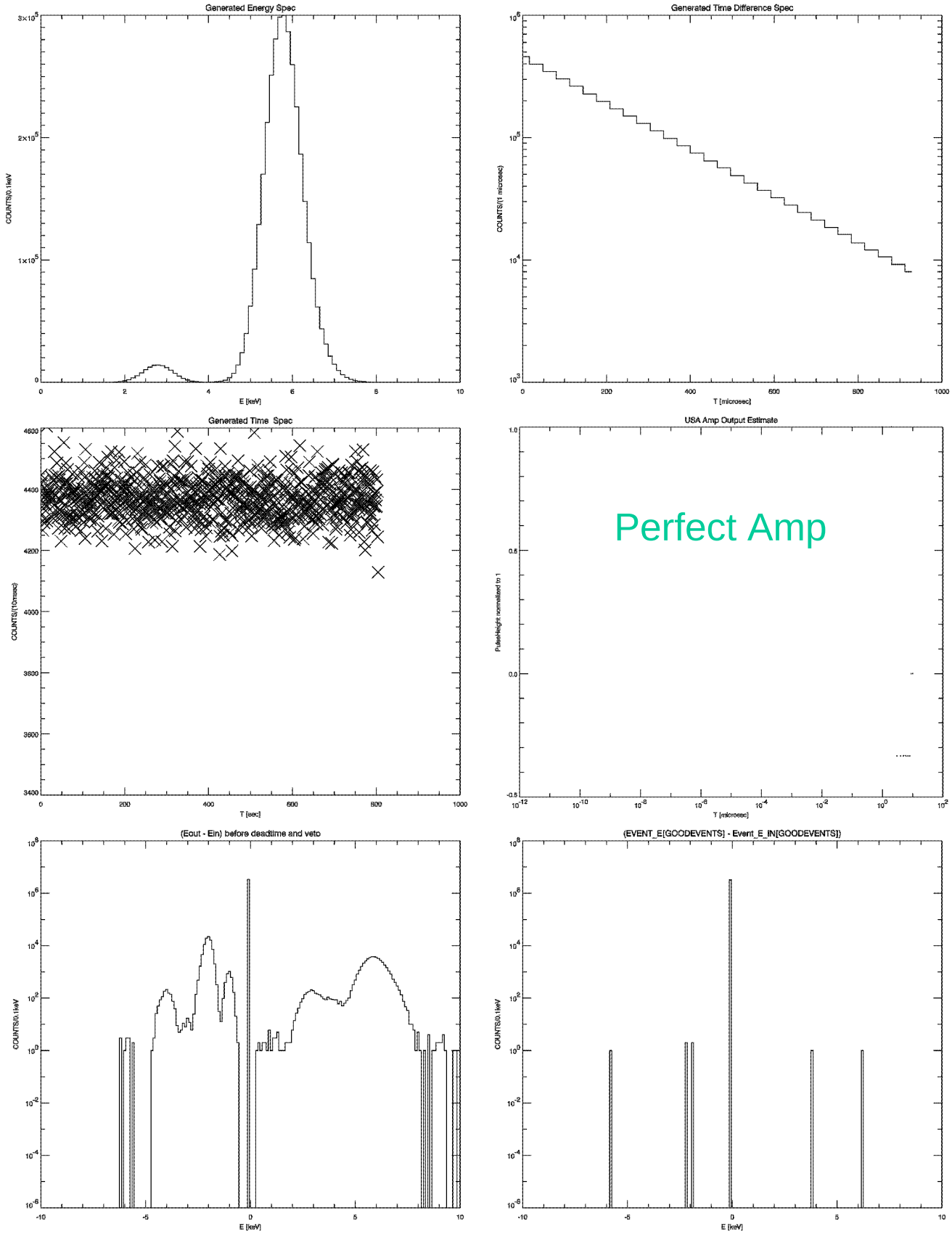

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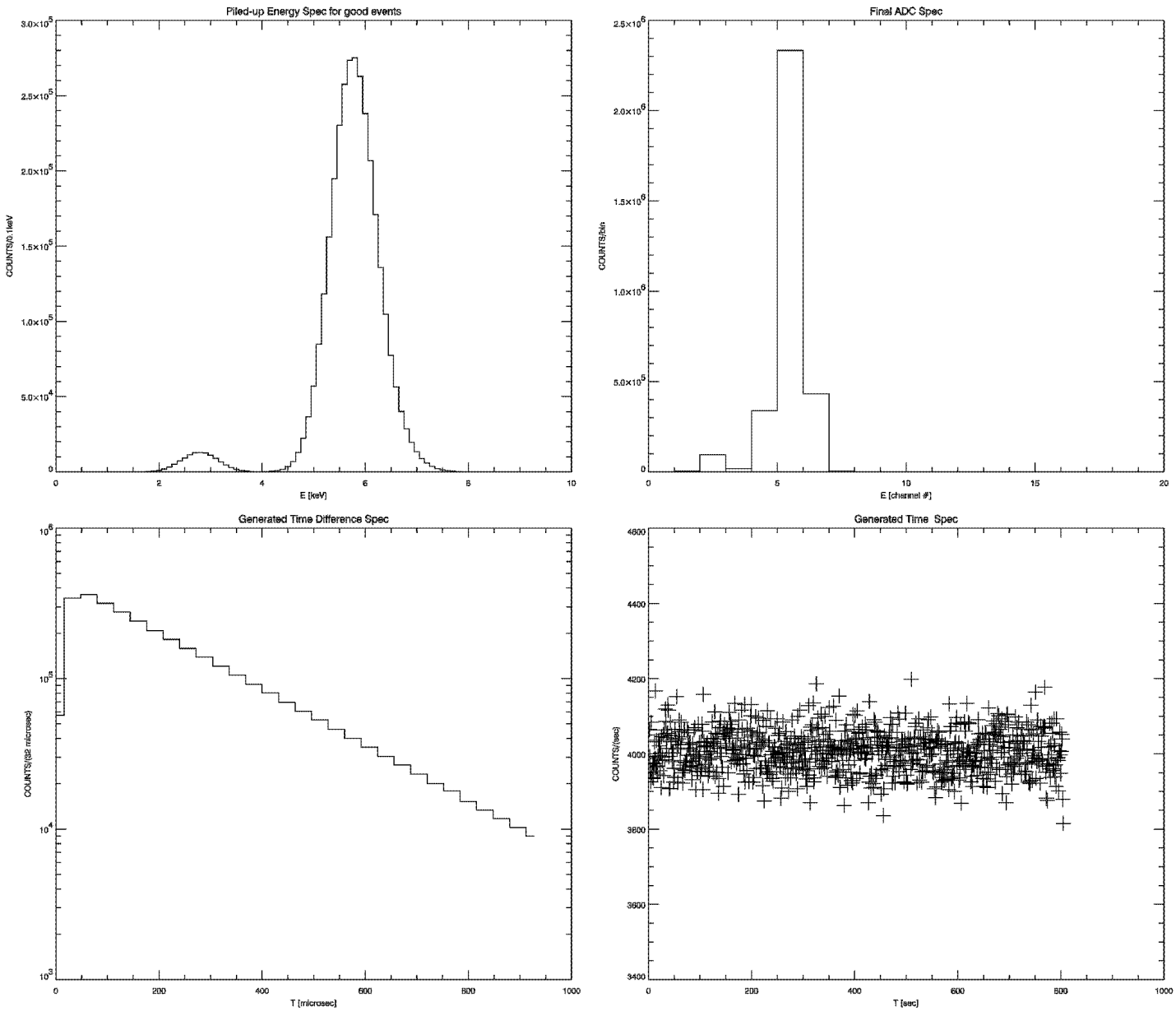
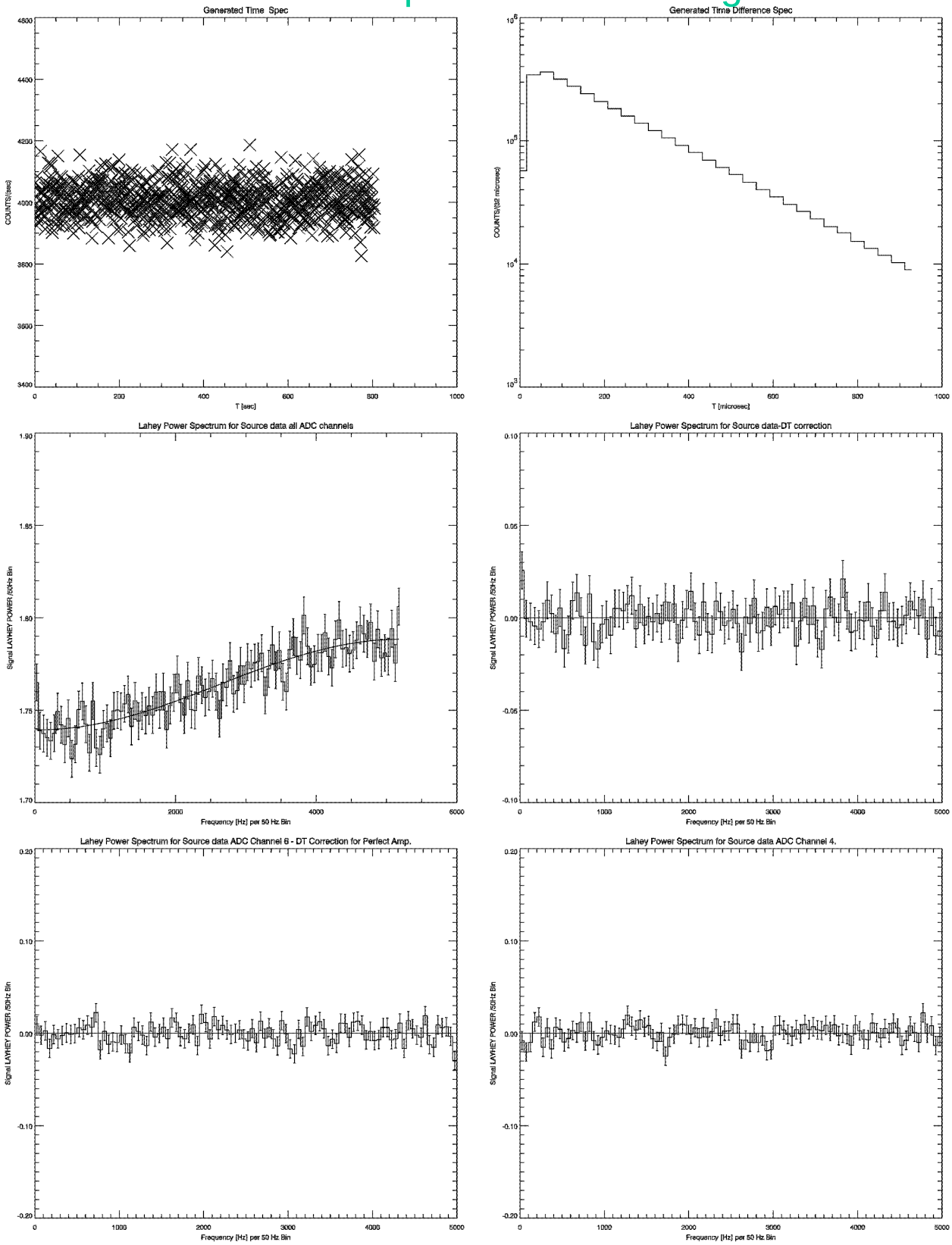
   - check input spectrum with 96 NRL TV data from Pablo.



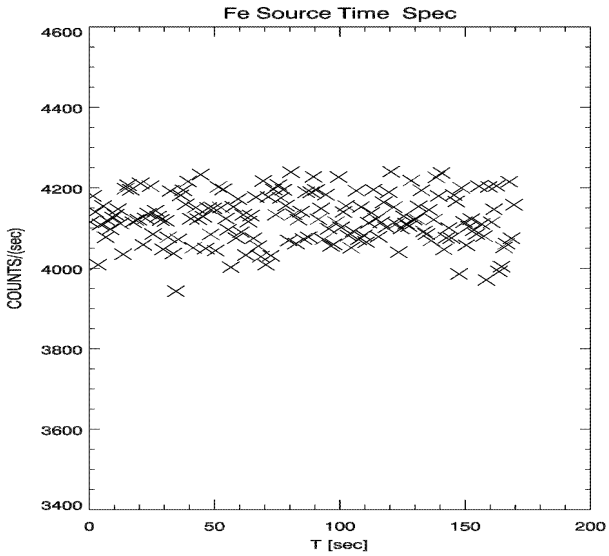
Perfect Amp
PSP Descending Cal

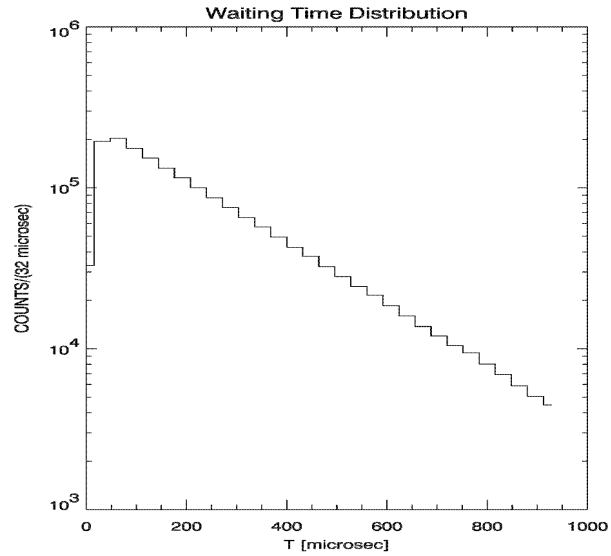
1. Input the correct Fe source energy distribution.
   - check input spectrum with 96 NRL TV data from Pablo.

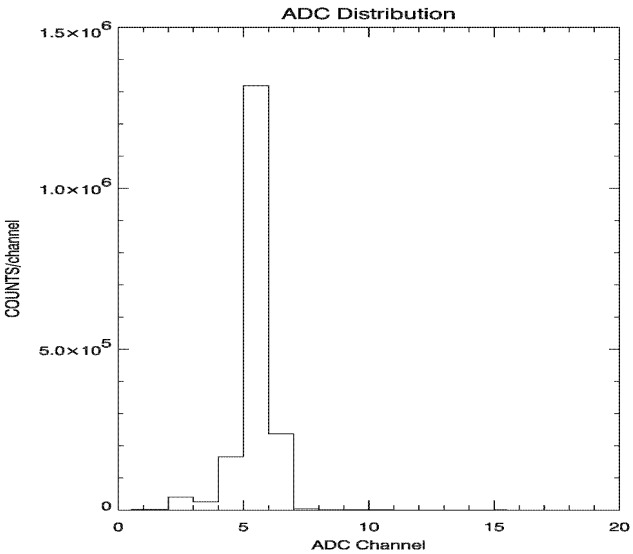
Perfect Amp PSP Descending Cal



Thermal Vacuum Data, USA_2_Y1997_D246_084750_D246_085807.filt



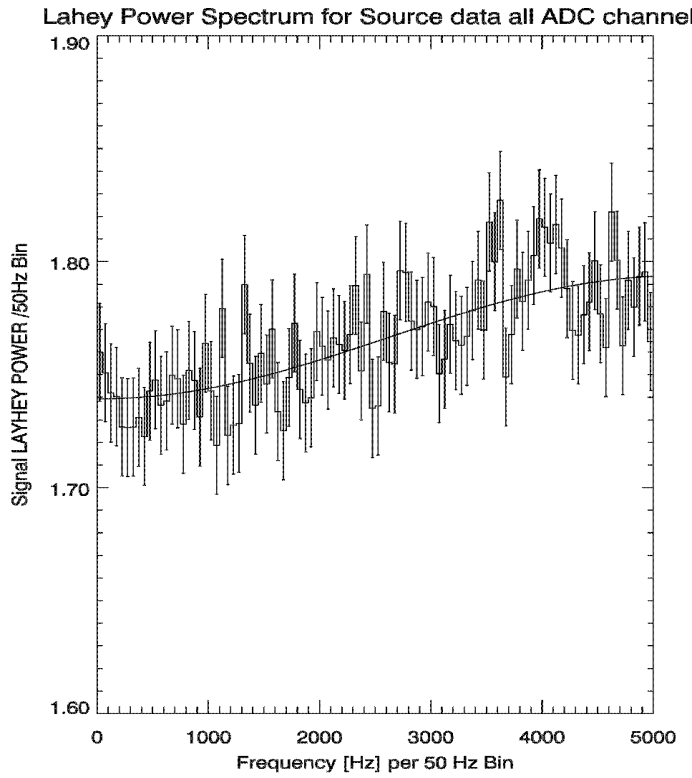


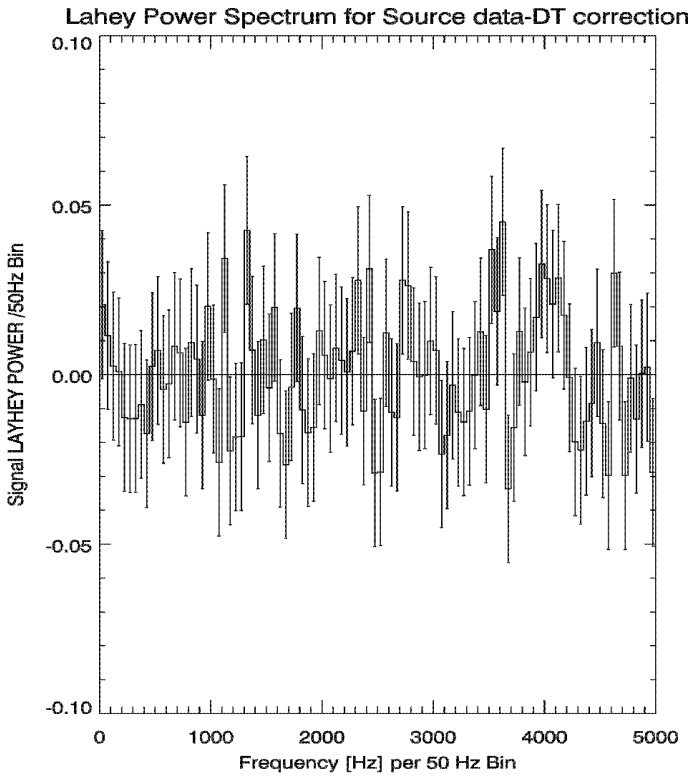


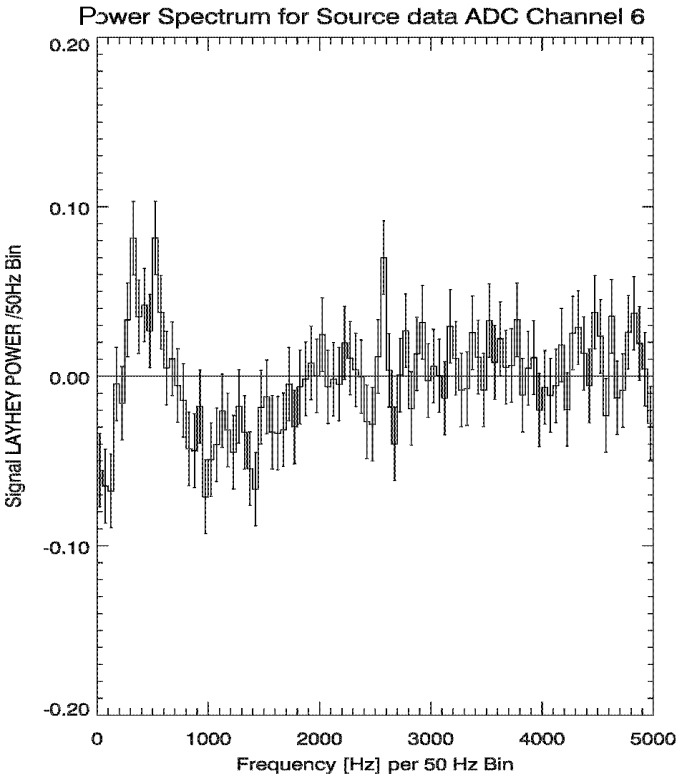
size_DTIME = 1803426,
NS = 1771470 ,
DTINT = 96.000000 μs
FFT time series length = 429.65549 s

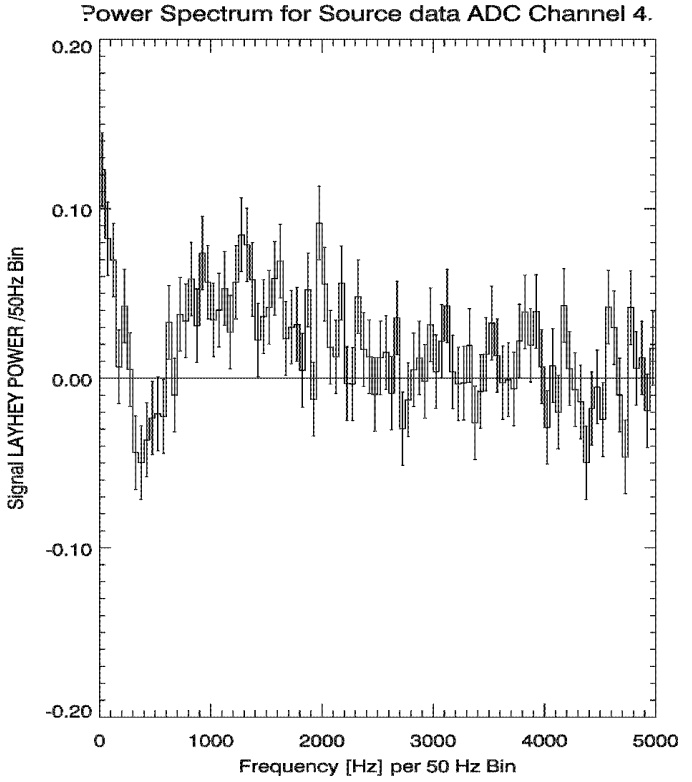
Detector 0 Rate = 4122.8 cnts/sec

Fit values
P1 +- DP1 = 1.7665277 +- 0.0021269996
P2 +- DP2 = -0.027224761 +- 0.0030080317
Chisq, CL = 70.236389 0.99306452
High channel Fit values
P1 +- DP1 = 1.9649653 +- 0.0021269996
P2 +- DP2 = -0.014018446 +- 0.0030080317
High channel Chisq, CL = 184.19951 1.1491238e-006
Low channel Fit values
P1L +- DP1L = 1.9930410 +- 0.0021269996
P2L +- DP2L = 0.015485453 +- 0.0030080317
Low Channel Chisq, CL = 205.81704 5.3532727e-009


Lahey Power Spectrum for Source data all ADC channels
Signal LAYHEY POWER /50Hz Bin
Frequency [Hz] per 50 Hz Bin
1.90
1.80
1.70
1.60
0
1000
2000
3000
4000
5000


Lahey Power Spectrum for Source data-DT correction
Signal LAYHEY POWER /50Hz Bin
Frequency [Hz] per 50 Hz Bin
0.10
0.05
0.00
-0.05
-0.10
0
1000
2000
3000
4000
5000


Power Spectrum for Source data ADC Channel 6
Signal LAYHEY POWER /50Hz Bin
Frequency [Hz] per 50 Hz Bin
0.20
0.10
0.00
-0.10
-0.20
0
1000
2000
3000
4000
5000


Power Spectrum for Source data ADC Channel 4.
Signal LAYHEY POWER /50Hz Bin
Frequency [Hz] per 50 Hz Bin
0.20
0.10
0.00
-0.10
-0.20
0
1000
2000
3000
4000
5000

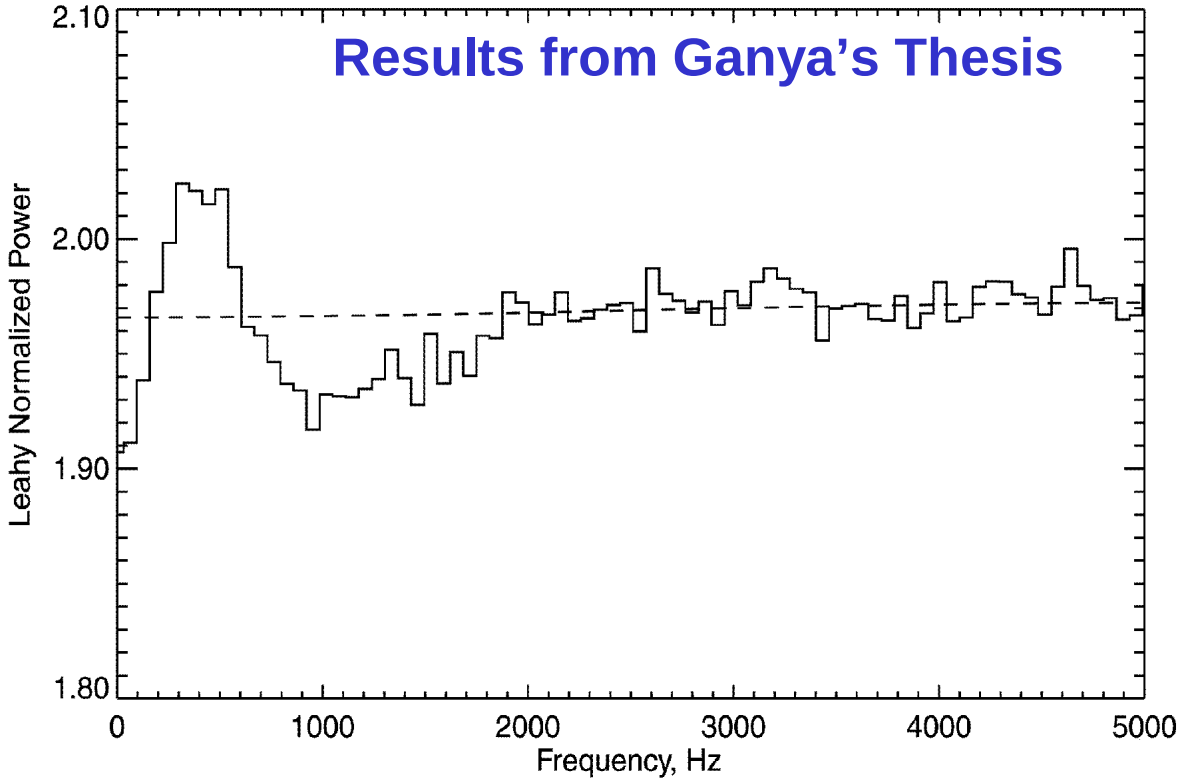


Figure 5.32 Power spectrum of the mode 2, detector 0, channel 6 ground data, r_0 =523 Hz.t_b =96 µs. Total exposure time 0.7 ks. Dashed line represents expected power spectrum without the energy-dependent instrumental effect present.

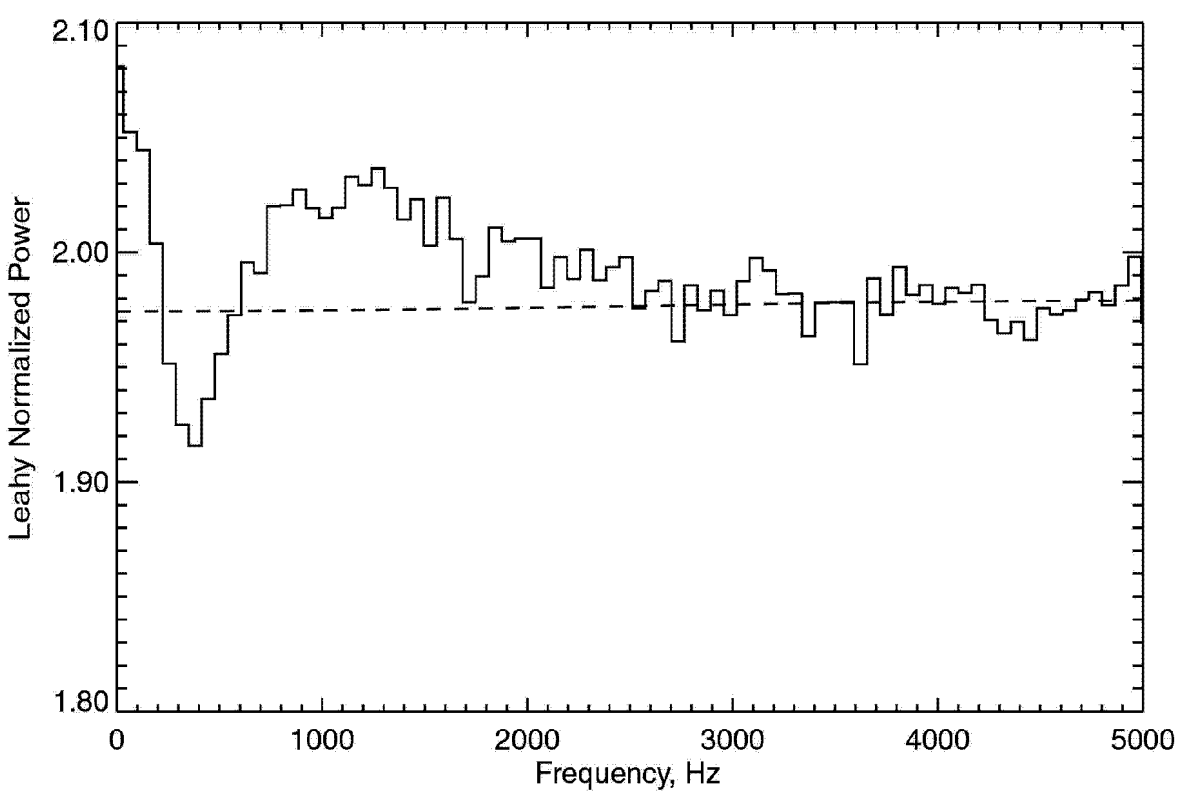
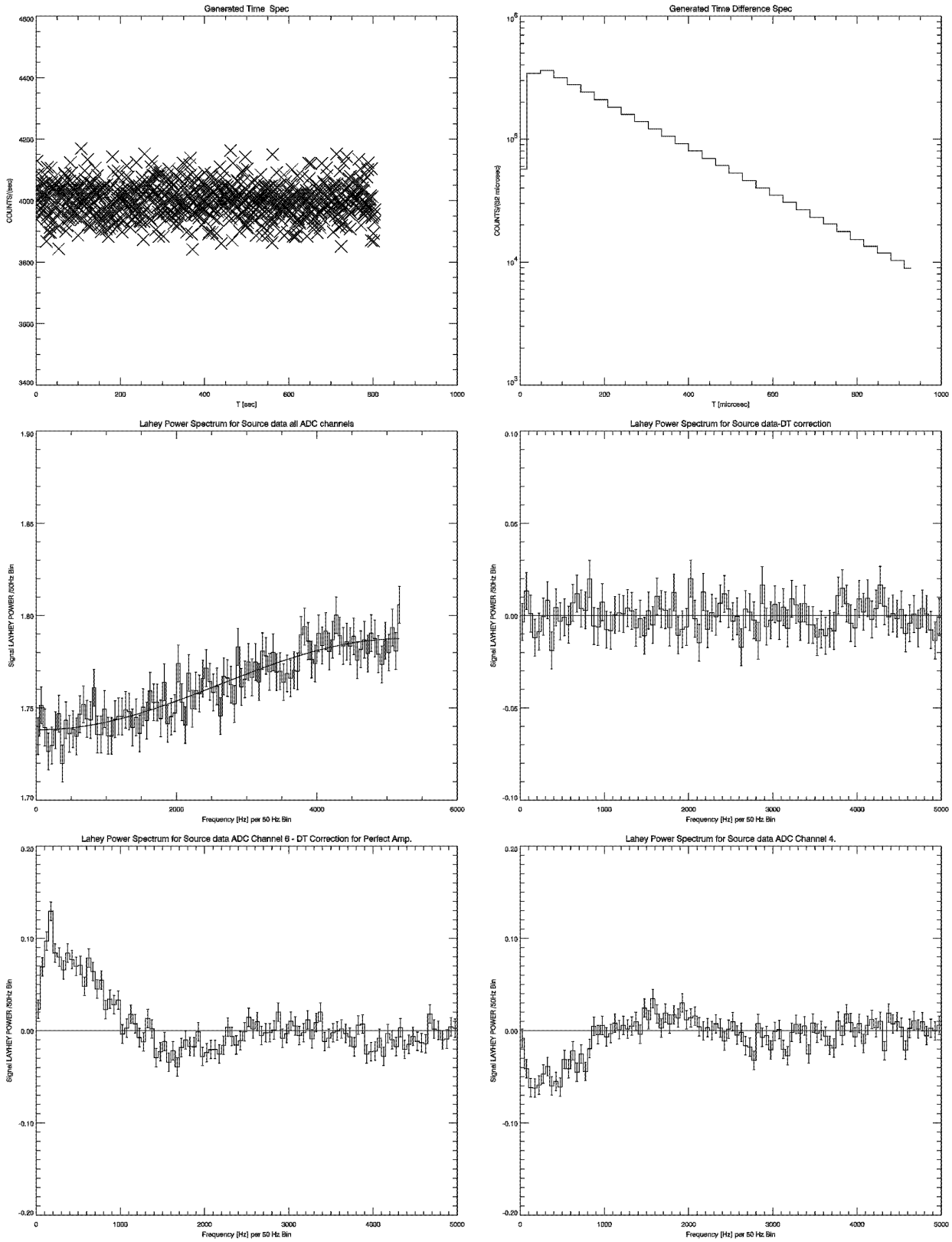


Figure 5.34 Power spectrum of the mode 2, detector 0, channel 4 ground data, r_0 =394 Hz. t_b =96 µs. Total exposure time 0.7 ks. Dashed line represents expected power spectrum without the energy-dependent instrumental effect present.

Long AMP Pulse PSP Descending Calibration