All Experimenter's Meeting

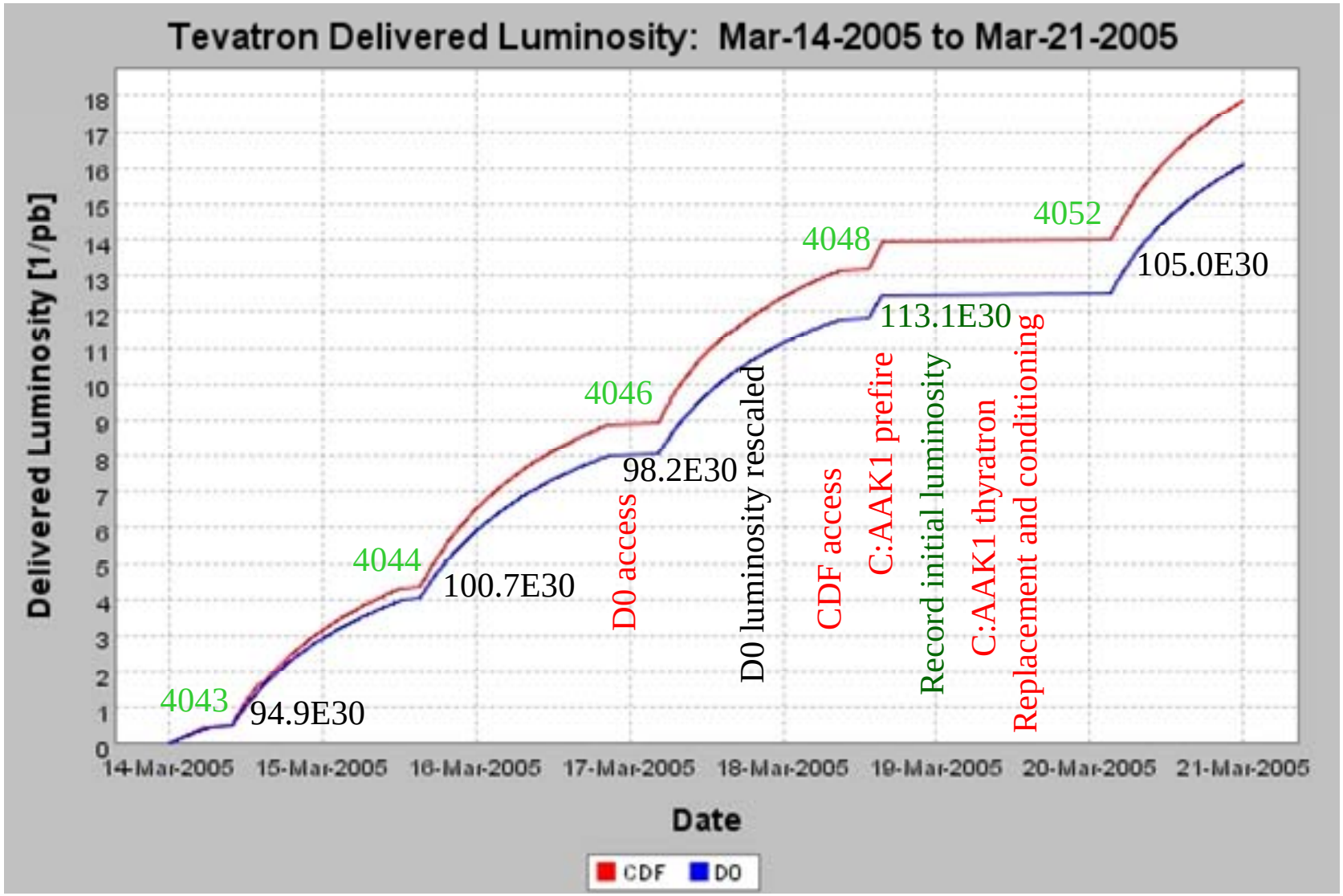
Dave McGinnis

March 21, 2005

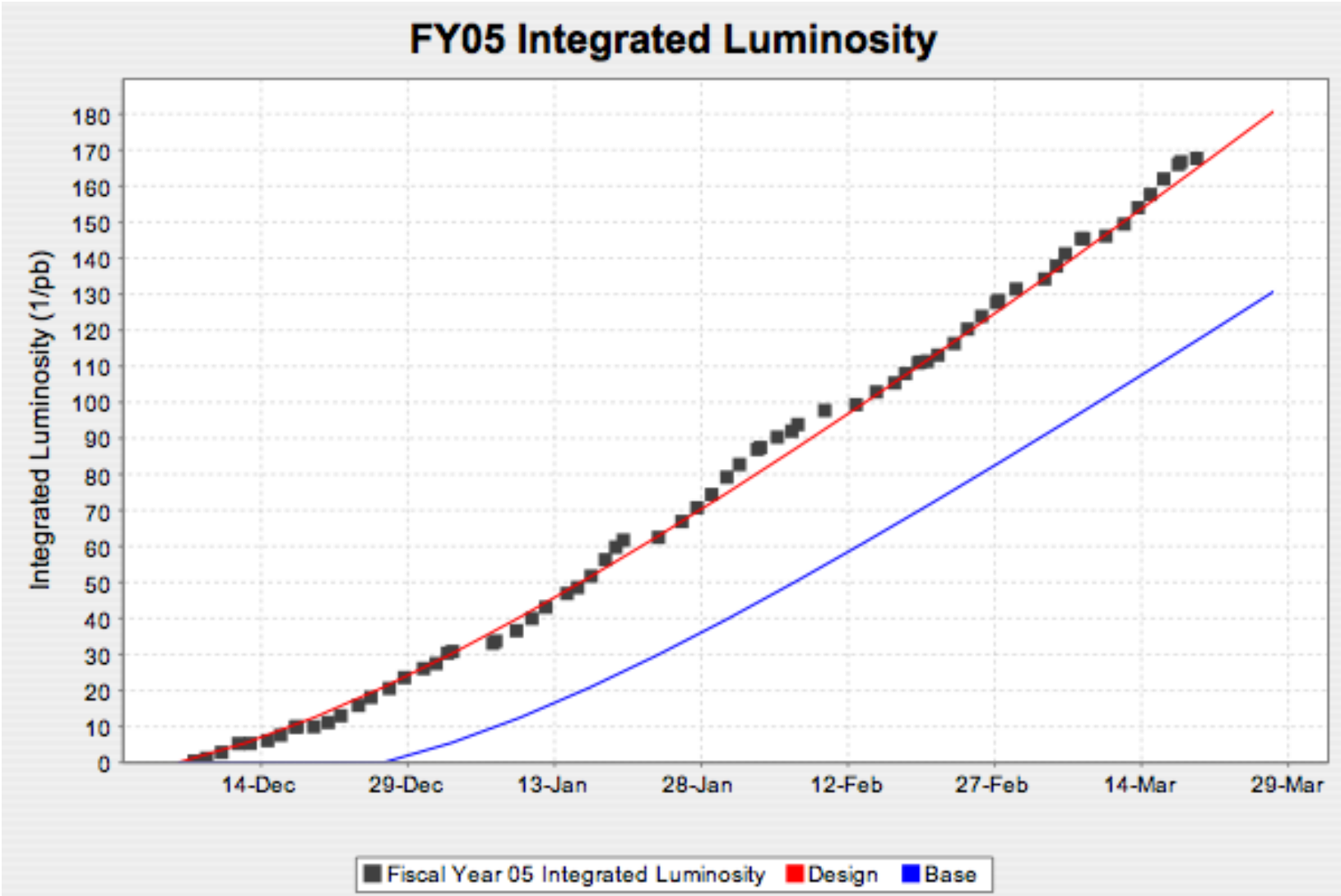
Store Summary

Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
4043	94.9	3,803	Planned	26.9	260.1	Combination shot (181.2/78.9E10), large pbar loss in MI on A2,A7
4044	100.7	4,620	Planned	29.8	261.0	Combination shot (196.6/64.4E10)
4046	98.2	4,263	Planned	29.5	264.1	Combination shot (178.7/85.4E10), First A8 attempt lost in MI
4048	113.1	807	Loss of store	2.2	282.1	Combination shot (189.7/92.4E10), **D0 luminosity rescaled**, record initial luminosity AAK1 prefire
4052	105.0	4,622	Planned	29.0	288.0	Combination shot (189.9/98.1E10)

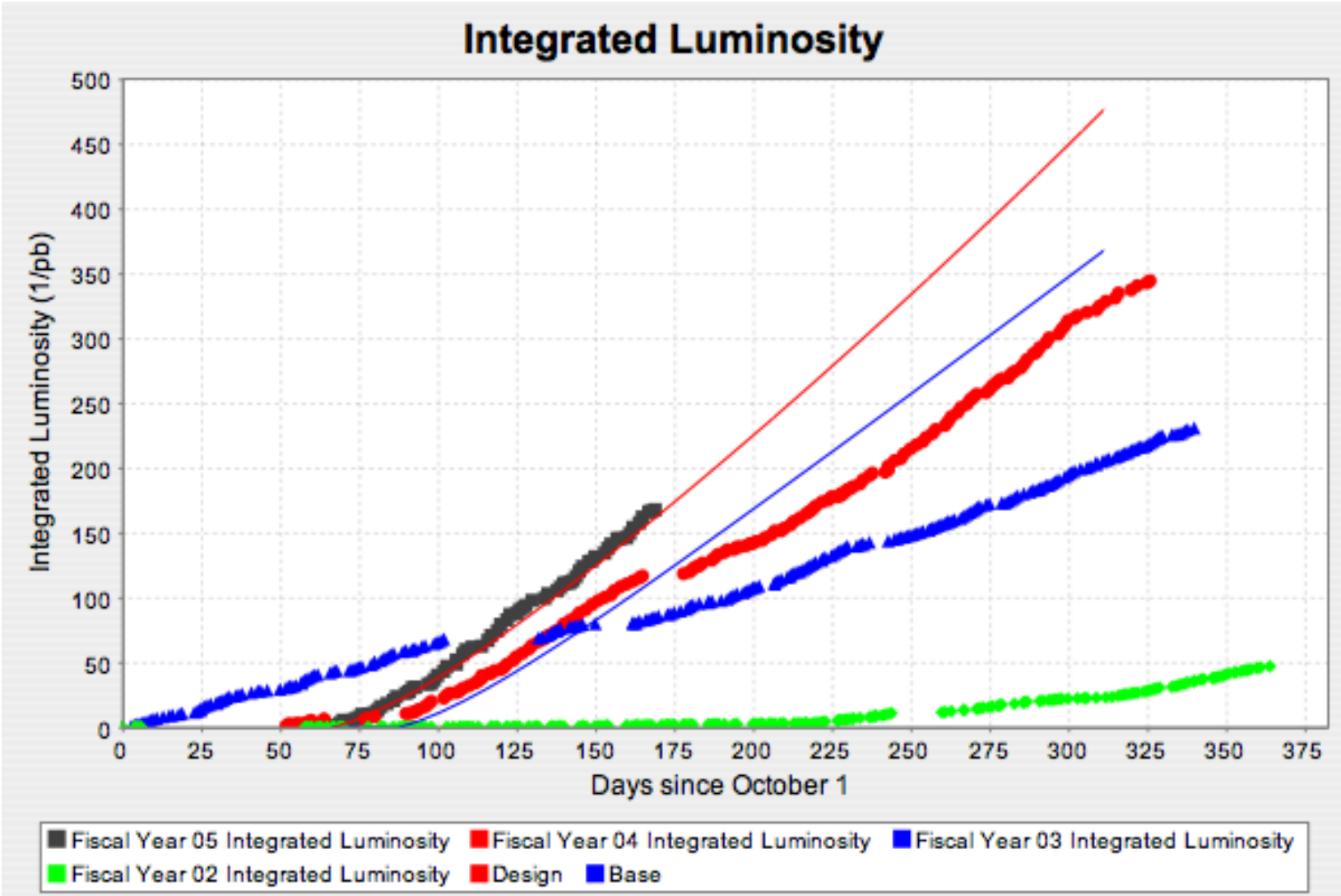
Store Summary



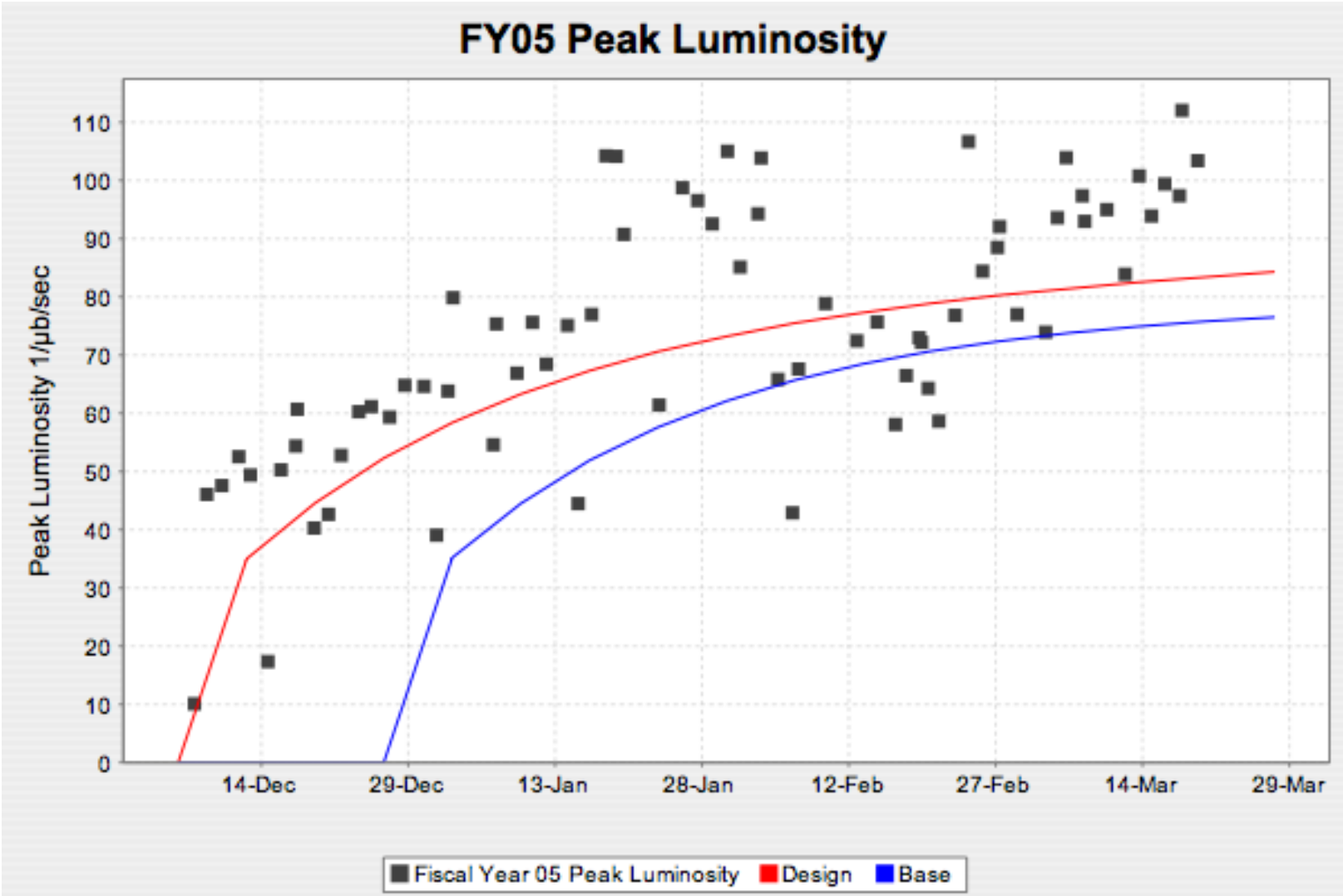
FY05 Integrated Luminosity



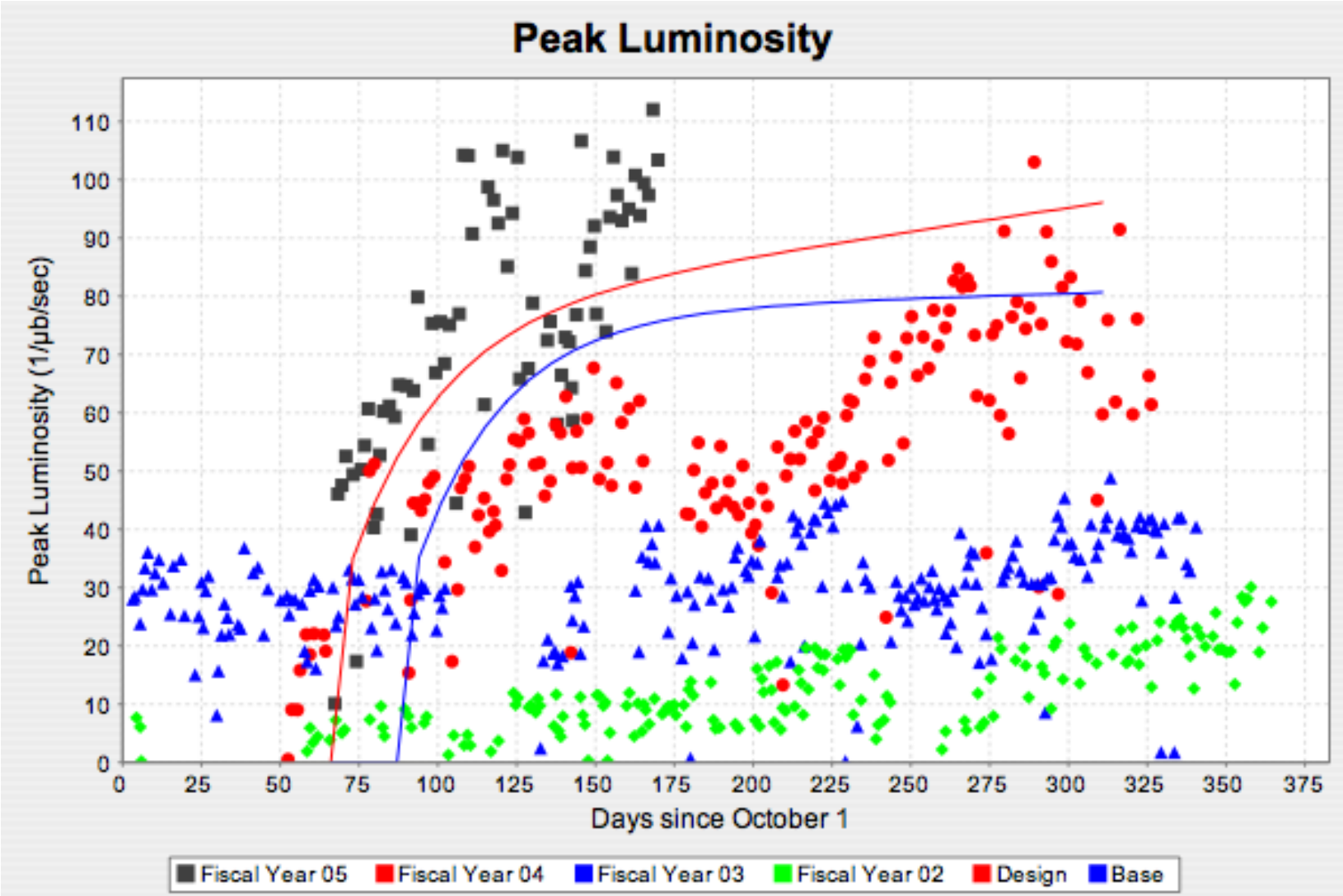
Integrated Luminosity



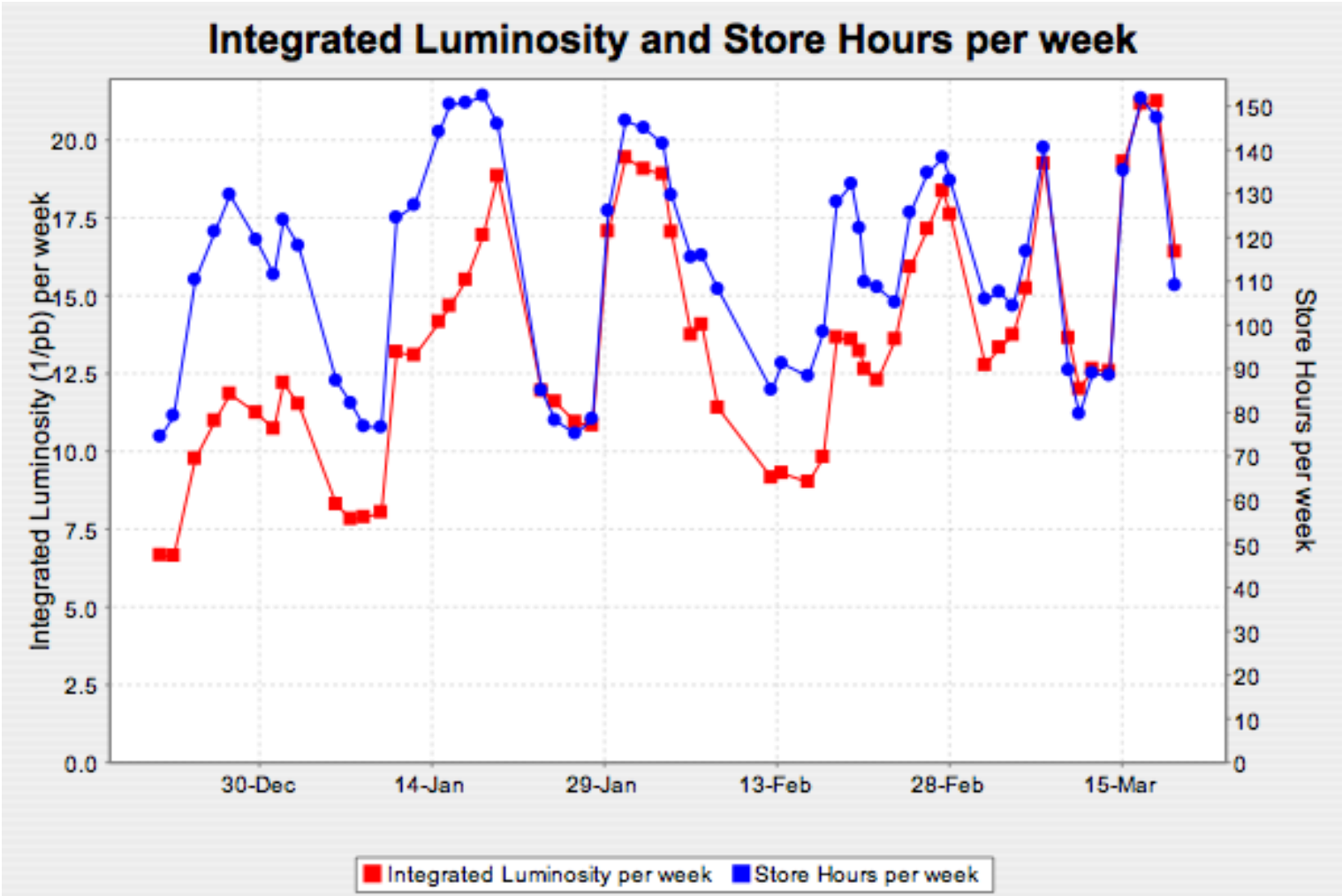
FY05 Peak Luminosity



FY05 Goals Peak Luminosity

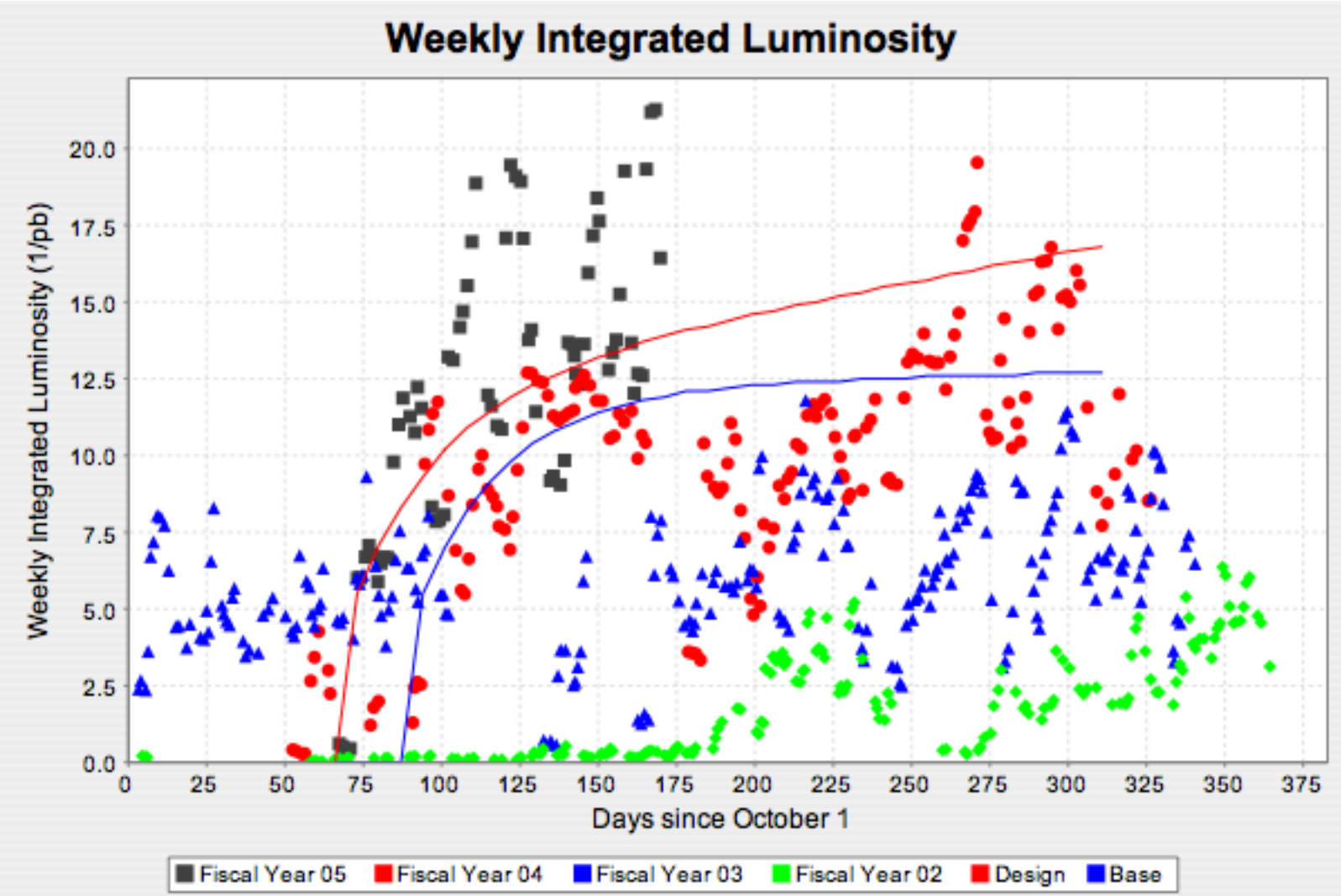


Integrated Luminosity and Store Hours per Week



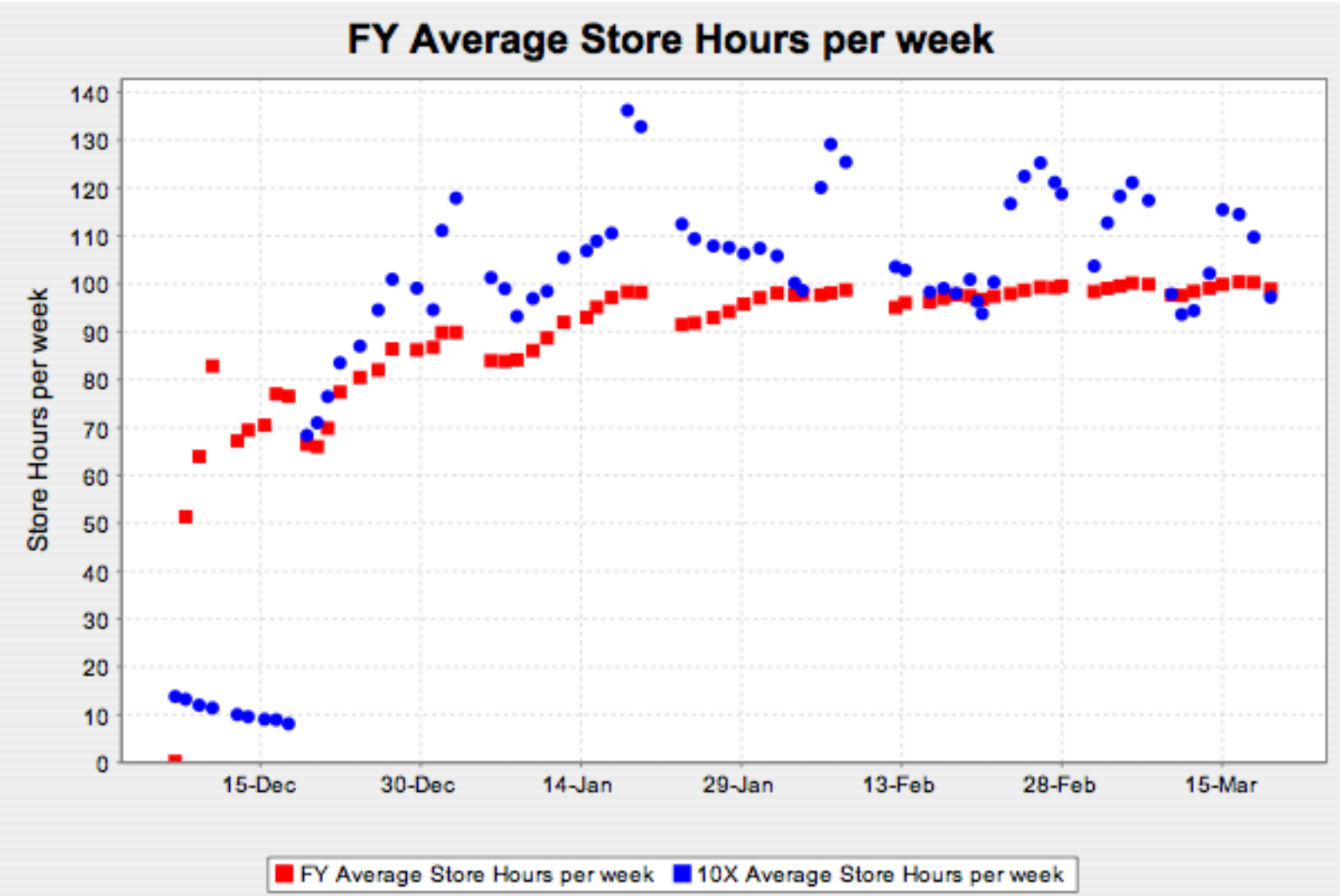
5 Store Running Average

FY05 Goals Weekly Integrated Luminosity

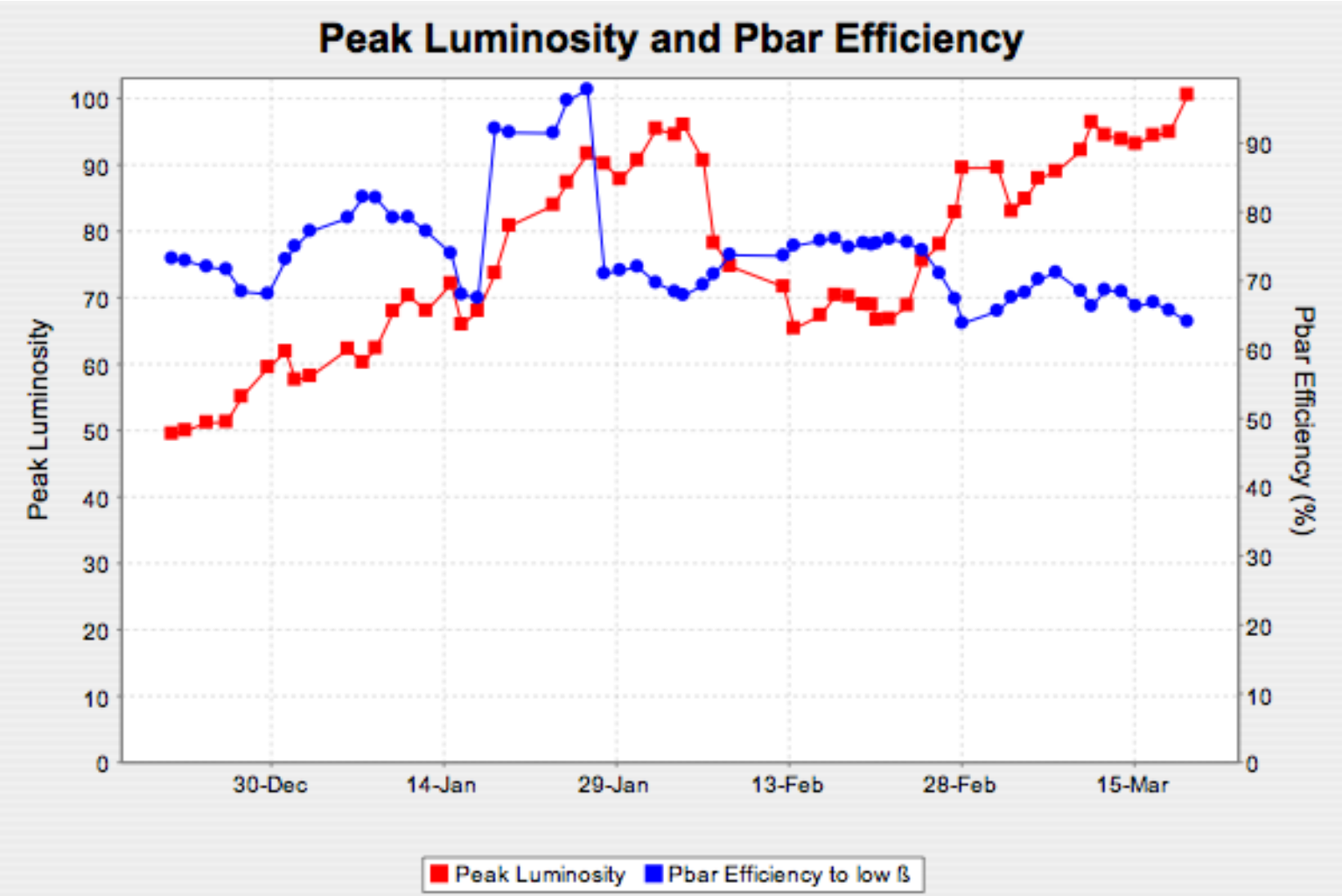


5 Store Running Average

FY05 Average Store Hours per Week



Peak Luminosity and Pbar Efficiency

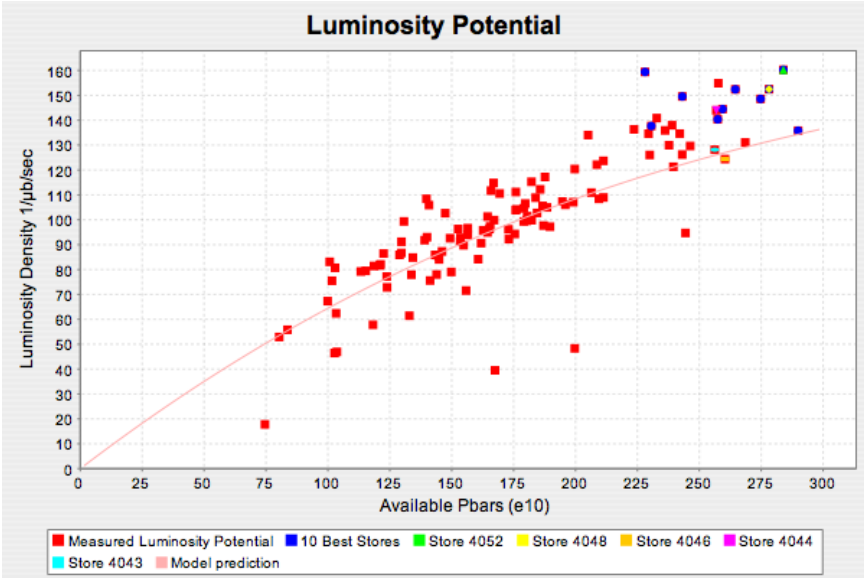


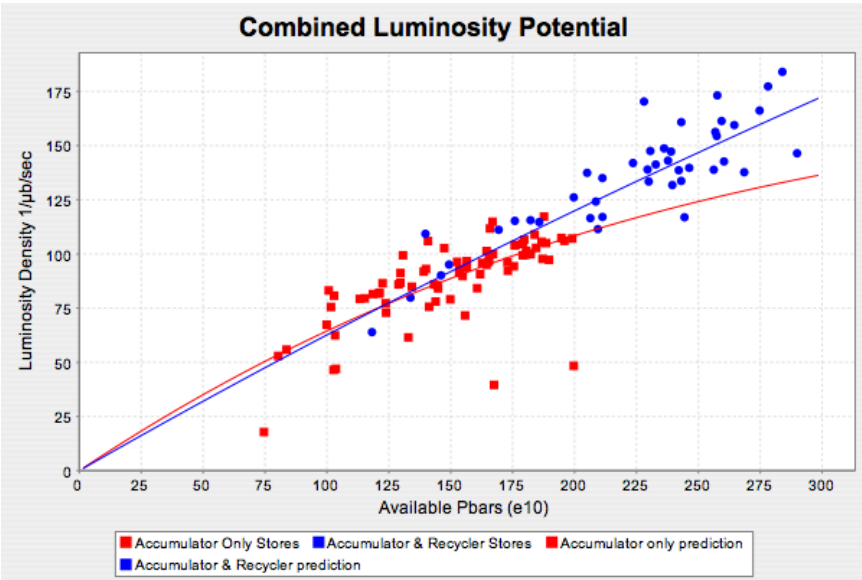
5 Store Running Average

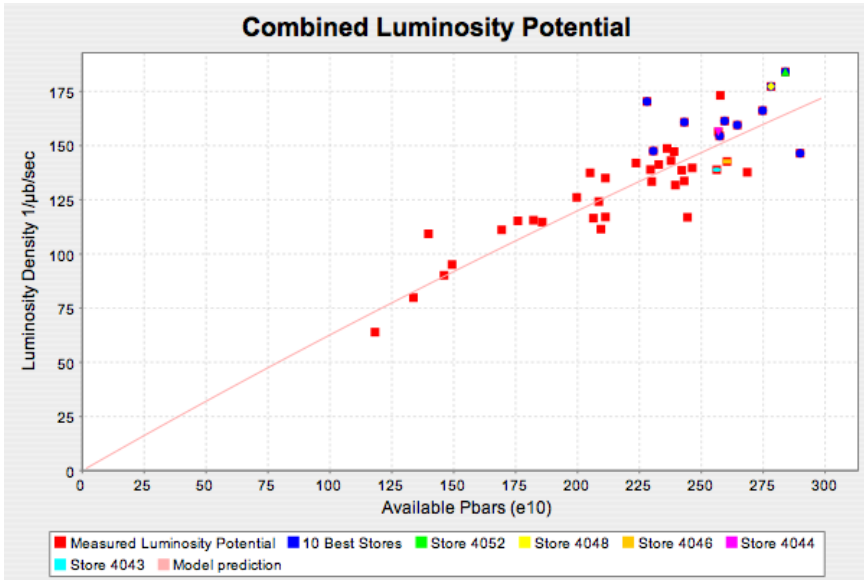
Data Summary Table

		Luminosity Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Initial Luminosity (Average)	103.2	111.8	97.5	104.5	73.1	71.1	96.1	80.7	$x10^{30}cm^{-2}sec^{-1}$
Integrated Luminosity per Store (Avera	939.8	738.4	2649.3	3117.3	2424.1	2660	3369	3190	nb^{-1}
Luminosity per week (Averaged)	-	-	14.2	-	11.5	11.8	16.8	12.7	pb^{-1}
Store Length	3	2.2	18.1	20.2	21	24.5	20	25	Hours
Store Hours per week	-	-	97	-	99.6	108.3	100	100	Hours
Shot Setup Time	3.5	2.2	2.8	2.7	2.9	2.6	2.6	2.6	Hours
		TEVATRON Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Protons per bunch	224.9	242.3	235.6	233.5	221.4	247.3	260	260	$x10^{9}$
Antiprotons per bunch	42.1	41.3	37.2	41.4	30.6	30.1	42	34	$x10^{9}$
Proton Efficiency to Low Beta	60.1	63.7	65.3	65.6	62.7	72.7	-	-	%
Pbar Transfer efficiency to Low Beta	70.9	66.7	66.3	54.1	72.5	88.6	76	74	%
HourGlass Factor	0.66	0.67	0.69	0.68	0.68	0.68	0.65	0.65	
Effective Emittance	15	14.8	15.3	15.6	15.8	18.1	18.5	17	π-mm-mrad
		Antiproton Parameters							
Parameter	Last Store	Best Store	Last 10 Stores (Ave)	Best 10 Stores (Ave)	FY Average	Previous FY	FY End Goal (Design)	FY End Goal (Base)	
Zero Stack Stack Rate	14.2	13.6	14.5	14	12.6	12.2	24.5	14	$x10^{10}$/hour
Normalized Zero Stack Stack Rate	2.5	2.2	2.3	2.4	2.2	2.3	3.1	2.3	$x10^{-2}$/hour
Average Stacking Rate	8.1	6	7.6	7.2	7.2	6.2	10.1	6.6	$x10^{10}$/hour
Stacking Time Line Factor	84	61.7	73.4	74.6	76.5	76.6	75	75	%
Stack Size at Zero Stack Rate	342.6	381.7	378.3	356.2	391.7	332.6	300	300	$x10^{10}$
Protons on Target	5.9	5.8	6.2	5.9	5.6	5.2	8	6.2	$x10^{12}$
Start Stack	284.2	278.5	245.4	261.3	182.4	170.7	216	181	$x10^{10}$
End Stack	71	55.2	39.8	40.5	20.4	15.8	15	15	$x10^{10}$
Unstacked Pbars	213.2	223.3	205.6	220.8	162	154.9	201	166	$x10^{10}$

Stack Size Potential







TEV Studies

Date	Duration (Hr)	Description
3/15/2005	0.7	End of store, helix amplitude vs. tune
3/19/2005	2.0	Aperture measurements
3/19/2005	3.0	Tune tracker and chomaticity measurements
3/19/2005	5.5	Longitudinal stability plus quench recovery
	11.2	Sum for Week
	190.5	Sum for Year
	13.1	Average per week

Pbar Studies

Date	Duration (Hr)	Description
3/14/2005	0.5	A:H104 bump commissioning
3/15/2005	0.8	AP-2/Debuncher aperture measurements while stacking
3/16/2005	7.5	Reverse protons, DEXbump and Debuncher orbit
3/17/2005	0.5	D/A studies while stacking
3/17/2005	0.3	ARF-4 studies
3/19/2005	2.0	D/A studies while stacking
3/20/2005	0.3	Debuncher bumping while stacking
	11.9	Sum for week
	55.3	Sum for year
	3.8	Average per week

MiniBoone

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Summary for Event 1D
From 07-MAR-2005 00:00:00
  to 14-MAR-2005 00:00:00

Percentage up time: 82.2
Total Events:     2665328
Total Protons:    8.38E+18
Average Events/second:        5.22
Average protons/Event:        3.23E+12
Average protons/hour:         6.07E+16
Maximum protons/hour:         6.72E+16   03/10/05
(protons out)/(protons in):   .815
(Joules lost)/(1e12 prot):    23.7
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Summary for Event 1D
From 14-MAR-2005 00:00:00
  to 21-MAR-2005 00:00:00

Percentage up time: 94.7
Total Events:     2371408
Total Protons:    8.09E+18
Average Events/second:        4.13
Average protons/Event:        3.42E+12
Average protons/hour:         5.09E+16
Maximum protons/hour:         6.93E+16   03/15/05
(protons out)/(protons in):   .837
(Joules lost)/(1e12 prot):    23.8
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Down 3.5% from last week

Plan for the Week

- Proton Source
- Main Injector
  - Begin NUMI and Pbar Stacking on every cycle by March 28, 2005
    - Finish work on long slow-spill cycle for SY120
  - Slip Stacking Studies
- Pbar
  - Implement new pbar extraction curves without high level phase feedback
    - First phase complete – 2 phases left to go
  - Beam Based Alignment
    - Forward Pbar AP2
    - Forward Pbar D/A line
  - Optimize Accumulator/Recycler pbar transfers
    - Clean-up or minimize reverse proton tune-up
- Recycler
  - Begin commissioning of transport of electron beam into Recycler for Ecool
  - Investigate stochastic cooling limitations
- Tevatron
  - Continue to minimize pbar losses on Slot 24-25 (Dzero)
  - Finish operational implementation of octupoles
    - 150 GeV
      - Evaluation of lifetime improvement at 150 GeV
      - Implemetation of additional circuits
      - Measurement of chromaticity at 150 GeV
    - 980 GeV