All Experimenter's Meeting

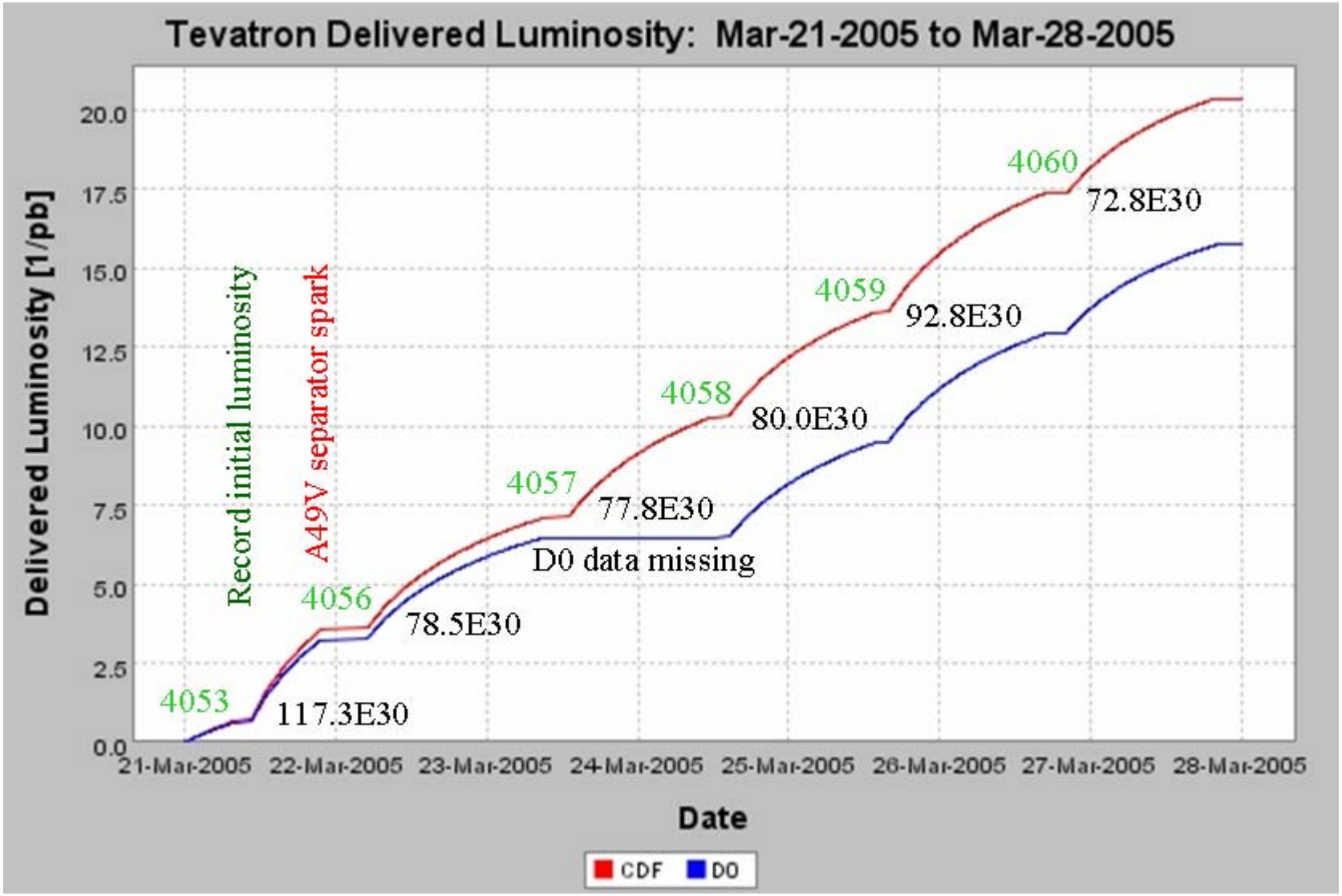
Dave McGinnis

March 28, 2005

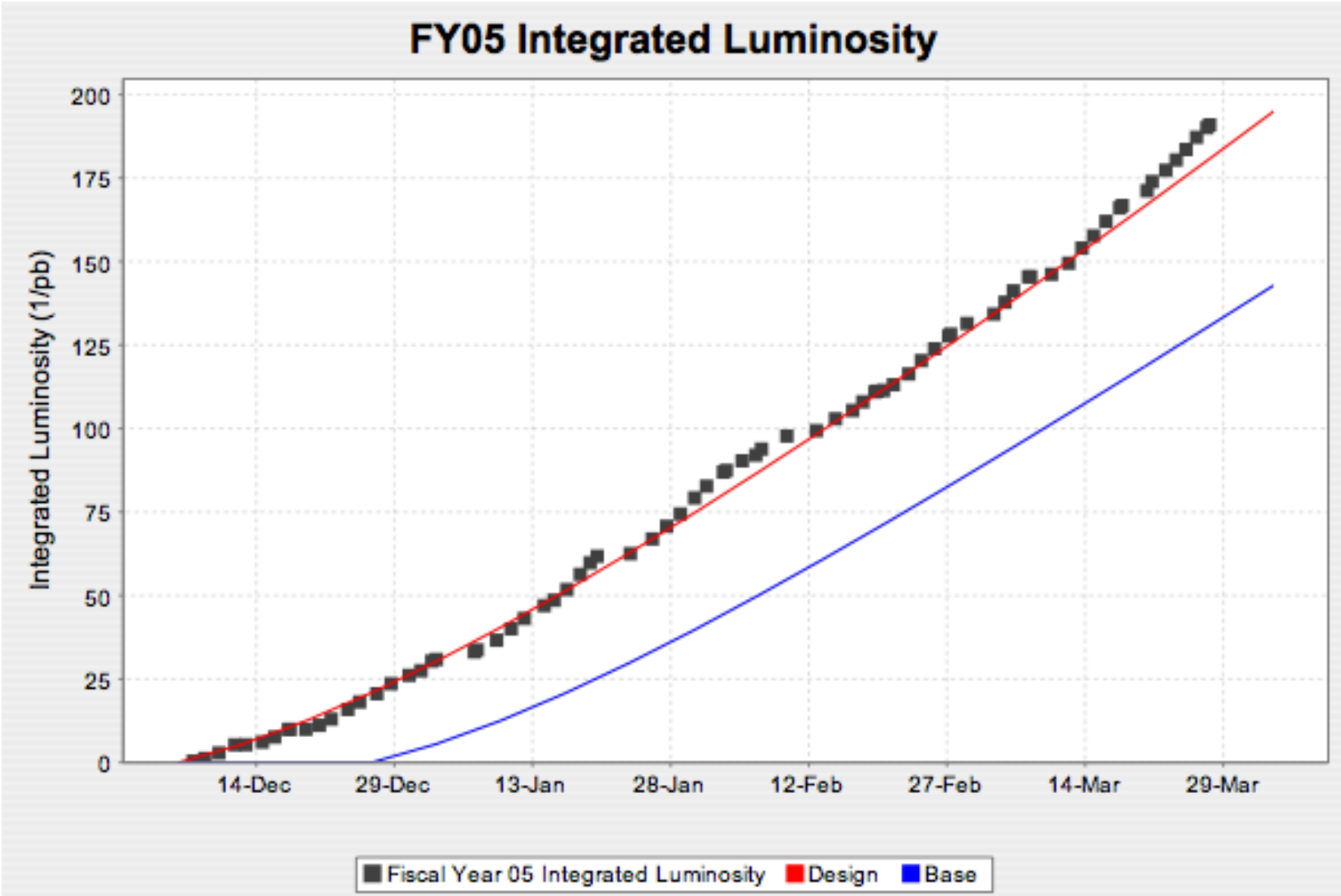
Store Summary

Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
4053	117.3	2,879	Loss of store	11.3	279.5	Combination shot (188.0/91.5E10), Record initial luminosity, Quench, A49V separator spark
4056	78.5	3,522	Planned	28.1	165.3	
4057	77.8	3,207	Planned	23.3	187.5	
4058	80.0	3,274	Planned	23.2	185.1	
4059	92.8	3,816	Planned	25.2	223.5	Combination shot (180.1/43.4E10)
4060	72.8	2,992	Planned	24.0	250.8	Combination shot (174.6/76.2E10), Long. emittance blow-up in Tev

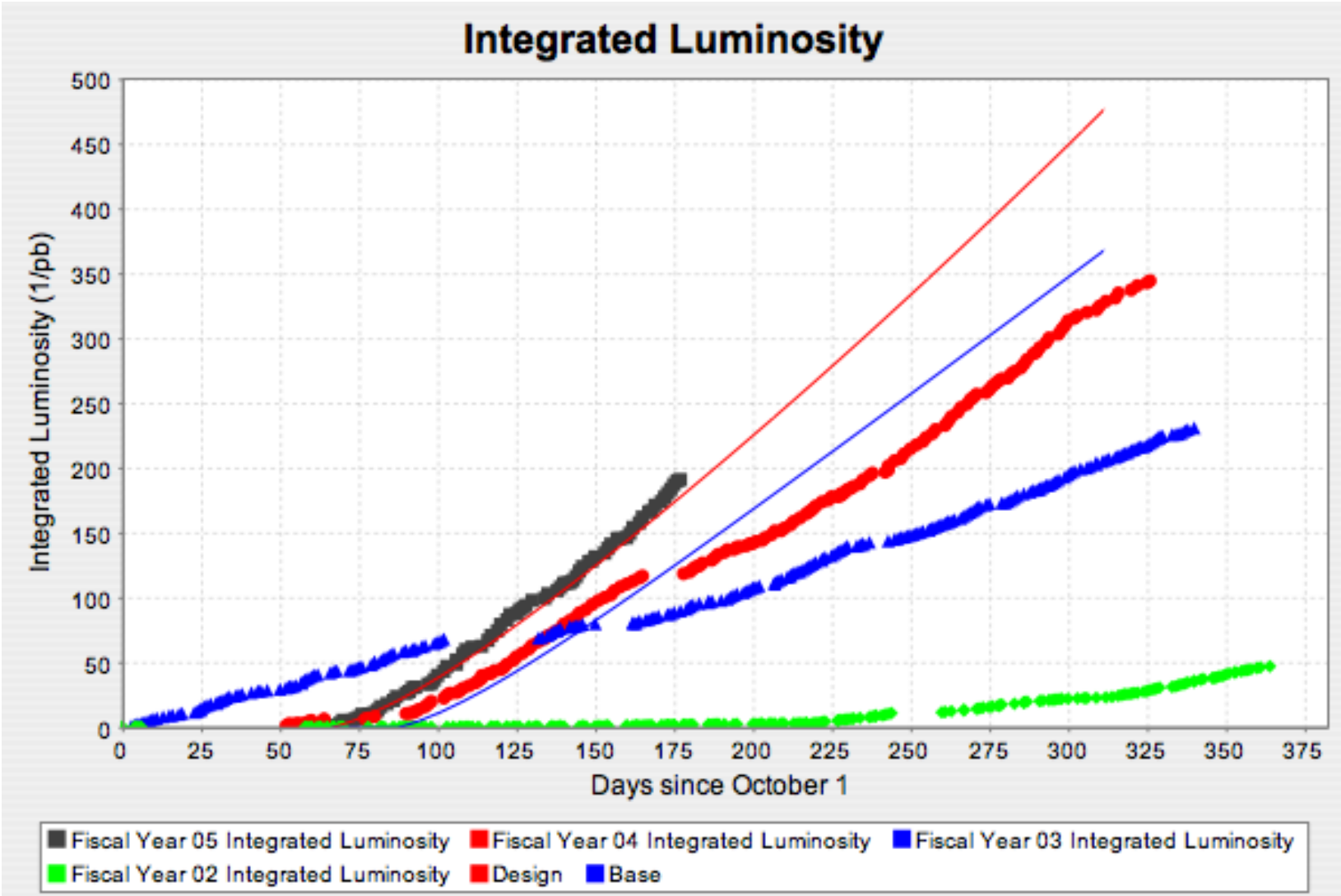
Store Summary



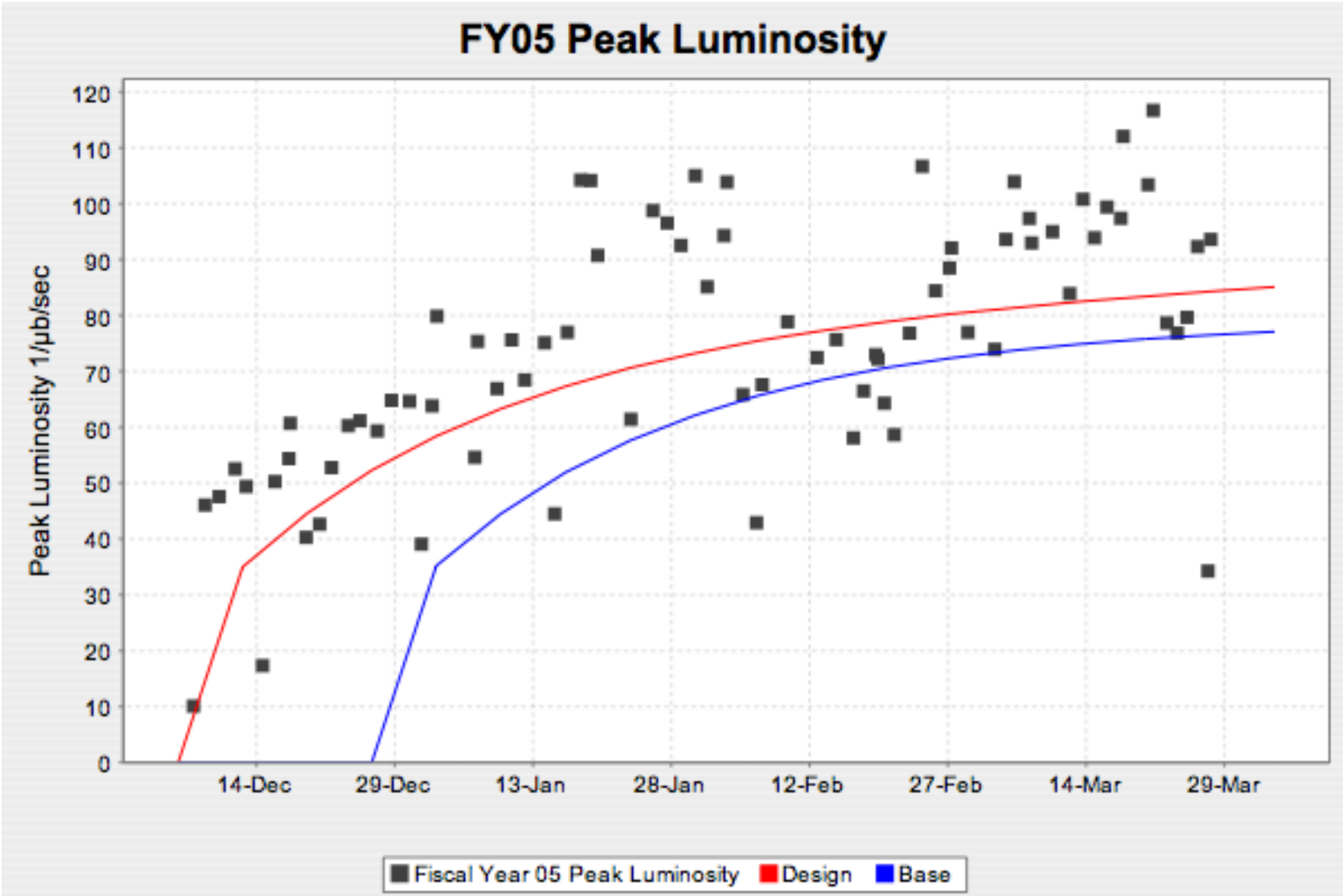
FY05 Integrated Luminosity



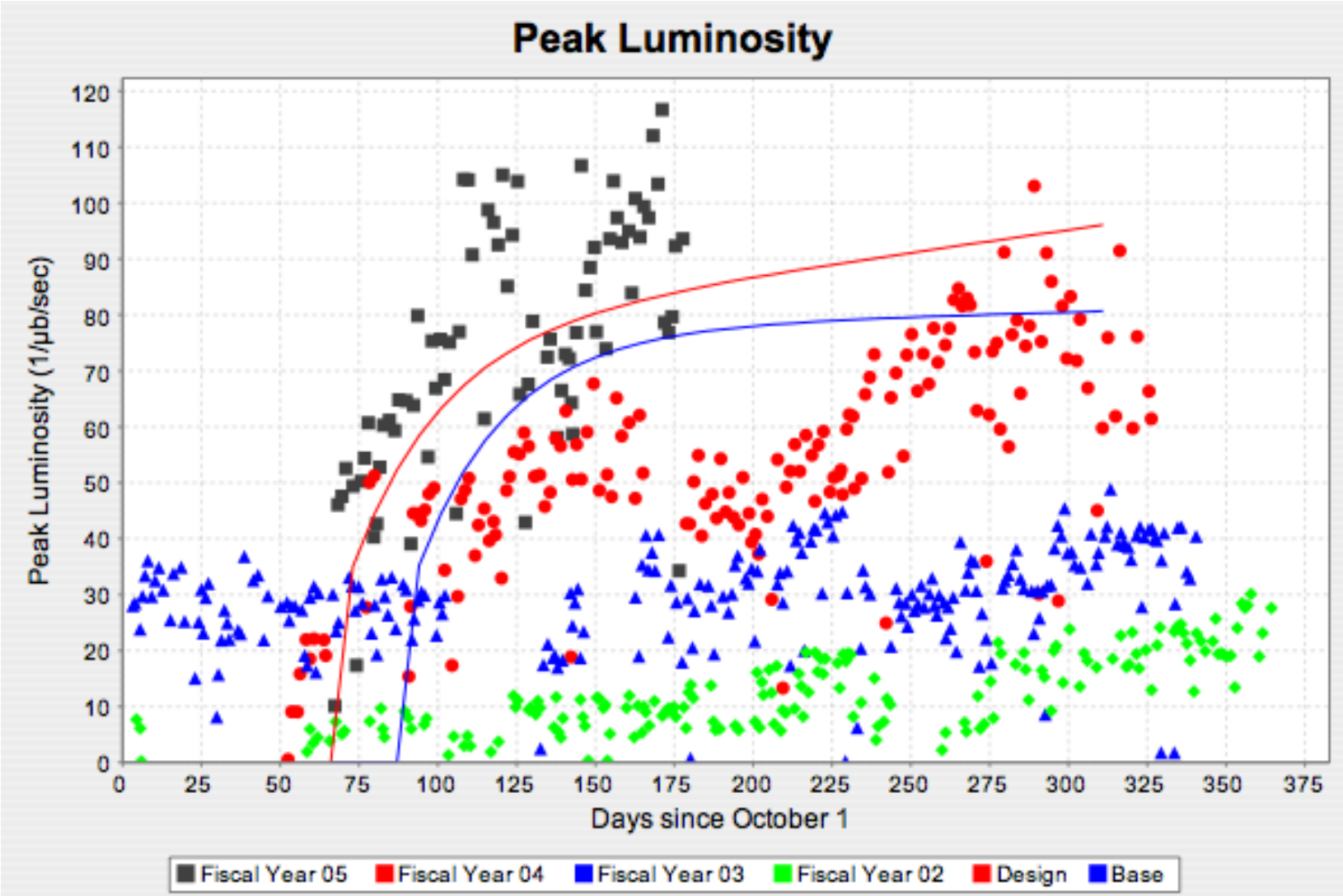
Integrated Luminosity



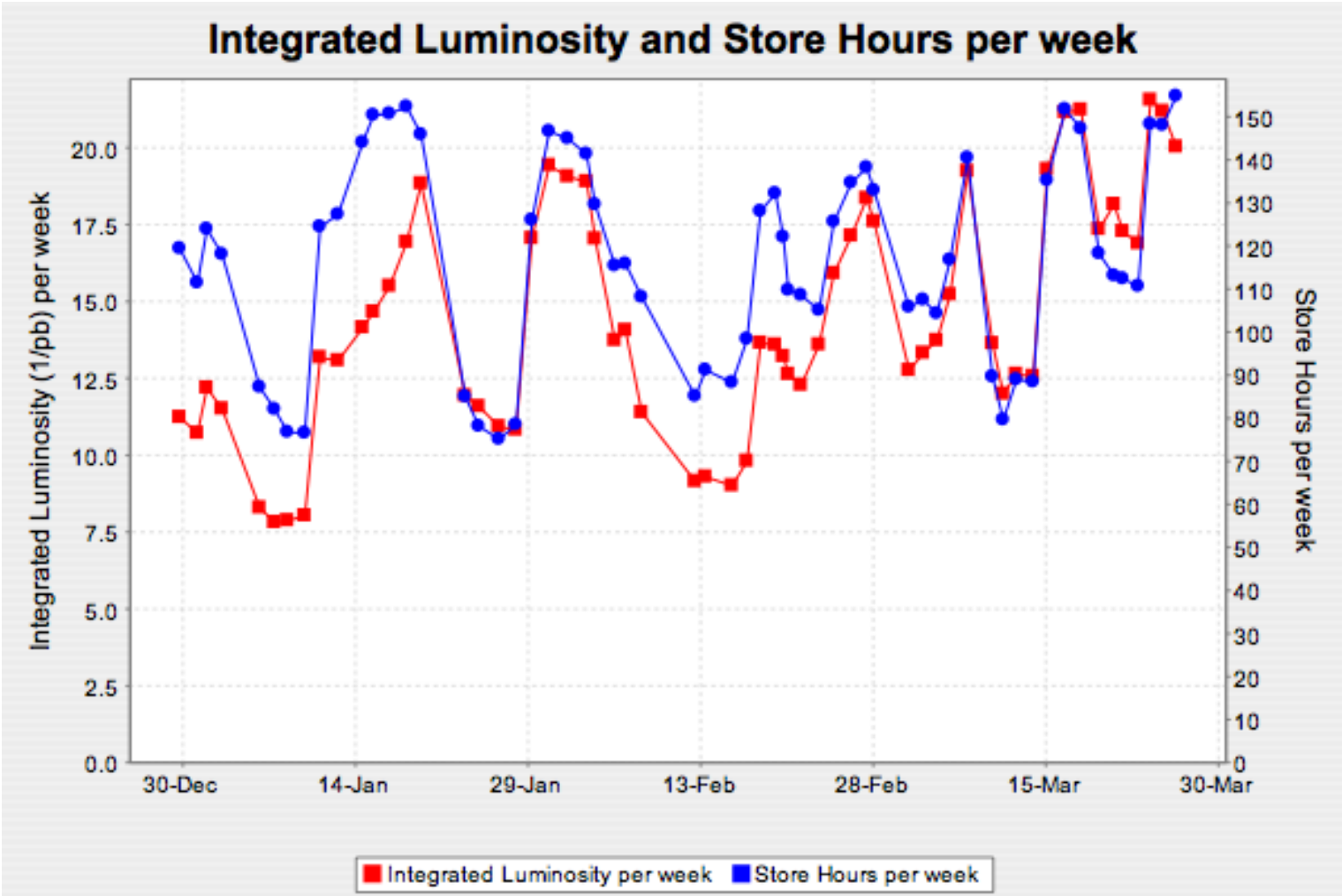
FY05 Peak Luminosity



FY05 Goals Peak Luminosity

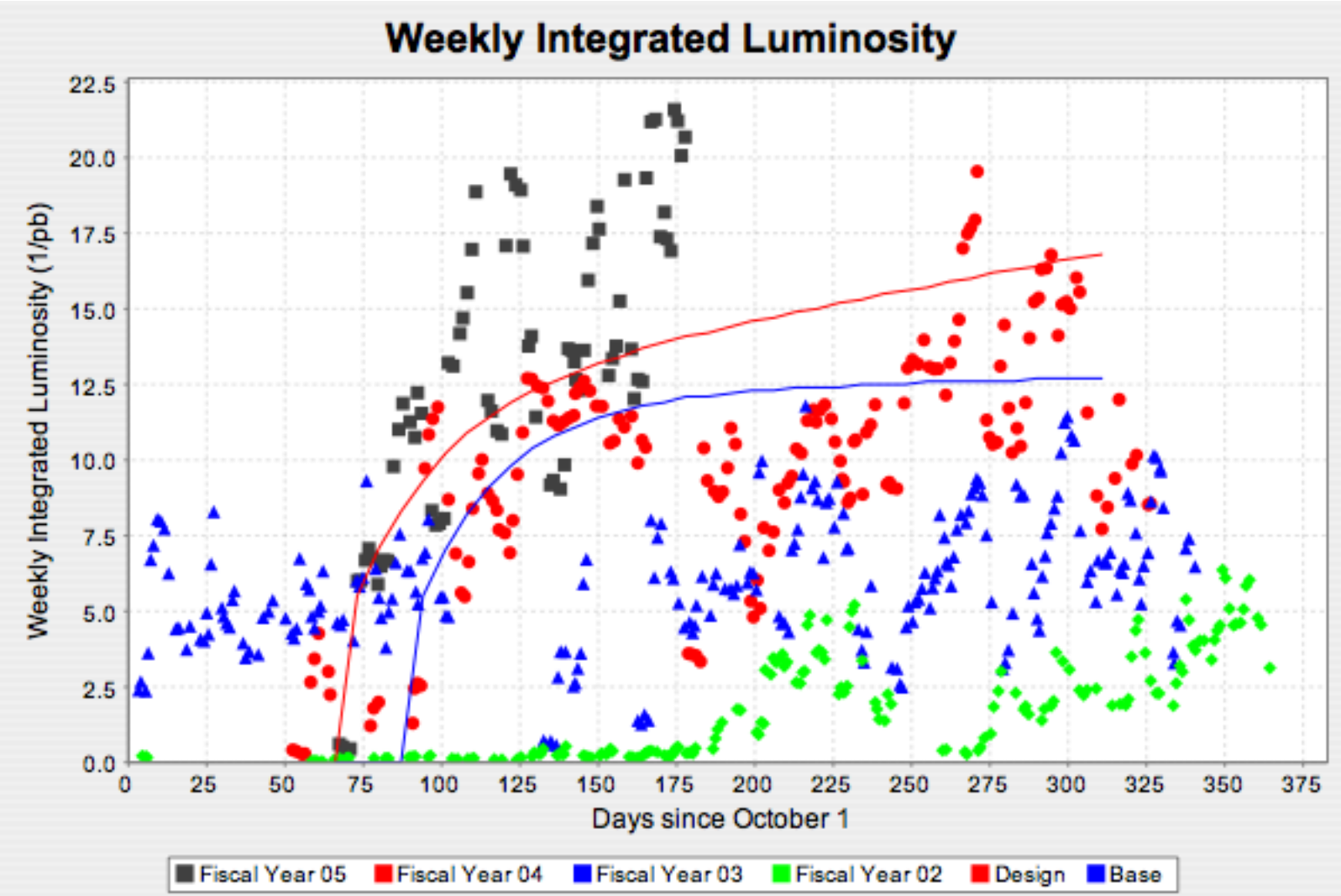


Integrated Luminosity and Store Hours per Week



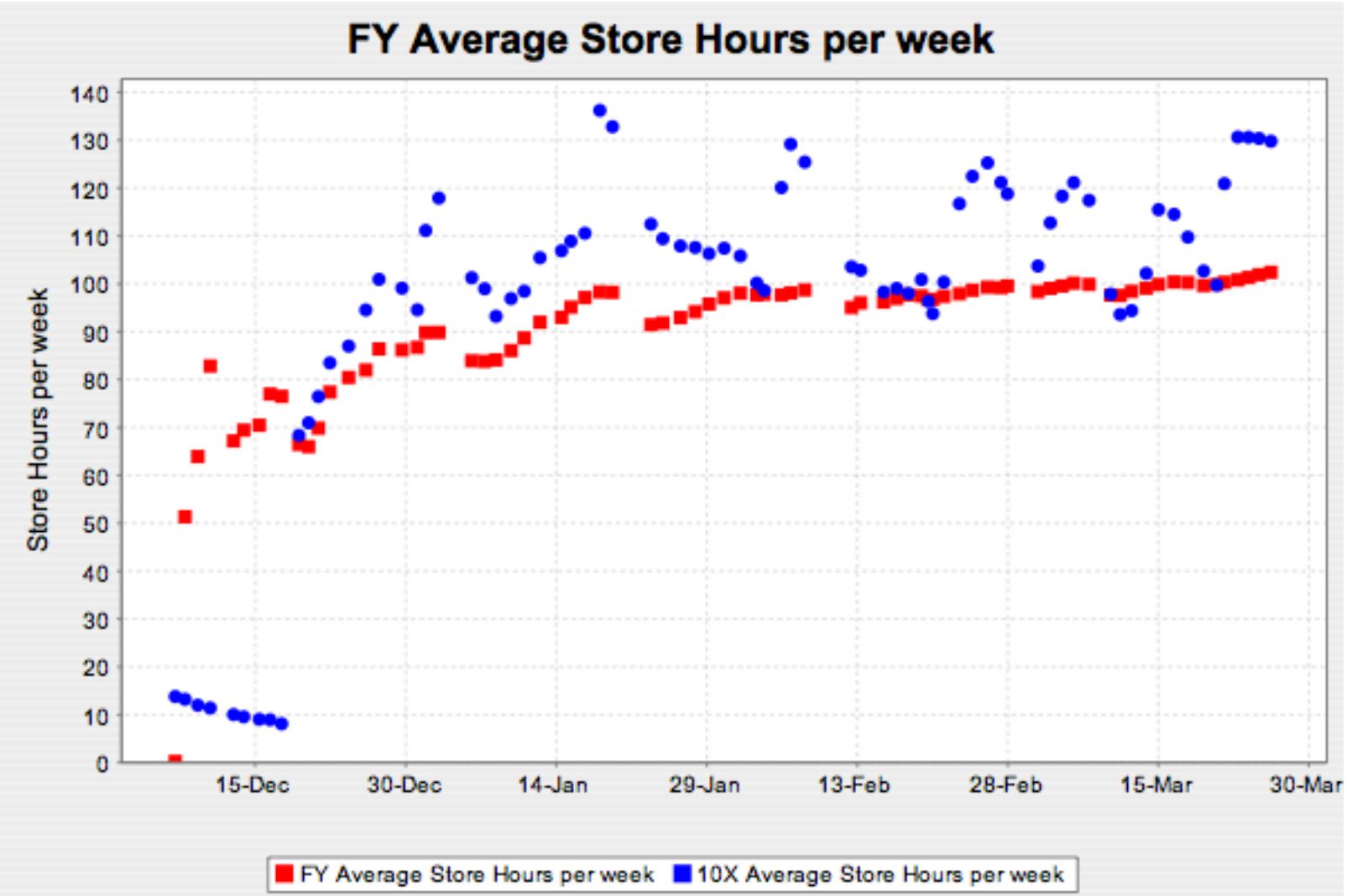
5 Store Running Average

FY05 Goals Weekly Integrated Luminosity

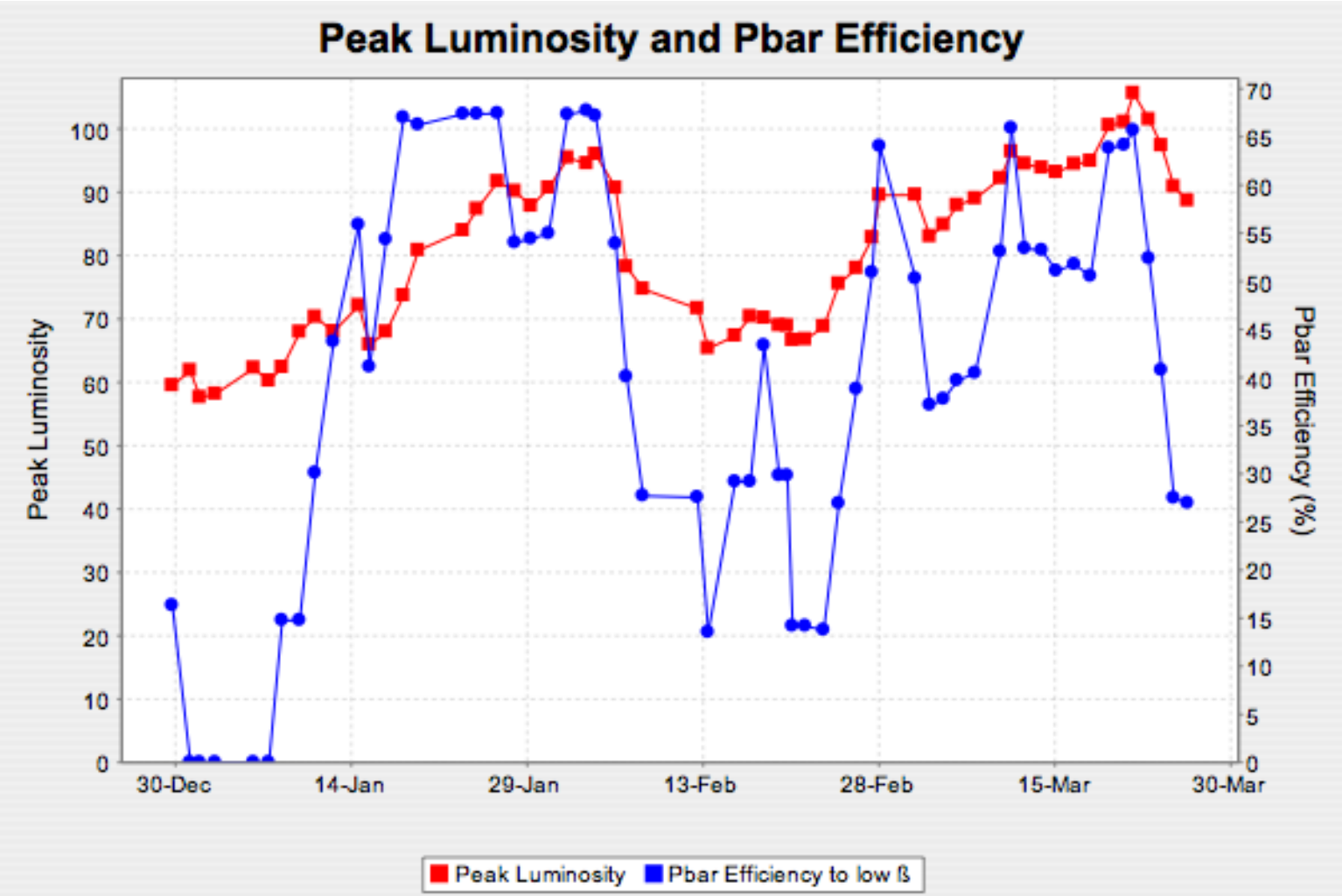


5 Store Running Average

FY05 Average Store Hours per Week



Peak Luminosity and Pbar Efficiency

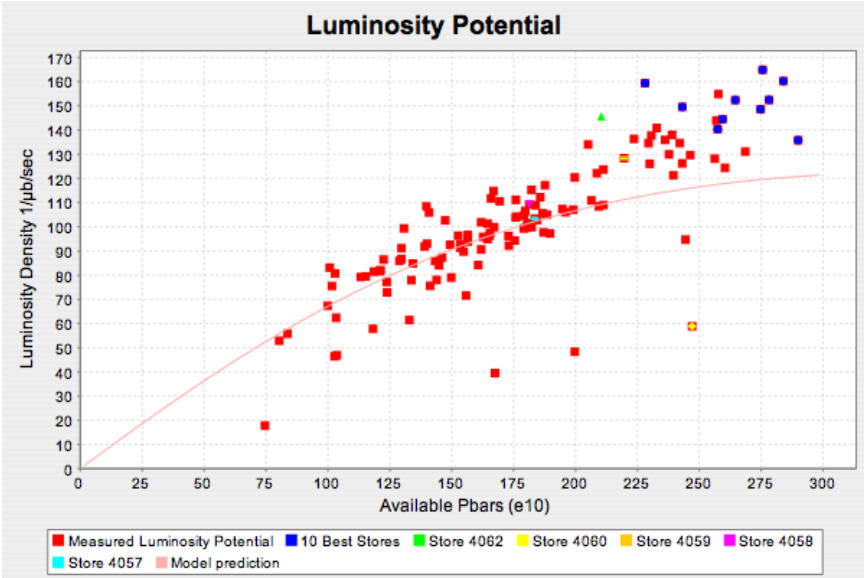


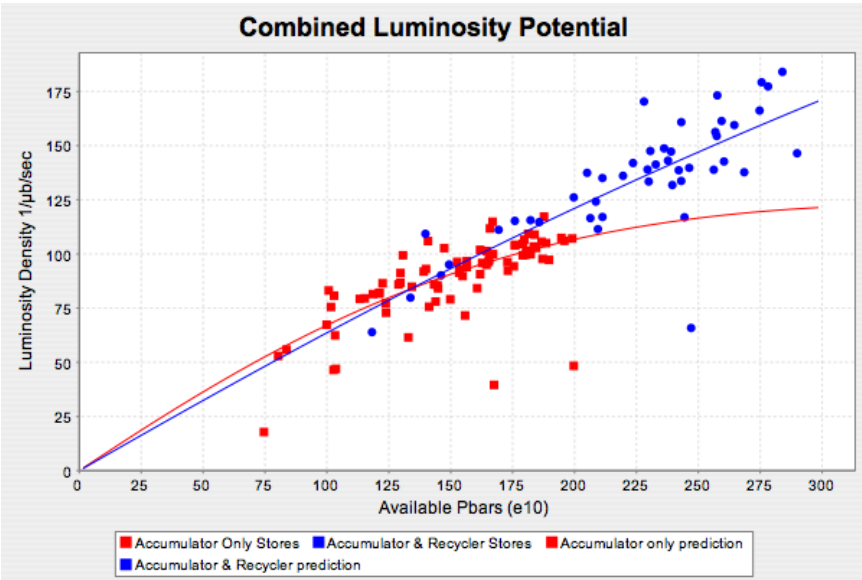
5 Store Running Average

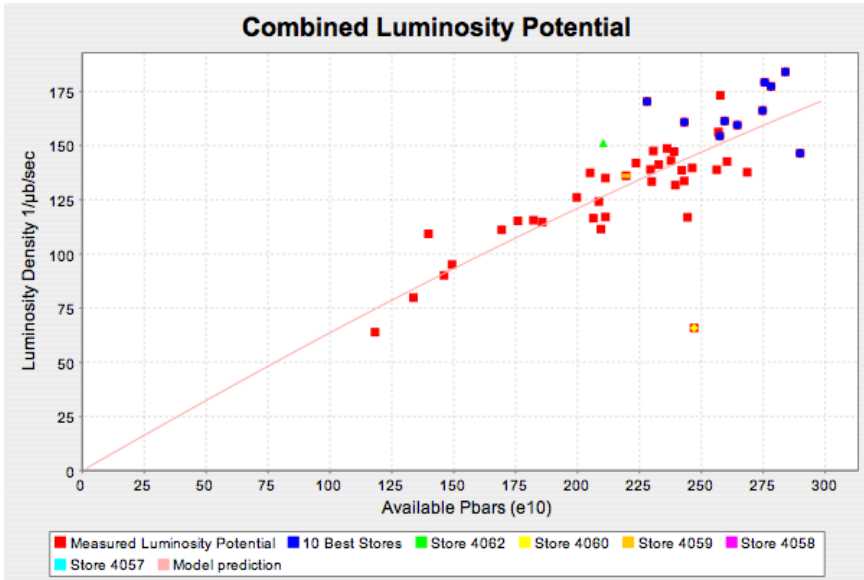
Data Summary Table

		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)	93.4	116.5	94.8	106.1	74.5	71.1	96.1	80.7	$x10^{30}cm^{-2}sec^{-1}$
Integrated Luminosity per Store (Avera	831.9	2746	3238.7	3288	2528.5	2660	3369	3190	nb^{-1}
Luminosity per week (Averaged)	-	-	18.6	-	12.2	11.8	16.8	12.7	pb^{-1}
Store Length	3	11.2	22.6	20.8	21.4	24.5	20	25	Hours
Store Hours per week	-	-	129.5	-	103.1	108.3	100	100	Hours
Shot Setup Time	2.6	2.2	2.7	2.6	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	207.7	237.7	239.9	232.9	222.6	247.3	260	260	$x10^{9}$
Antiprotons per bunch	38	42.3	36.8	41.7	31.1	30.1	42	34	$x10^{9}$
Proton Efficiency to Low Beta	58.8	60.7	63.2	65.4	62.6	72.7	-	-	%
Pbar Transfer efficiency to Low Beta	72.3	66.4	45.5	68.3	34.2	27.3	76	74	%
HourGlass Factor	0.65	0.67	0.67	0.68	0.68	0.68	0.65	0.65	
Effective Emittance	13.5	14.2	15.4	15.4	16	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	15	13.4	14.7	13.8	12.8	12.2	24.5	14	$x10^{10}$/hour
Normalized Zero Stack Stack Rate	2.3	2.3	2.4	2.4	2.2	2.3	3.1	2.3	$x10^{-2}$/hour
Average Stacking Rate	8.2	7.8	8.2	7	7.3	6.2	10.1	6.6	$x10^{10}$/hour
Stacking Time Line Factor	77.9	79.3	81.3	72.8	77.4	76.6	75	75	%
Stack Size at Zero Stack Rate	299.3	412.9	346.2	363.8	386.5	332.6	300	300	$x10^{10}$
Protons on Target	6.4	5.9	6.2	5.9	5.7	5.2	8	6.2	$x10^{12}$
Start Stack	210.7	275.9	232.7	265.8	184.7	170.7	216	181	$x10^{10}$
End Stack	22.2	46.9	35.7	42.6	20.9	15.8	15	15	$x10^{10}$
Unstacked Pbars	188.5	229	197	223.2	163.8	154.9	201	166	$x10^{10}$

Stack Size Potential







TEV Studies

Date	Duration (Hr)	Description
3/21/2005	0.0	Change helix amplitude from store to store for lifetime comparison
	0.0	Sum for Week
	190.5	Sum for Year
	12.2	Average per week

Pbar Studies

Date	Duration (Hr)	Description
3/21/2005	0.3	Debuncher bumping while stacking
3/23/2005	0.0	ARF-4 software changes and commissioning
3/24/2005	0.3	Debuncher cooling tank centering
	0.6	Sum for week
	55.9	Sum for year
	3.6	Average per week

MiniBoone

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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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Summary for Event 1D
From 21-MAR-2005 00:00:00
  to 28-MAR-2005 00:00:00

Percentage up time: 90.5
Total Events:     2595664
Total Protons:    9.30E+18
Average Events/second:        4.57
Average protons/Event:        3.72E+12
Average protons/hour:         6.11E+16
Maximum protons/hour:         7.68E+16   03/25/05
(protons out)/(protons in):   .843
(Joules lost)/(1e12 prot):    20.9
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Up 15% from last week

Plan for the Week

- Proton Source
- Main Injector
  - Continue SY120 Mixed Mode operations until NUMI target is fixed
  - Slip Stacking Studies
- Pbar
  - 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
  - Switch over to DC electron beam operation for ECOOL
  - Investigate stochastic cooling limitations
- Tevatron
  - Continue to minimize pbar losses on Slot 24-25 (Dzero)
  - Vary helix size store-to-store