All Experimenter's Meeting

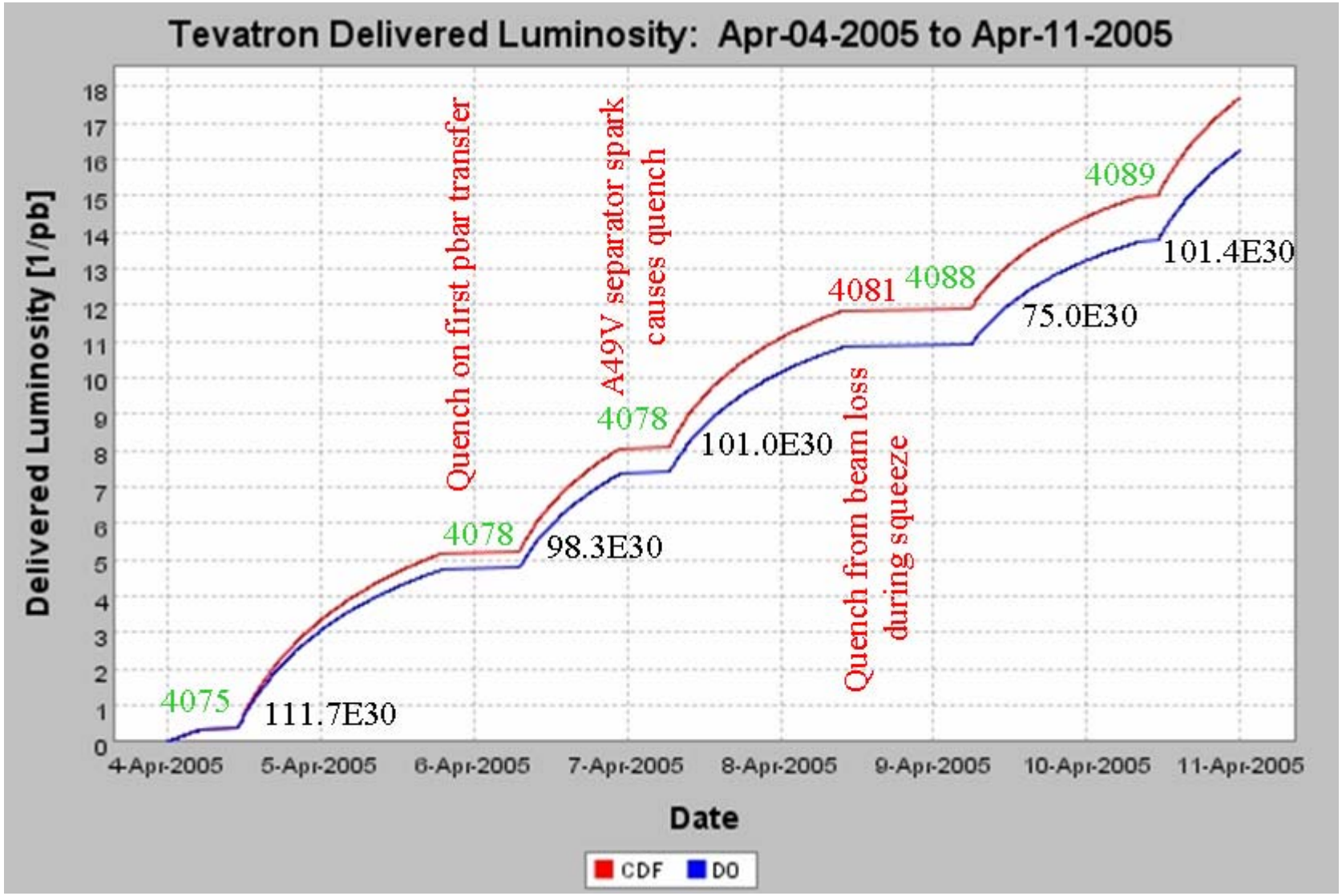
Dave McGinnis

April 11, 2005

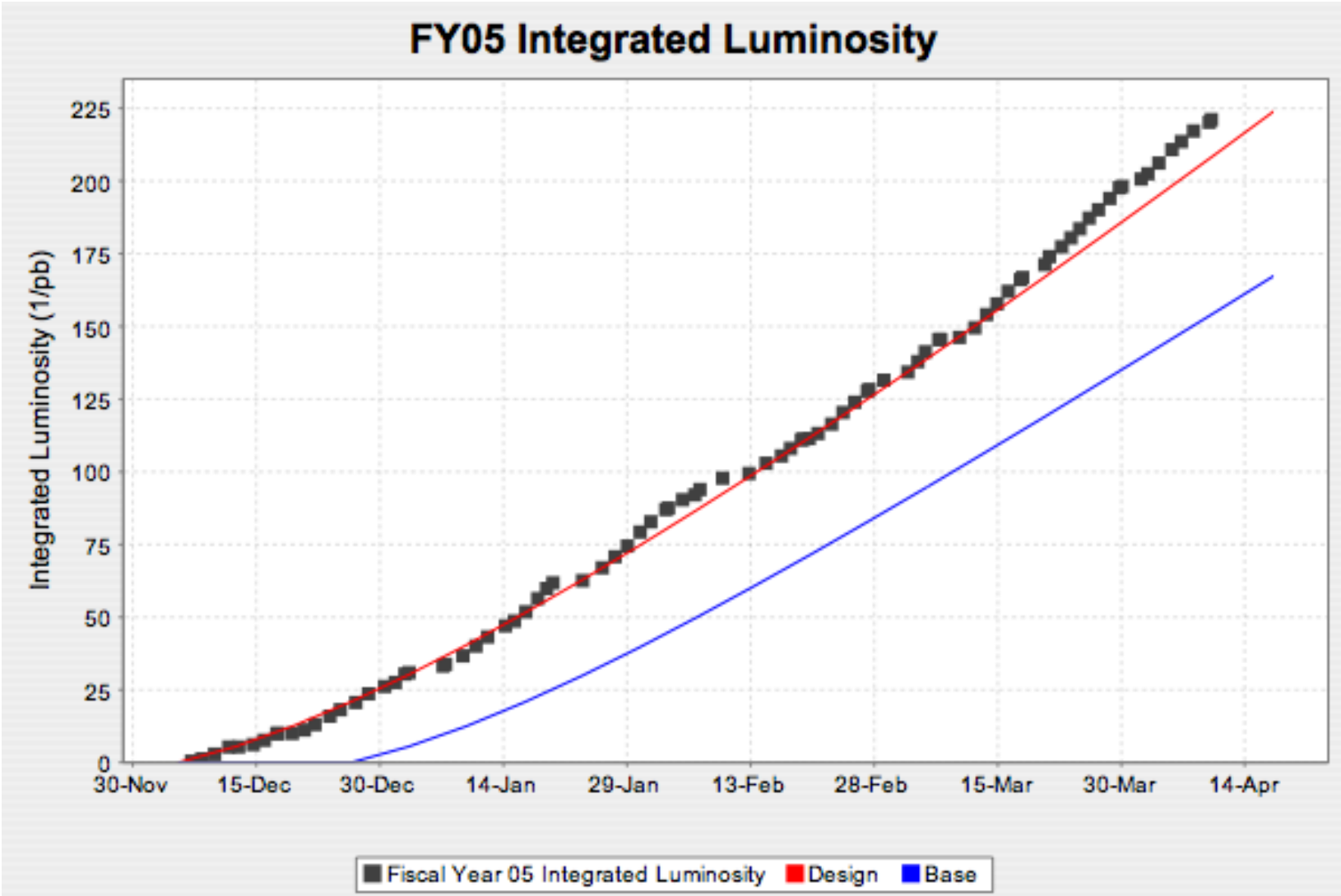
Store Summary

Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
4075	111.7	4,890	Planned	32.0	294.3	Combination shot (171.0/123.3E10)
4078	98.3	2,883	Loss of store	16.0	221.4	Combination shot (97.4/124.0E10), A49V separator spark
4081	101.0	3,788	Planned	27.5	200.6	Combination shot (87.7/112.9E10)
4084	0	0	Loss of store	0	165.4	Recycler only shot, quench during squeeze, C17 separator sparked
4088	75.0	3,109	Planned	26.4	155.4	
4089	101.4	4,015	Loss of store	26.1	209.7	Combination shot (158.7/51.0E10), Coasting beam valves shut causing quench

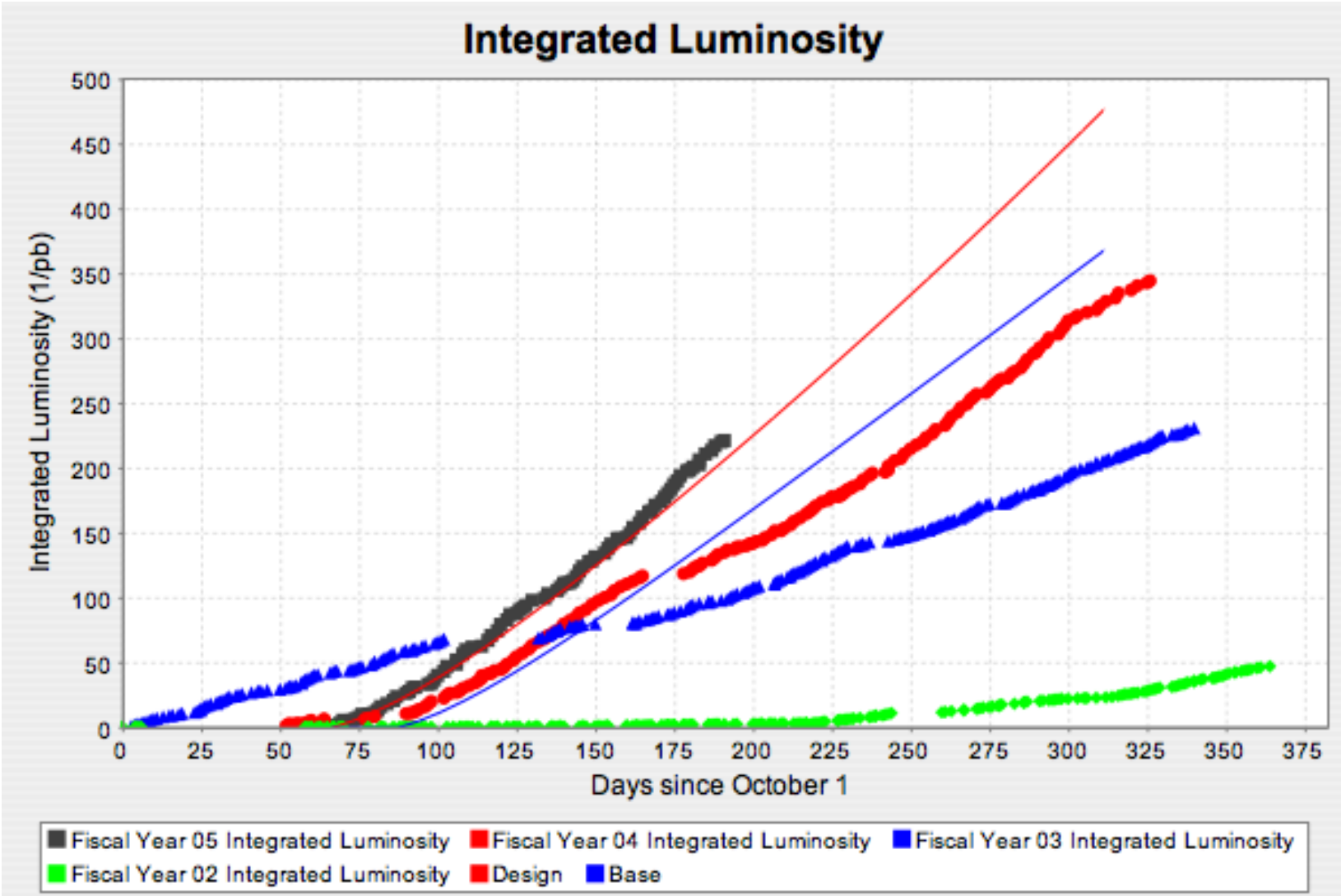
Store Summary



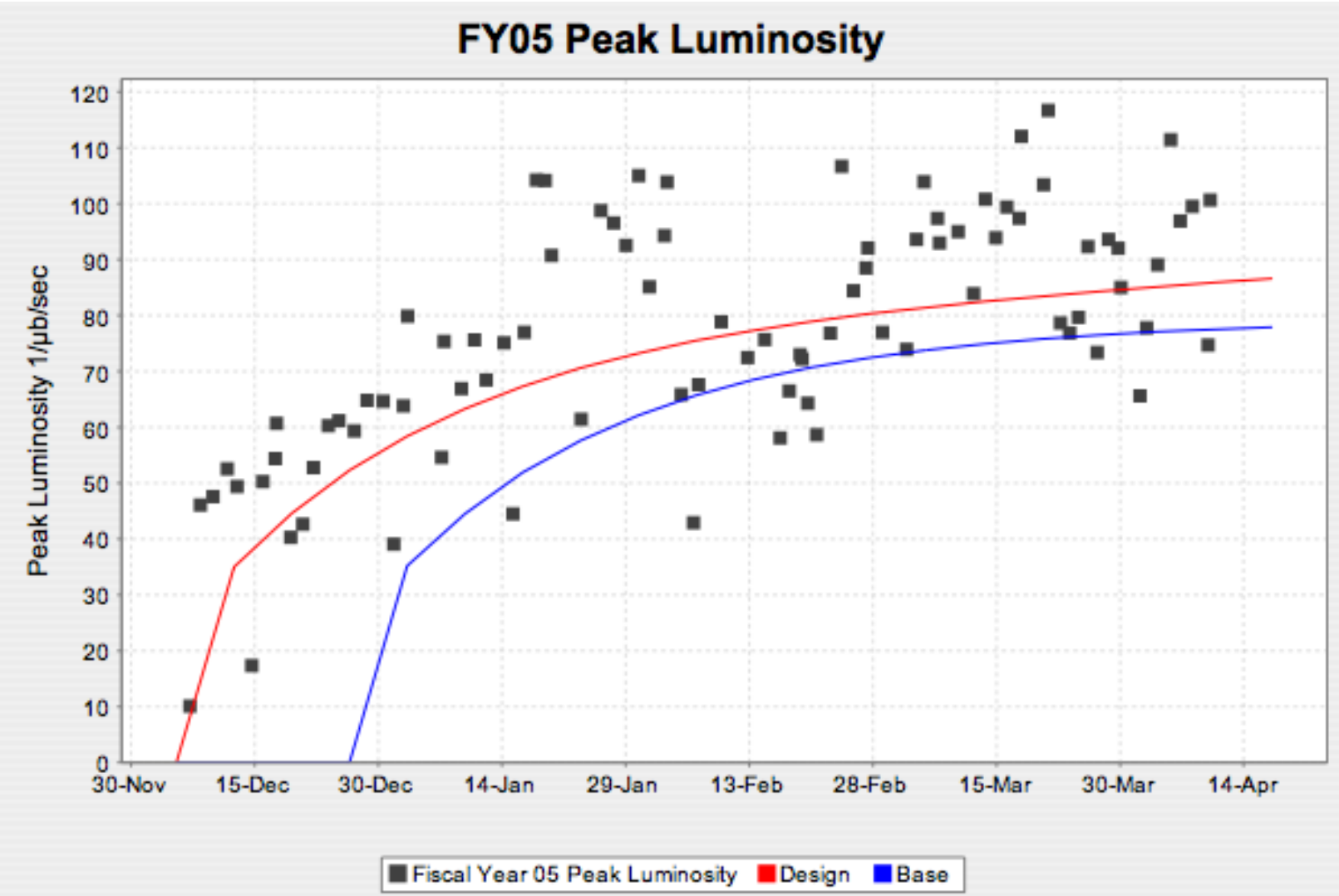
FY05 Integrated Luminosity



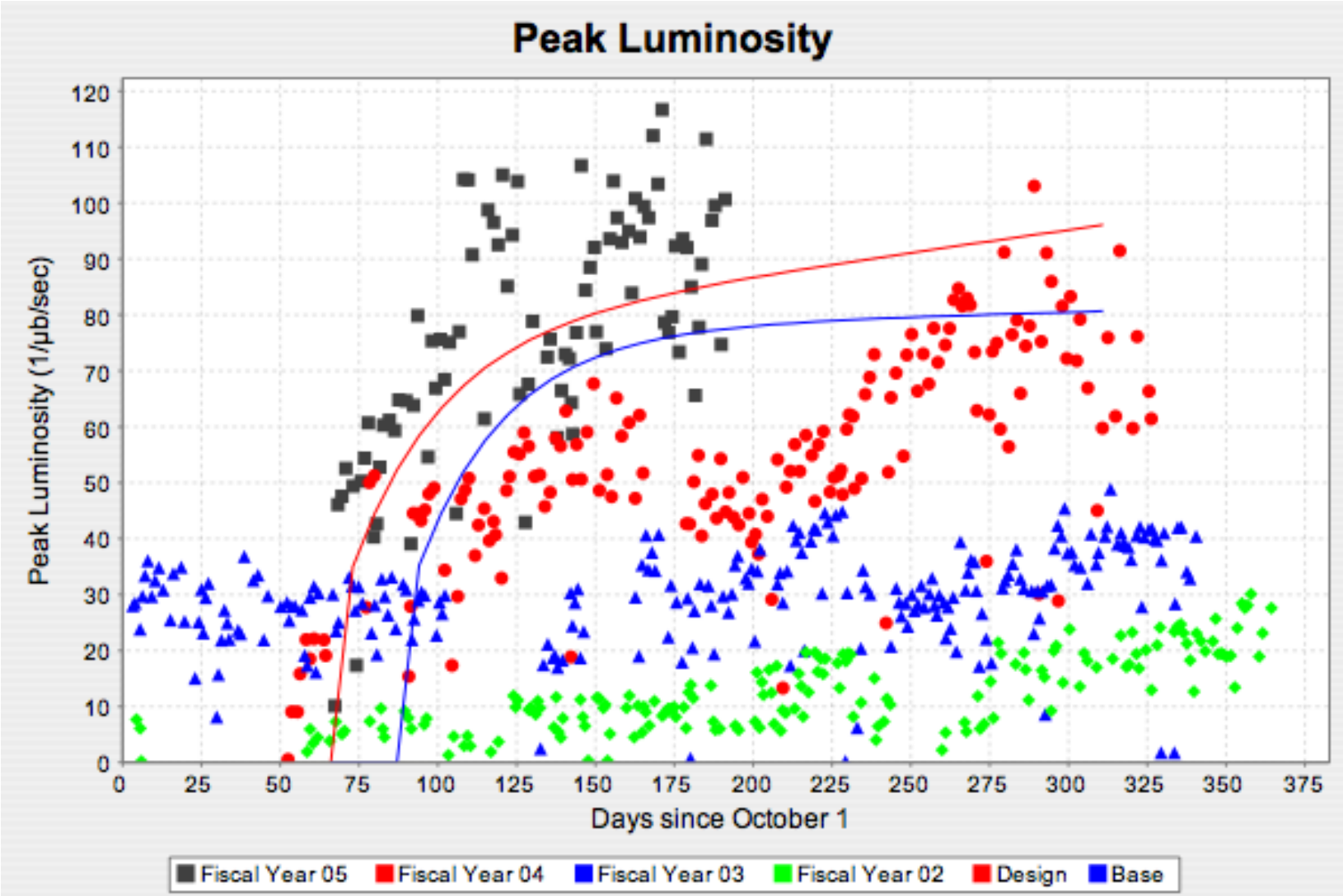
Integrated Luminosity



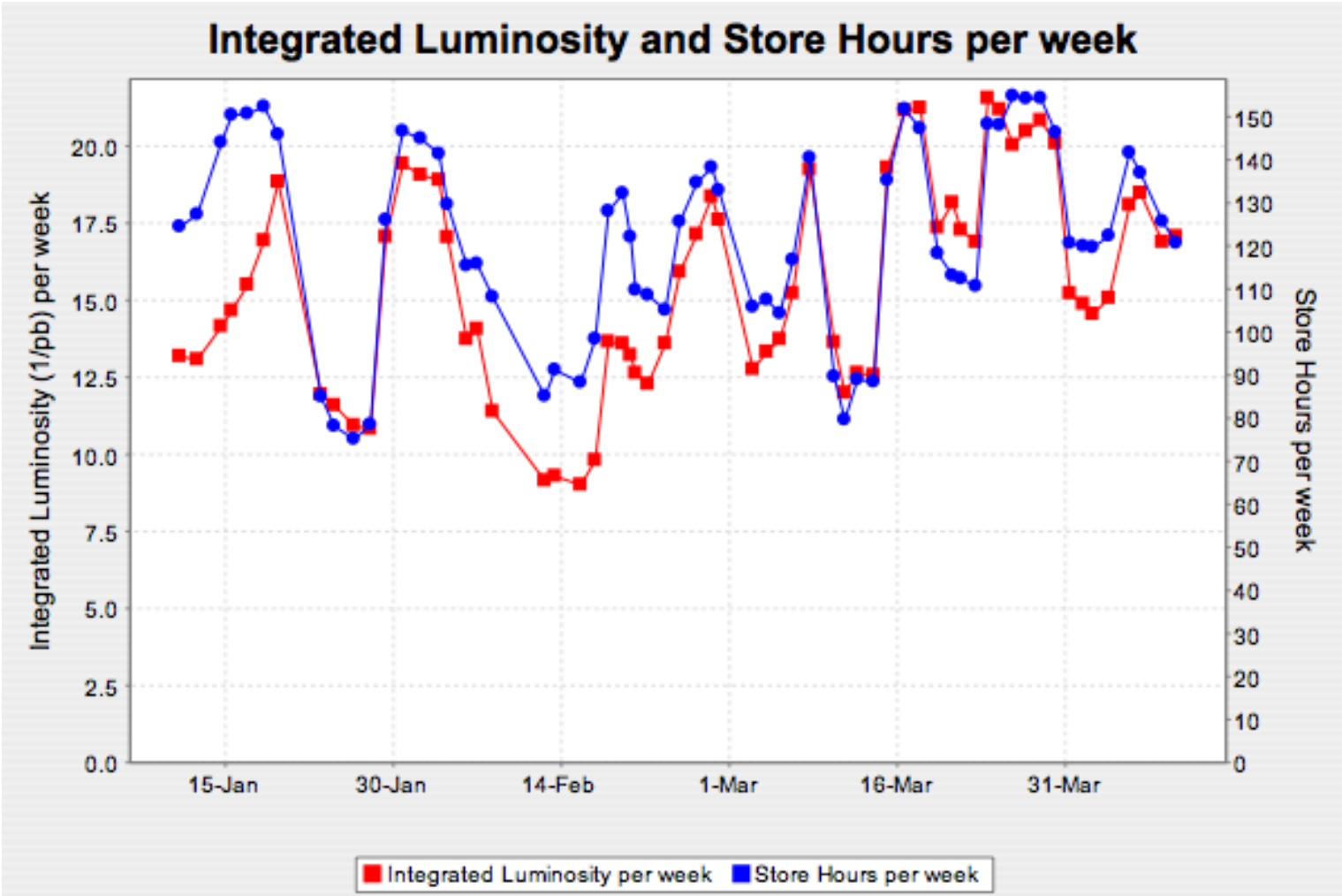
FY05 Peak Luminosity



FY05 Goals Peak Luminosity

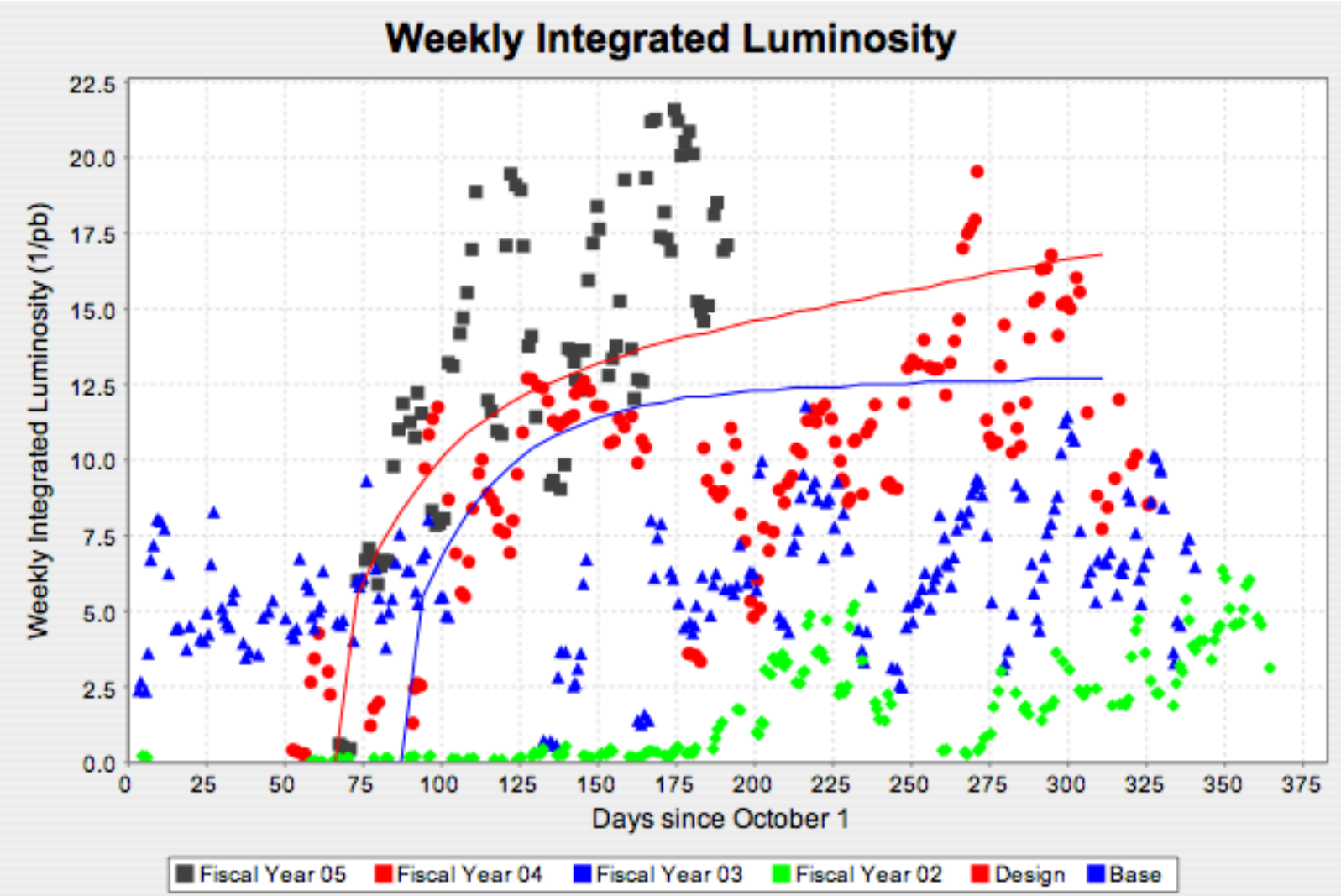


Integrated Luminosity and Store Hours per Week



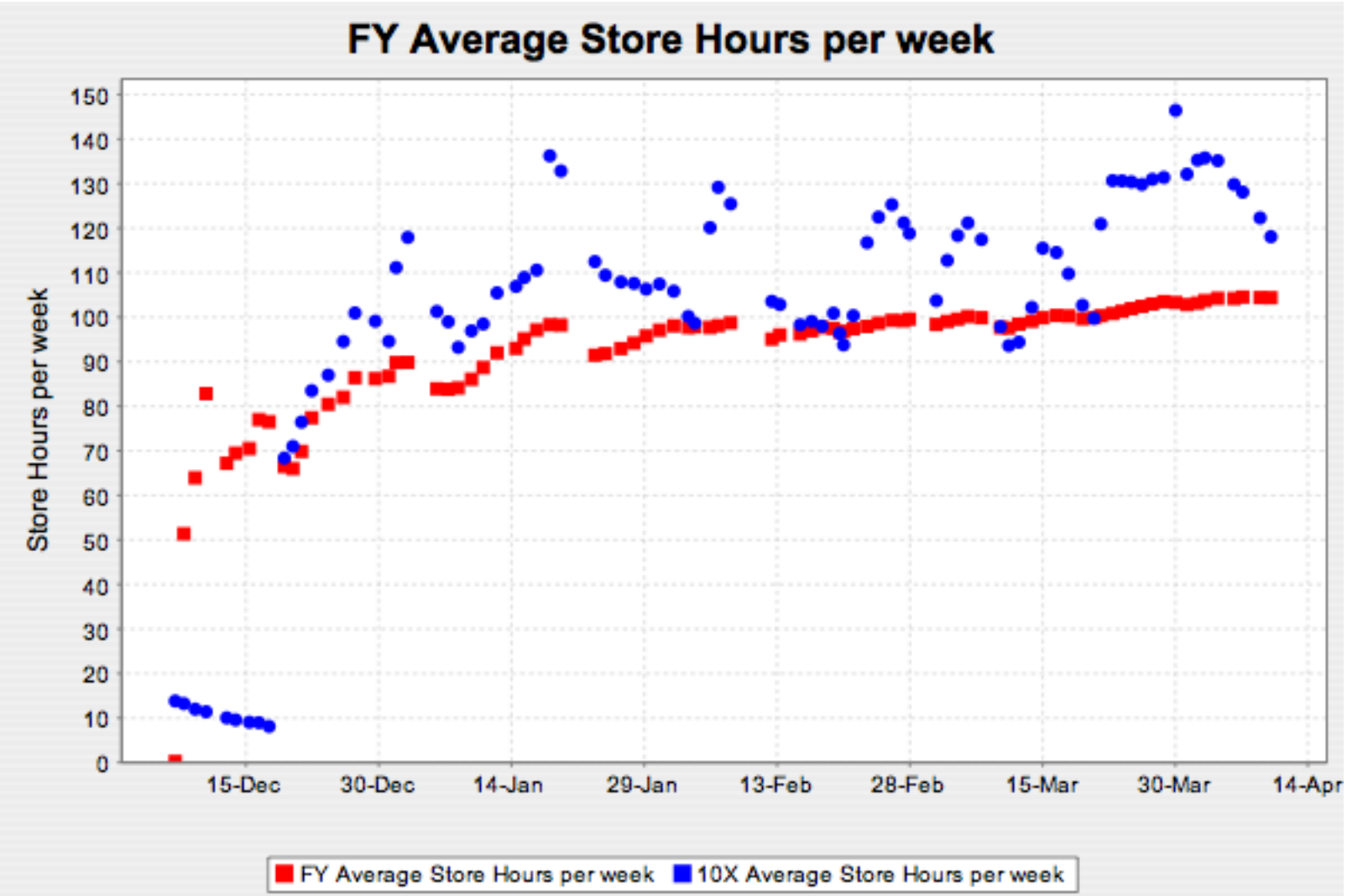
5 Store Running Average

FY05 Goals Weekly Integrated Luminosity

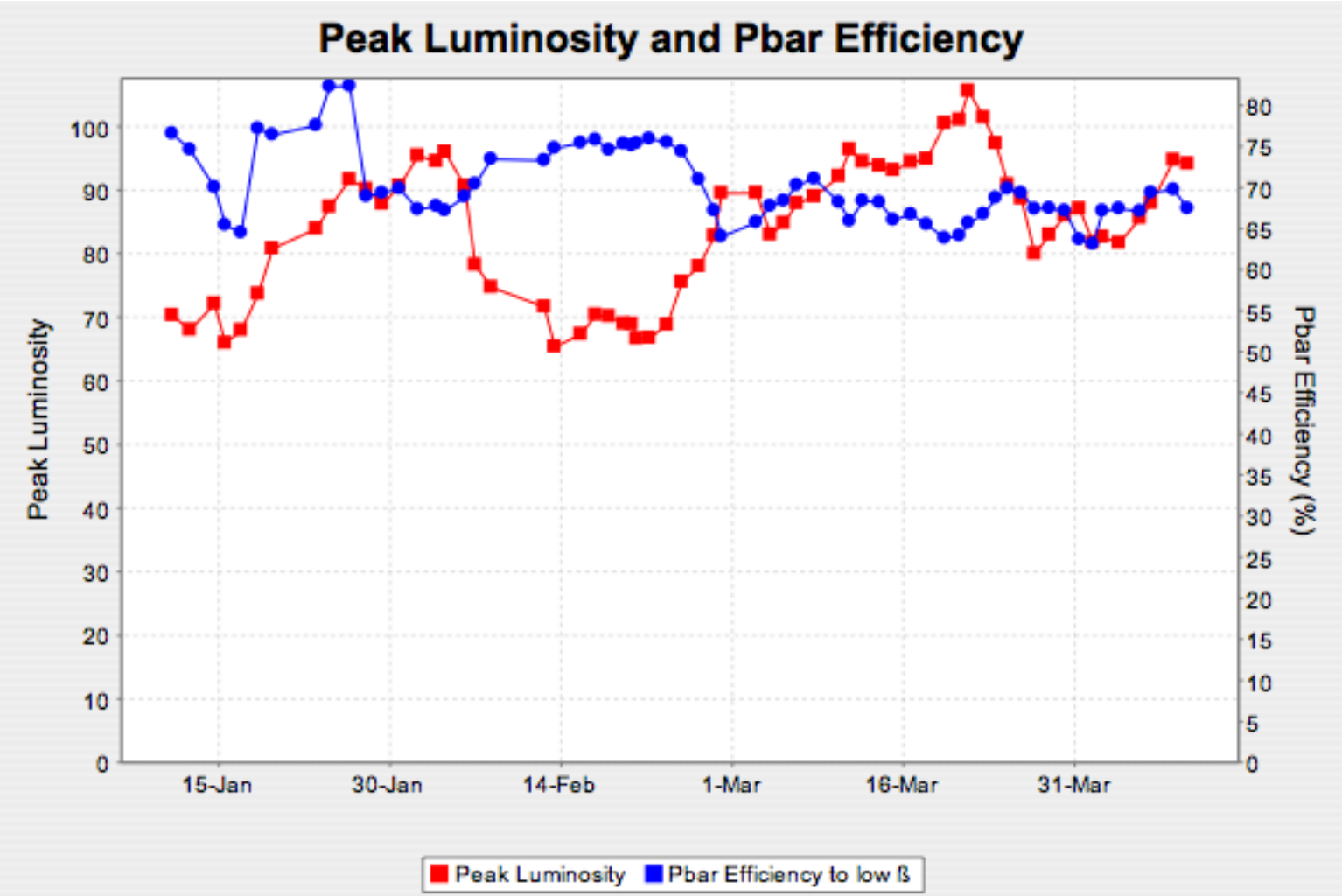


5 Store Running Average

FY05 Average Store Hours per Week



Peak Luminosity and Pbar Efficiency

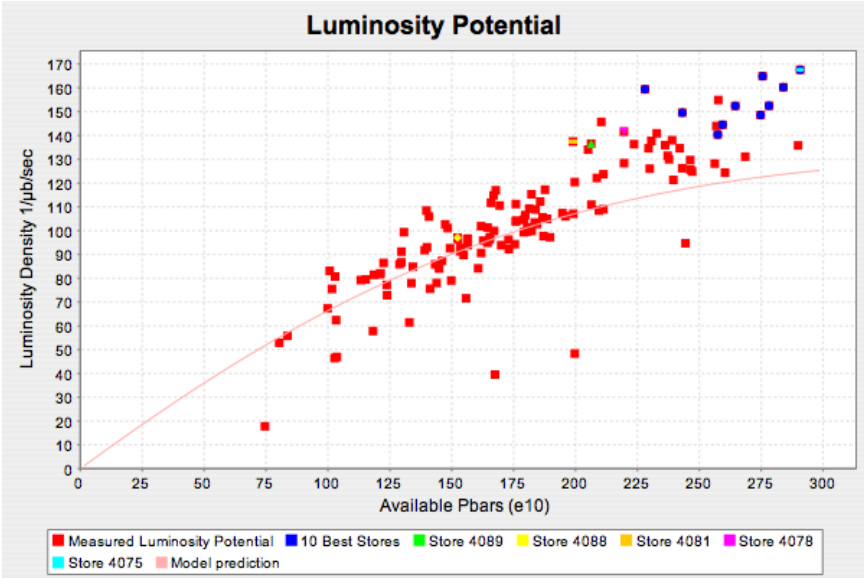


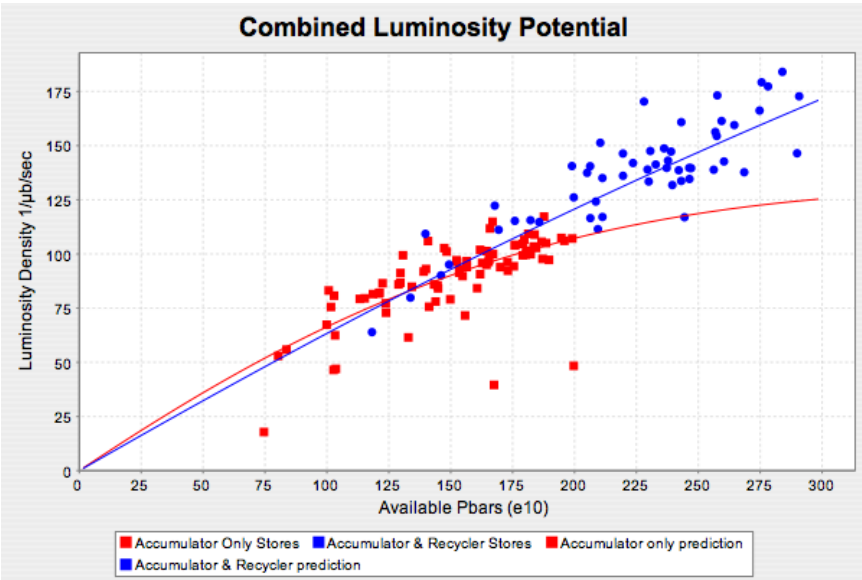
5 Store Running Average

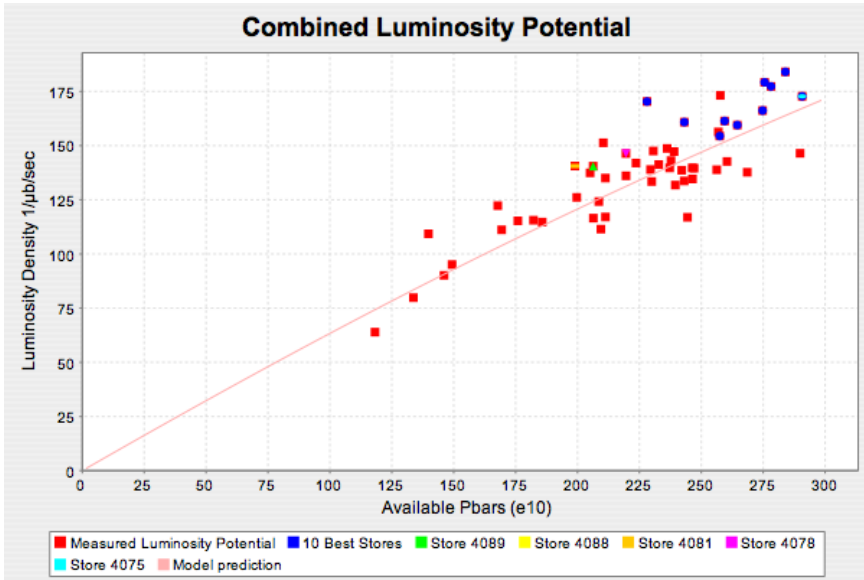
Data Summary Table

		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)	100.4	116.5	88.4	106.9	76.1	71.1	96.1	80.7	$x10^{30}cm^{-2}sec^{-1}$
Integrated Luminosity per Store (Avera	928.1	2746	2713.1	3327.6	2565.5	2660	3369	3190	nb^{-1}
Luminosity per week (Averaged)	-	-	15.5	-	12.6	11.8	16.8	12.7	pb^{-1}
Store Length	3.2	11.2	20.6	20.8	21.4	24.5	20	25	Hours
Store Hours per week	-	-	117.8	-	105	108.3	100	100	Hours
Shot Setup Time	2.8	2.2	2.7	2.8	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	238.4	237.7	232	231.9	223.4	247.3	260	260	$x10^{9}$
Antiprotons per bunch	34	42.3	33.1	41.5	31.3	30.1	42	34	$x10^{9}$
Proton Efficiency to Low Beta	66.8	60.7	60.3	62.6	62.2	72.7	-	-	%
Pbar Transfer efficiency to Low Beta	65.5	66.4	67.3	74.8	70.6	74	76	74	%
HourGlass Factor	0.67	0.67	0.67	0.68	0.67	0.68	0.65	0.65	
Effective Emittance	13.3	14.2	14.4	15.1	15.6	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	14.5	13.4	14.8	14	13	12.2	24.5	14	$x10^{10}$/hour
Normalized Zero Stack Stack Rate	2.2	2.3	2.3	2.3	2.2	2.3	3.1	2.3	$x10^{-2}$/hour
Average Stacking Rate	11.7	7.8	7.8	7.1	7.4	6.2	10.1	6.6	$x10^{10}$/hour
Stacking Time Line Factor	99.6	79.3	70.5	70.6	76.6	76.6	75	75	%
Stack Size at Zero Stack Rate	465.7	412.9	390	370.2	385.9	332.6	300	300	$x10^{10}$
Protons on Target	6.7	5.9	6.5	6	5.8	5.2	8	6.2	$x10^{12}$
Start Stack	206.6	275.9	204.1	265.9	187.3	170.7	216	181	$x10^{10}$
End Stack	20.3	46.9	25.9	45.5	21.4	15.8	15	15	$x10^{10}$
Unstacked Pbars	186.3	229	178.2	220.4	165.9	154.9	201	166	$x10^{10}$

Stack Size Potential







Studies

TEV Studies

Date	Duration (Hr)	Description
4/9/2005	1.5	Tune and orbit check-out and adjustment following quench
	1.5	Sum for Week
	205.9	Sum for Year
	11.7	Average per week

Pbar Studies

Date	Duration (Hr)	Description
4/6/2006	0.2	Debuncher bumping while stacking
4/8/2005	1.0	Low intensity Debuncher momentum measurements
	1.2	Sum for week
	57.4	Sum for year
	3.3	Average per week

MiniBoone

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Summary for Event 1D
From 28-MAR-2005 00:00:00
  to 04-APR-2005 00:00:00

Percentage up time: 79.7
Total Events:     2123808
Total Protons:    7.86E+18
Average Events/second:        4.23
Average protons/Event:        3.85E+12
Average protons/hour:         5.87E+16
Maximum protons/hour:         7.21E+16   03/28/05
(protons out)/(protons in):   .82
(Joules lost)/(1e12 prot):    23.4
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Summary for Event 1D
From 04-APR-2005 00:00:00
  to 11-APR-2005 00:00:00

Percentage up time: 89
Total Events:     2615584
Total Protons:    9.01E+18
Average Events/second:        4.54
Average protons/Event:        3.69E+12
Average protons/hour:         6.03E+16
Maximum protons/hour:         7.13E+16   04/07/05
(protons out)/(protons in):   .83
(Joules lost)/(1e12 prot):    21.3
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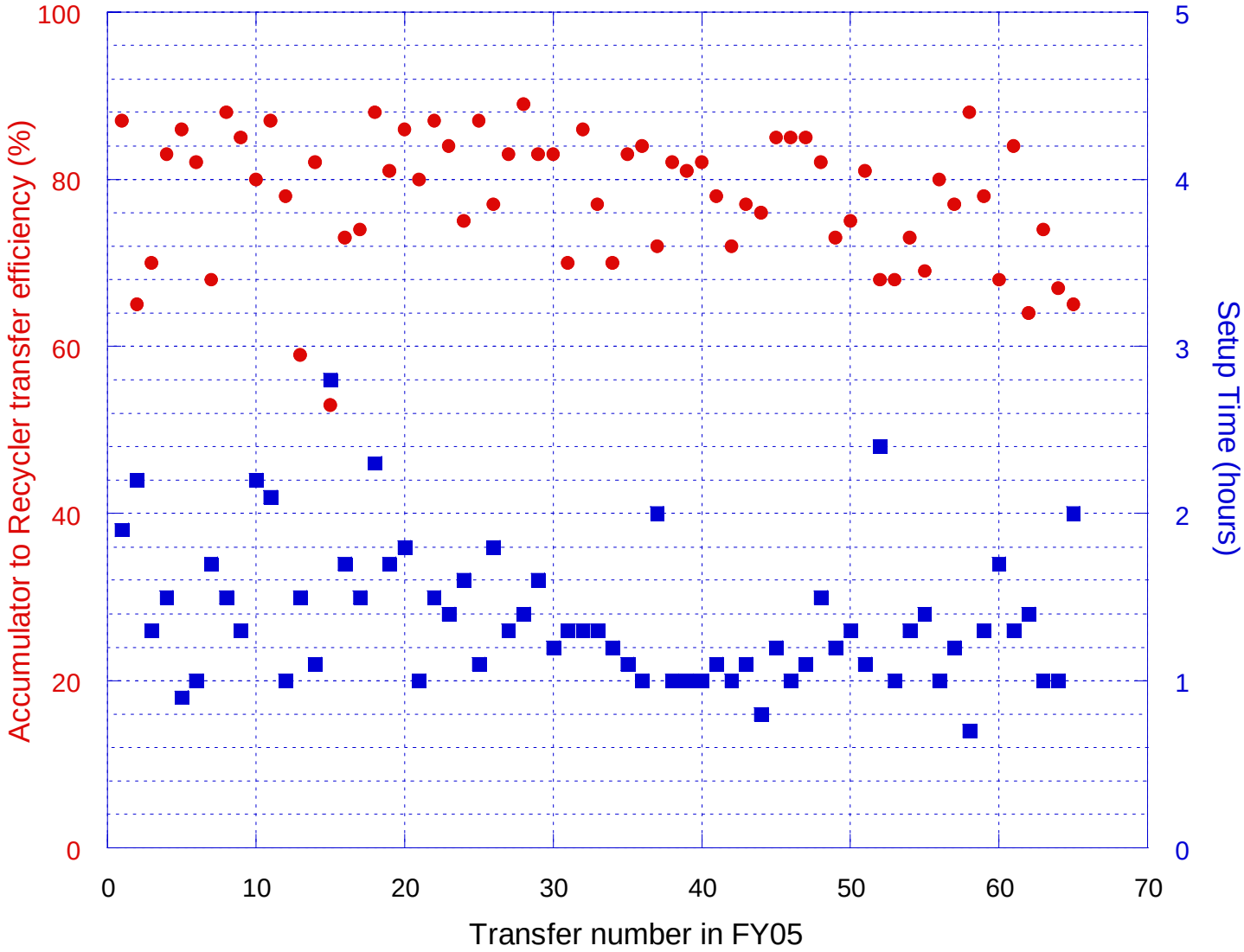
Up 15% from last week

Plan for the Week

- Proton Source
  - Slip Stacking Studies
- Main Injector
  - Slip Stacking Studies
- Pbar
  - Slip Stacking Studies
  - Accumulator to Recycler Transfers
    - GOAL: 90% efficient, 15 minute turn around by June 1
  - Beam Based Alignment
  - Back out of η change in Debuncher
- Recycler
  - Accumulator to Recycler Transfers
    - GOAL: 90% efficient, 15 minute turn around by June 1
  - Recycler Only Store
- Tevatron
  - Step 24-25 loss
    - Incremental chromaticity changes each store
  - IP move at CDF
    - Incremental store to store changes
  - Fix operational concerns of octupoles
  - Vary helix size store-to-store
  - Longitudinal instability and RF cavity tuning

Accumulator to Recycler Transfers