All Experimenter's Meeting

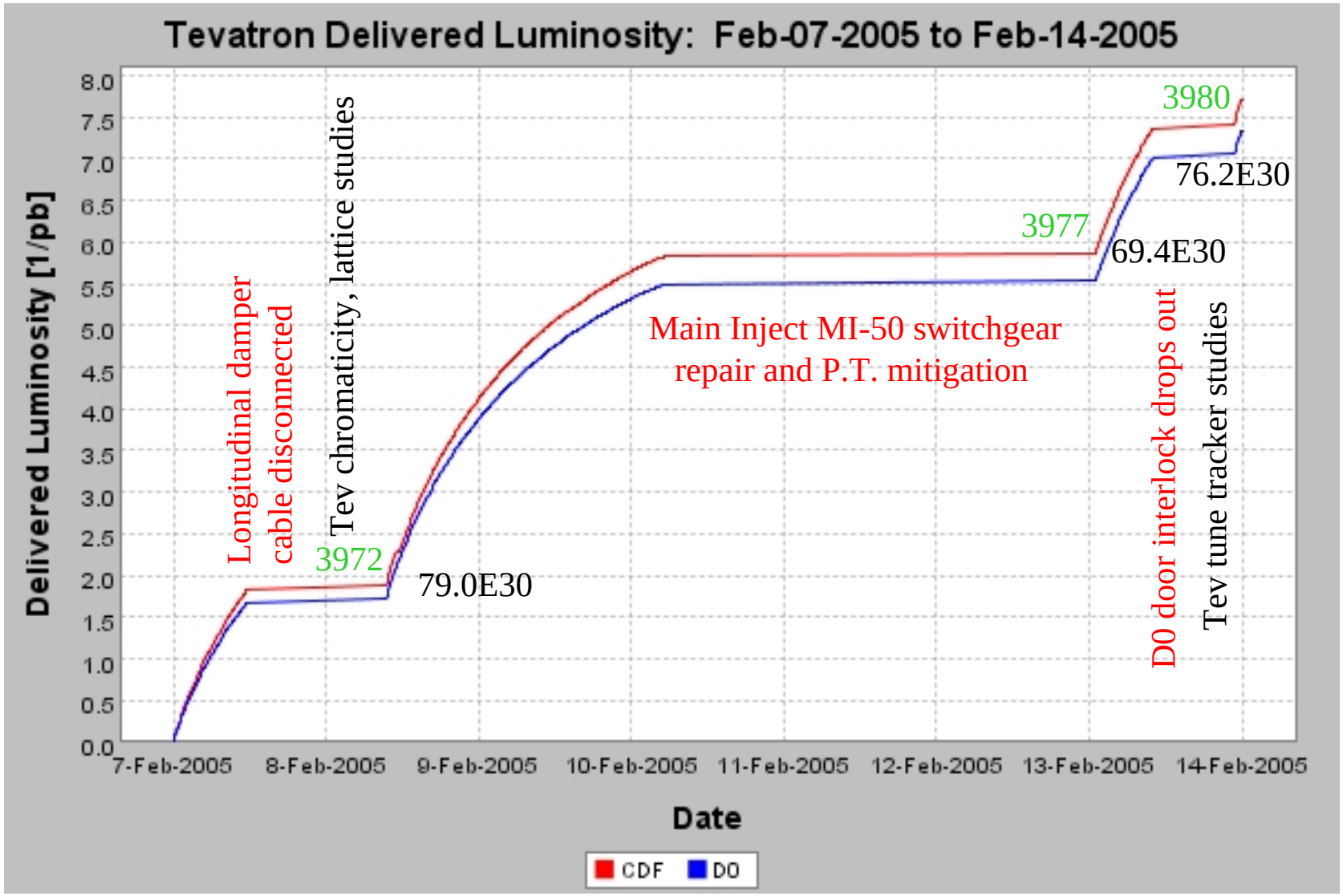
Dave McGinnis

February 14, 2005

Store Summary

Store	Initial Lum. (E30)	Deliv'd Lum. (nb^{-1})	Termination	Time (hr)	Total Pbars (E10)	Comments (Stack/Stash)
3972	79.0	4,110	Planned	44.2	184.1	Combination shot (95.1/89.0E10)
3977	69.4	1,550	Loss of store	9.2	150.6	D0 safety door interlock went bad
3980	76.2	2,100+	Pending	13+	141.9	Combination shot (104.4/37.5E10)

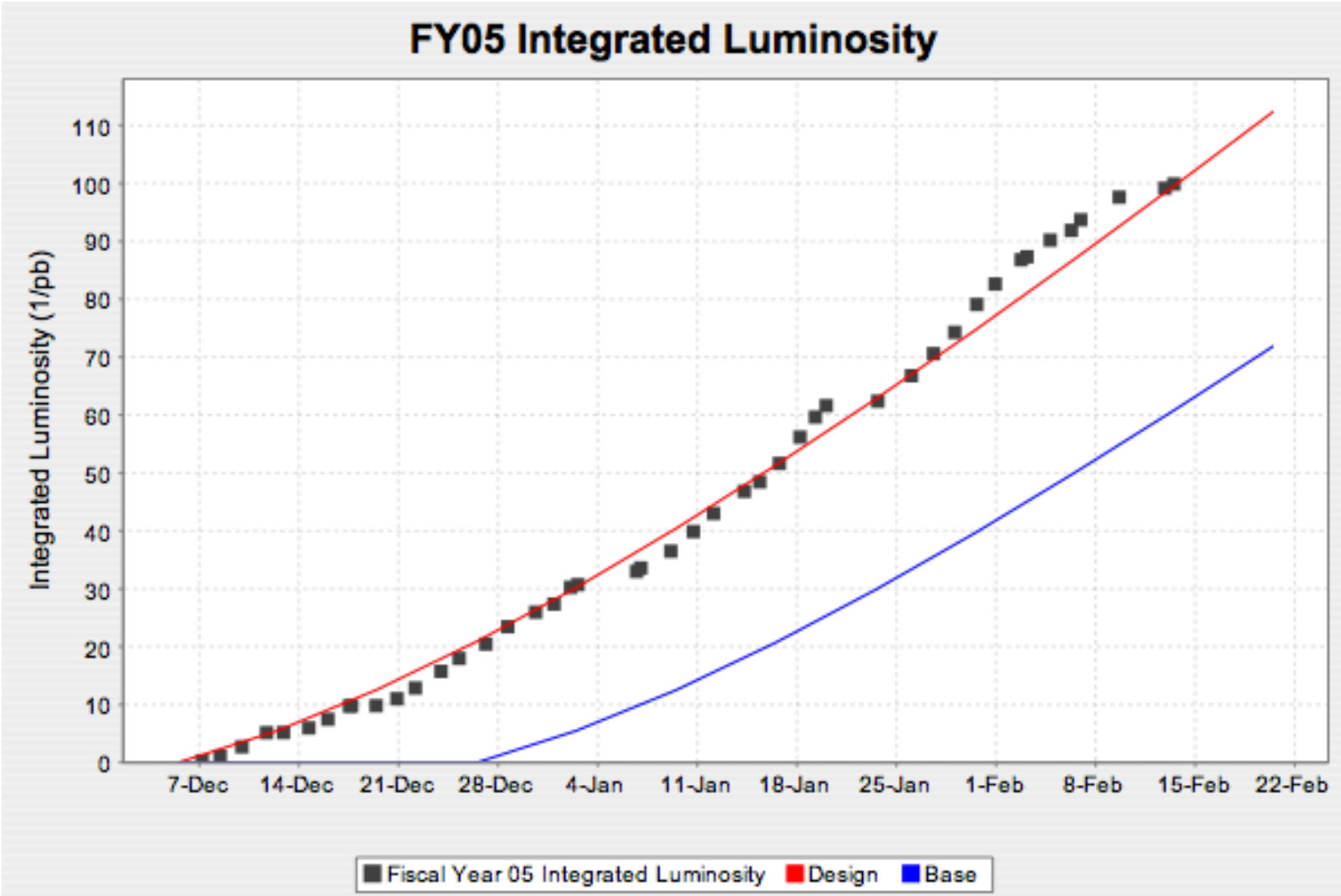
Store Summary



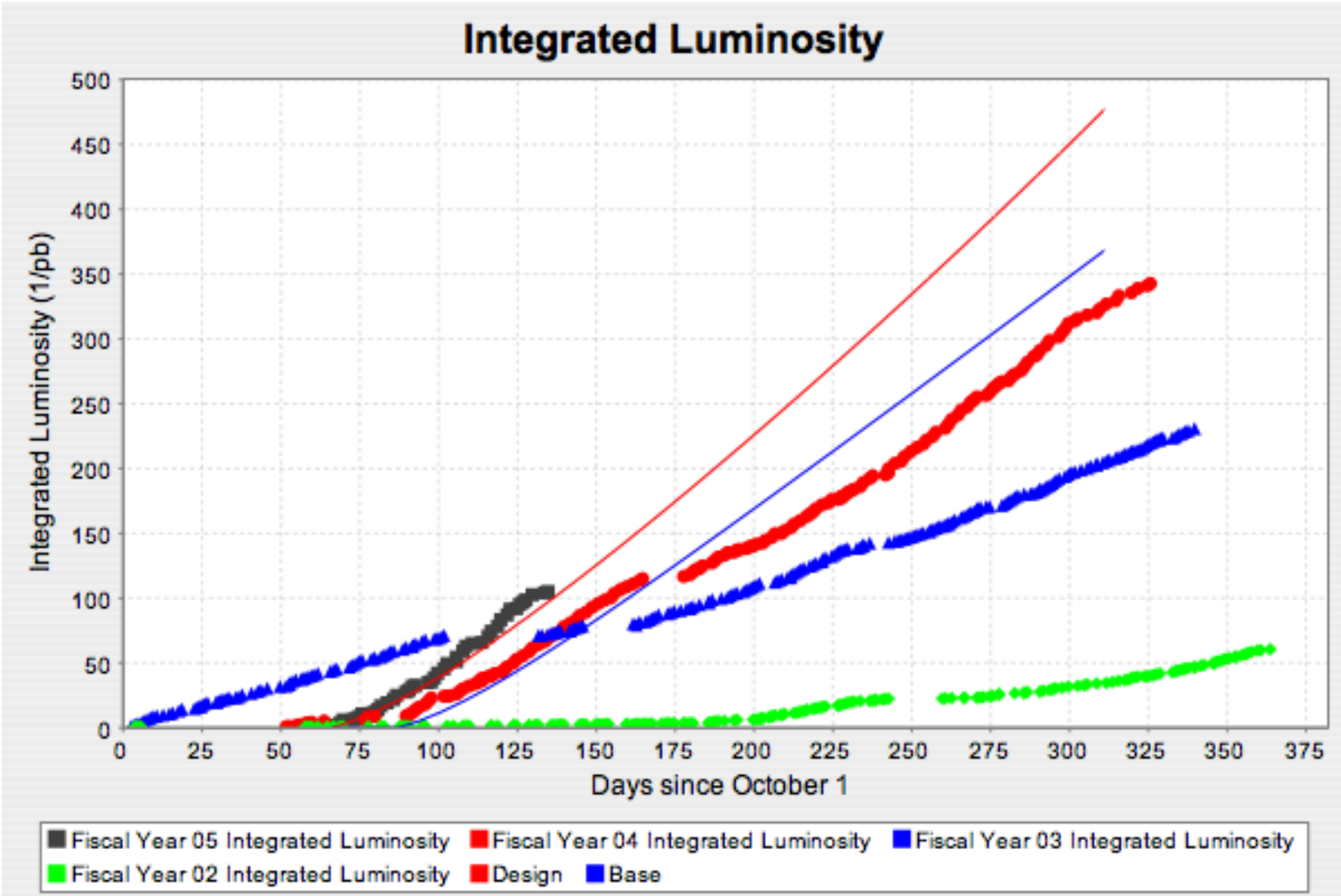
Tunnel Work

- Proton Source
  - Linac line conditioner installed on Station 5
  - Booster RF Work
  - Booster Rad survey
  - Booster Septum MP01 move
- Main Injector
  - Power supply switch gear reconfigured
  - RF Work
  - Rad Survey
- Pbar
  - AP2 toriod installation
  - Debuncher parallel notch filter installation
  - Dex Bump controls
- Recycler
  - Ecool prep work
- Tevatron
  - F17 kicker fixed
  - F sector vacuum leak identified (need 1 more shift tore repair)
  - A49 separator leak fixed
  - Crystal collimator fixed

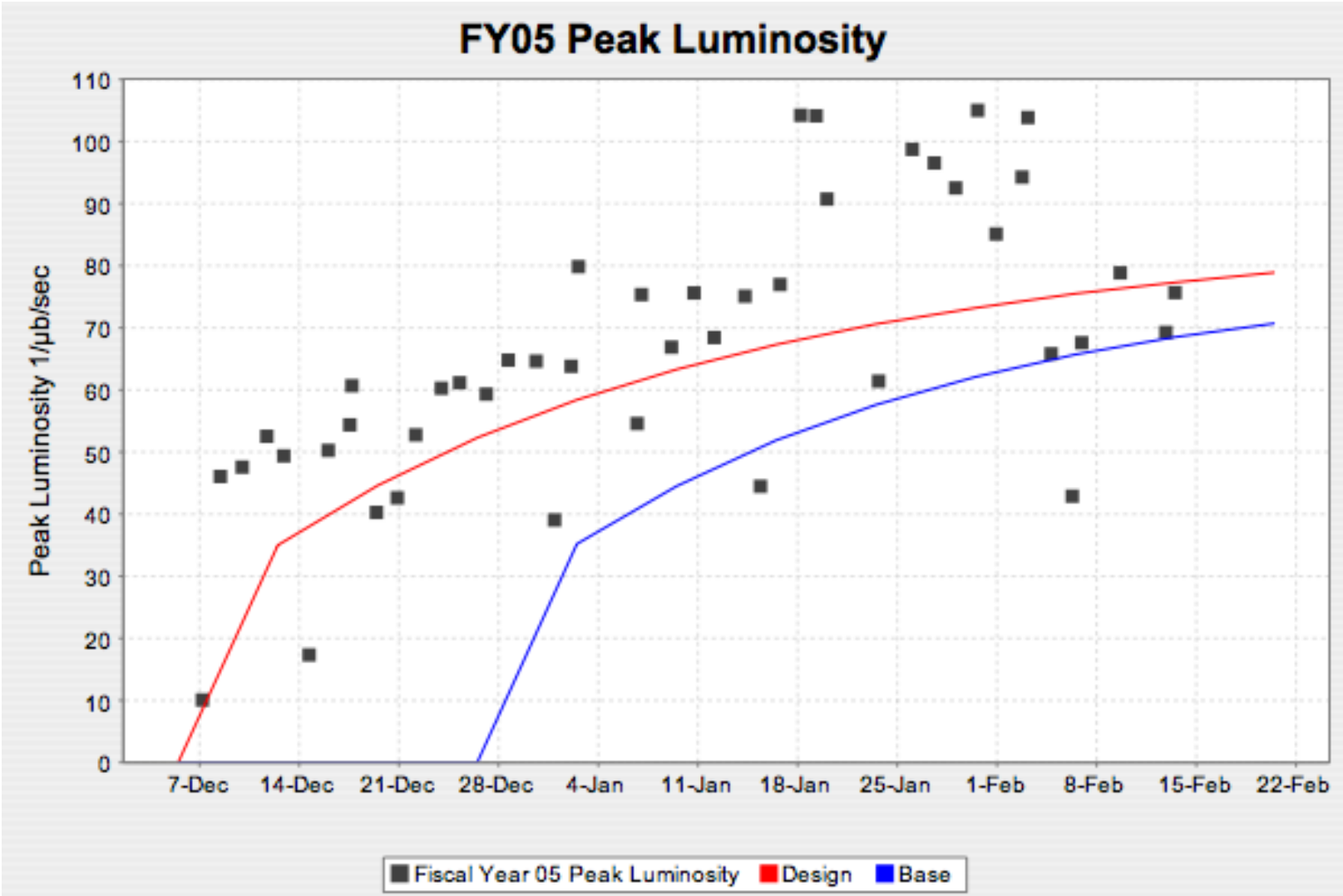
FY05 Integrated Luminosity



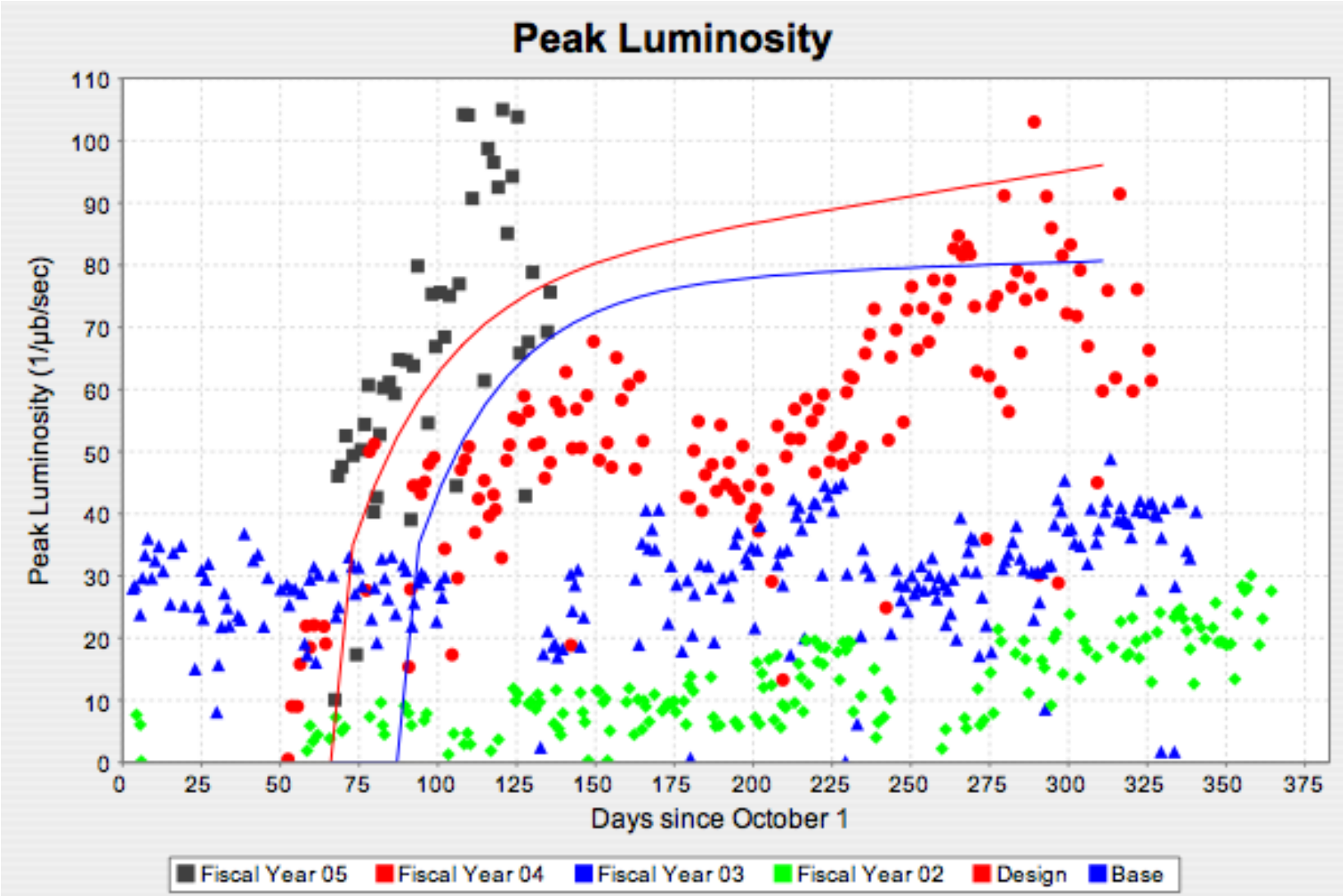
Integrated Luminosity



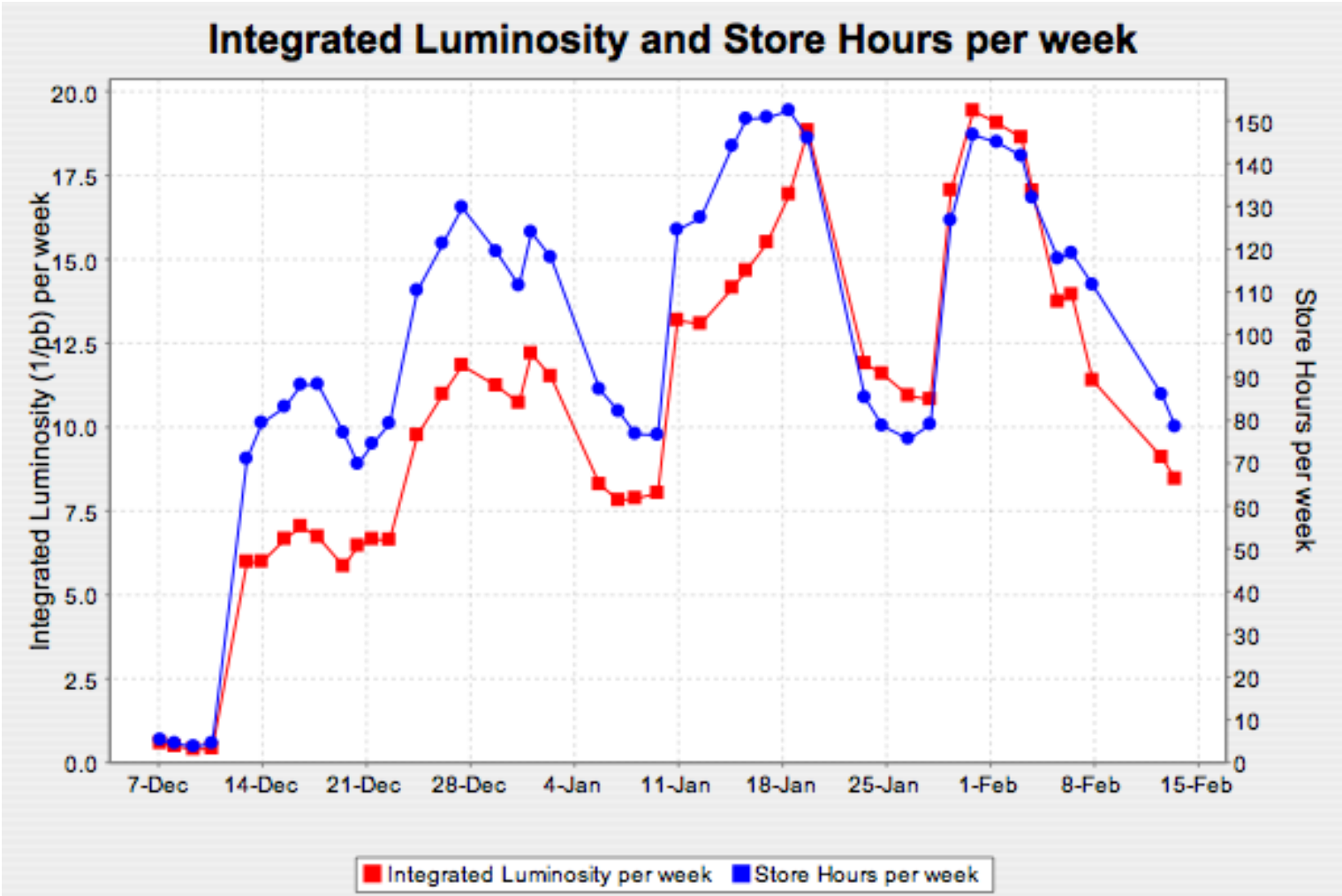
FY05 Peak Luminosity



FY05 Goals Peak Luminosity

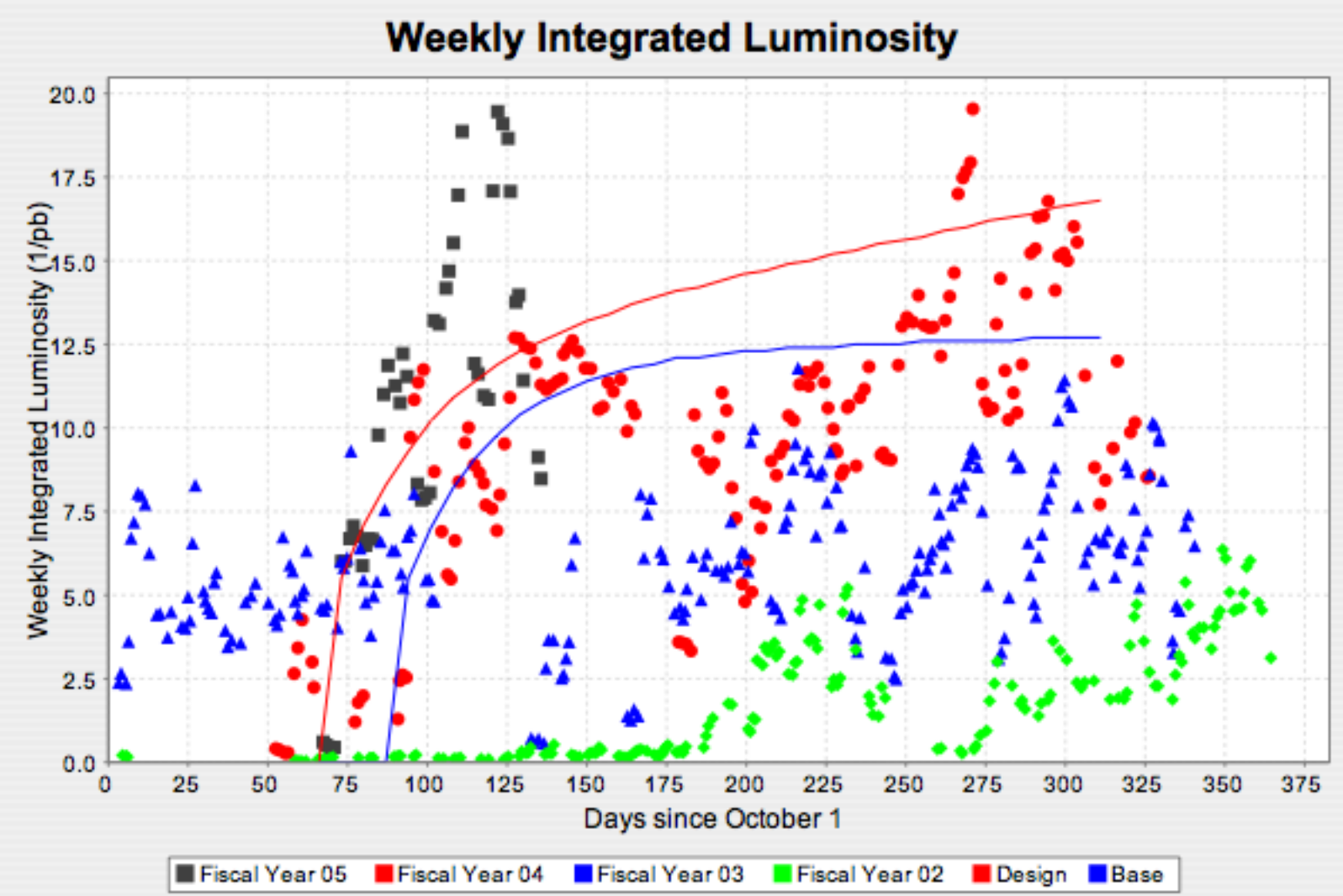


Integrated Luminosity and Store Hours per Week



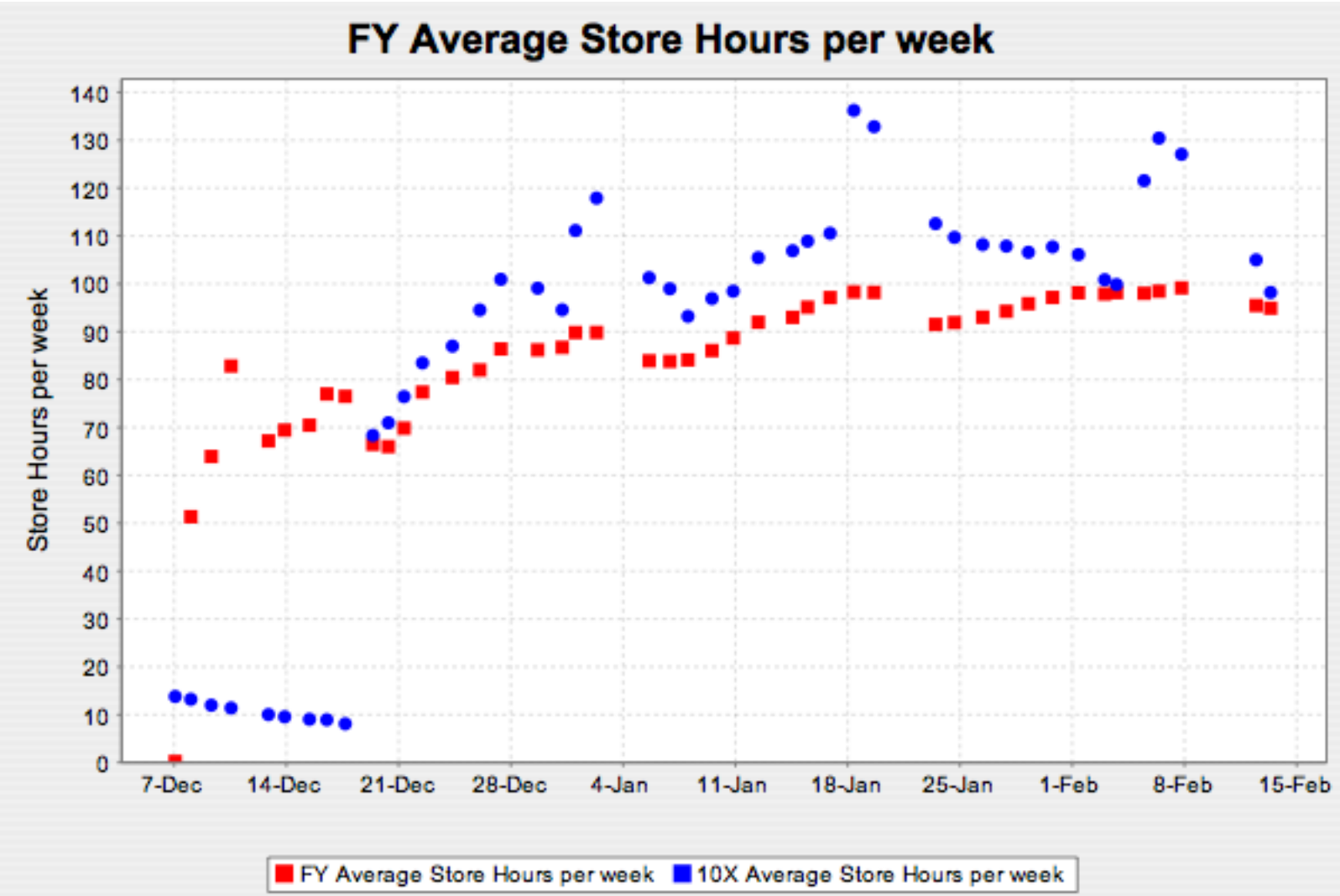
5 Store Running Average

FY05 Goals Weekly Integrated Luminosity

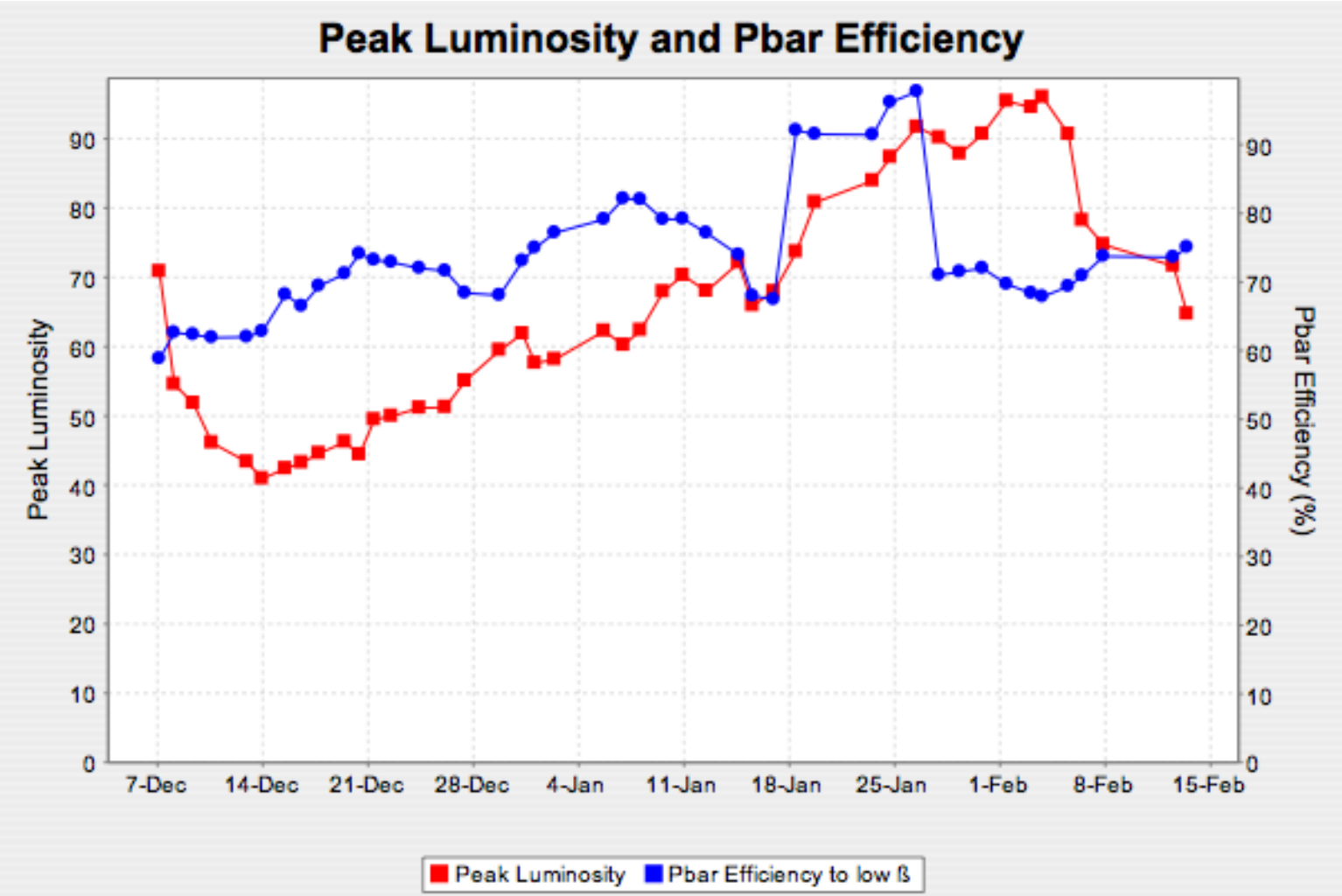


5 Store Running Average

FY05 Average Store Hours per Week



Peak Luminosity and Pbar Efficiency

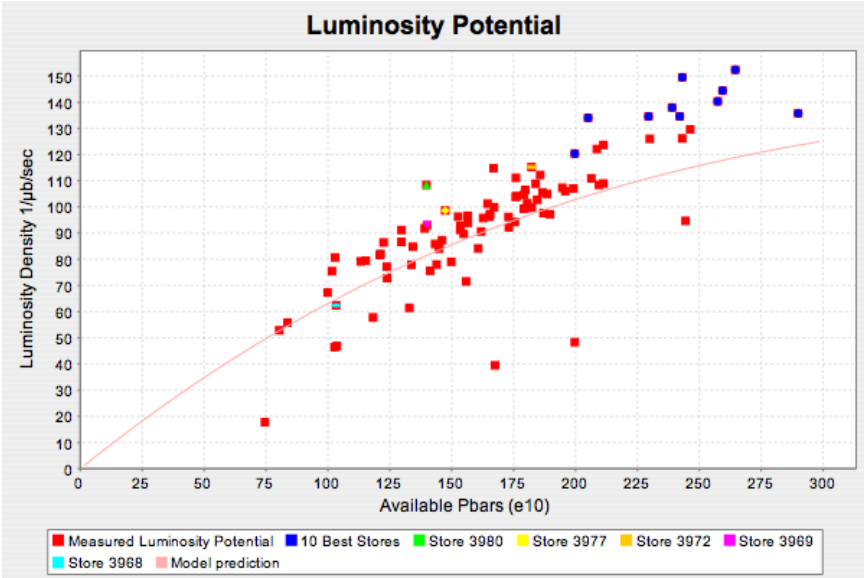


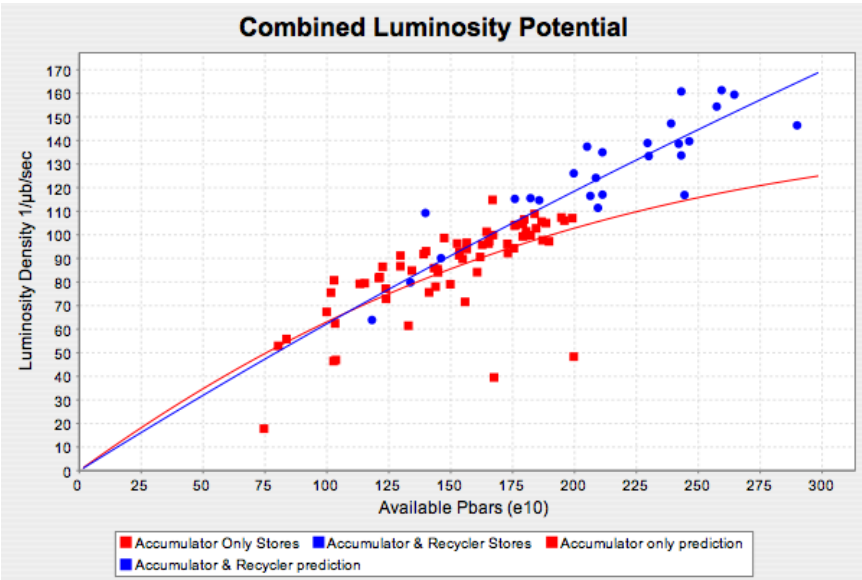
5 Store Running Average

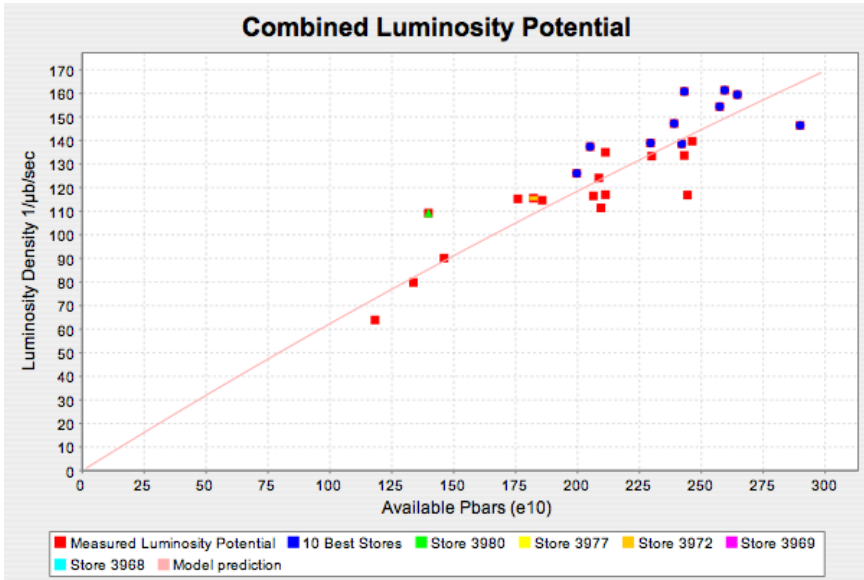
Data Summary Table

		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)	75.5	104.8	80.3	99.2	66.1	71.1	96.1	80.7	$x10^{30}cm^{-2}sec^{-1}$
Integrated Luminosity per Store (Avera	740.5	4811.8	2561.5	3738.9	2263.5	2660	3369	3190	nb^{-1}
Luminosity per week (Averaged)	-	-	11.8	-	10.3	11.8	16.8	12.7	pb^{-1}
Store Length	3.3	33.2	21.3	27.9	21	24.5	20	25	Hours
Store Hours per week	-	-	98	-	96	108.3	100	100	Hours
Shot Setup Time	3.6	2.5	3.1	2.8	3.1	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	222.2	237.1	226.4	234	216	247.3	260	260	$x10^{9}$
Antiprotons per bunch	28.8	42.8	34.1	40.1	29	30.1	42	34	$x10^{9}$
Proton Efficiency to Low Beta	71.3	67	64.6	67.5	61.6	72.7	-	-	%
Pbar Transfer efficiency to Low Beta	78.6	69.5	71.5	51.1	74.3	88.6	76	74	%
HourGlass Factor	0.68	0.67	0.67	0.67	0.67	0.68	0.65	0.65	
Initial Luminosity Lifetime	0	0	0	0	0	0	0	0	hours
Asymptotic Luminosity Lifetime	0	0	0	0	0	0	0	0	hours
Effective Emittance	14.1	16	16	15.6	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	8.8	12.5	12	13.3	11.8	22.2	24.5	14	$x10^{10}$/hour
Normalized Zero Stack Stack Rate	1.5	2.2	2.1	2.4	2.1	2.3	3.1	2.3	$x10^{-2}$/hour
Average Stacking Rate	0	5.5	8	6.7	6.7	6.2	10.1	6.6	$x10^{10}$/hour
Stacking Time Line Factor	0	61.4	84.2	76.3	78.1	77.9	75	75	%
Stack Size at Zero Stack Rate	-2271.7	377.9	442.6	324.1	390.8	325.8	300	300	$x10^{10}$
Protons on Target	5.7	5.6	5.7	5.5	5.5	5.3	8	6.2	$x10^{12}$
Start Stack	140.1	257.7	187.7	243.3	167.2	170.7	216	181	$x10^{10}$
End Stack	8	34.7	20.3	29	15.5	15.8	15	15	$x10^{10}$
Unstacked Pbars	132.1	223	167.4	214.3	151.7	154.9	201	166	$x10^{10}$

Stack Size Potential





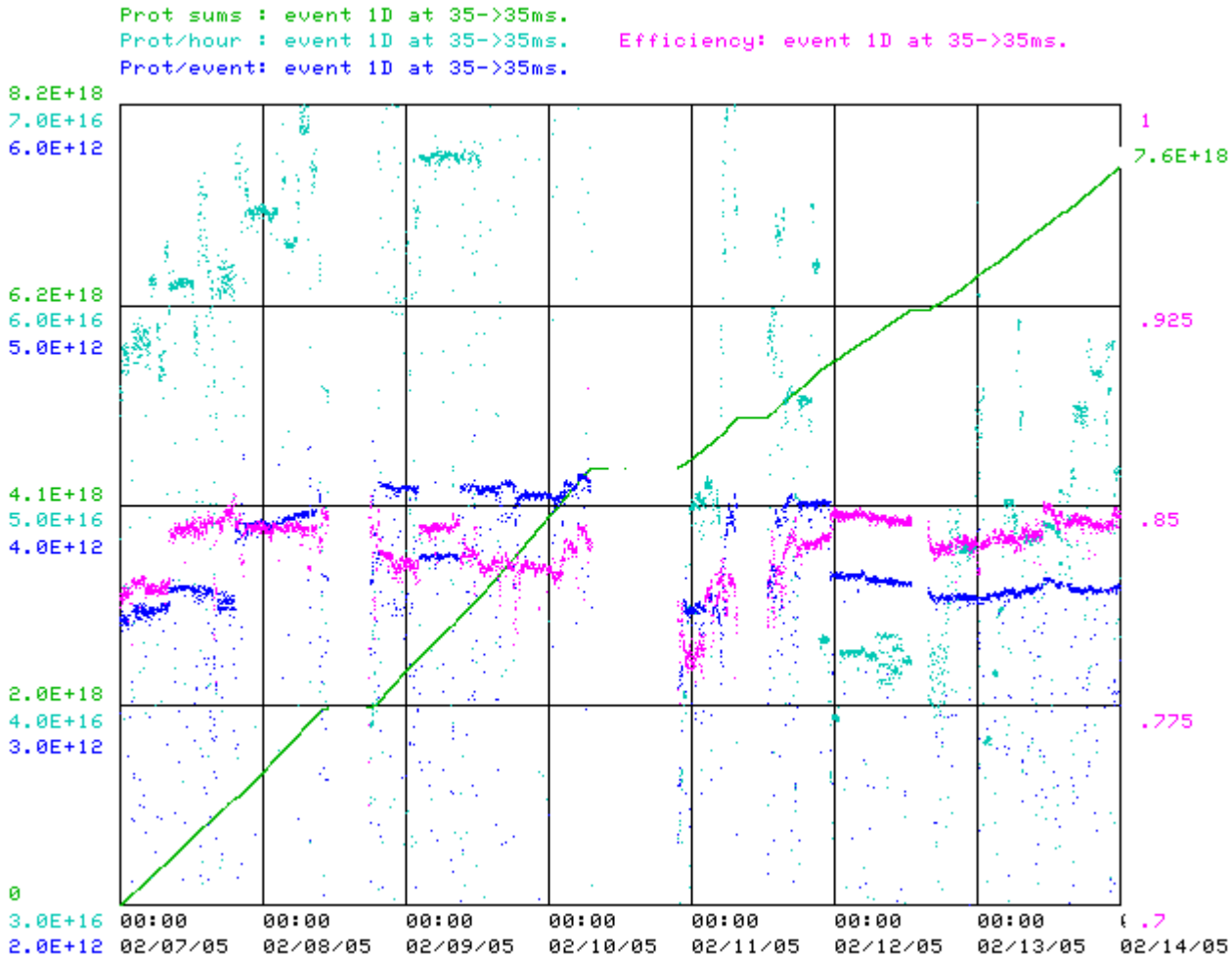


TEV Studies

Date	Duration (Hr)	Description
2/7/2005	0.3	Longitudinal damper check
2/7/2005	1.0	Chromaticity measurements
2/7/2005	2.0	Lattice measurements
2/12/2005	2.0	Wet squeeze to verify orbits etc.
2/13/2005	2.5	Tune tracker
	7.8	Sum for Week
	130.0	Sum for Year
	13.6	Average per week

Pbar Studies

MiniBoone



Down 7.3% from last week

Plan for the Week

- Proton Source
  - Push Mini-Boone protons/hour
  - Work on slip-stacking beam loss
- Main Injector
  - Find and fix source of intermittent large TBT oscillation for pbar transfers (DONE)
  - Work on slip-stacking beam loss
  - NUMI multi-batch studies
- Pbar
  - Find and fix source of intermittent large TBT oscillation for pbar transfers (DONE)
  - Continue to develop time-lines that push the cycle time at intermediate stack sizes
  - Beam Based Alignment
    - Forward Pbar AP2
    - Forward Pbar 3-bump Debuncher Aperture scans
    - Forward Pbar D/A line
  - Optimize Accumulator/Recycler pbar transfers
- Recycler
  - Optimize Accumulator/Recycler pbar transfers
  - Investigate stochastic cooling limitations
- Tevatron
  - Finish operational implementation of octupoles
  - Store-to-store orbit corrections