

Comparison of Performance Reach of 50ns and 25 ns

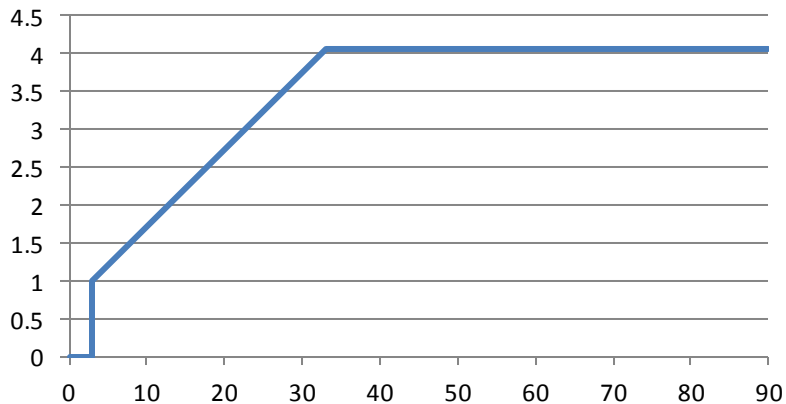
Luminosity comparisons are wrt 1380 bunch operation with 1.1E11ppb, emittance 2.7um, beta* = 1.5, Lumi = 1.2E33

Parameter and Criteria	adiabatic?	Estimated Max Lumi Improvement Factor	Lost Time for physics (days)	Risk/ Reversibility	Pile-up	Cumulative Improvement factor (50ns)	Cumulative Improvement factor (25ns)
ppb	yes	2	0	0	higher	Yes	No
emittance	yes	1.35	0	0	higher	Yes	No
beta*	No	1.5	3	>0	higher	Yes	Yes
25ns	No	1.9	7	>0	same	No	Yes

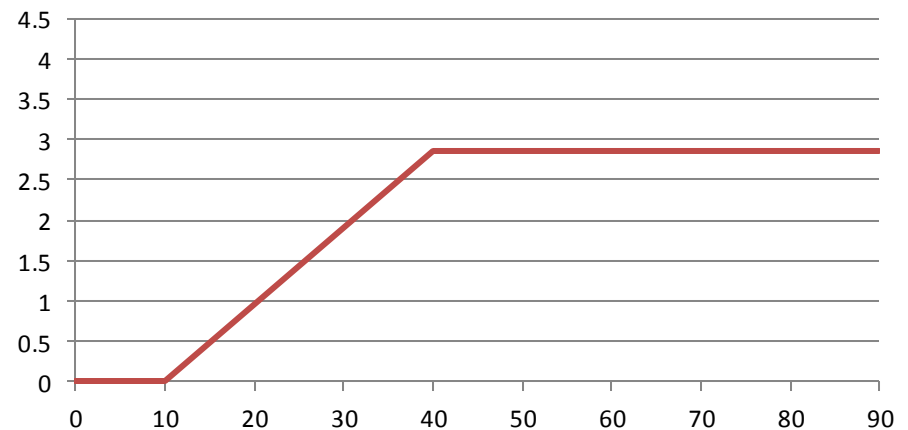
Integrated Luminosity

- Assumptions
 - 90 days left
 - 50ns: 3 days of machine studies followed by 30 days linear increase from **present** luminosity to max luminosity
 - 25ns: 10 (3+7) days of machine studies followed by 30 days linear increase from **zero** to max luminosity

Peak Relative Luminosity (50ns)



Peak Relative Luminosity (25ns)



Discussion

Luminosity comparisons are wrt 1380 bunch operation with
 1.1E11ppb, emittance 2.7um, beta* = 1.5, Lumi = 1.2E33

Parameter and Criteria	adiabatic?	Estimated Max Lumi Improvement Factor	Lost Time for physics (days)	Risk/ Reversibility	Pile-up	Available Improvement factor (50ns)	Available Improvement factor (25ns)
ppb	yes	2	0	0	higher	Yes	No
emittance	yes	1.35	0	0	higher	Yes	No
beta*	No	1.5	3	>0	higher	Yes	Yes
25ns	No	1.9	10	>0	same	No	Yes
				Luminosity Factor		4.1	2.9
				Pile Up		28	10
				Estimated Relative Integrated Luminosity		307	185
				Relative Integrated Luminosity if we do nothing		90	

Conclusion

- Continue with 50ns
 - Operate with minimum emittance (2 μ m)
 - Adiabatically increase the bunch intensity (max 1.55 $\times 10^{11}$)
 - ? Reduce beta* to 1m