

Summing Up

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9th December 2010

General Comments

- Excellent workshop
 - Well organised
 - Great preparations and presentations
 - Animated discussion
 - BUT too much FOOD!
- Looking forward to proceedings
- ? Follow up in LMC and New Operations committee

Possible Issues with 900 bunches (75ns)

- Electron Cloud
 - Cleaning at 450GeV good for 4TeV?
 - Synchrotron radiation
 - Will scrubbing need 25ns?
- UFOs (Or is it something else?)
 - Why is there an energy dependence (no UFOs at 450GeV)
- Machine Protection (~100MJ)

Not Given

Strategy 2011

Decide on beam and optics parameters, E, β^* , crossing angle, emittance, N_b

Chamonix

Commission LHC with new optics parameters, loss maps, MP etc

2 weeks ?

Re-establish 2010 Collisions (150ns) with new configuration

Physics up to 450 Bunches (2 weeks) (200,300,400,450)

2 weeks ?

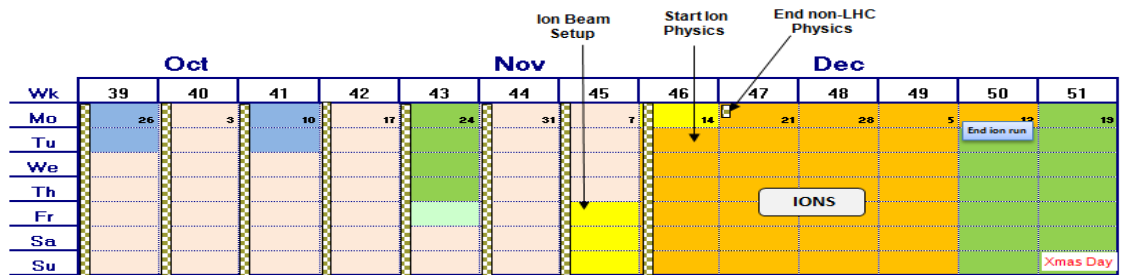
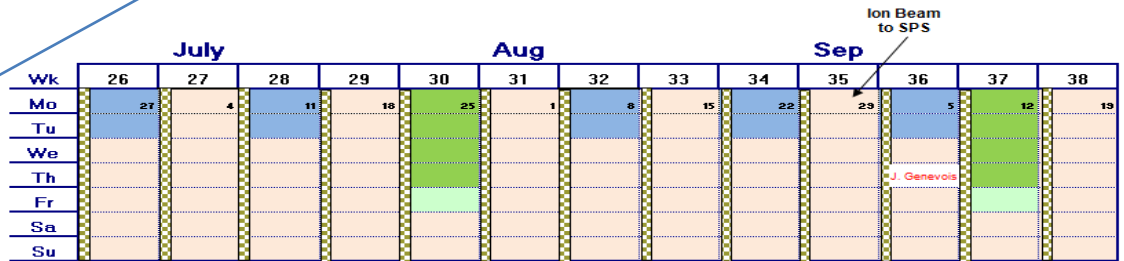
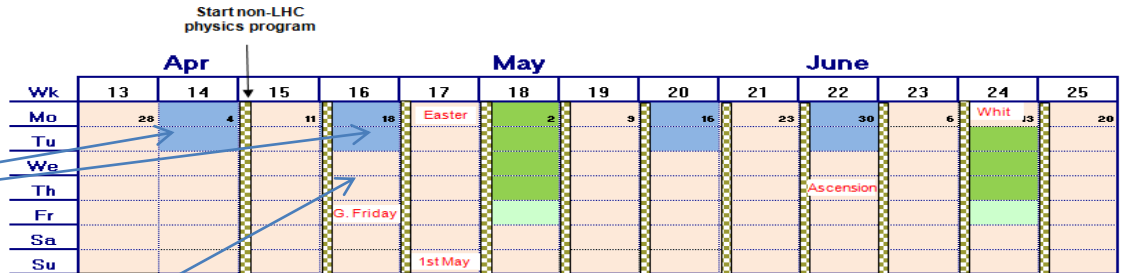
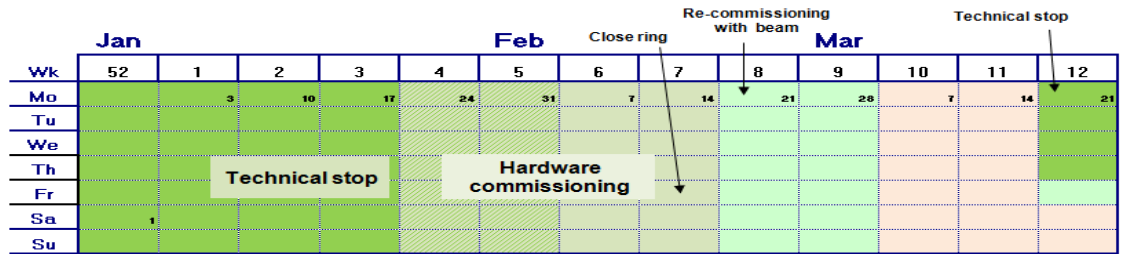
Beam Scrubbing at 450GeV for 900 bunches (75ns) using 50ns beams

1 weeks ?

Attempt Physics with up to 900 Bunches (2 weeks) , (200,400,600,800, 900)

? 2 weeks

Decide on 150ns or 75ns for rest of 2010



Beam beam studies

Decision 450/900 bunches?

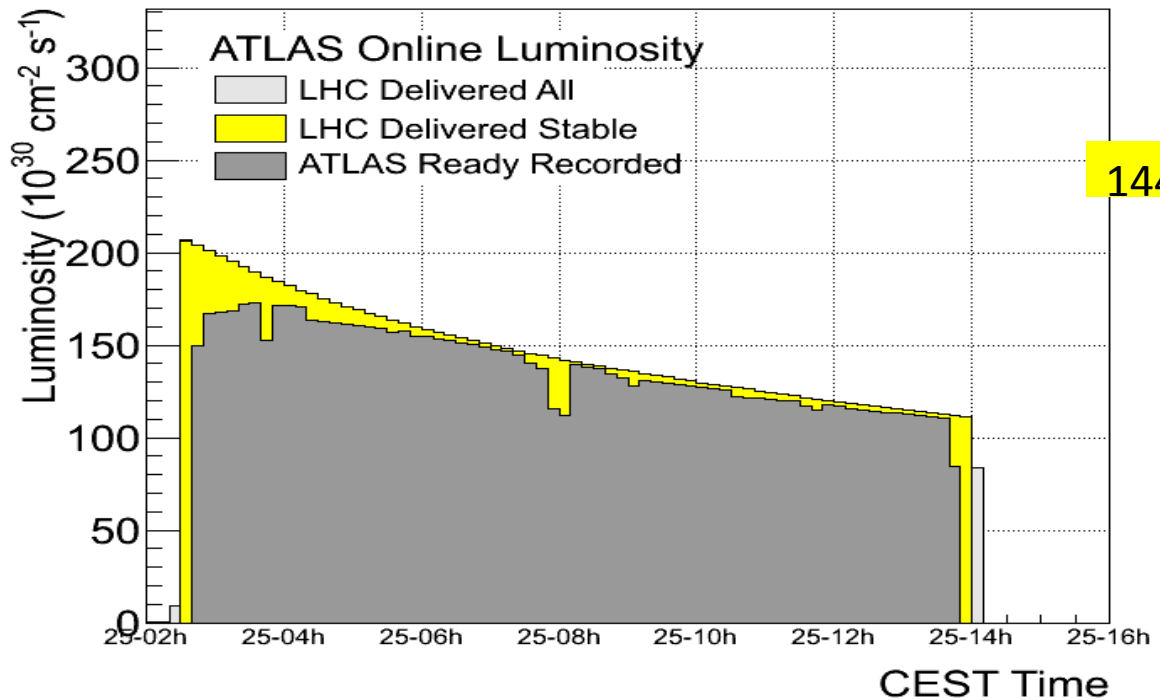
- Technical Stop
- Re-commissioning with beam
- Machine development
- Ion run
- Ion setup

Injectors - proton physics

Special runs (TOTEM, Alice, etc.) to be scheduled

Estimate

- I assume (or)
 - Head on beam
 - Separating beam
 - Emittance 1.5
 - $N_b = 1.5e11$
 - $\beta^* = 1.5m$



Year	TeV	β^*	N_b	l_b	MJ	Normalized Peak Emittance luminosity	Beam beam Shift	Luminosity Lifetime bb (hours)	Pile up	Comment	
2010	3.50	3.50	368	$1.15E+11$	23.9	1.6	$2.1E+32$	0.0217	178.4242	3.1	done in 2010
2011	4.00	1.50	450	$1.50E+11$	43.6	1.5	$1.33E+33$	0.0301	45.4773	15.8	
2011	4.00	1.50	900	$1.50E+11$	87.2	1.5	$2.67E+33$	0.0301	45.4773	15.8	

Estimates of Integrated Luminosity

Mode of Operation	TeV	OEF	β^*	Nb	lb	Normalized Emittance	Peak luminosity	Beam beam Shift	Pile up	pb-1 per day	Days	Integrated (fb-1)
2011	3.50	0.28	3.50	368	1.15E+11	1.6	2.13E+32	0.0217	3.1	5.2	194.0	1.00
HWC	4.00	0.00	1.50	0	0.00E+00	1.5		0.0000			28.0	0.00
recommissioning	4.00	0.00	1.50	0	0.00E+00	1.5		0.0000			14.0	0.00
redo 150ns, 450 b	4.00	0.20	1.50	200	1.20E+11	1.5	3.79E+32	0.0241	10.1	6.6	14.0	0.09
scrubbing	4.00	0.00	1.50	200	0.00E+00	1.5	0.00E+00	0.0000	0.0	0.0	7.0	0.00
up to 900 bunches	4.00	0.10	1.50	450	1.20E+11	1.5	8.53E+32	0.0241	10.1	7.4	14.0	0.10
Physics with 900 bunches	4.00	0.15	1.50	900	1.50E+11	1.5	2.67E+33	0.0301	15.8	34.5	159.0	5.49
Physics with 450 bunches	4.00	0.20	1.50	450	1.50E+11	1.5	1.33E+33	0.0301	15.8	23.0	159.0	3.66

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