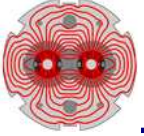


Plugging in the numbers – 3.5 TeV

Month	OP scenario	Max number bunch	Protons per bunch	Min beta*	Peak Lumi	Integrated	% nominal	events/X
1	Beam commissioning							
2	Pilot physics combined with commissioning	43	3×10^{10}	4	8.6×10^{29}	$\sim 200 \text{ nb}^{-1}$		
3		43	5×10^{10}	4	2.4×10^{30}	$\sim 1 \text{ pb}^{-1}$		
4		156	5×10^{10}	2	1.7×10^{31}	$\sim 9 \text{ pb}^{-1}$	2.5	
5 _a	No crossing angle	156	7×10^{10}	2	3.4×10^{31}	$\sim 18 \text{ pb}^{-1}$	3.4	
5 _b	No crossing angle – pushing bunch intensity	156	1×10^{11}	2	6.9×10^{31}	$\sim 36 \text{ pb}^{-1}$	4.8	1.6
6	partial 50 ns – nominal crossing angle	144	7×10^{10}	2-3	3.1×10^{31}	$\sim 16 \text{ pb}^{-1}$	3.1	0.8
7		288	7×10^{10}	2-3	8.6×10^{31}	$\sim 32 \text{ pb}^{-1}$	6.2	
8		432	7×10^{10}	2-3	9.2×10^{31}	$\sim 48 \text{ pb}^{-1}$	9.4	
9		432	9×10^{10}	2-3	1.5×10^{32}	$\sim 80 \text{ pb}^{-1}$	12	
10		432	9×10^{10}	2-3	1.5×10^{32}	$\sim 80 \text{ pb}^{-1}$	12	
11		432	9×10^{10}	2-3	1.5×10^{32}	$\sim 80 \text{ pb}^{-1}$	12	



Plugging in the numbers with a step in energy

Month	OP scenario	Max number bunch	Protons per bunch	M_{in} beta*	Peak Lumi	Integrated	% nominal	events/X
1	Beam commissioning							
2	Pilot physics combined with commissioning	43	3×10^{10}	4	8.6×10^{29}	$\sim 200 \text{ nb}^{-1}$		
3		43	5×10^{10}	4	2.4×10^{30}	$\sim 1 \text{ pb}^{-1}$		
4		156	5×10^{10}	2	1.7×10^{31}	$\sim 9 \text{ pb}^{-1}$	2.5	
5 _a	No crossing angle	156	7×10^{10}	2	3.4×10^{31}	$\sim 18 \text{ pb}^{-1}$	3.4	0.8
5 _b	No crossing angle — pushing bunch intensity	156	1×10^{11}	2	6.9×10^{31}	$\sim 36 \text{ pb}^{-1}$	4.8	1.6
6	Shift to higher energy: approx 4 weeks	Would aim for physics without crossing angle in the first instance with a gentle ramp back up in intensity						
7	4 – 5 TeV (5 TeV luminosity numbers quoted)	156	7×10^{10}	2	4.9×10^{31}	$\sim 26 \text{ pb}^{-1}$	3.4	
8	50 ns — nominal crossing angle	144	7×10^{10}	2	4.4×10^{31}	$\sim 23 \text{ pb}^{-1}$	3.1	1.1
9	50 ns	288	7×10^{10}	2	8.8×10^{31}	$\sim 46 \text{ pb}^{-1}$	6.2	
10	50 ns	432	7×10^{10}	2	1.3×10^{32}	$\sim 69 \text{ pb}^{-1}$	9.4	
11	50 ns	432	9×10^{10}	2	2.1×10^{32}	$\sim 110 \text{ pb}^{-1}$	12	