

| Parameter            | Units  | 75 ns spacing | 25 ns spacing | nominal |
|----------------------|--|---------------|---------------|---------|
| number of bunches    | $k_b$  | 936           | 2808          | 2808    |
| protons per bunch    | $N_b [10^{11}]$                              | 0.9           | 0.4           | 1.15    |
| norm. tr. emittance  | $\epsilon_n [\mu\text{m}]$                   | 3.75          | 3.75          | 3.75    |
| r.m.s. bunch length  | $\sigma_s [\text{cm}]$                       | 7.55          | 7.55          | 7.55    |
| r.m.s. energy spread | $\sigma_E [10^{-4}]$                         | 1.13          | 1.13          | 1.13    |
| IBS growth time      | $\tau_x^{\text{IBS}} [\text{h}]$             | 135           | 304           | 106     |
| beta at IP           | $\beta^* [\text{m}]$                         | 1.0           | 0.55          | 0.55    |
| full crossing angle  | $\theta_c [\mu\text{rad}]$                   | 250           | 285           | 285     |
| luminosity lifetime  | $\tau_{\text{lumi}} [\text{h}]$              | 22            | 26            | 15      |
| peak luminosity      | $L [10^{34} \text{ cm}^{-2} \text{ s}^{-1}]$ | 0.12          | 0.12          | 1.0     |
| events/crossing      |  | 7.1           | 2.3           | 19.2    |
| lumi over 200 fills  | $L_{\text{int}} [\text{fb}^{-1}]$            | 9.3           | 9.5           | 66.2    |

Possible scenarios with 75 ns and 25 ns bunch spacing for an early LHC luminosity run with integrated luminosity of  $\sim 10 \text{ fb}^{-1}$  in about 200 fills, assuming an average physics run time  $T_{\text{run}} = 14 \text{ h}$  and  $T_{\text{turnaround}} = 10 \text{ h}$ .