

Kicker magnets –1998

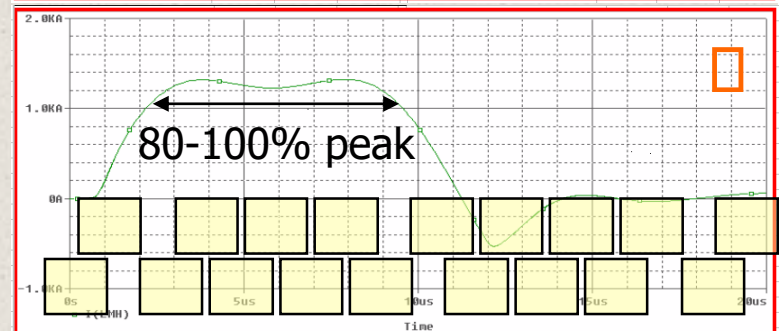
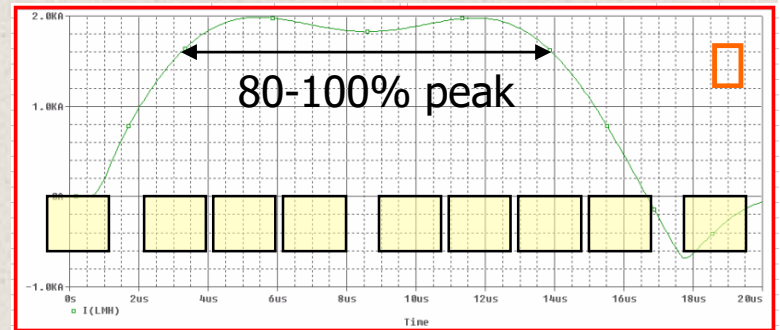
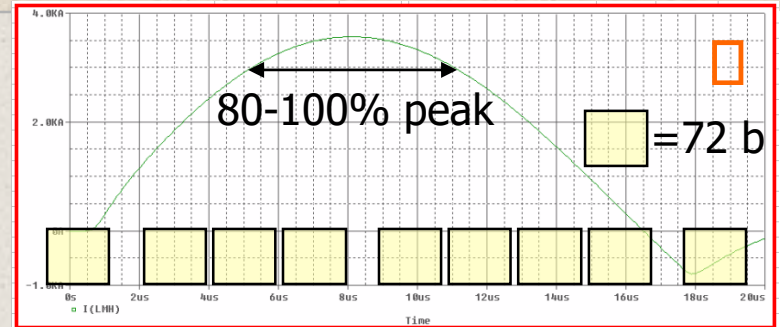
- 1998 design -- 4 Q & 4 Aperture kickers
 - 9 μs base $\frac{1}{2}$ sine pulse (+3rd harm. for MKQ) to kick essentially 1 LHC batch (was 243 bunches)
 - 'MKA' (rep. rate ~ 0.2 Hz) :
 - up to 8σ @ 7 TeV {2.5 mm at $\beta = 180\text{m BPM}$ }
 - 'MKQ' (rep. rate 2 Hz) :
 - 0.04-2.5 σ @ 450 GeV and 0.01-0.6 σ @ 7 TeV
{50 μm - 3 mm} {3 μm - 0.2 mm}
 - To be constructed by SL/BT group

Kicker magnets – 2001

- 2001 (1/2 price) design -- 4 MKQA's
 - for Ap. (86 μ s base 1/2 sine) :
 - up to 8σ @ 7 TeV □ i.e. no change
 - all 12 batches kicked □ important change
 - for Q (16 μ s base 1/2 sine +3rd harmonic) :
 - up to 3σ @ 450 GeV & up to 0.85σ @ 7 TeV
 - ~ 5 x 72 bunches kicked with 80-100% of peak value
 - 20-50 pulses at 2Hz possible every 20-40s
 - single magnet with dual pulse generators
 - certain aspects of design need 6-10 months prototyping work

Q kicker optimisation

- Can still consider variants of the Q-kick pulse (within max. 2.3 kV boundary)
 - 16 μs $\frac{1}{2}$ sine pulse \square 80% more kick strength at centre, i.e. 1.55 σ at 7 TeV.
 - 16 μs $\frac{1}{2}$ sine + 3rd harm.
 - 1/3 shorter than \square \square 2/3 kick strength, i.e. $\leq 0.55 \sigma$ at 7 TeV ($\sim 160 \mu\text{m}$ at BPM)
- To remain on schedule, choice should be fixed for Jan. 2003



Last Q-kicker update (2002)

- Increase operating voltage to 3.3 kV maximum
 - 9 μs $\frac{1}{2}$ sine + 3rd harm. $\leq 2.6 \sigma$ @ 450 GeV and $\leq 0.66 \sigma$ @ 7 TeV
 - Main pulse and undershoot kicks 3 x 72 bunches, with some disturbance of neighbouring batch

