2009/05/27

Q1 - Numerics: Please, check the summary table (MDIsummary.xls) and correct any factual errors, or provide the missing numbers, in particular, for the items that follow –

Q2 - Footprint: Please, indicate the envelope (or footprint) that the detector has to occupy during the maintenance period in the offline position.
A2 – See drawing MDIidag3.pdf

Q3 - Shield blocks: Please, provide the rough size of additional shield blocks to use and their schematics (if they exist), when the detector is in the online position. The objects to consider include: pacmen, shield walls, others.
A3 – There is non need of additional shielding blocks since the detector is designed as "self shielded" versus the worst case of a full beam loss in the Qf1 region. The Pacmen are permanently integrated on the detector and on the cavern wall.
See drawing MDIidag1.pdf

Q4 - Platform and height: Please, indicate the assumed height of the platform beneath the detector, its size, its weight, and the assumed beamline height relative to the detector hall floor.
A4 – SiD does not use a platform, it moves on Hilman rollers over reinforced steel rails on the cavern floor. The motion is provide by strand jacks.

Q5 - Gross weight: Please, indicate the gross total sum of the weight of your detector system, including the barrel, endcaps, platforms (if any), and shield blocks.
A5 – Barrel,4500 t + Endcaps, 2x200 t + Pacmen, 2x170 t = 9840 t

Q6 - QD0: Please, indicate the Z locations of your QD0 (Zmin and Zmax) and their radius R to occupy.
A6 – SiD is optimized for an L* =3500 mm. The QD0 cryostat envelope is Zmin = 3236 mm, Zmax = 6886 mm. Radius is 190mm or less (current BNL design optimized for 4.5m L*).

Q7- Cryogenics: Please, indicate if your QD0 and the solenoids are to operate at 2K or 4K.
A7– The SiD solenoid will be designed and operated at 4K. We assume that the QD0 will be designed by the BDS machine group and it will be operated at 2K.

Q8 - Push-pull motion:

a) Please, indicate the preferred method of push-pull motion mechanics that is currently under consideration.
b) Please, identify the hardware components (beamline elements, shield blocks, and utilities) that need to be disconnected/disassembled and reconnected/reassembled during your detector push/pull. Please, estimate how long this relocation / reassembly work will take.
c) Assuming that the accelerator (including QF1) is in a good alignment condition, how long would it take to complete your detector "push", and complete the alignment of the detector components? Explain how you will do this realignment; i.e. what kind of measurement and mover systems.

Deleted: components.

d) How long would it take to complete your detector “pull” and to make the interaction region and the BDS ready for the other detector?
e) During the upcoming Technical Design Phase, what type of resources do you plan to allocate for the conceptual and engineering work on MDI-related issues, and how you intend to operate them? Also, do you have any requests for assistance to the RD management or to the MDI group, in terms of resource sharing or in terms of interactions on technical matters?

A8a – SiD seats on four carts equipped with Hilman roller and hydraulic jacks. The carts move over a reinforced steel floor, pulled by strand jacks.

A8b – See Marty’s talk given at TILC09
http://ilcagenda.linearcollider.org/getFile.py/access?contribId=30&sessionId=42&resId=0&materialId=slides&confId=3154

A8c – The motion system considered for SiD is expected to provide an alignment precision within ±1 mm. An interferometer system is integrated on QD0 to monitor the final alignment on the beam, at the “pull” stage. During the beam operations, QD0 is quipped with integrated movers in feedback with BPMs, to achieve fine tuning and the correction of the optic alignment.

A8d – See Marty’s talk given at TILC09
http://ilcagenda.linearcollider.org/getFile.py/access?contribId=30&sessionId=42&resId=0&materialId=slides&confId=3154

A8e –