SBS Experiments Equipment Requirements

**GEn-RP (GEn/GMn)**

* SBS magnet with sieve plate
* SBS magnet- upstream and downstream field clamp
* Extended Lead wall on CW support
* Lead in magnet cutout
* BB magnet with field clamp and sieve plate
* HCAL
* BL3
* BB detectors – A000000116-0700
* 10 cm Hydrogen/Deuterium Target
* Main EHut, BB EHut and EHut to right of CW
* Neutron Polarimeter Detectors – A170040110-0000

**WAPP**

* same equipment as GEn-RP
* Cu Radiator upstream of Target

**GMn**

* SBS Magnet with sieve plate
* SBS Magnet – upstream field clamp
* BB magnet with field clamp and sieve plate
* HCAL
* BL3 and BL4
* BB detectors
* 10 cm Hydrogen/Deuterium Target
* Main EHut, BB EHut

**nTPE**

* Same equipment as GMn

**Calibration Points**

* SBS Magnet with sieve plate
* SBS magnet-upstream field clamp
* HRS-BL
* HRS-BL detectors
* HCAL
* BL4
* Main EHut

**GEn**

* SBS magnet with sieve plate
* SBS magnet-upstream and downstream field clamps
* BB magnet with field clamp and sieve plate
* BB detectors
* HCAL
* Main EHut and BB EHut
* Polarized 3He Target and access platforms
* BL2

**SIDIS ?(from proposal, needs review)**

* SBS magnet with sieve plate
* SBS magnet-upstream and downstream field clamps
* BB magnet with field clamp and sieve plate
* BB detectors
* GEMs and RICH detectors on SBS arm(CW)
* HCAL
* Main EHut, BB EHut and EHut to right of CW
* Polarized 3He Target and access platforms
* BL3
* Lead wall on CW

**GEp**

* SBS magnet with sieve plate
* SBS magnet – upstream and downstream field clamps
* HCAL
* ECAL with CDet
* SBS detectors on CW A071090100-0000(drawing needs revision)
* 40 cm Hydrogen Target with scattering chamber Snout
* BL1
* Lead wall
* Main EHut, EHut behind HCal or to right of CW

**TDIS ? (from proposal, needs review)**

* Hydrogen/Deuterium target with scattering chamber Snout
* SBS magnet with sieve plate
* SBS magnet upstream and downstream field clamps
* RECOIL detector (large magnet)
* HCAL
* GEMs + RICH detector
* BL?
* Main EHut, EHut to right of CW

Gavalya, Soova, Bogdan, and Brian 2020 Sept. 9th

SBS FFKinematic Settings  09016 Polarized He3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Q2 [GeV2]  | θBB [deg]  | dBB [m]  | θ48D48 [deg]  | d48D48 [m]  | dHCAL [m]  | Beam Line Configuration #  |
| 1.46  | 40.0  | 1.50  | 39.4  | 2.8  | 17  | 2  |
| 3.68  | 34.0  | 1.50  | 29.9  | 2.8  | 17  | 2  |
| 6.77  | 34.0  | 1.50  | 22.2  | 2.8  | 17  | 2  |
| 10.18  | 34.0  | 1.50  | 17.5  | 2.8  | 17  | 2  |

 17004 Hydrogen/Deuterium (also known as GEn-Rp)

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Experimental Points 10cm Hydrogen/Deuterium

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Q2 [GeV2]  | θBB [deg]  | dBB [m]  | θ48D48 [deg]  | d48D48 [m]  | dHCAL [m]  | Beam Line Configuration #  |
| 4.5  | 41.9  | 1.55  | 24.7  | 2.25  | 8.5  | 3  |
|  | 41.9 | 1.55 | 24.7 | 2.25 | 8.5 | 3 (WAPP) |

  09019 Hydrogen/Deuterium

Experimental Points 10cm Hydrogen/Deuterium

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Q2 [GeV2]  | θBB [deg]  | dBB [m]  | θ48D48 [deg]  | d48D48 [m]  | dHCAL [m]  | Beam Line Configuration #  |
| 3.5  | 32.5  | 1.80  | 31.1  | 2.0  | 7.2  | 3  |
| 4.5  | 41.9  | 1.55  | 24.7  | 2.25  | 8.5  | 3  |
| 4.5b  | 23.2  | 2.05  | 31.1  | 2.25  | 8.5  | 3 (new for 2020) (nTPE) |
| 5.7  | 58.4  | 1.55  | 17.5  | 2.25  | 11  | 3  |
| 6.0  | 30.5  | 1.85  | 24.7  | 2.25  | 8.5  | 3 (new for 2020)  |
|  8.1  | 43  | 1.55  | 17.5  | 2.25  | 11  | 3  |
| 10.2  | 34  | 1.75  | 17.5  | 2.25  | 11  | 3  |
| 12.0  | 44.2  | 1.55  | 13.3  | 2.25  | 14  | 3  |
| 13.5  | 33.0  | 1.55  | 14.9  | 3.1  | 17  | 4  |

Calibration Points: 10cm Hydrogen

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Q2 [GeV2]  | θHRS [deg]  | θ48D48 [deg]  | d48D48 [m]  | dHCAL [m]  | Beam Line Configuration #  |
| 4.4  | 39  | 25.5  | 3.1  | 17.  | 4  |
| 4.4  | 42  | 25.5  | 3.1  | 17.  | 4  |
| 6.0  | 61.1  | 14.9  | 3.1  | 17.  | 4  |
| 6.0  | 64.3  | 14.9  | 3.1  | 17.  | 4  |
| 6.0  | 67.5  | 14.9  | 3.1  | 17.  | 4  |
| 6.0  | 69.1  | 14.9  | 3.1  | 17.  | 4  |

 07109 Hydrogen

Experimental Points 40cm Hydrogen

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Q2 [GeV2]  | θelectronarm [deg]  | θ48D48 [deg]  | d48D48 [m]  | delectronarm [m]  | dHCAL [m]  | Beam Line Configuration #  |
| 5.0  | 29  | 25.7  | 1.6  | 9  | 6.8  | 1  |
| 8.0  | 26.7  | 22.1  | 1.6  | 6.5  | 6.8  | 1  |
| 12.0  | 29.0  | 16.9  | 1.6  | 4.5  | 6.8  | 1  |