

SNS Global Coordinates

Feb. 3, 2003

- See <http://www.sns.gov/APGroup/Papers/TechNotes/2000/SNS-AP-TN1.pdf> for an explanation of the coordinate system.
- Changes
 - 2/3/03 - 1) use of proper device names, 2) inclusion of diagnostics in the DTL and CCL portion of the linac, 3) movement of up to ~ 2mm in the HEBT, RTBT and Ring dipole coordinates, due to use of accurate magnetic lengths, 4) correction of mistakes in the coordinates of HEBT_Mag:QV25 and HEBT_Mag:QH26 and 5) change of the definition of the range of the angle phi to vary from $-180 < \phi \leq 180$ degrees, 6) inclusion of ring chicane and septum magnets.
 - 10/8/02 – Used proper names for devices. Used proper magnetic lengths – this resulted in movement in the dipole coordinates in the HEBT, RTBT and Ring of up to 0.002 m. Fixed mistake in x coordinates of HEBT_Mag:QV25 and HEBT_Mag:QH26. Changed the definition of the angle phi to vary from +90 deg to -270 deg (before varied between +/- 90 deg). This removes ambiguity in the direction a magnet points.
 - 5/29/01 – Fixed the typo in HEBT.QV19 (removed the trailing 0.0000006 m)
 - 5/25/01 – Moved quad between DTL and CCL as per latest LANL lattice (~2.3 mm)
 - 4/30/01 – Moved linac and extraction dumps closer to tunnels.
 - 4/12/01 – Deleted extra HEBT.QV13 point. Eliminated numbers associated with each point – use names only.
 - 4/2/01 – Added point between DTL and CCL back in (CCL0_Mag:QH)
 - 3/23/01 – Added more points
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| Description | Name | Z | X | Y |
|--|---------------|--------------|---------------|--------------|
| Complex center | MON00 | 20000.000000 | 10000.000000 | 2000.000000 |
| Last quad in MEBT | QH14 | 19549.720844 | 10000.000000 | 2000.046000 |
| First quad in DTL | DTL_Mag:QH100 | 19549.963344 | 10000.000000 | 2000.046000 |
| Quad between DTL and CCL | CCL0_Mag:QH00 | 19586.684608 | 10,000.000000 | 2,000.046000 |
| First V quad in SCL | SCL_Mag:QV00 | 19643.268832 | 10000.000000 | 2000.046000 |
| Midpoint of the last quad doublet in the linac | | 19873.388832 | 10000.000000 | 2000.046000 |
| First quad in HEBT | HEBT.QV1 | 19881.174844 | 10000.000000 | 2000.046000 |
| | HEBT.QV11 | 19921.674844 | 10000.000000 | 2000.046000 |
| | HEBT.QH12 | 19928.950181 | 10000.765804 | 2000.046000 |
| | HEBT.QV13 | 19935.936319 | 10002.936241 | 2000.046000 |
| | HEBT.QH14 | 19942.364789 | 10006.427902 | 2000.046000 |

| | | | | |
|----------------------------|---------------|---------------|--------------|-------------|
| HEBT bend center | HEBT.QV15 | 19947.988549 | 10011.106606 | 2000.046000 |
| | HEBT.QH16 | 19952.591485 | 10016.792551 | 2000.046000 |
| | HEBT.QV17 | 19955.996698 | 10023.267229 | 2000.046000 |
| | HEBT.QH18 | 19958.073343 | 10030.281826 | 2000.046000 |
| | HEBT.QV19 | 19958.741601 | 10037.566769 | 2000.046000 |
| HEBT dog leg (bend point) | | 19958.741601 | 10068.892794 | 2000.046000 |
| HEBT ring intersection | | 19964.669100 | 10107.382274 | 2000.046000 |
| Last quad in HEBT | HEBT.QH34 | 19963.886407 | 10102.299995 | 2000.046000 |
| Ring Foil spot | | 19964.529100 | 10110.004218 | 2000.046000 |
| Ring arc A begin | QV_A01 | 19985.000000 | 10075.280320 | 2000.000000 |
| Ring arc A center | QV_A05 | 19970.623883 | 10081.235097 | 2000.000000 |
| Ring arc A end | QV_A09 | 19964.669100 | 10095.611220 | 2000.000000 |
| First ring quad after foil | QV_A12 | 19,964.669100 | 10117.136220 | 2000.000000 |
| Ring arc B begin | QV_B01 | 19964.669100 | 10125.611220 | 2000.000000 |
| Ring arc B center | QV_B05 | 19970.623887 | 10139.987337 | 2000.000000 |
| Ring arc B end | QV_B09 | 19985.000000 | 10145.942120 | 2000.000000 |
| | QV_B12 | 20,006.525000 | 10145.942120 | 2000.000000 |
| Ring arc C begin | QV_C01 | 20015.000000 | 10145.942120 | 2000.000000 |
| Ring arc C center | QV_C05 | 20029.376117 | 10139.987333 | 2000.000000 |
| Ring arc C end | QV_C09 | 20035.330900 | 10125.611220 | 2000.000000 |
| | QV_C12 | 20,035.330900 | 10104.086220 | 2000.000000 |
| Ring arc D begin | QV_D01 | 20035.330900 | 10095.611220 | 2000.000000 |
| Ring arc D center | QV_D05 | 20029.376113 | 10081.235103 | 2000.000000 |
| Ring arc D end | QV_D09 | 20015.000000 | 10075.280320 | 2000.000000 |
| | QVD12 | 19,993.475000 | 10075.280320 | 2000.000000 |
| Center of Ring | | 20000.000000 | 10110.611220 | 2000.000000 |
| First quad in RTBT | RTBT.QV1 | 20036.790003 | 10101.093420 | 1999.771400 |
| RTBT ring intersection | | 20035.330900 | 10105.926628 | 1999.771400 |
| RTBT dog leg (bend point) | | 20050.923958 | 10054.275353 | 1999.817400 |
| Last quad in RTBT | RTBT.QH30 | 20098.564656 | 9982.566226 | 1999.817400 |
| Center of target | | 20104.489012 | 9973.648848 | 1999.817400 |
| Center of linac dump | | 19959.047845 | 10000.000000 | 2000.046000 |
| IDMP_Mag:Sptm | IDMP_Mag:Sptm | 19964.299003 | 10115.590230 | 2000.046000 |
| | IDUMP.QH01 | 19962.759384 | 10122.638173 | 2000.046000 |
| Center of injection dump | | 19958.312420 | 10142.496311 | 2000.046000 |
| Center of extraction dump | | 20059.017116 | 10027.467166 | 1999.817400 |

All coordinates listed above are those of the centers of the magnets unless specified otherwise.

See <http://www.sns.gov/APGroup/refTables/generalParams.htm> for a complete list of global coordinates.