

Alignment up to MT
Report 20050919
For the BMU TB Session of the CMS Week
Gyorgy Bencze

G. Bencze, BMU TB, 050920

Access questions

Based on the Survey + Alignment meeting 10 Aug 2005

Survey measurements of the wheels:

Both faces of YB+2, YB+1 and YB0 will be fully measured with muon chambers before the closure

Space needed: 8 m of space on each side of each YB

Corner block single holes of SL1 and SL3 are used

**Planned schedule: YB+1 Z+ and YB+2 Z- before end of August
YB+2 Z+ the 7th of September
the rest: to be agreed with Alberto**

Installation/adjustment of the Link Disk on YE+1:

Space required: 8 m between YB+2 and YE+1, three survey concrete towers to be at operating height

Planned schedule: starting from 15th November (~2 weeks)

G. Bencze, BMU TB, 050920

Access questions (cont.)

Installation of the alignment system on YE+1:

- Installation of all the elements: Transfer-plate calibrated, chambers, CSC Sensors, ...
- Measurement of all the sectors equipped with alignments elements by photogrammetry (the link disk will not be re-measured)

Space required: 8 m for the measurement

Planned schedule: Installation starts ~15 Nov
Survey starts from mid December

Access questions (cont.)

Alignment Ring installation:

- **Measurement and if possible adjustment by theodolite of the TEC AND / OR Alignment Ring once installed inside the HB already fixed in the inner vacuum tank**
- **Measurement by theodolite of the MABS installed on the YB+2 Z+ side to know the relative information between the MABS of this face and the AR.**

Space needed: 4 m from YB+2 and one survey tower to be at the operating height

Planned schedule: starting from December / January (YB+2 and YB+1 are closed and aligned)

Cabling

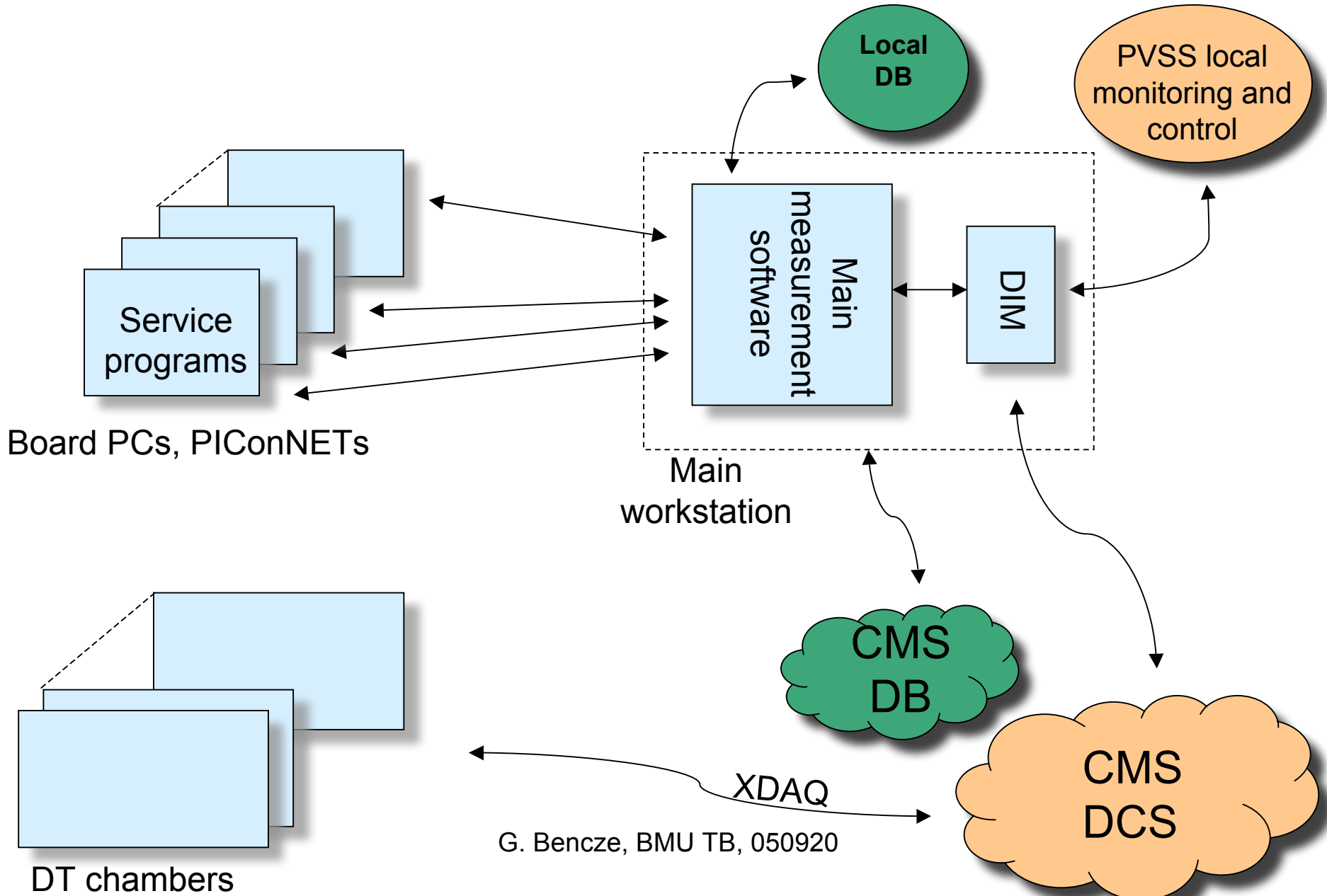
To our knowledge the YB+2 and YB+1 cables must be ready for installation by December (from AB).

The cable length and labeling will be done by E. Calvo and S. Bally.

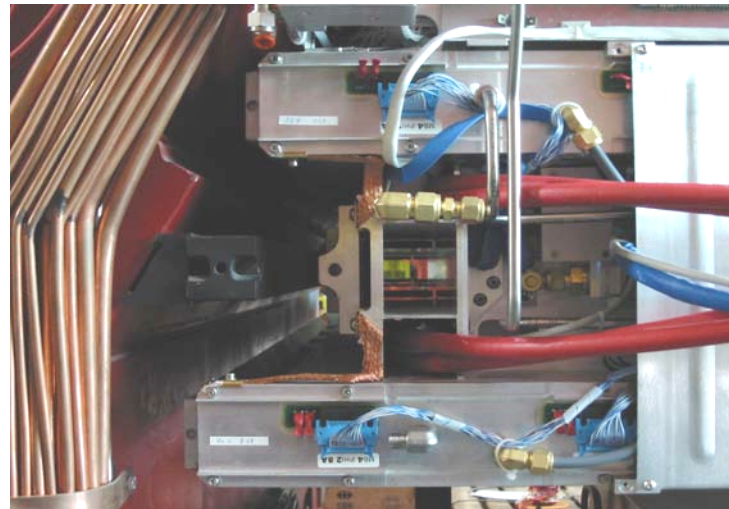
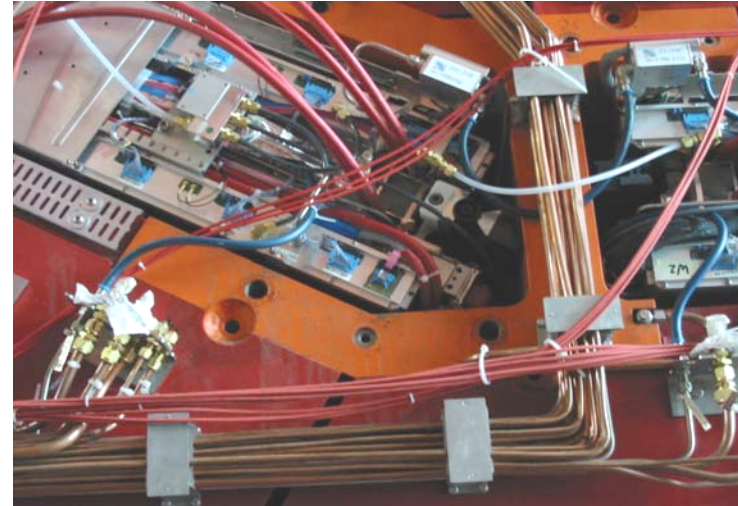
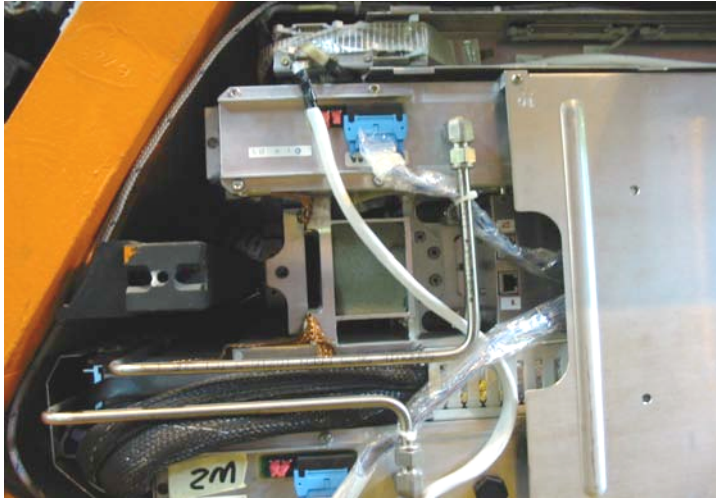
To be discussed:

- The routing inside the MAB volume and to the Z-bars (on wheel “0”)**
- Location of the Endcap boxes installed on the barrel**

Barrel Alignment Control



Passages



G. Bencze, BMU TB, 050920

MAB area



G. Bencze, BMU TB, 050920

Analysis of survey measurements during the calibration (190 DT chambers)

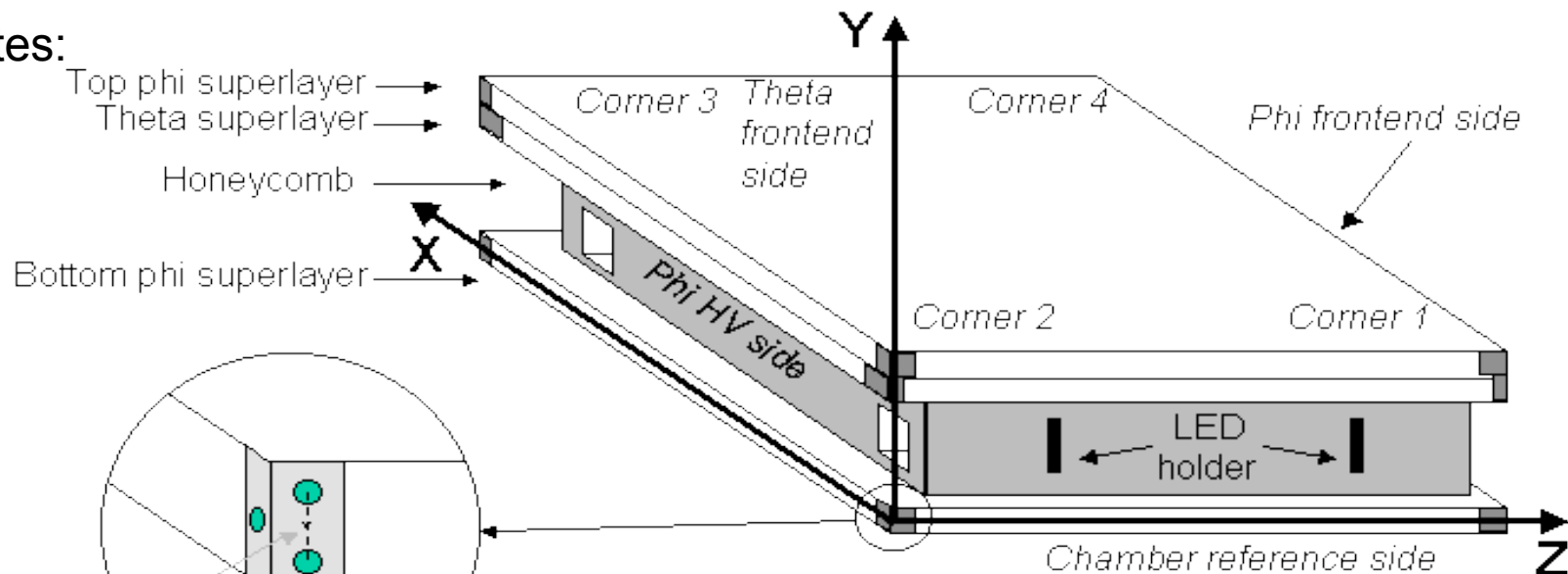
SL3 vs. SL1

N. Béni (Debrecen, HU)

Analysis of survey measurements (190 DT chambers)

N. Béni (Debrecen, HU)

Coordinates:



Corner block reference point: middle-point of the line drawn on the surface and connecting the centres of the holes on the two-hole side.

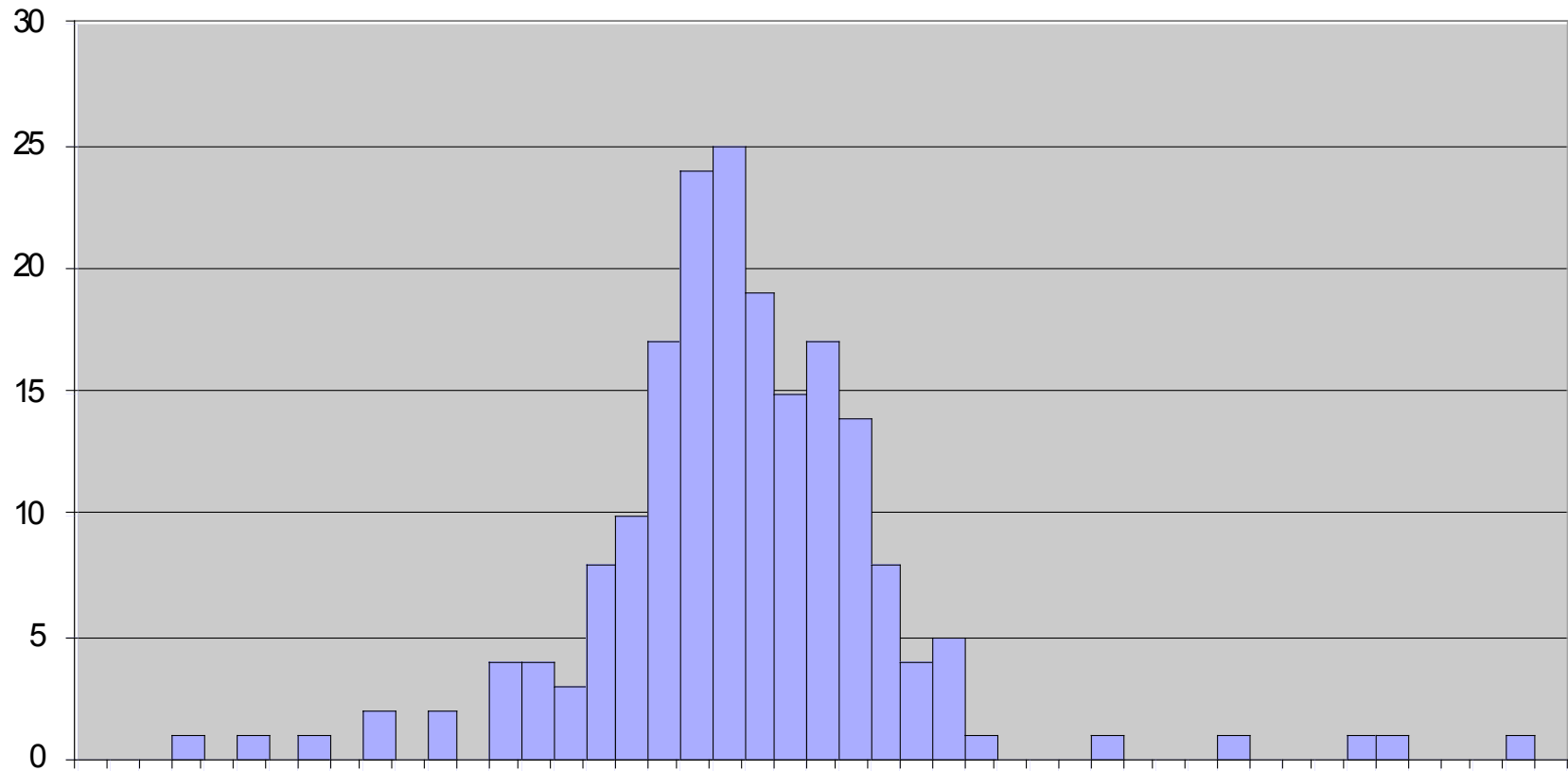
The chamber coordinate system is attached to the corner blocks 1,2,3 of the bottom superlayer:

Origo: corner 2.

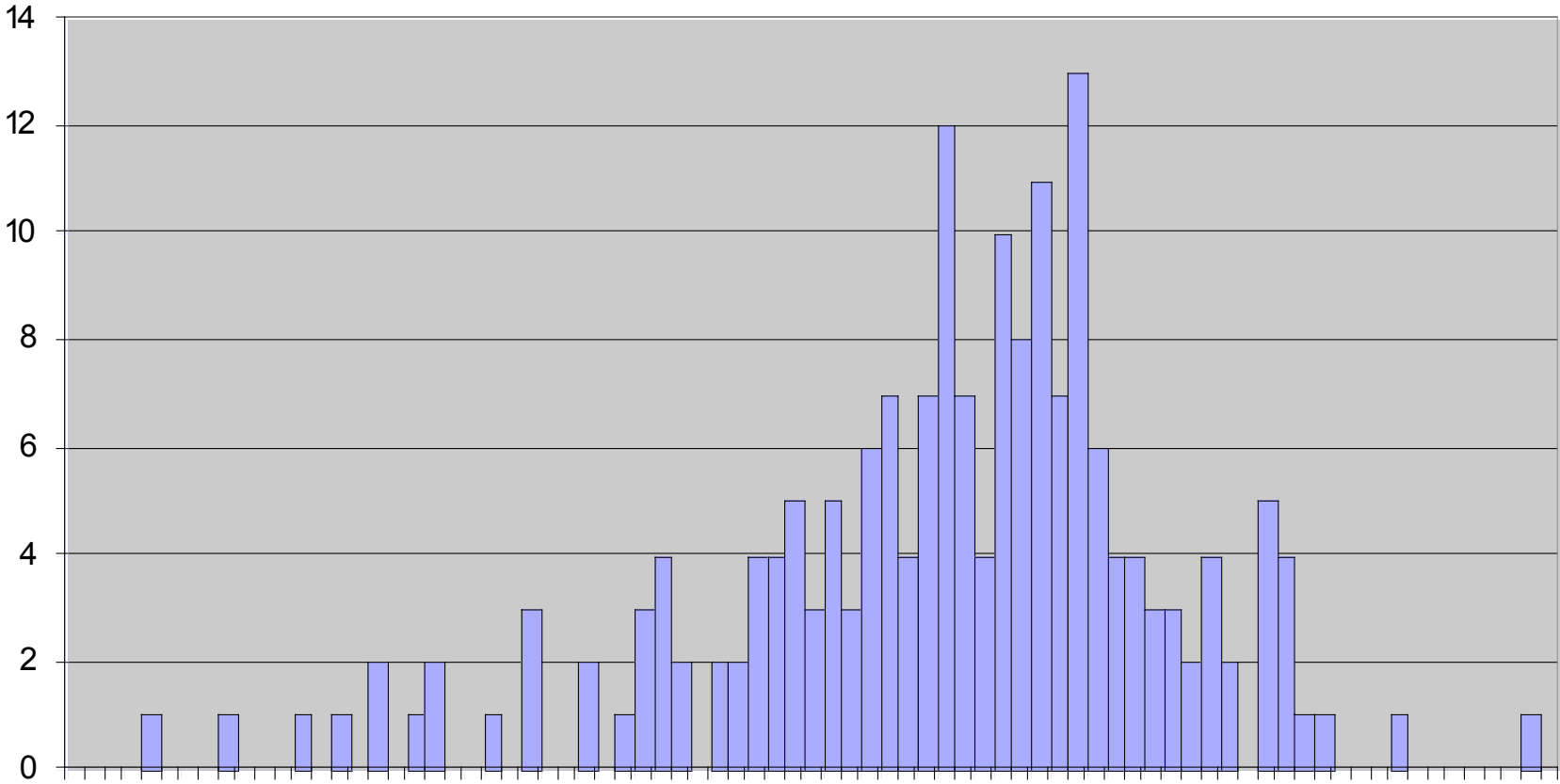
Z-axis: trough corner 1

X-Z plane: corners 2,3,1.

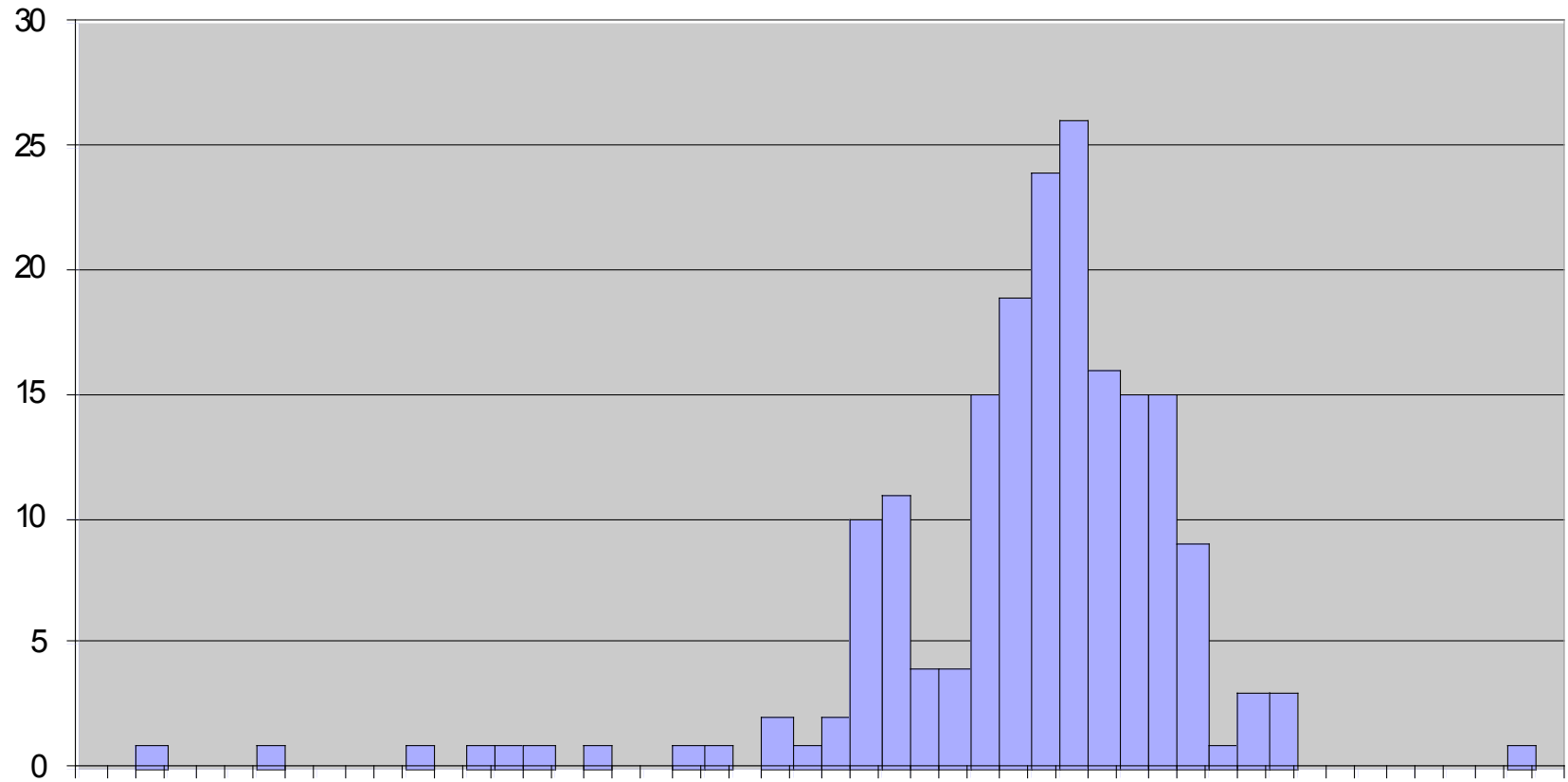
SL=3, Corner=1 positions of all chambers in X with respect to the corresponding chamber design values



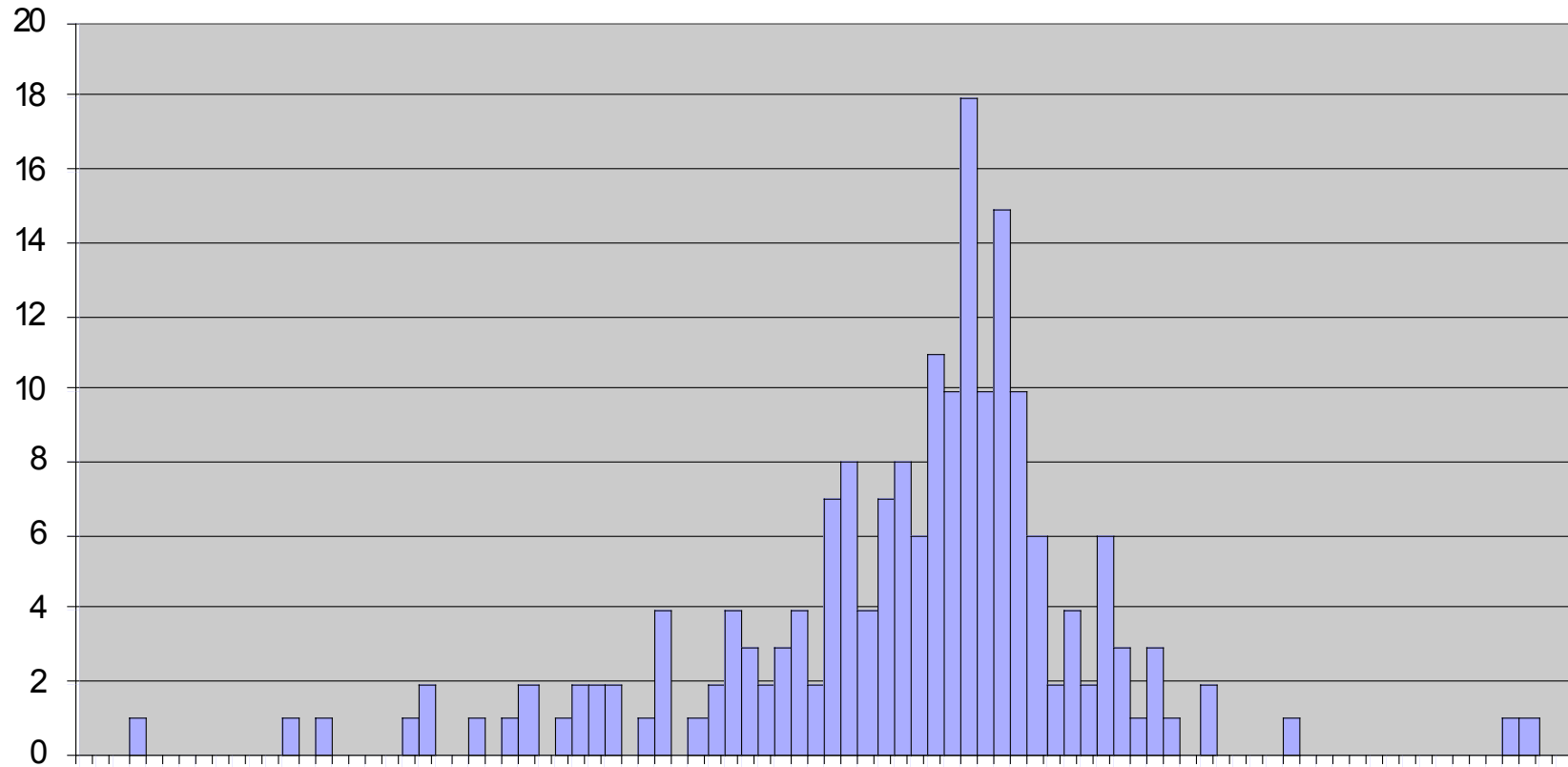
SL=3, Corner=1 positions of all chambers in Z with respect to the corresponding chamber design values



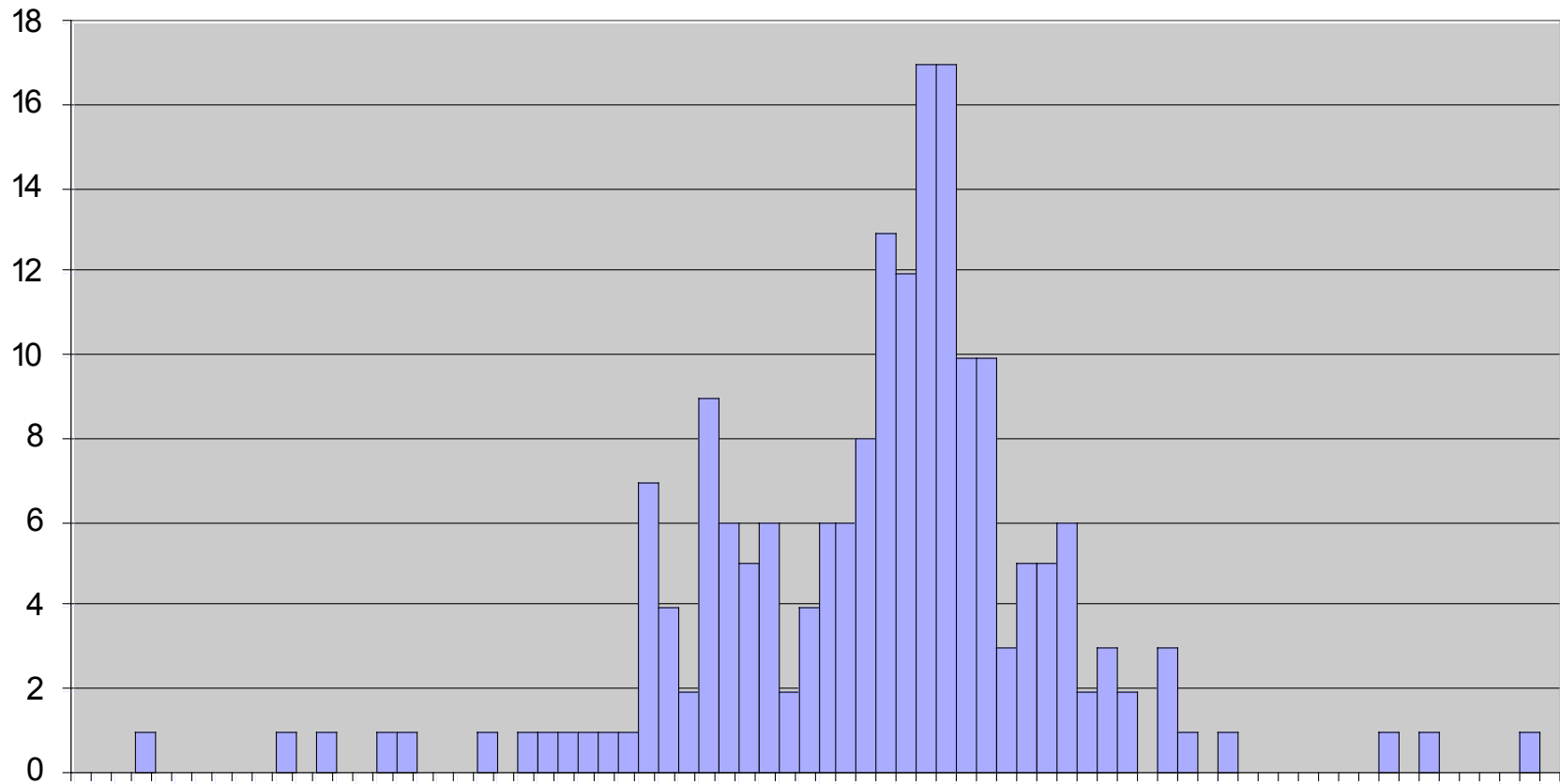
SL=3, Corner=2 positions of all chambers in X with respect to the corresponding chamber design values



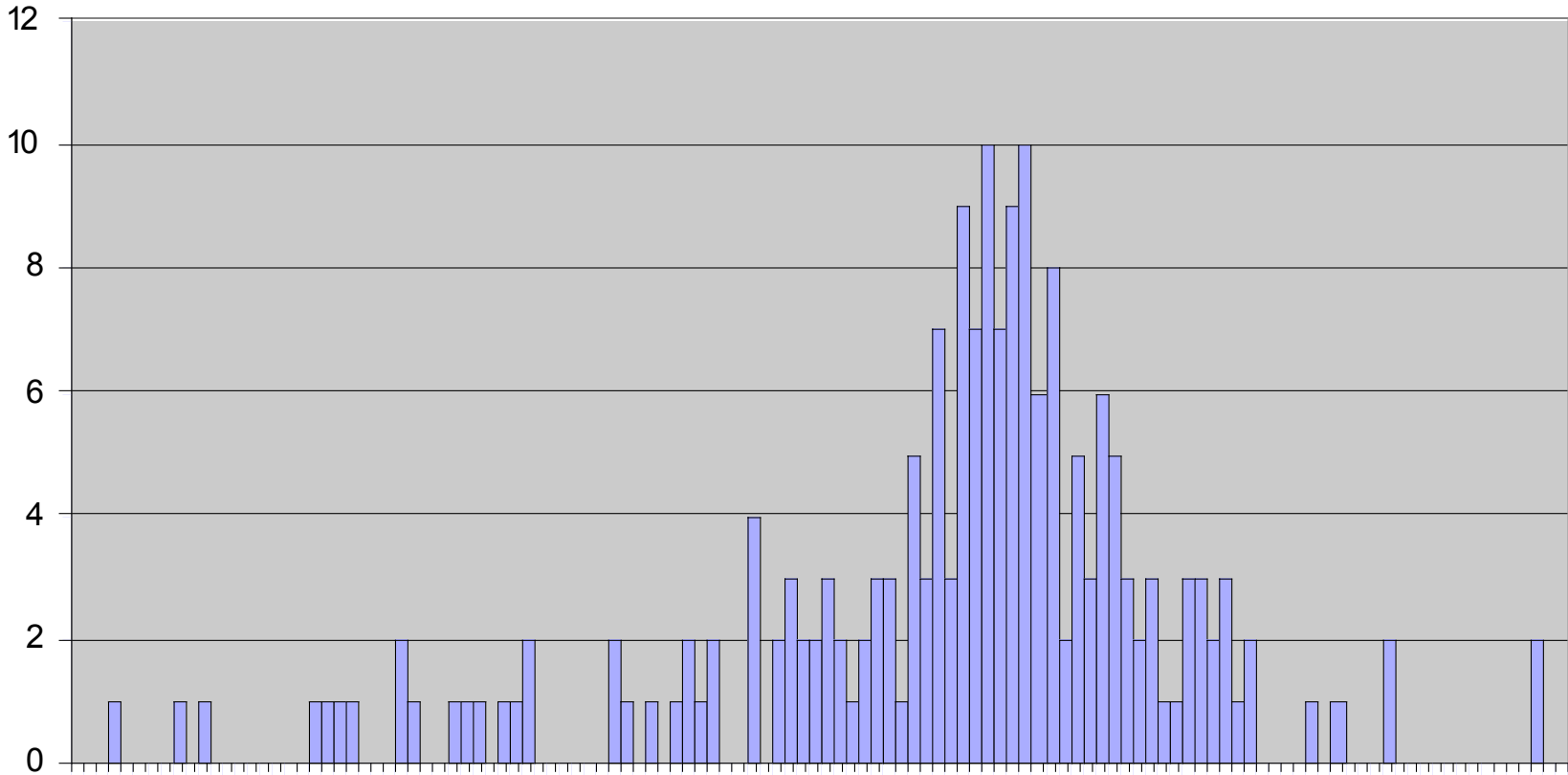
SL=3, Corner=2 positions of all chambers in Z with respect to the corresponding chamber design values



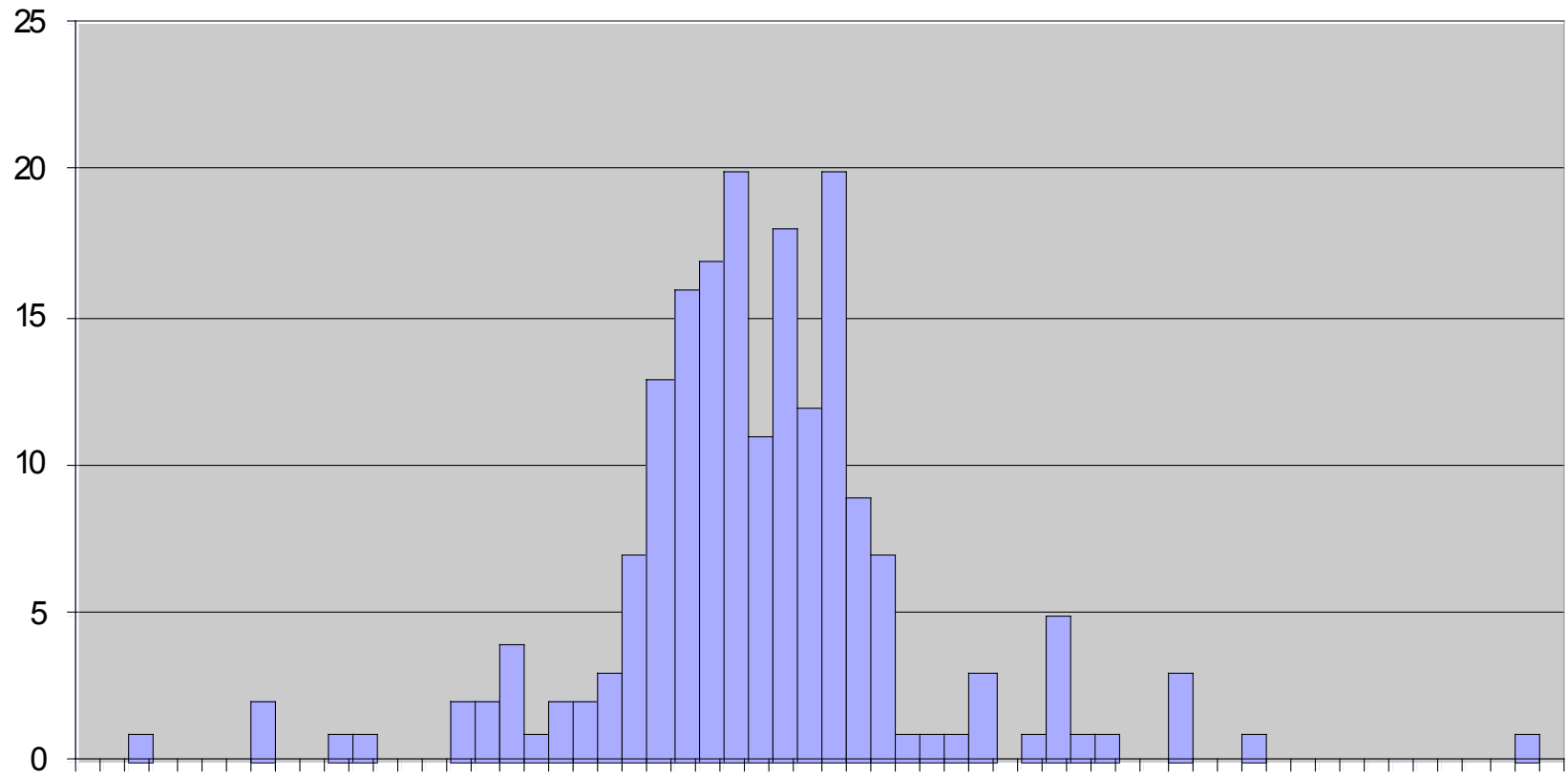
SL=3, Corner=3 positions of all chambers in X with respect to the corresponding chamber design values



SL=3, Corner=3 positions of all chambers in Z with respect to the corresponding chamber design values



SL=3, Corner=4 positions of all chambers in X with respect to the corresponding chamber design values



SL=3, Corner=4 positions of all chambers in Z with respect to the corresponding chamber design values

