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LHC-b - UX85 -Outer Tracker
T1-Q02-UX (C frame A2 position) – Cryo Side
November 3rd, 2006
BEFORE ADJUSTMENT

The EDMS document, **id: 792857** containing this report can be found at the address:

https://edms.cern.ch/document/ 792857

1 Introduction:

The aim of the measurement was to measure the position before adjustment of the C-frame on the rail A2 on Cryo Side (for the name of the rail, see the document EDMS https://edms.cern.ch/document/756237). This C-frame is called T1-Q02-UX.

2 LHC-b Survey Co-ordinate System

- Origin: Interaction Point IP;
- Z_{SU} axis: **vertical**, positive to the top;
- X_{SU} axis: beam projection in the **horizontal** plane, positive from cavern to IP;
- Y_{SU} axis: **horizontal**, perpendicular to the XZ plane, positive to the LHC centre

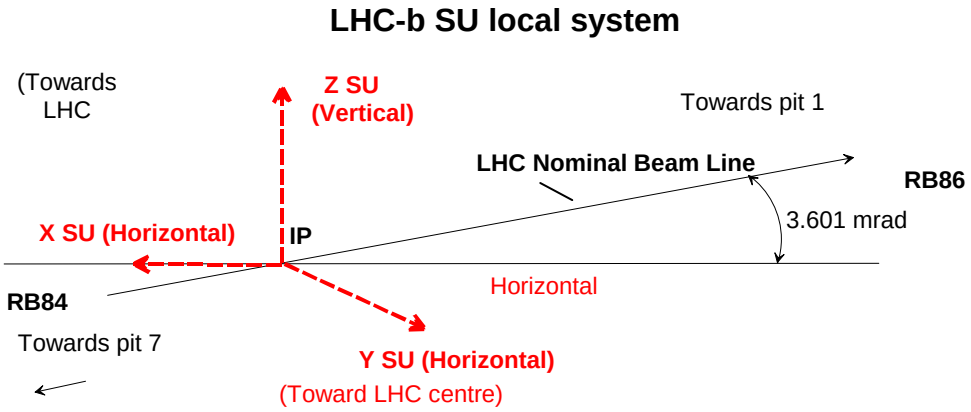


Figure 1 : LHCb Co-ordinate systems

3 C frame point positions and names:

3.1 Point names:

Point names are *A2_LVnB or A2_LXnT* with:

- *V or X*: Side of the frame, LV is on the magnet side and LX is on the Rich2 side.
- *n* : Chamber number on the frame, from 1 (Cryo side), to 9 (PZ side)
- *B or T* : for Bottom or Top

Example: A2_LV9T is on the magnet side, on the chamber 9, on the top.

In the figure below: nn=A2

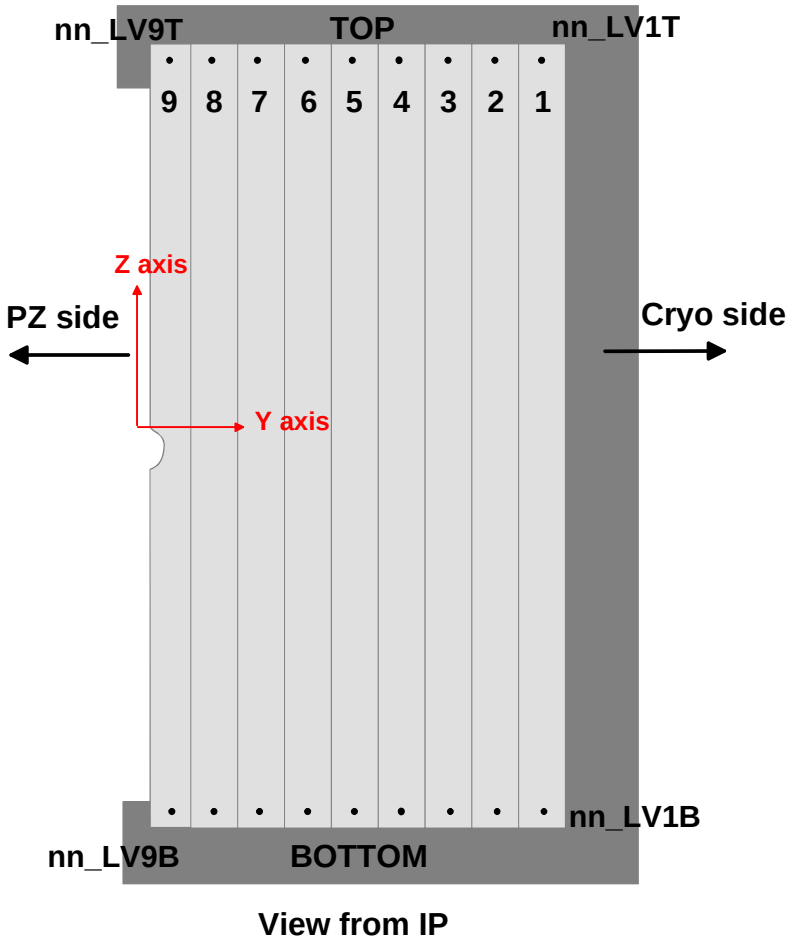


Figure 2 : Point positions – LV (IP) side

In the figure below: nn=A2

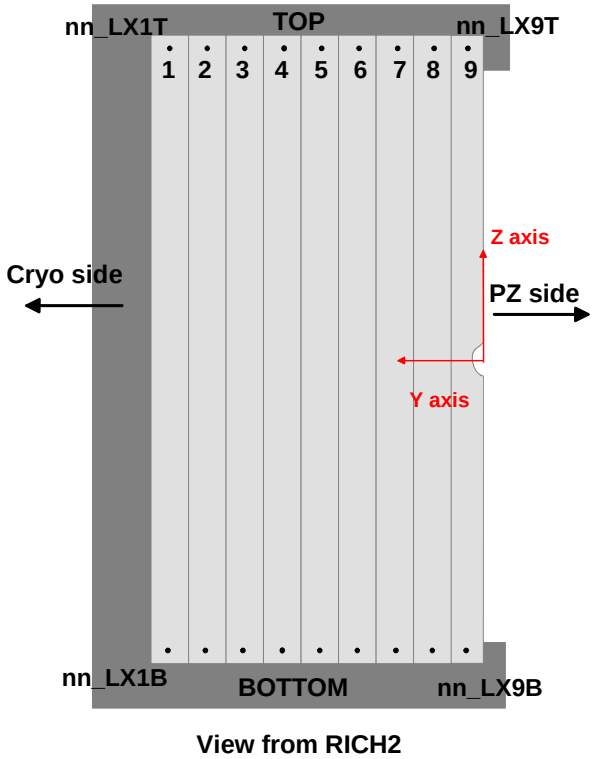
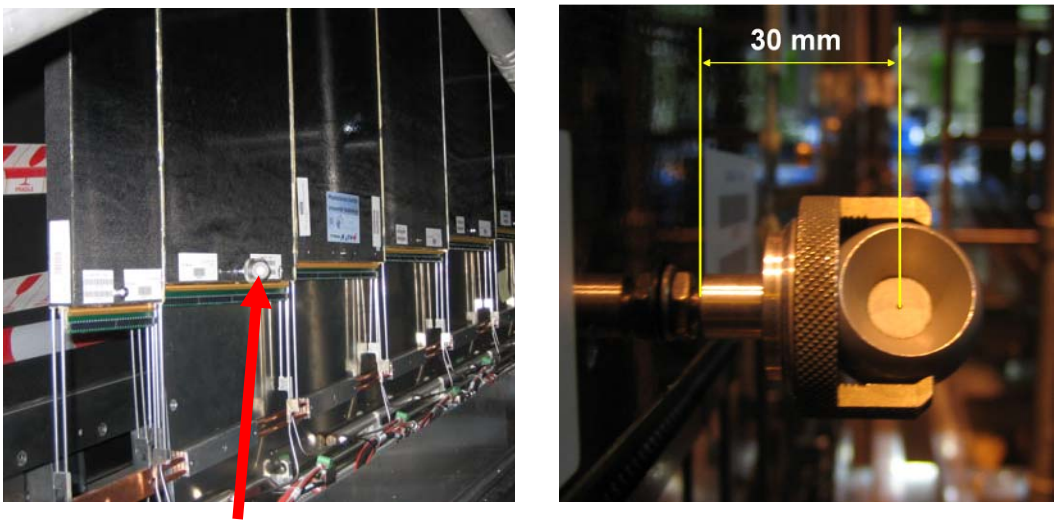


Figure 3 : Point positions – LX (RICH2) side

3.2 Measured points

The coordinates are given at the centre of the Survey target, at a horizontal distance of **30 mm** from the contact surface, see figure 3.



Point position on the frame

Figure 4 : Point position and target

4 Points BEFORE adjustment

The coordinates are given in the survey reference system at the centre of the target (see figure 4).
Precision of the coordinates along X, Y and Z axis is 0.5 mm at 1 sigma level.

	X (m)	Y (m)	Z (m)
A2_LX3B	-7.9683	2.3551	-2.4126
A2_LX8B	-7.9669	0.6423	-2.4133
A2_LX1T	-7.9673	2.6122	2.4686
A2_LX3T	-7.9672	1.9272	2.4689
A2_LX8T	-7.9669	0.2143	2.4695
A2_LV9B	-7.8079	0.1701	-2.4160