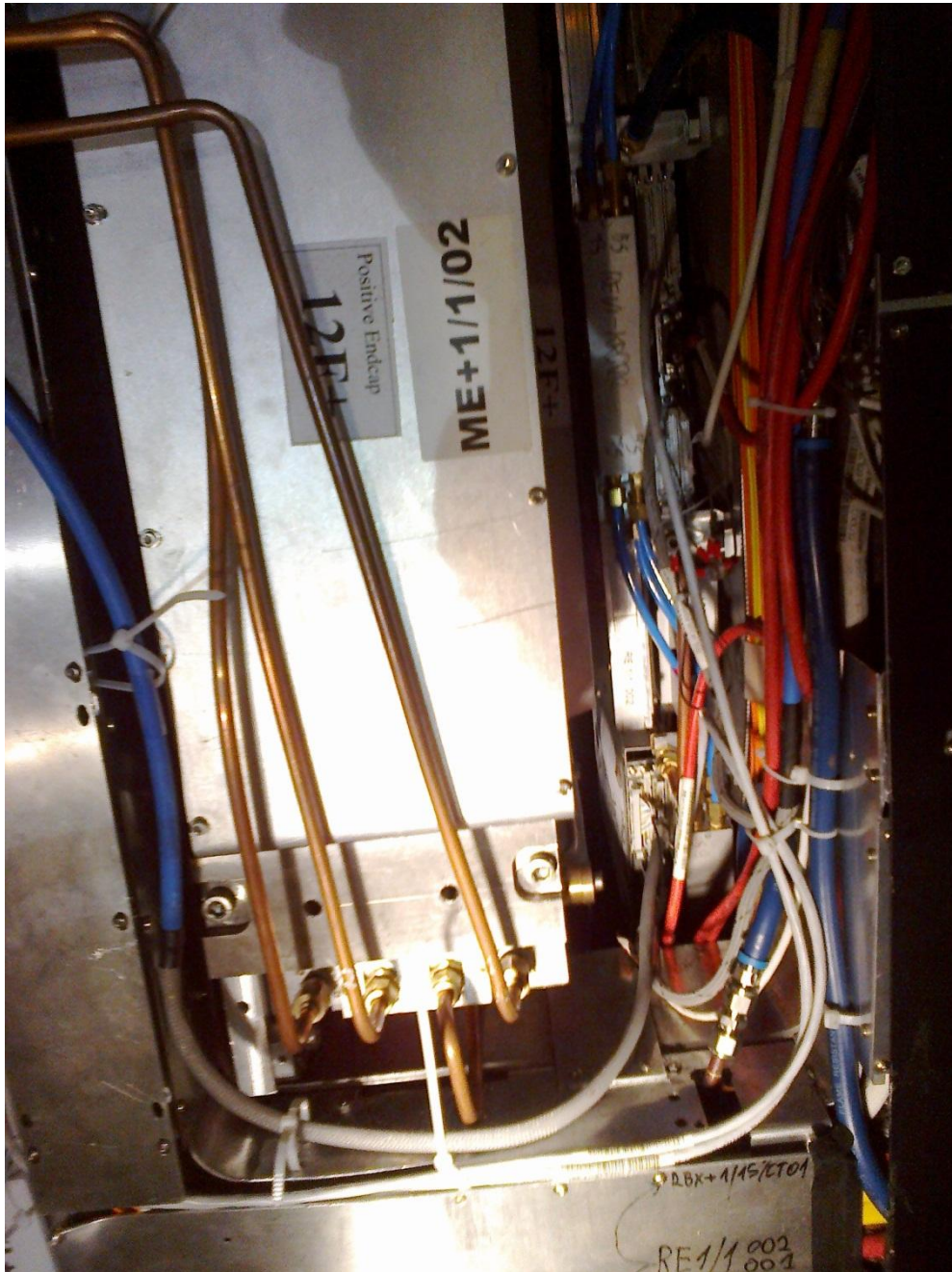


## ***Installing cables in RE1/1 sector out to the X4J32***

Ian Crotty 07 Oct 2014

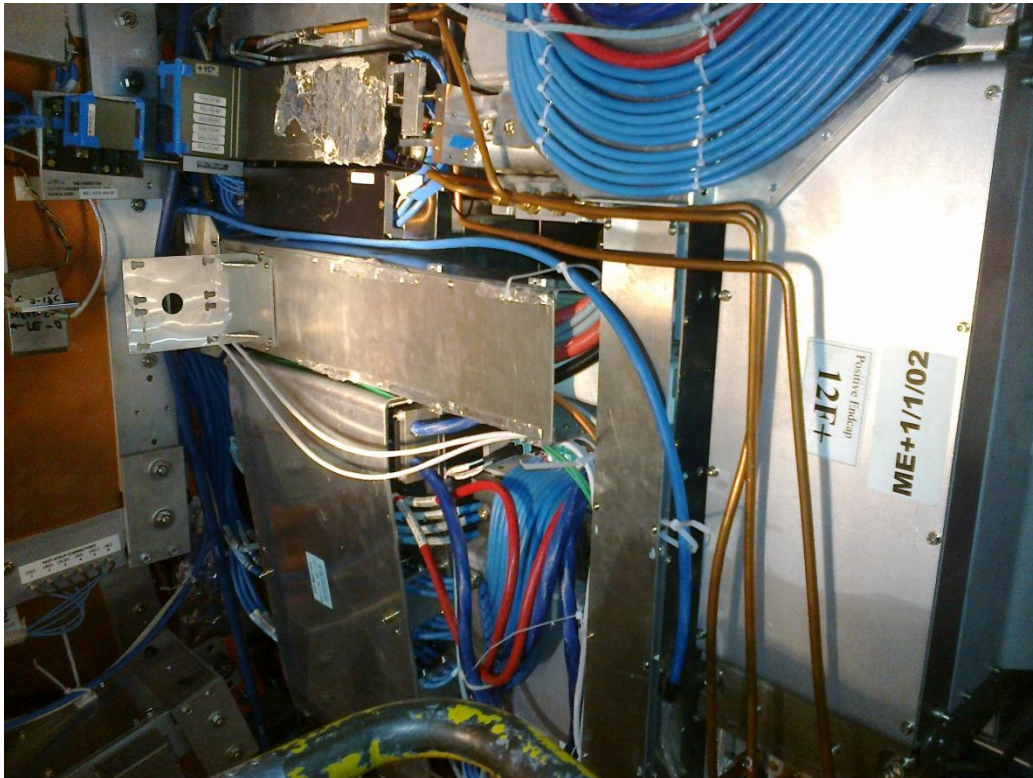
The first cable as an example for our CSC colleagues are shown on the pages 1-7.

ME1/1 zone, notice that the DCS cables have been moved to make extra space for the signal cables.

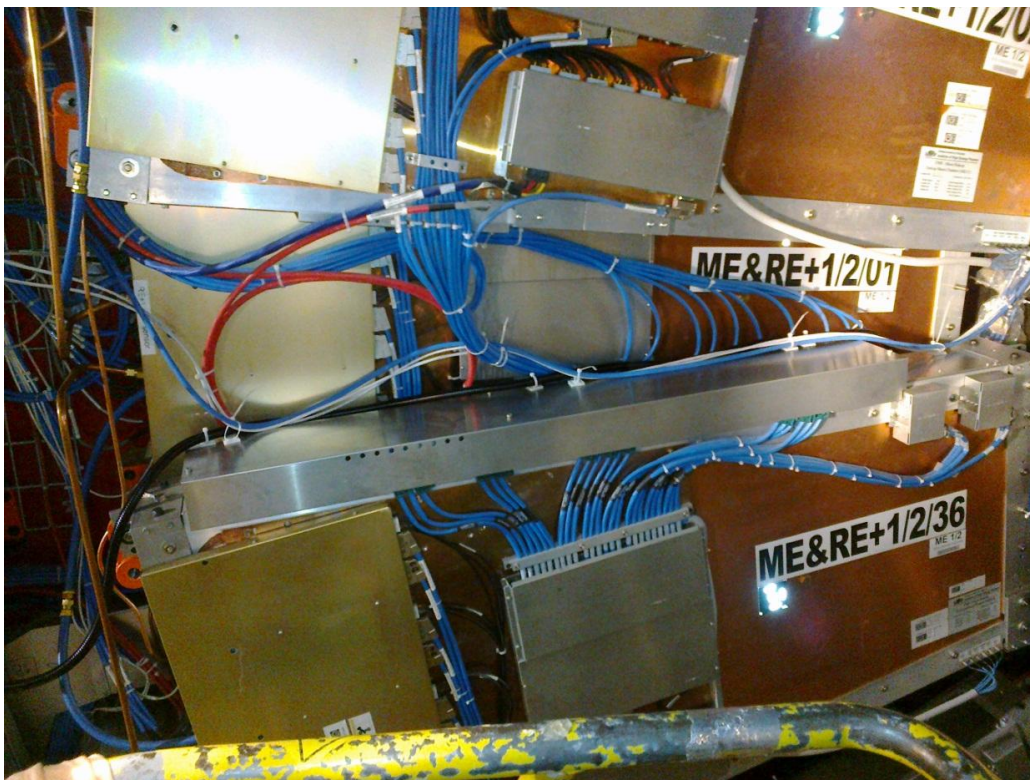




Cabling from ME1/1 zone to the YE1. Notice the black alignment box.

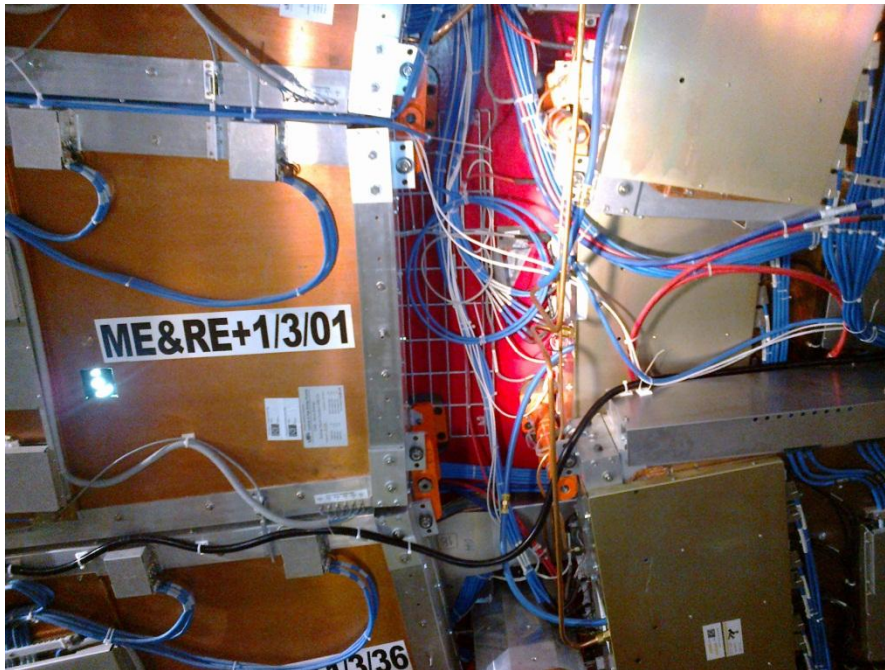


Zone over the ME1/2

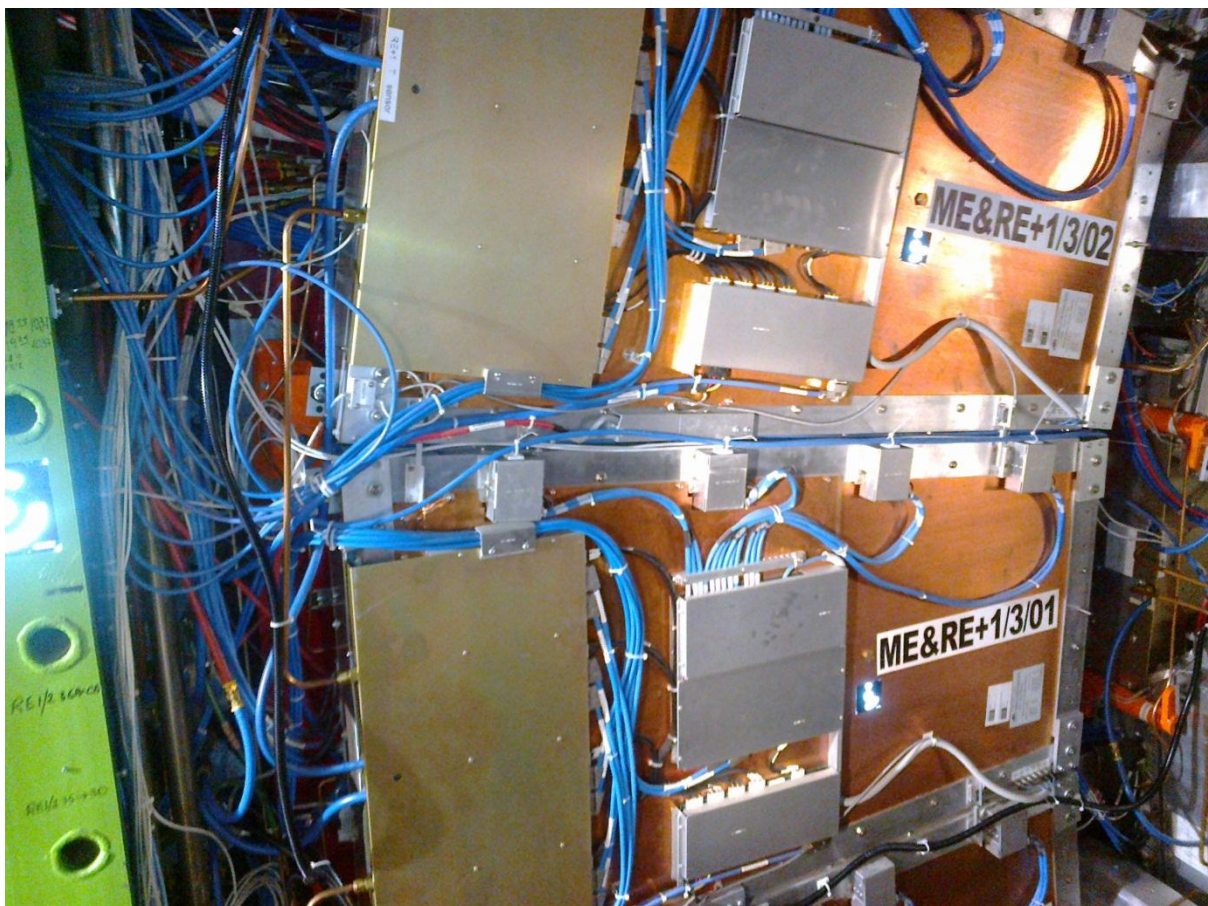




Slack in the zone between ME1/2 and ME1/3

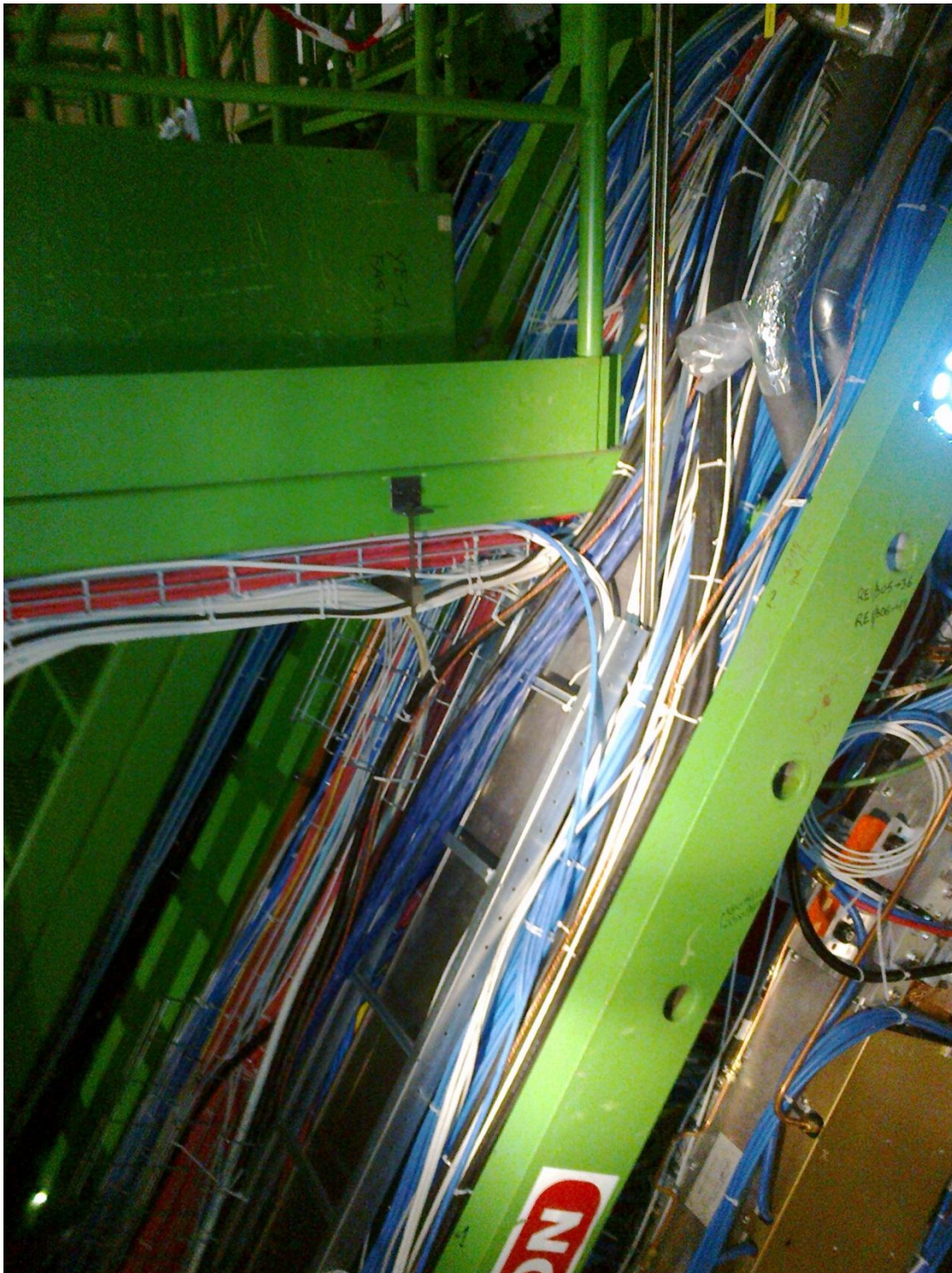


Cabling along edge of ME1/3, secured to the 4 electronics boxes.





Passage of cables from the green peripheral structures to the floor above the X4 rack.

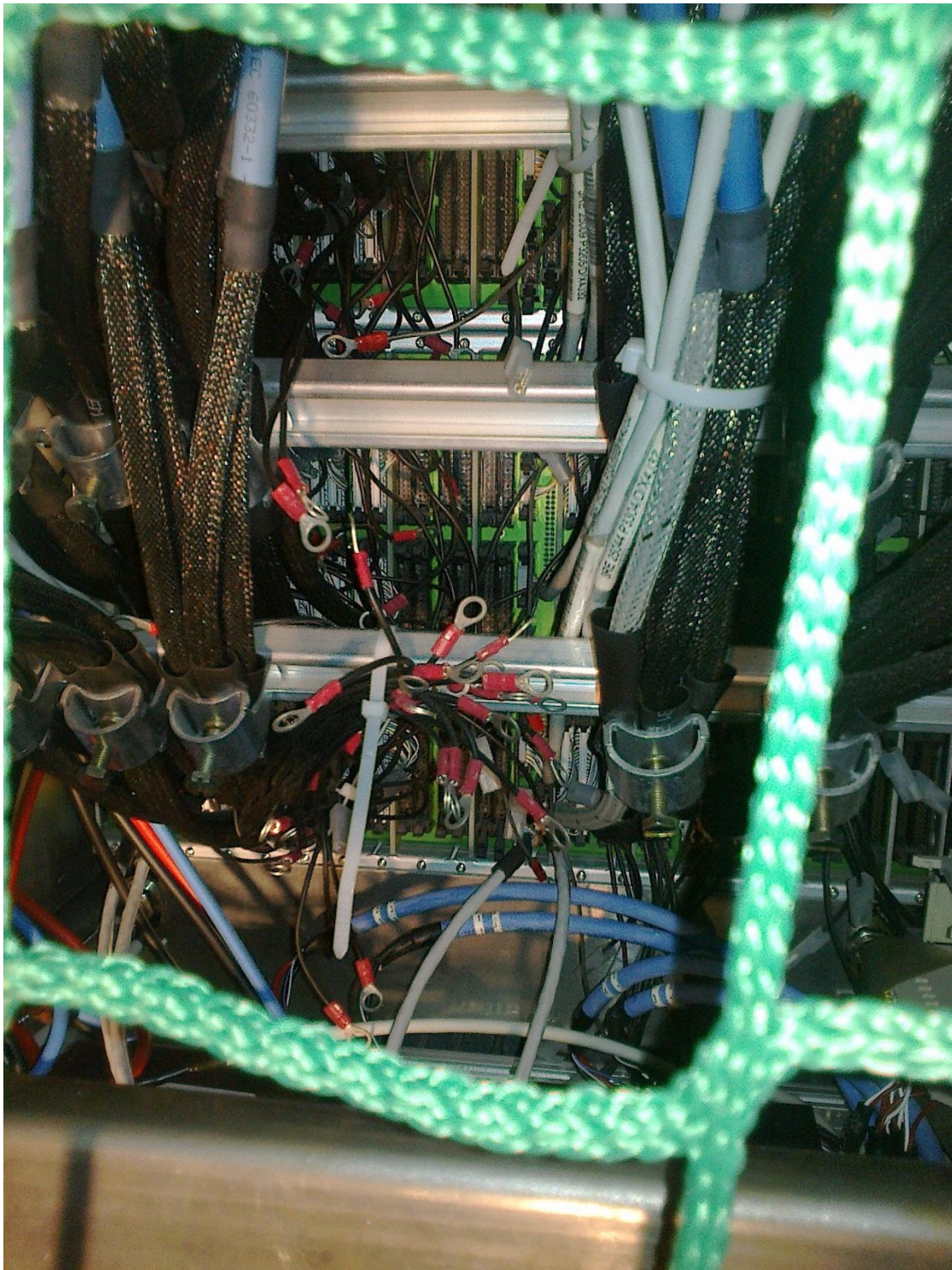


Cables running across the “bridge” to the top of the Rack area.



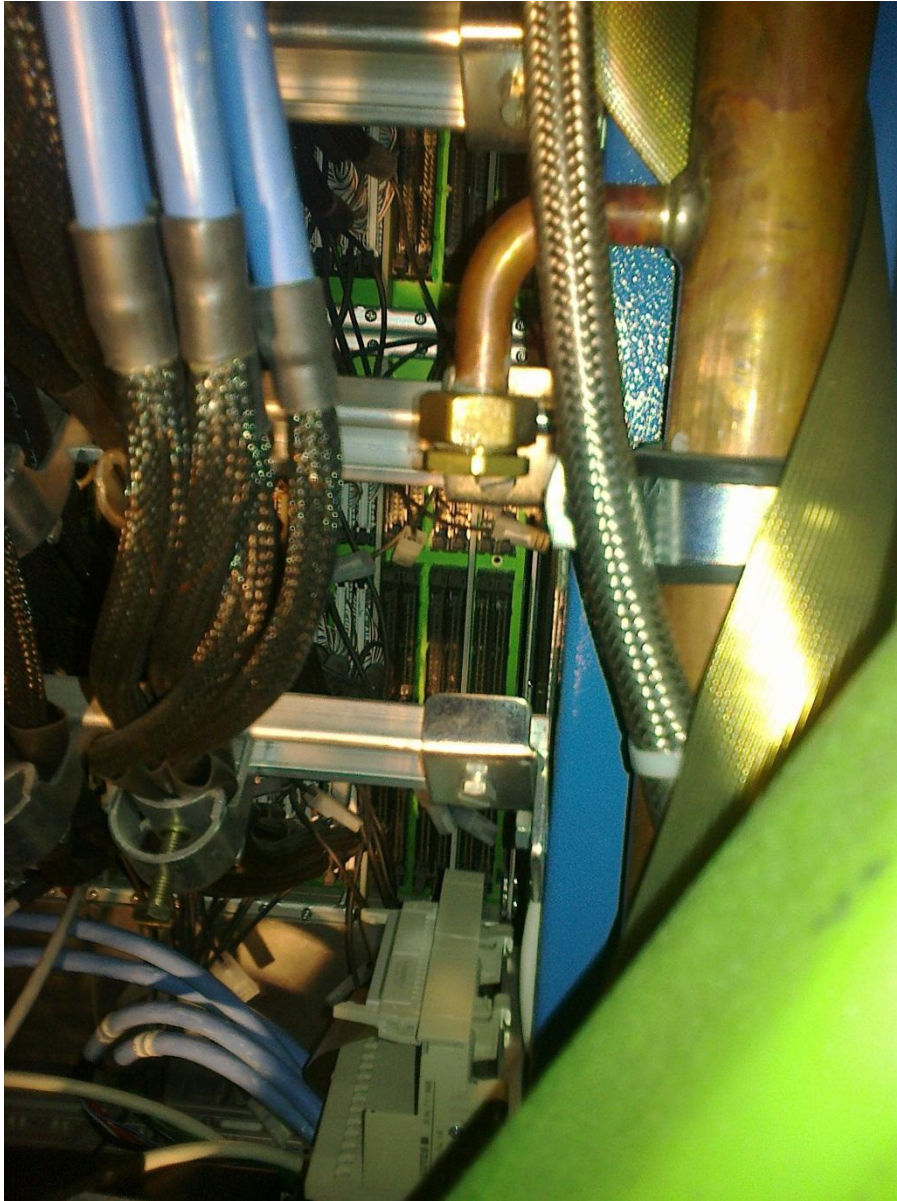


Rear view , from a cherry picker, of the first LBX crate from the top of the rack. The 3 slots in the middle of the crate, of which only the 2 on the left are to be used. Namely slots 12 & 13.



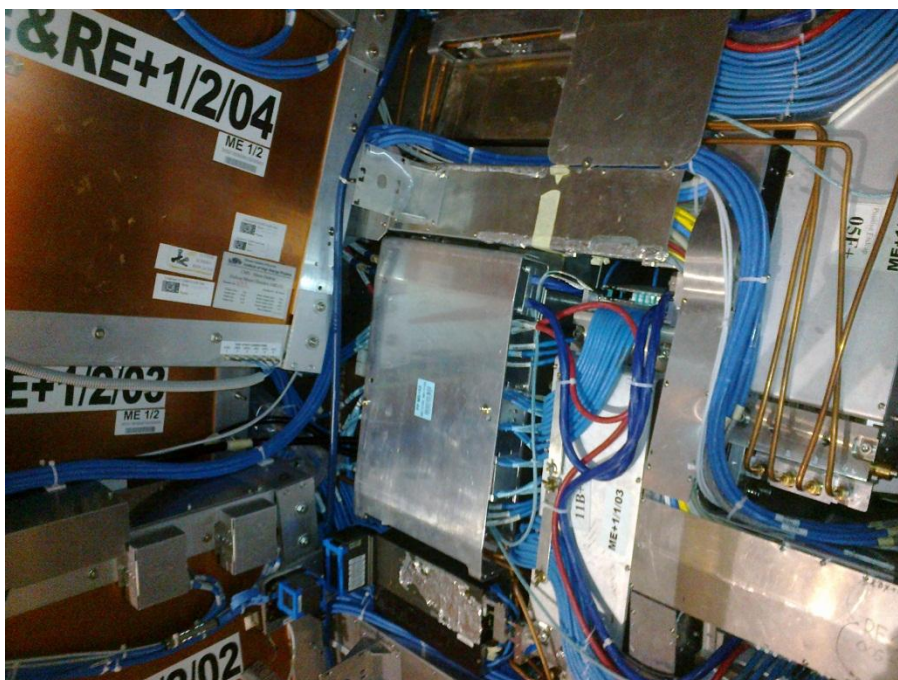


Same crate with 3 slots (1, 2 & 3) available and the slot 2 & 3 will be used. We are counting from right to left as the view is from the rear of the rack.



Final Cables Installed , DCS and Signal, done by Alexandre Kurenkov Sept 2014

RE1/1 04 next to ME1/1 04





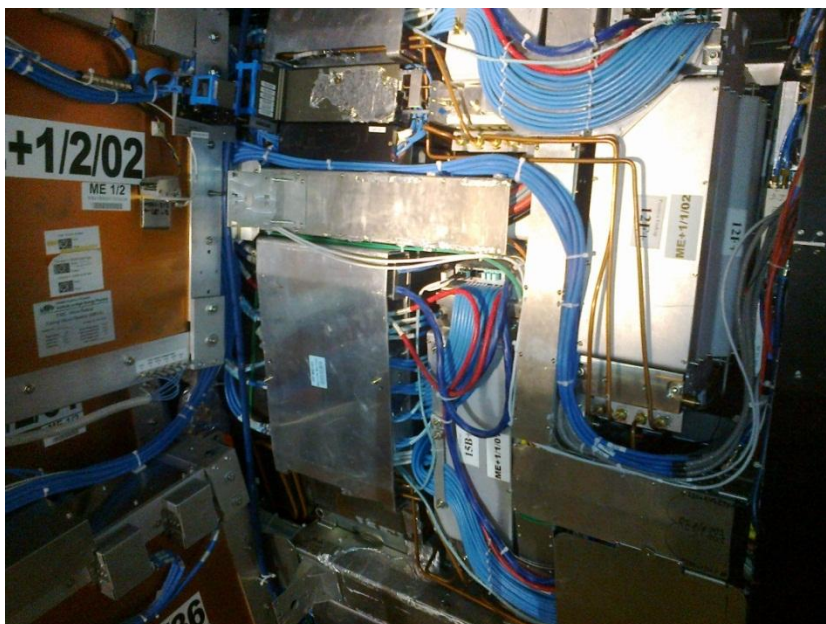


Cabling between ME1/3 03 and ME1/3 04

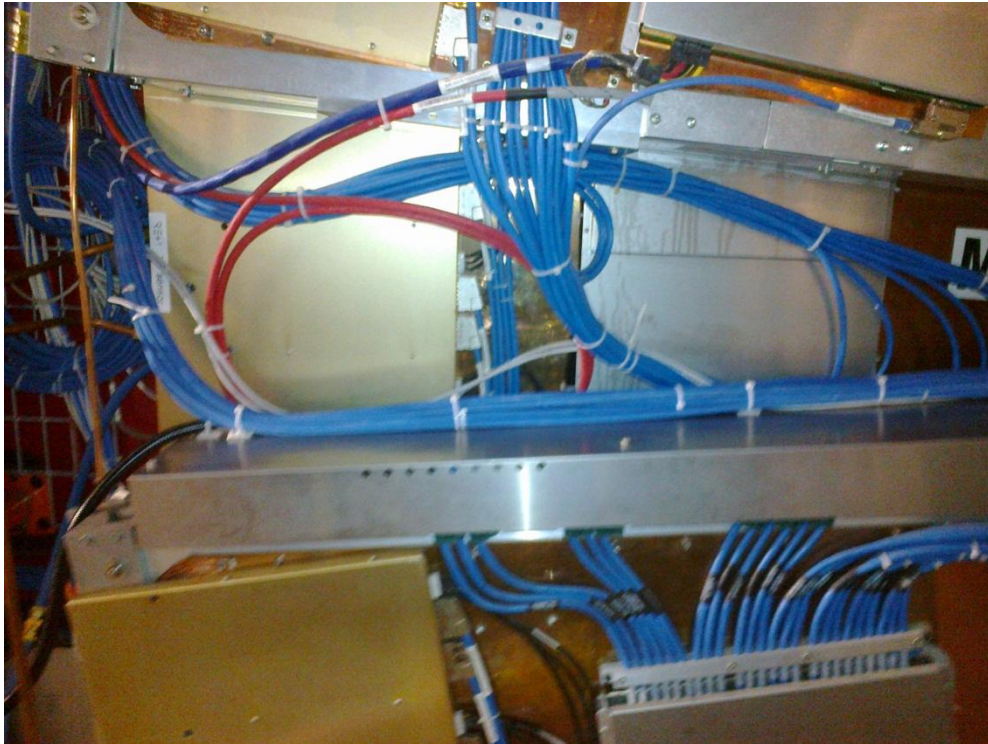




RE1/1 02 next to ME1/1 02







Slack, 1m, between ME1/2 01 and ME1/3 01

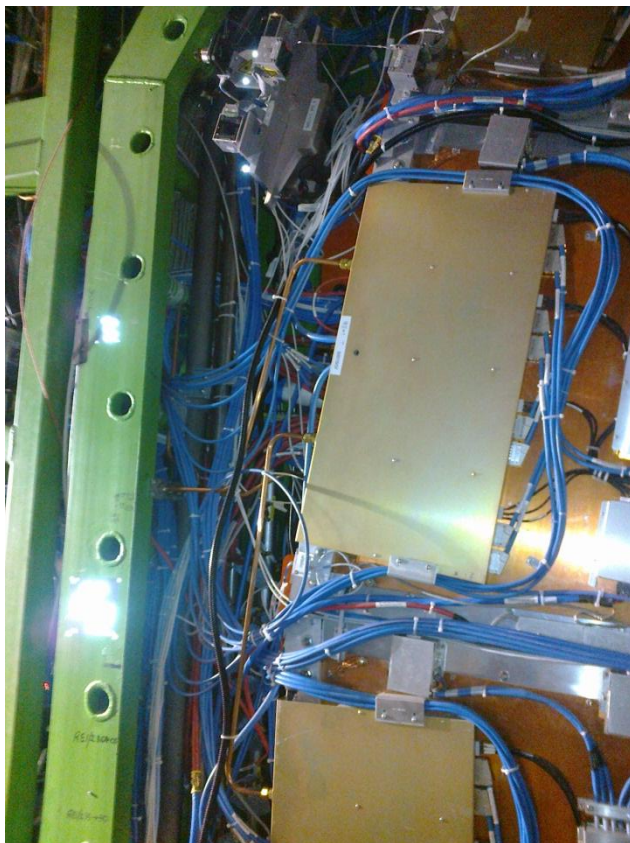




Cables attached between the ME1/3 01 and ME1/3 02



Cabling on the periphery near ME1/3 01

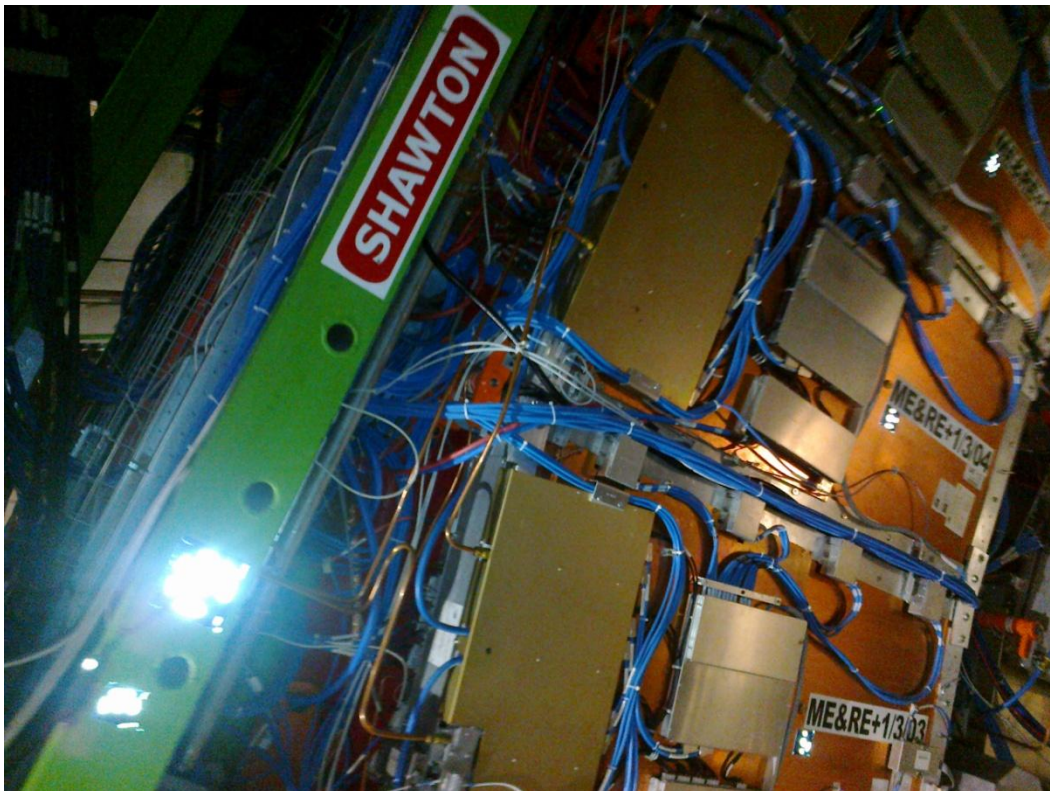




Cables go behind the alignment and out to the exterior of the green structure



Cables from Sector 2 join sector 1

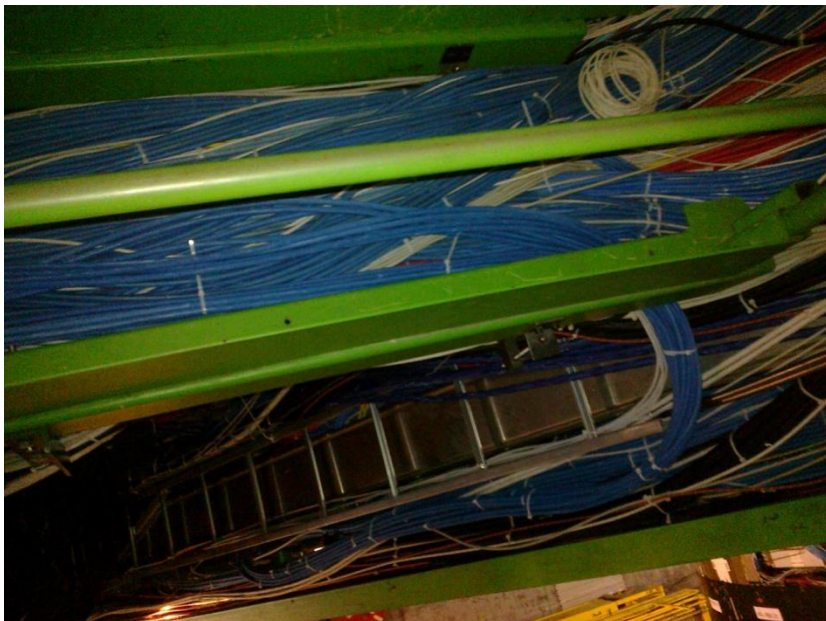




Both sectors on the outside of the green peripheral structure

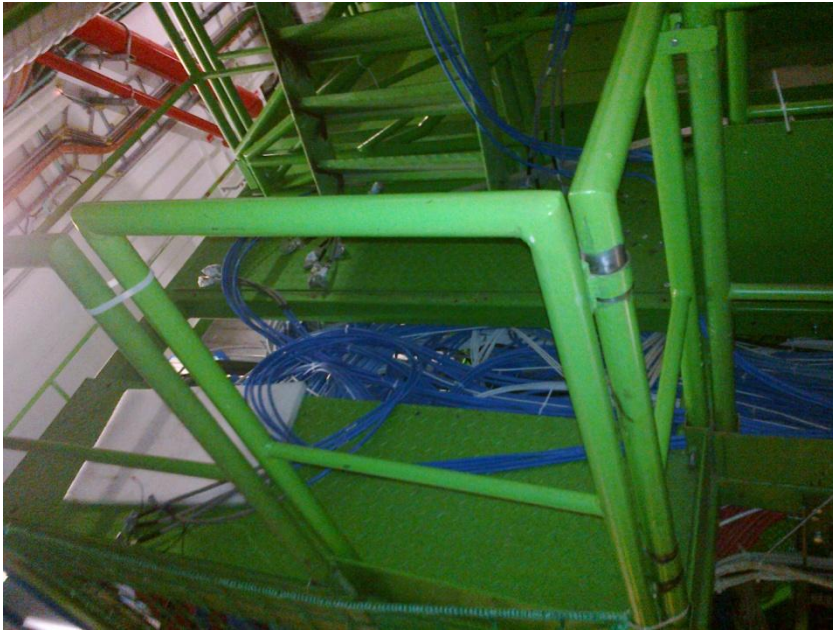


Cables bending under floor above X4 racks



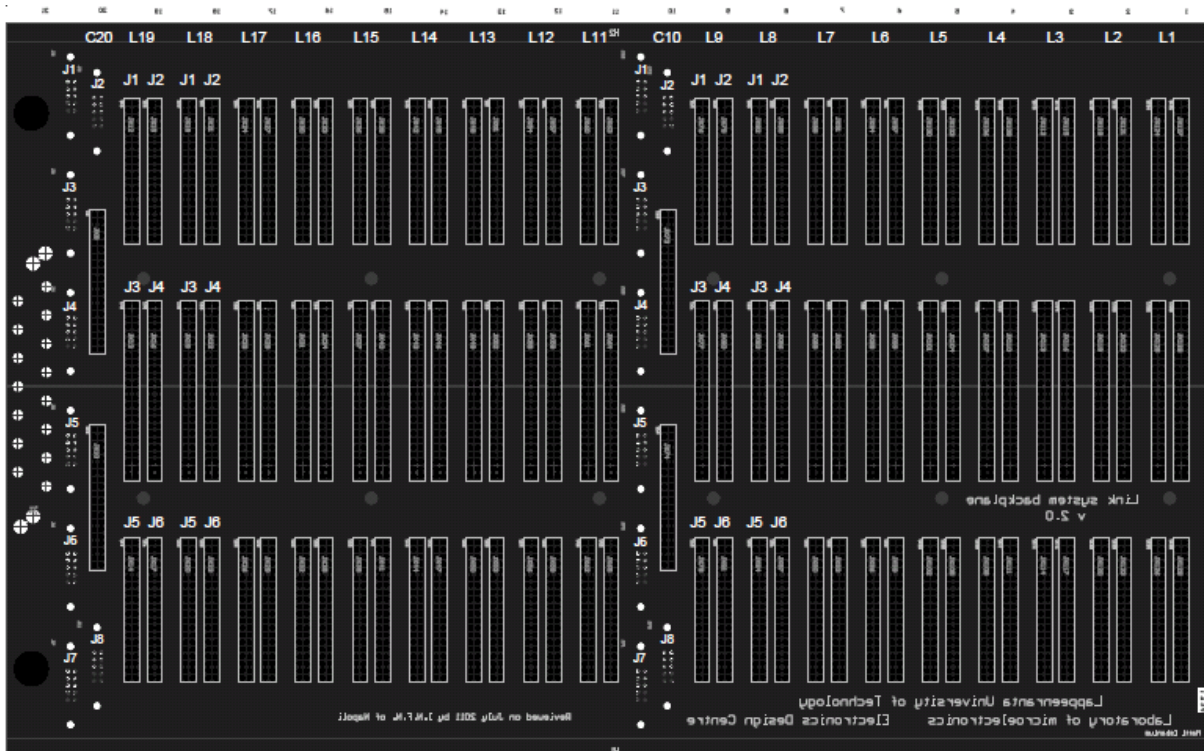


Cables laid under floor panels waiting to go down to the back of the rack.





Back Plane Rear View.



The DCS connexions are plugs;

C20	RE1/1 01	J7
C20	RE1/1 02	J8
C10	RE1/1 03	J7
C10	RE1/1 04	J8

Signal cable slots are;

L2 & L3 for chambers 3 and 4 respectively

And

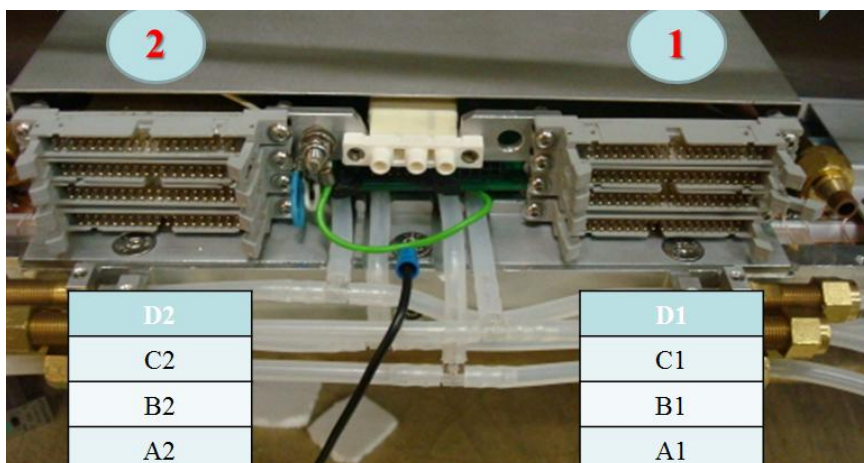
L12 & L13 for chambers 1 & 2 respectively

## The Chamber patch panel connections.

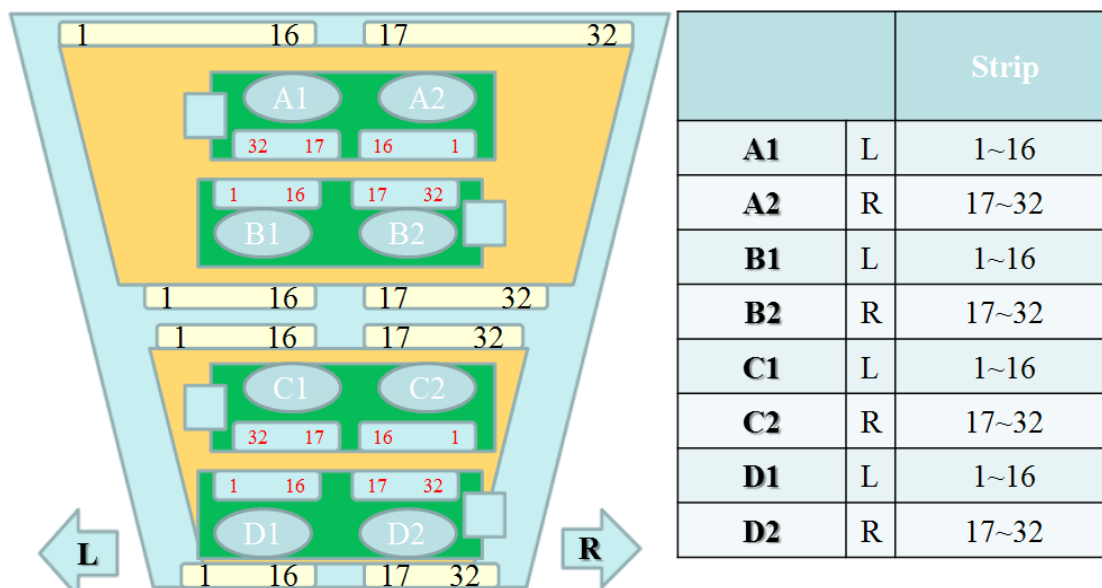
The two documents below are taken from Korean report in 2009;

[http://project-cms-rpc-endcap.web.cern.ch/project-cms-rpc-endcap/rpc/ChambersandIntegration/Korea/RE11/report\\_CERN\\_20090204.ppt](http://project-cms-rpc-endcap.web.cern.ch/project-cms-rpc-endcap/rpc/ChambersandIntegration/Korea/RE11/report_CERN_20090204.ppt)

Photo of the Patch panel showing the 8 Signal cable connexions. The chamber is below and behind the PP. The PP is situated at a high "R" value wrt the rest of the chamber.



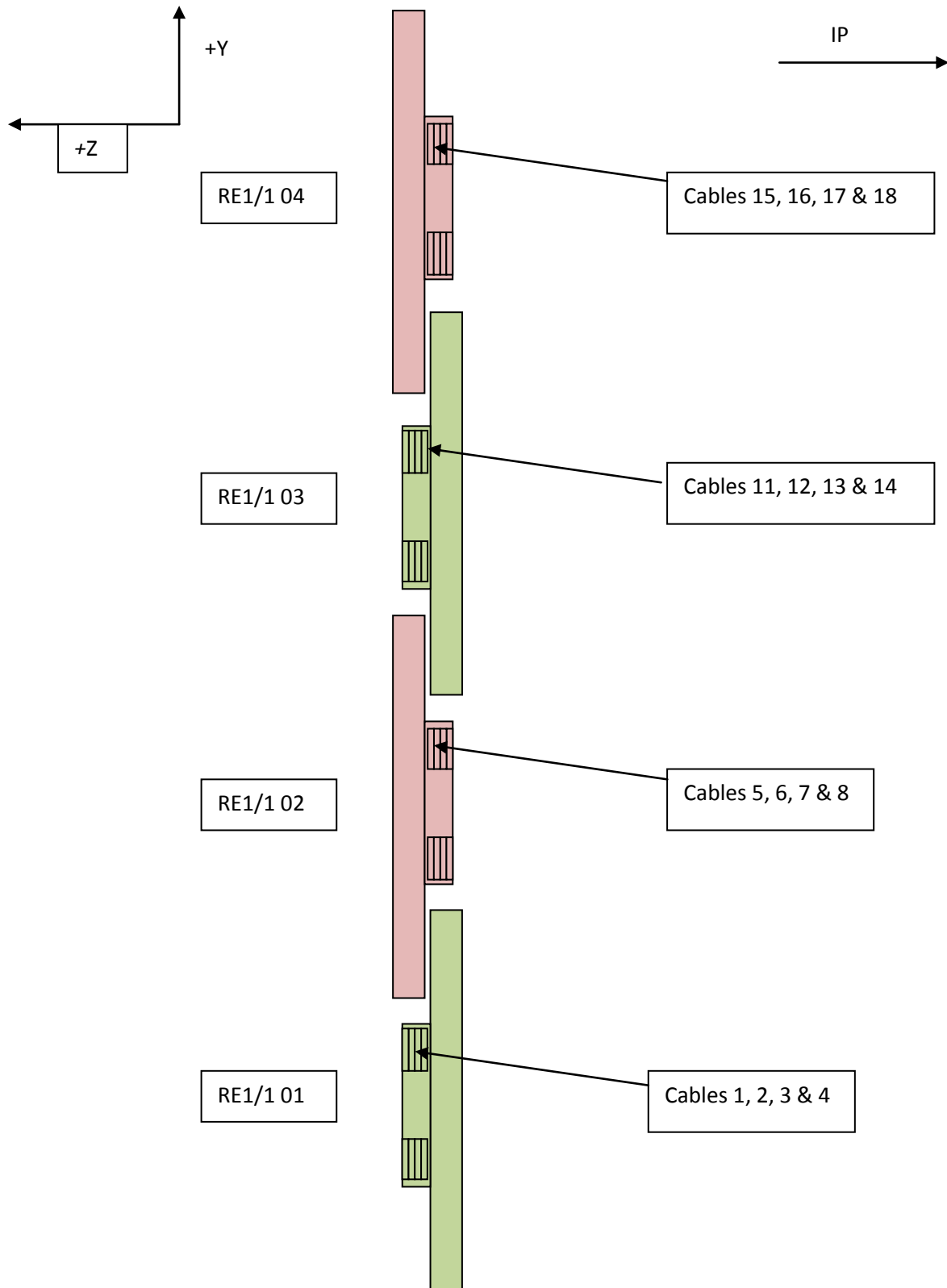
Plan view of chamber. High "R" and PP are at top. Notice reversal of strip number between A and B on the diagram which is not in agreement with the table on the right. The numbers (red) on the FEBs in the diagram refers to the output value to the link board. FEBs B and D are "correctly" orientated wrt the chamber strips (numbers in black) and the FEBs A and C are reversed. The table refers to strips on the chambers.





The chambers are orientated alternatively with their base towards IP and away from IP.

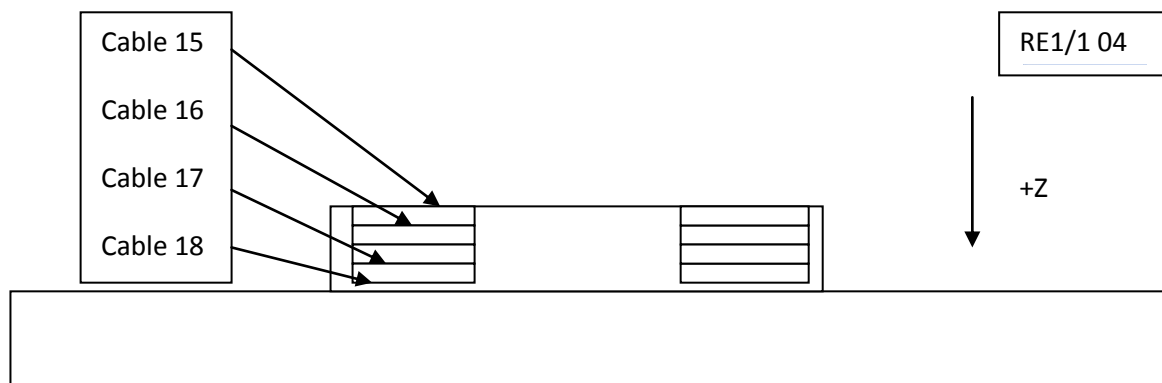
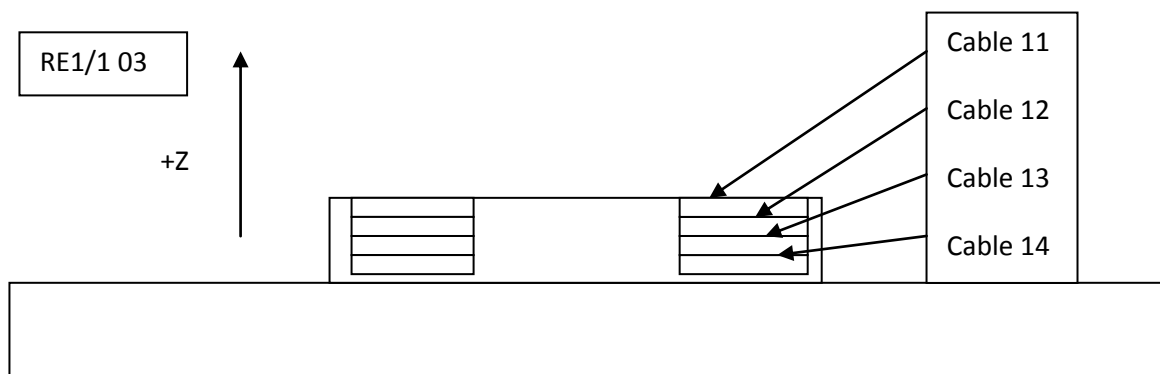
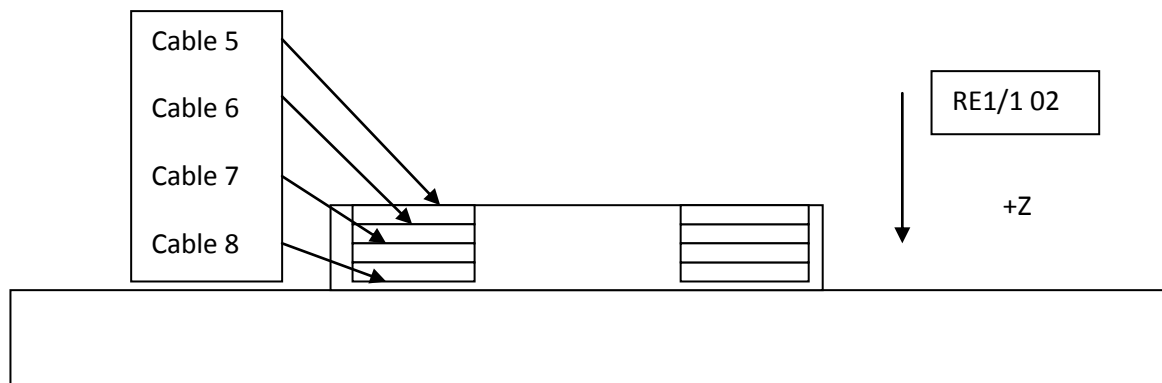
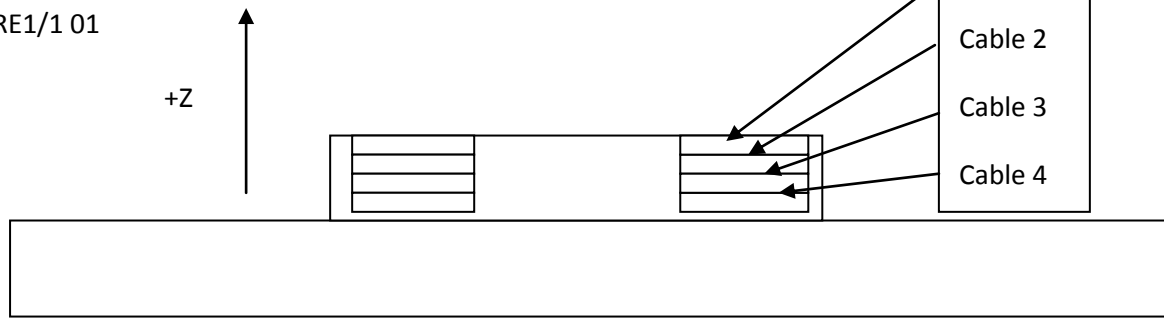
View from the balcony at X3 near.



# Cabling on the Chamber PP

RE1/1 01

+Z





Nota. The signal cables are grounded to the chassis of the chambers at one point.

Table of labels with sufficient information to identify each strip V2

#### ATTENTION LABELS CHANGED

temporary name	CABLE NAME	LENGTH [m]	DELAY [ns]	MAX SKEW	COLOR	Diameter [mm]	START POINT	END POINT
c1	RE+1/1/01/D1/CA1/X4J32_j/L12/J6	18.7	96.98	0.96	blue	10	RE+1/1/01	X4J32
c2	RE+1/1/01/C1/CA1/X4J32_j/L12/J5	18.7	97.23	1.32	blue	10	RE+1/1/01	X4J32
c3	RE+1/1/01/B1/CA1/X4J32_j/L12/J4	18.7	97.12	1.43	blue	10	RE+1/1/01	X4J32
c4	RE+1/1/01/A1/CA1/X4J32_j/L12/J3	18.7	97.15	1.35	blue	10	RE+1/1/01	X4J32
c5	RE+1/1/02/D1/CA1/X4J32_j/L13/J6	18.7	97.23	1.45	blue	10	RE+1/1/02	X4J32
c6	RE+1/1/02/C1/CA1/X4J32_j/L13/J5	18.7	96.9	1.55	blue	10	RE+1/1/02	X4J32
c7	RE+1/1/02/B1/CA1/X4J32_j/L13/J4	18.7	97.13	1.65	blue	10	RE+1/1/02	X4J32
c8	RE+1/1/02/A1/CA1/X4J32_j/L13/J3	18.7	97.02	1.65	blue	10	RE+1/1/02	X4J32
c11	RE+1/1/03/D1/CA1/X4J32_j/L2/J6	16.8	86.66	1.13	blue	10	RE+1/1/03	X4J32
c12	RE+1/1/03/C1/CA1/X4J32_j/L2/J5	16.8	86.63	1.3	blue	10	RE+1/1/03	X4J32
c13	RE+1/1/03/B1/CA1/X4J32_j/L2/J4	16.8	86.73	1.03	blue	10	RE+1/1/03	X4J32
c14	RE+1/1/03/A1/CA1/X4J32_j/L2/J3	16.8	86.61	1.06	blue	10	RE+1/1/03	X4J32
c15	RE+1/1/04/D1/CA1/X4J32_j/L3/J6	16.8	86.57	1.08	blue	10	RE+1/1/04	X4J32
c16	RE+1/1/04/C1/CA1/X4J32_j/L3/J5	16.8	86.64	1.1	blue	10	RE+1/1/04	X4J32
c17	RE+1/1/04/B1/CA1/X4J32_j/L3/J4	16.8	86.63	1.19	blue	10	RE+1/1/04	X4J32
c18	RE+1/1/04/A1/CA1/X4J32_j/L3/J3	16.8	86.6	1.1	blue	10	RE+1/1/04	X4J32
DCS1	RE+1/1/01/CA3/X4J32_j/L20/J7	18			white	5	RE+1/1/01	X4J32
DCS2	RE+1/1/02/CA3/X4J32_j/L20/J8	18			white	5	RE+1/1/02	X4J32
DCS3	RE+1/1/03/CA3/X4J32_j/L10/J7	18			white	5	RE+1/1/03	X4J32
DCS4	RE+1/1/03/CA3/X4J32_j/L10/J8	18			white	5	RE+1/1/04	X4J32

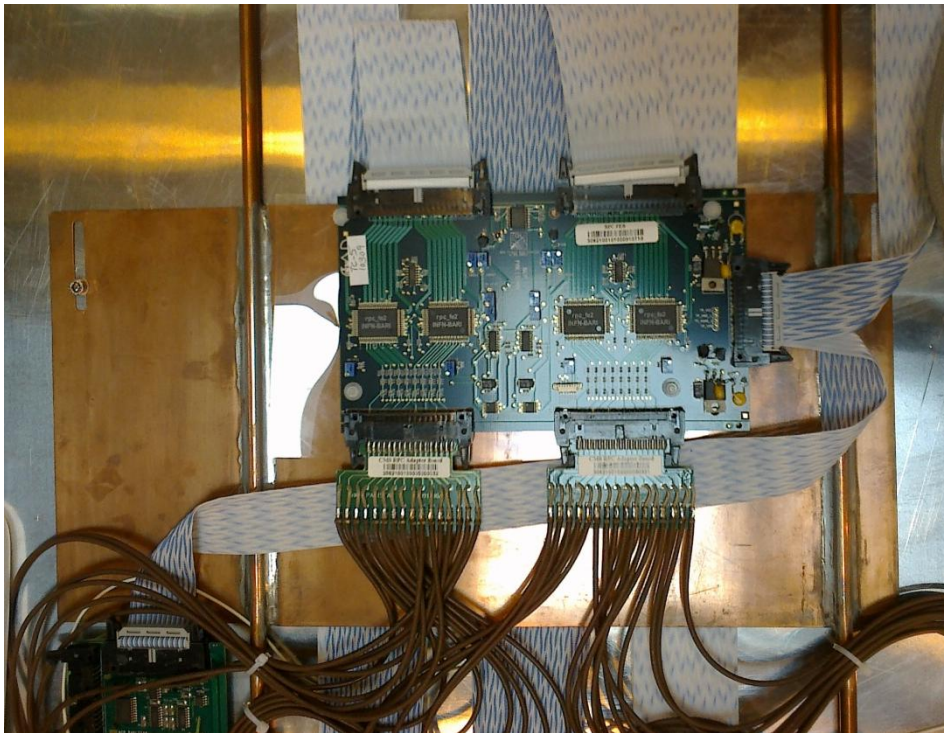
#### Latest and Final version V4

temporary name	CABLE NAME	LENGTH [m]	DELAY [ns]	MAX SKEW	COLOR	Diameter [mm]	START POINT	END POINT
c1	RE+1/1/01/D1/CA1/X4J32n/L12/J6	18.7	96.98	0.96	blue	10	RE+1/1/01	X4J32
c2	RE+1/1/01/C1/CA1/X4J32n/L12/J5	18.7	97.23	1.32	blue	10	RE+1/1/01	X4J32
c3	RE+1/1/01/B1/CA1/X4J32n/L12/J4	18.7	97.12	1.43	blue	10	RE+1/1/01	X4J32
c4	RE+1/1/01/A1/CA1/X4J32n/L12/J3	18.7	97.15	1.35	blue	10	RE+1/1/01	X4J32
c5	RE+1/1/02/D2/CA1/X4J32n/L13/J6	18.7	97.23	1.45	blue	10	RE+1/1/02	X4J32
c6	RE+1/1/02/C2/CA1/X4J32n/L13/J5	18.7	96.9	1.55	blue	10	RE+1/1/02	X4J32
c7	RE+1/1/02/B2/CA1/X4J32n/L13/J4	18.7	97.13	1.65	blue	10	RE+1/1/02	X4J32
c8	RE+1/1/02/A2/CA1/X4J32n/L13/J3	18.7	97.02	1.65	blue	10	RE+1/1/02	X4J32
c11	RE+1/1/03/D1/CA1/X4J32n/L2/J6	16.8	86.66	1.13	blue	10	RE+1/1/03	X4J32
c12	RE+1/1/03/C1/CA1/X4J32n/L2/J5	16.8	86.63	1.3	blue	10	RE+1/1/03	X4J32
c13	RE+1/1/03/B1/CA1/X4J32n/L2/J4	16.8	86.73	1.03	blue	10	RE+1/1/03	X4J32
c14	RE+1/1/03/A1/CA1/X4J32n/L2/J3	16.8	86.61	1.06	blue	10	RE+1/1/03	X4J32
c15	RE+1/1/04/D2/CA1/X4J32n/L3/J6	16.8	86.57	1.08	blue	10	RE+1/1/04	X4J32
c16	RE+1/1/04/C2/CA1/X4J32n/L3/J5	16.8	86.64	1.1	blue	10	RE+1/1/04	X4J32
c17	RE+1/1/04/B2/CA1/X4J32n/L3/J4	16.8	86.63	1.19	blue	10	RE+1/1/04	X4J32
c18	RE+1/1/04/A2/CA1/X4J32n/L3/J3	16.8	86.6	1.1	blue	10	RE+1/1/04	X4J32
DCS1	RE+1/1/01/CA3/X4J32n/L20/J7	18			white	5	RE+1/1/01	X4J32
DCS2	RE+1/1/02/CA3/X4J32n/L20/J8	18			white	5	RE+1/1/02	X4J32
DCS3	RE+1/1/03/CA3/X4J32n/L10/J7	18			white	5	RE+1/1/03	X4J32
DCS4	RE+1/1/04/CA3/X4J32n/L10/J8	18			white	5	RE+1/1/04	X4J32

Tables by Anton

## Appendix

Layout of a standard RE FEB



FEB orientation during assembly. It agrees with the schematic of the Chamber shown above.

