KLM Gap Assignments

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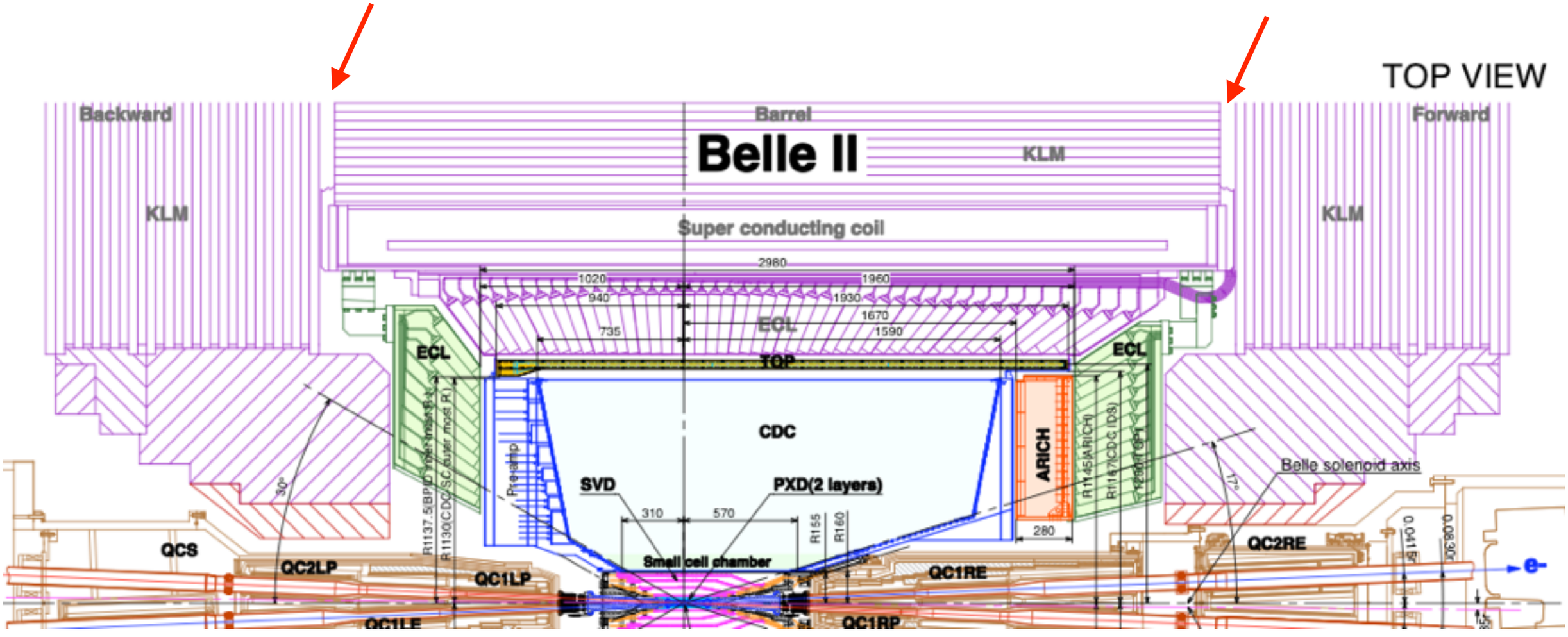
V150327　1st version
V160121 updated: add end-cap ECL and TOP

- This note is the 1st version of the slot assignment for cables/ tubes around the “KLM gap”.

- We have 80 mm gap (shown below: “KLM gap”) between B-KLM and E-KLM to extract cables and tubes for both of FWD and BWD sides.



- Space required by each sub-detector group
  - Cross section (backward) is a value for each octant for TOP and CDC.
  - To calculate “width” below, cross section value is divided by 70 mm although actual gap is 80 mm (10 mm as margin).

backward

	cross section(mm^2)	width(mm)	remark
TOP	3600	52	each octant
CDC	7700	110	each octant
SVD	11000	158	
PXD	8800	126	w/o CO_2
CO_2	3200	46	
Diamond	1100	16	

- ECL and KLM cables already exist. Basically no change for them.
- Assign these width values for **detectors except for TOP/CDC**.
- Assume TOP and CDC cables/tubes are uniformly distributed in the phi direction. The values for TOP (52 mm) and CDC (110mm) are not large compared to the total width.

- For the forward side, shown below are total cross section for each detector.
- Each width value is obtained by dividing each cross section value by 70 mm.

forward

	cross section(mm^2)	width(mm)	remark
TOP	2000	30	
CDC	4000	60	
SVD	6000	158	
PXD	8800	126	w/o CO_2
CO_2	3200	46	
Diamond	1000	15	
ARICH	TBD		

- ECL and KLM cables already exists. Basically no change for them.
- Here only assign slots for **detectors except for ARICH**.
- Assume ARICH cables are uniformly distributed in the phi direction

- Cross section values are taken from information collected in 2012 plus recent updates by the diamond detector.

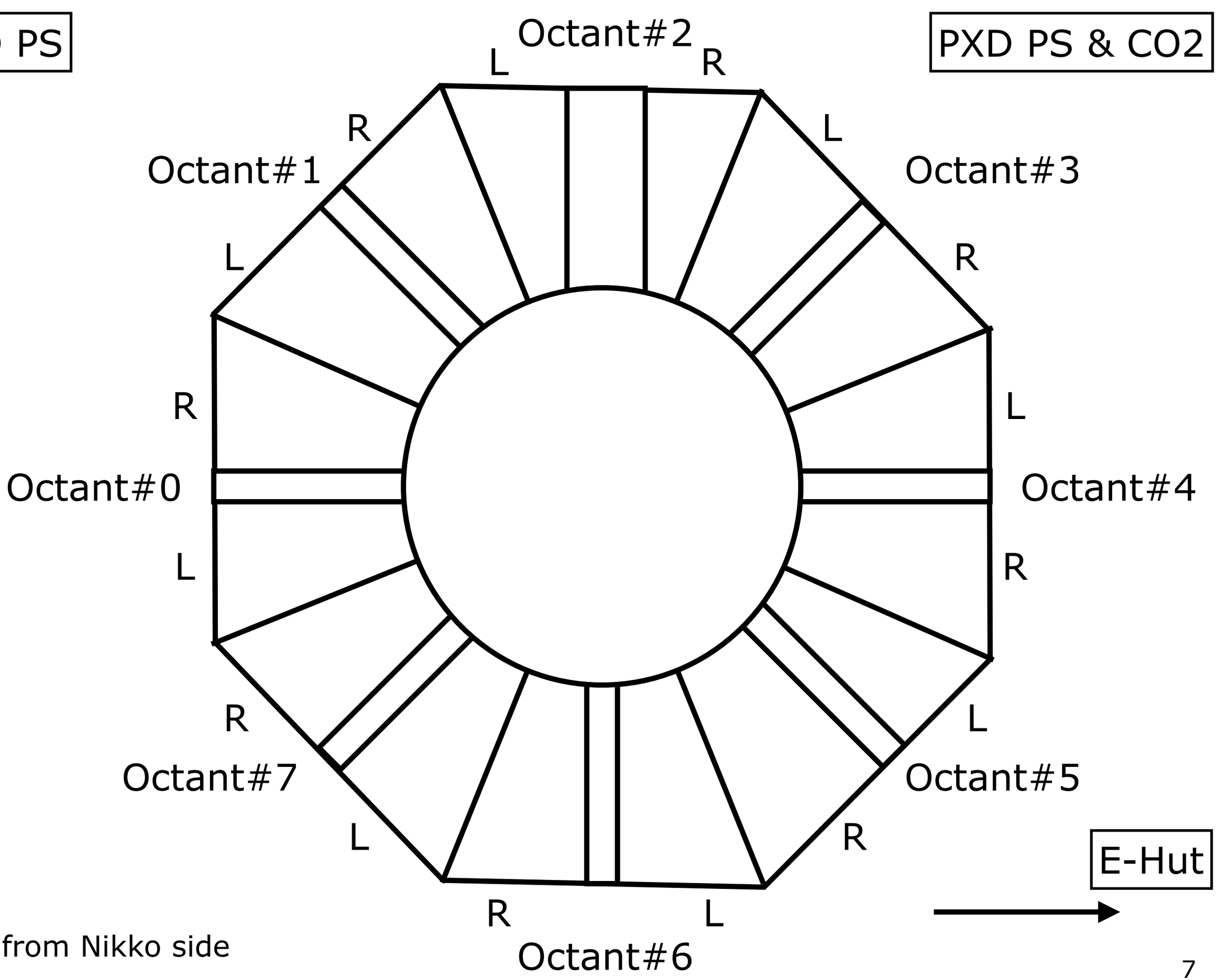
- Still missing, for instance, Beast2 elements.

- As a reference, ECL gap assignments are listed at the end.

BWD

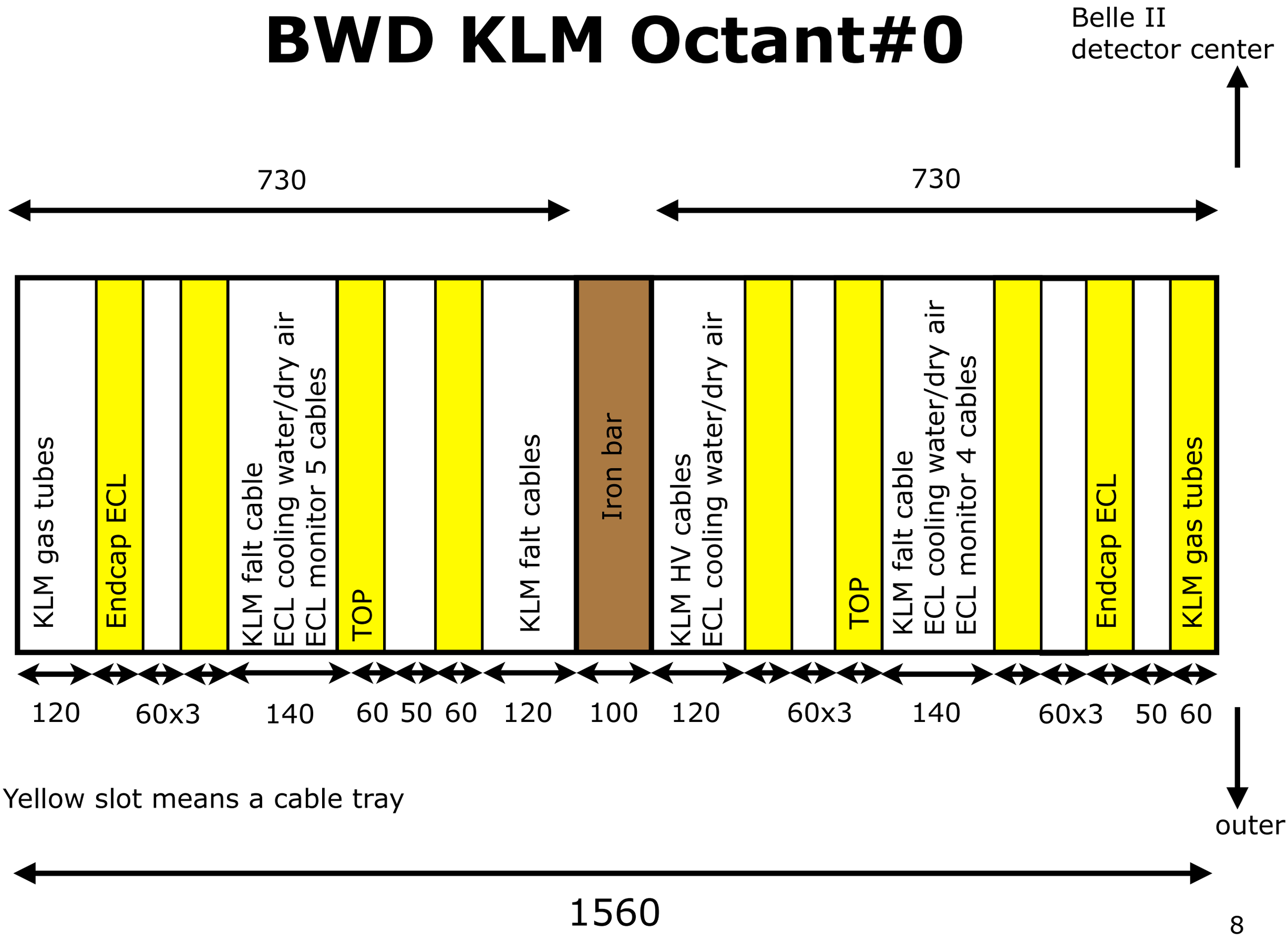
SVD PS

PXD PS & CO2

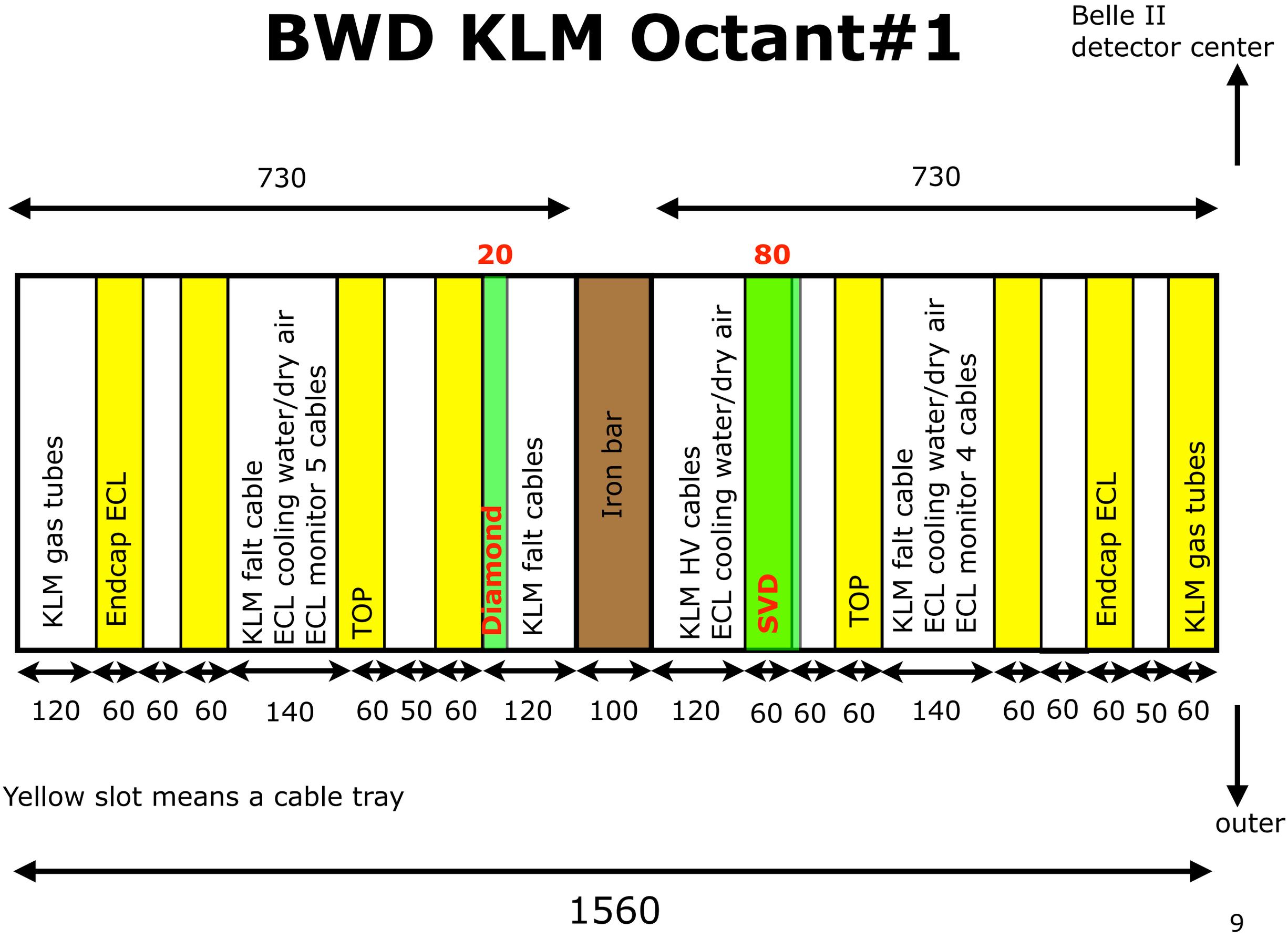


View from Nikko side

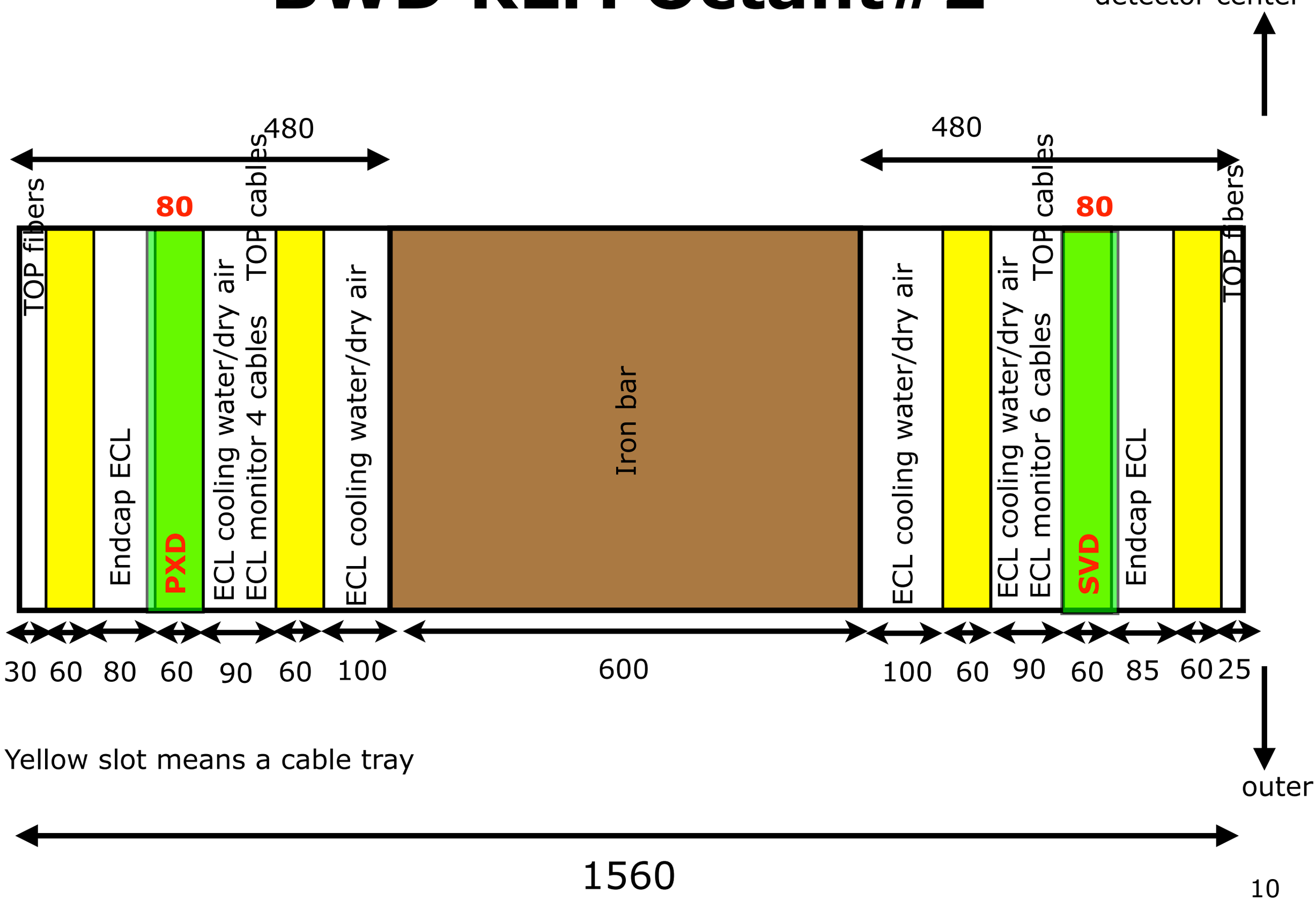
BWD KLM Octant#0



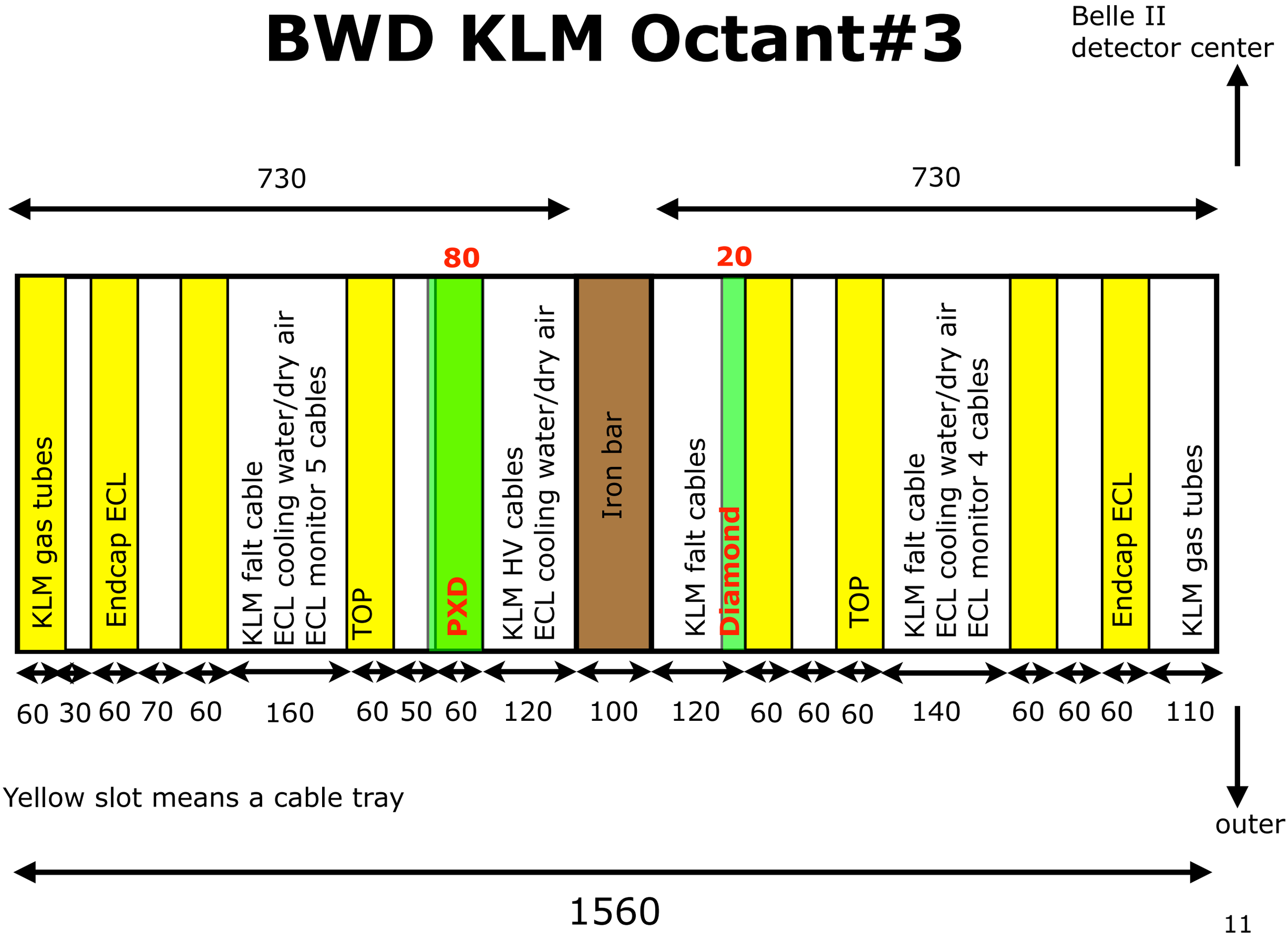
BWD KLM Octant#1



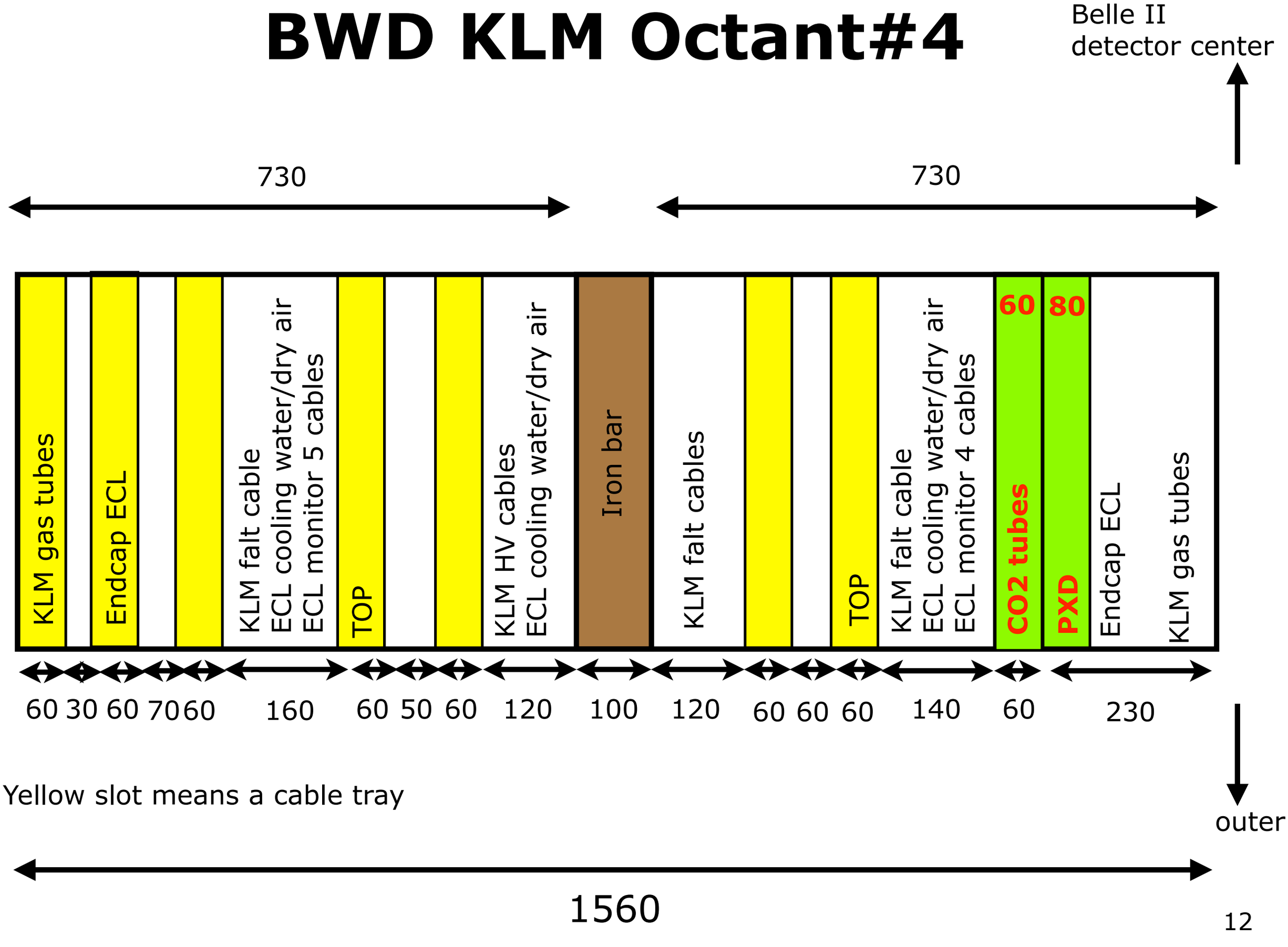
BWD KLM Octant#2



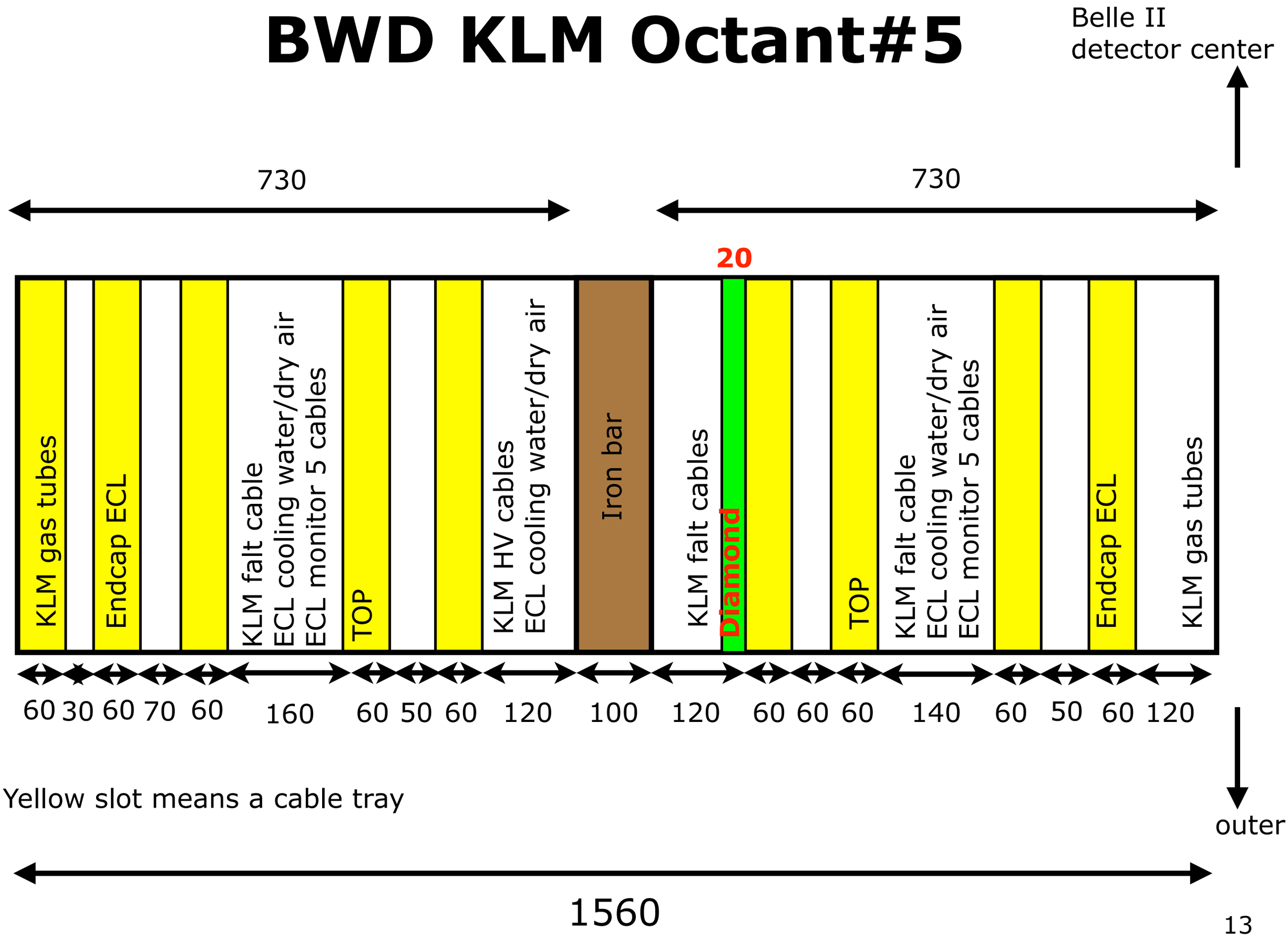
BWD KLM Octant#3



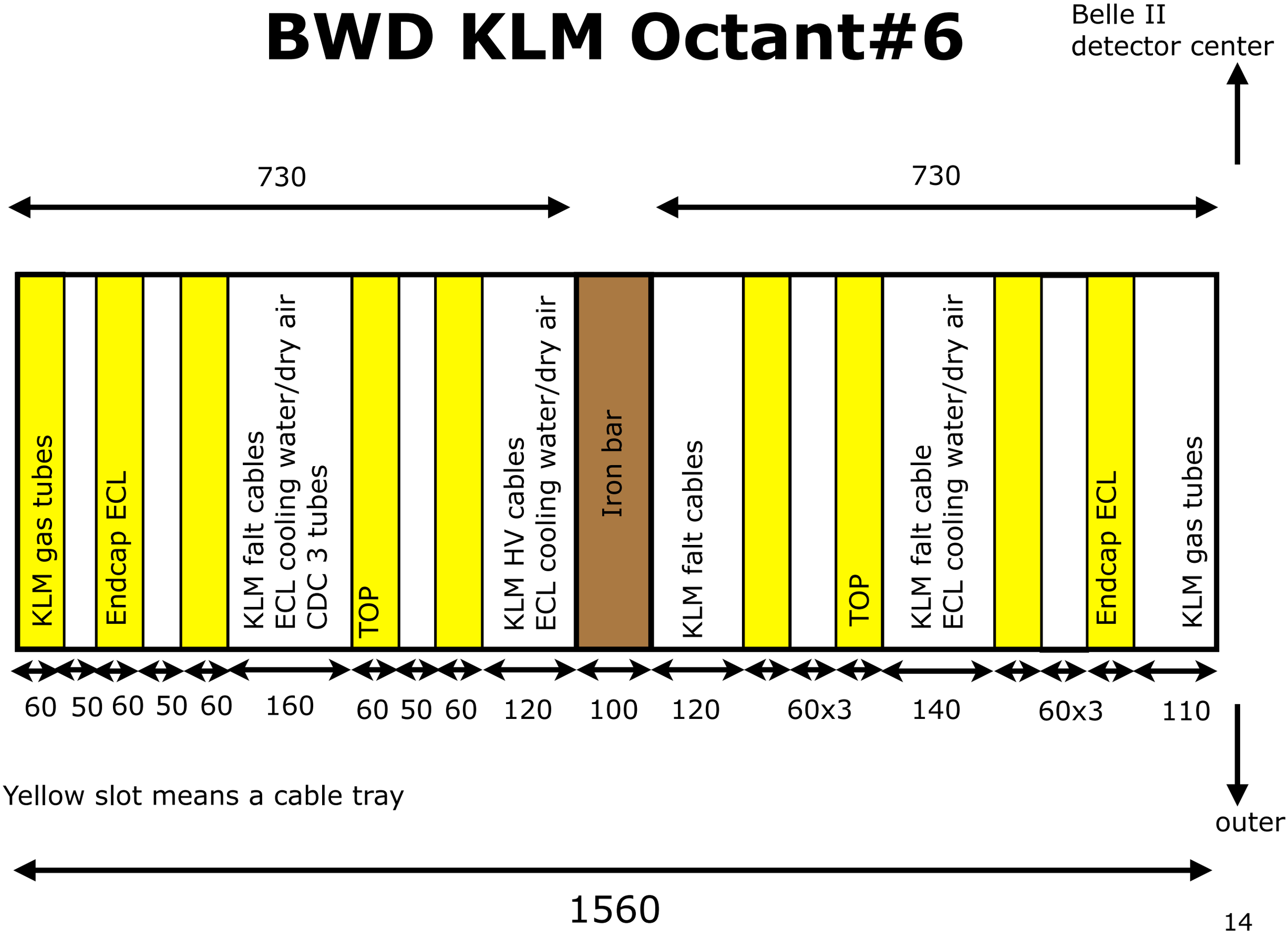
BWD KLM Octant#4



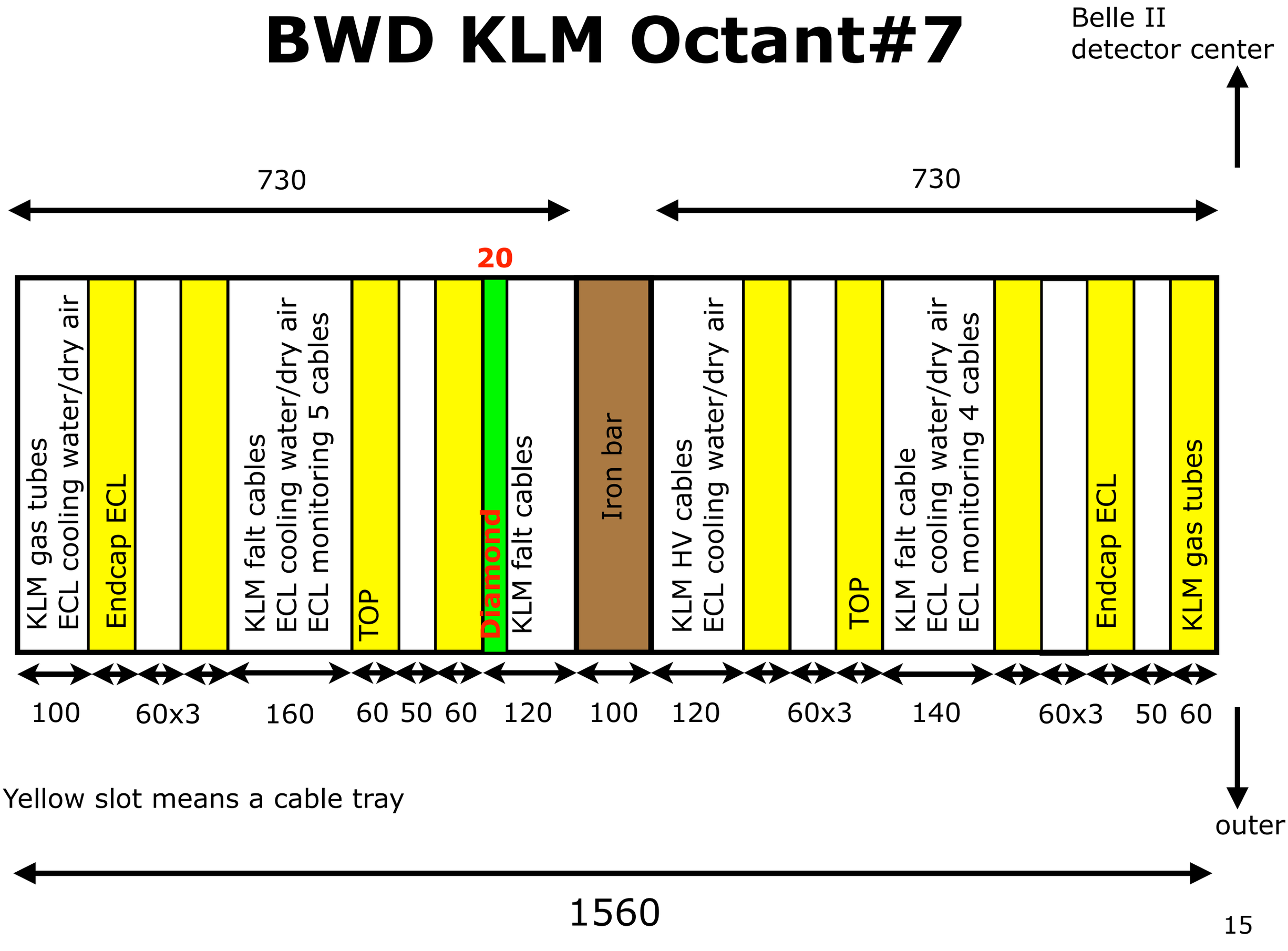
BWD KLM Octant#5



BWD KLM Octant#6

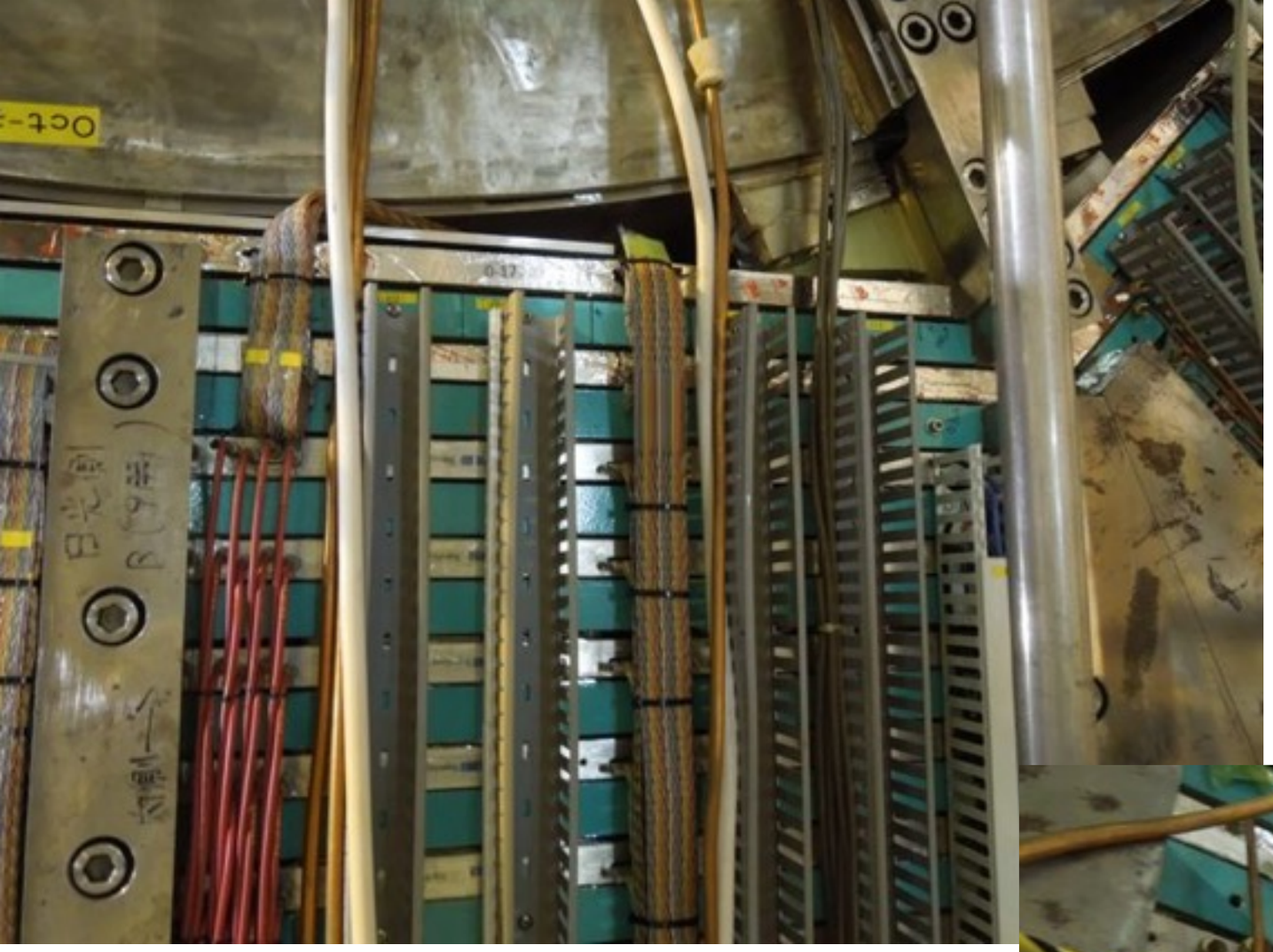


BWD KLM Octant#7



Octant#0

Left



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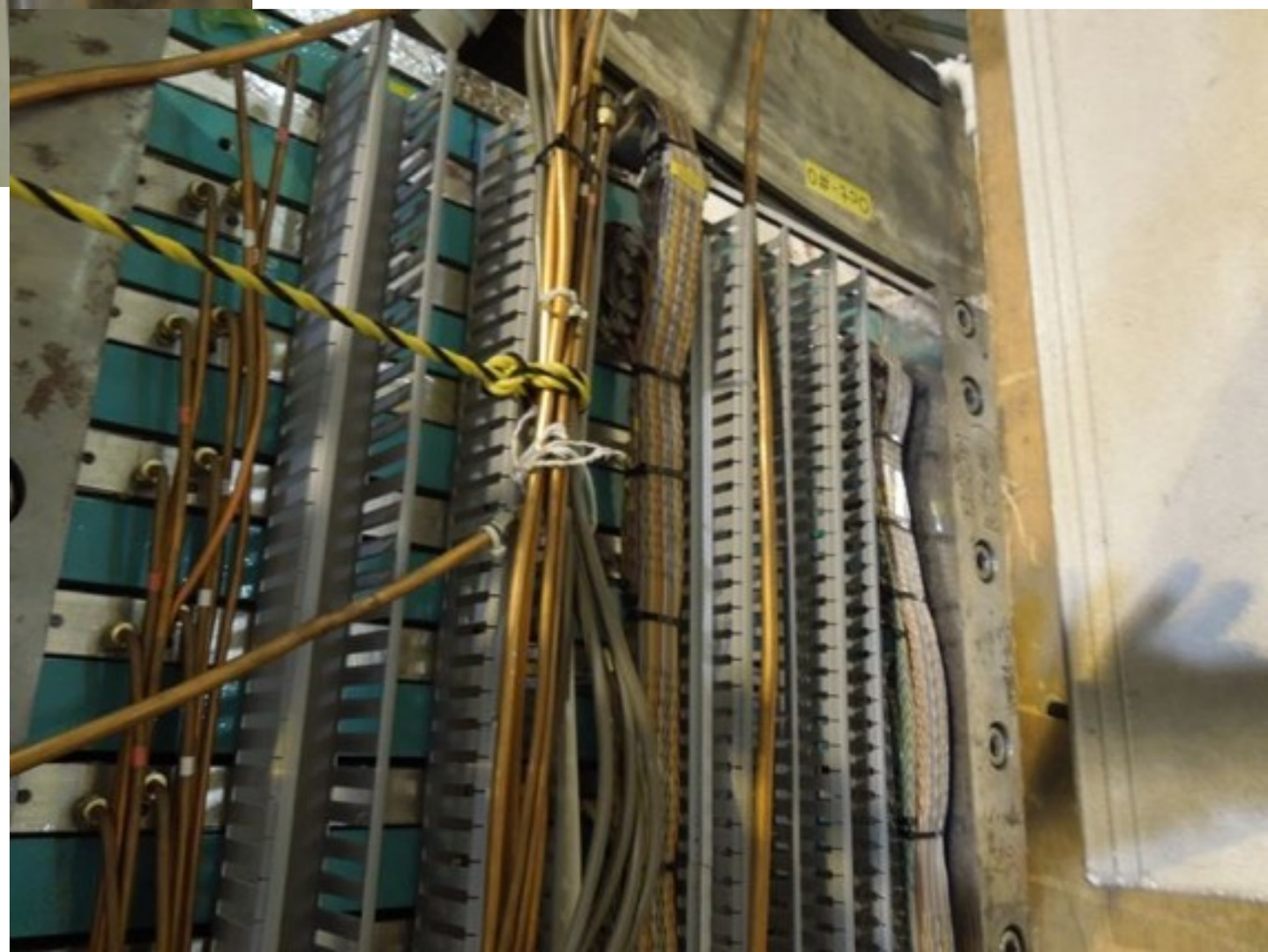
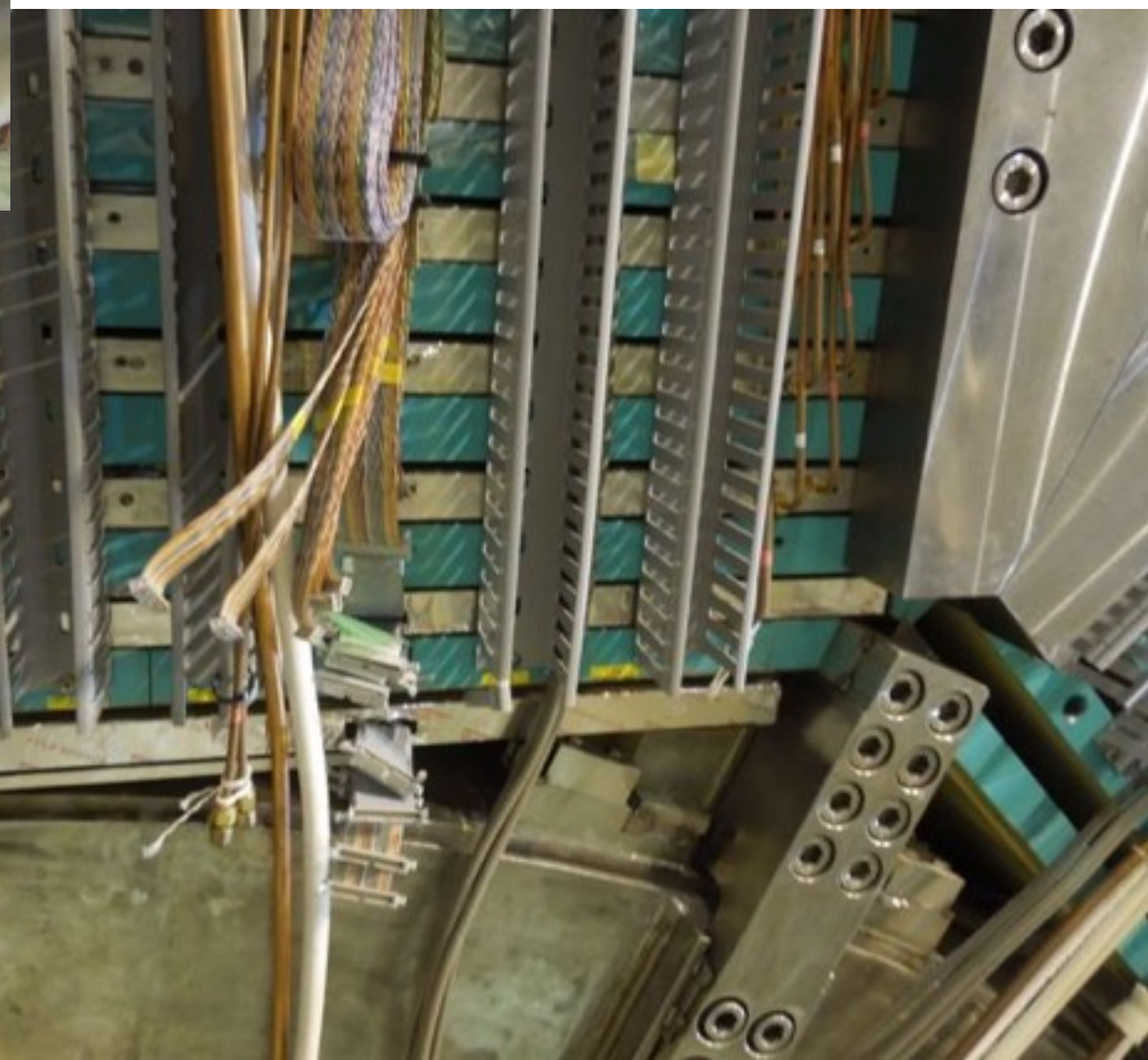


Octant#1

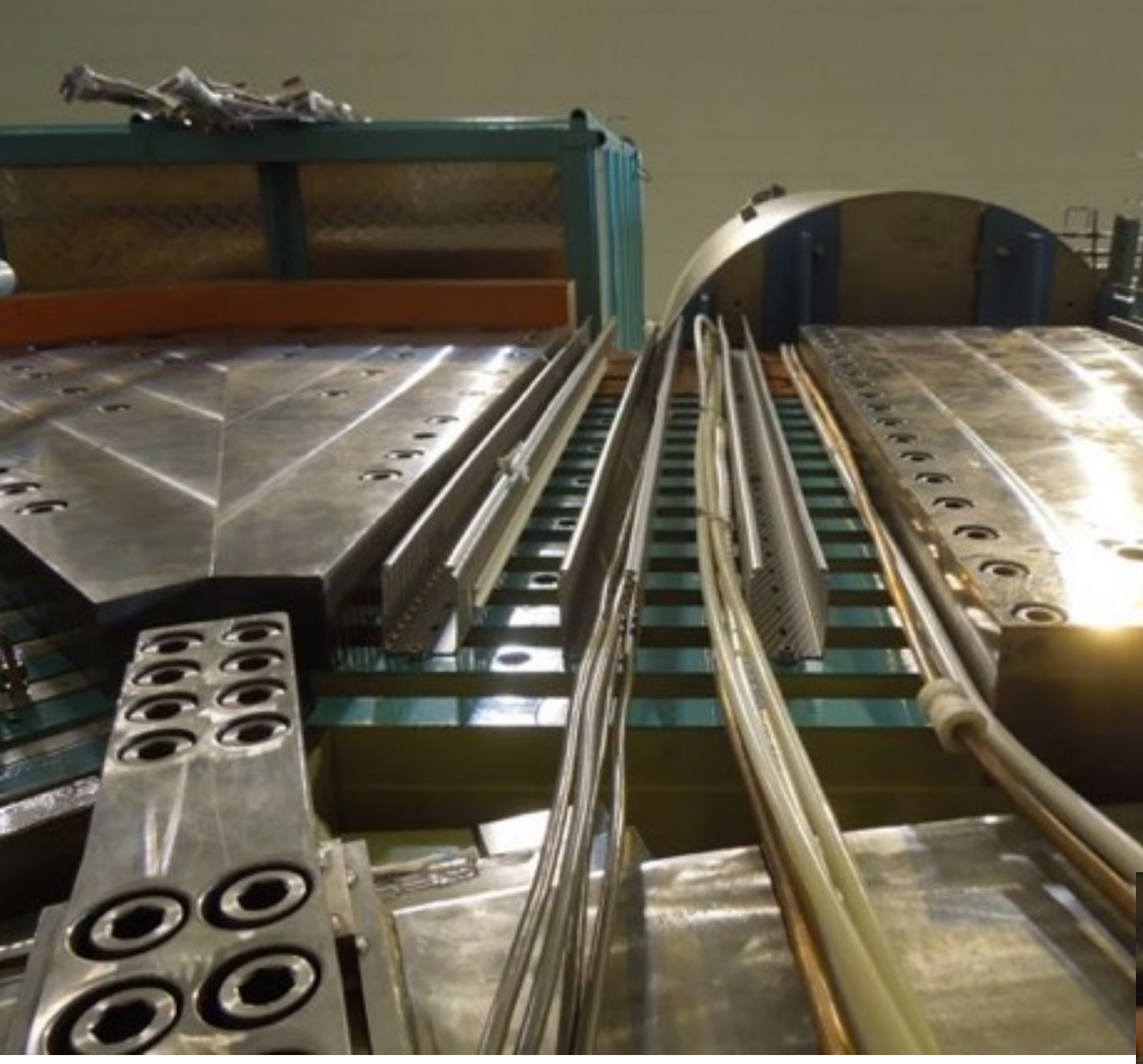
Left



Right

Octant#2

Left



Right

Octant#3

Left

Right

Octant#4

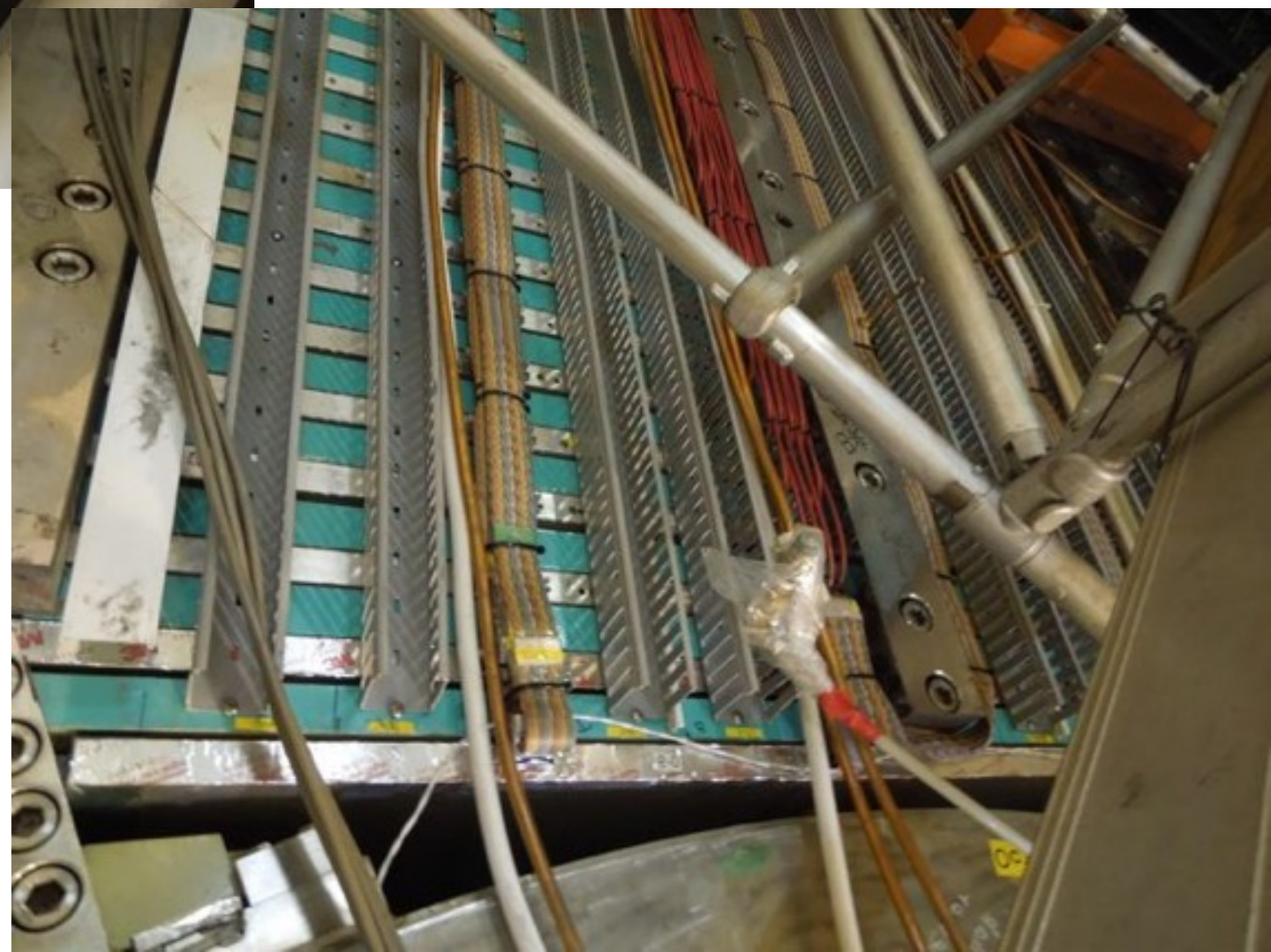
Left

Right

Octant#5

Left

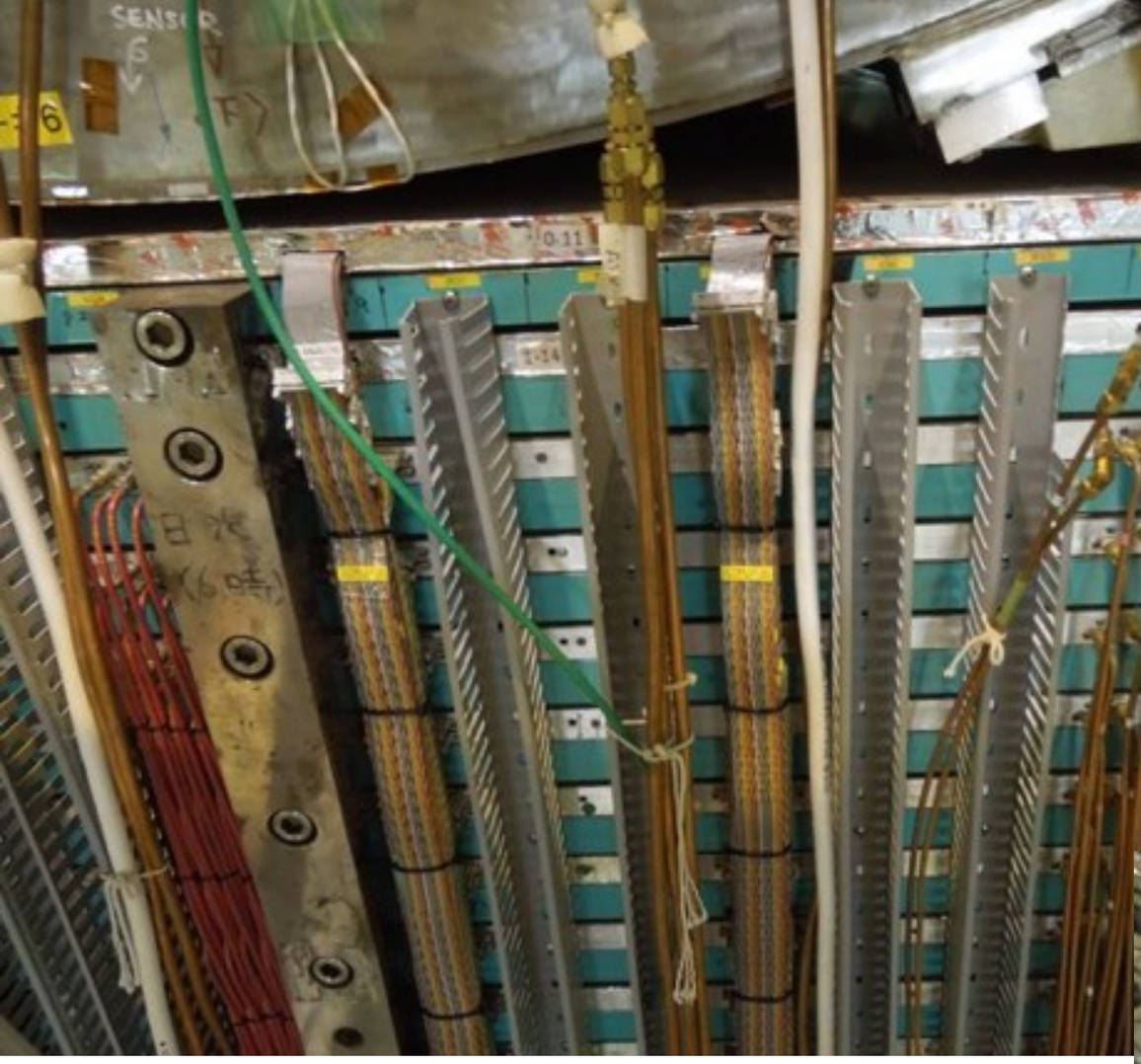
Right



Octant#6

Left

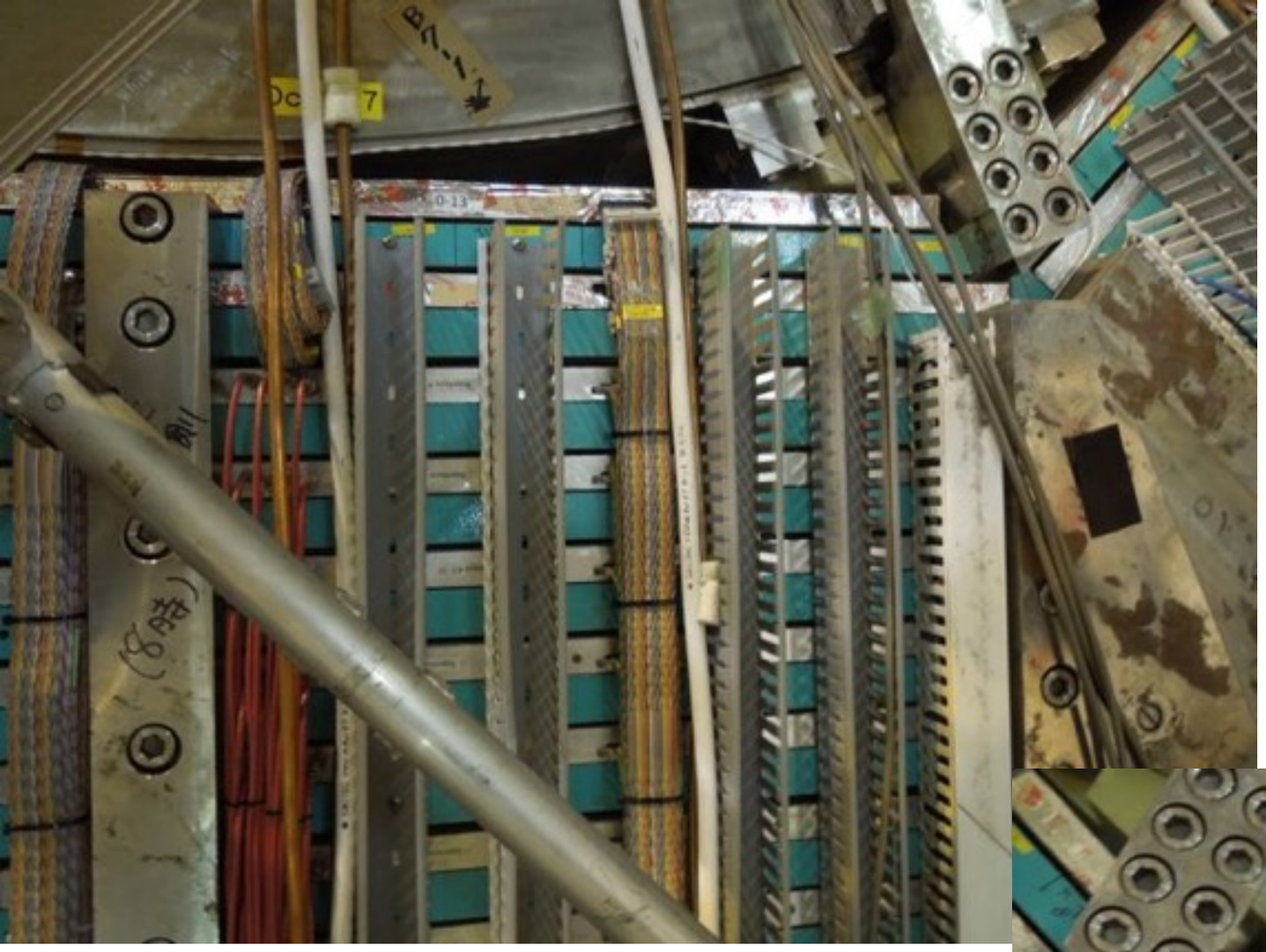
Tray 60mm wide



Right

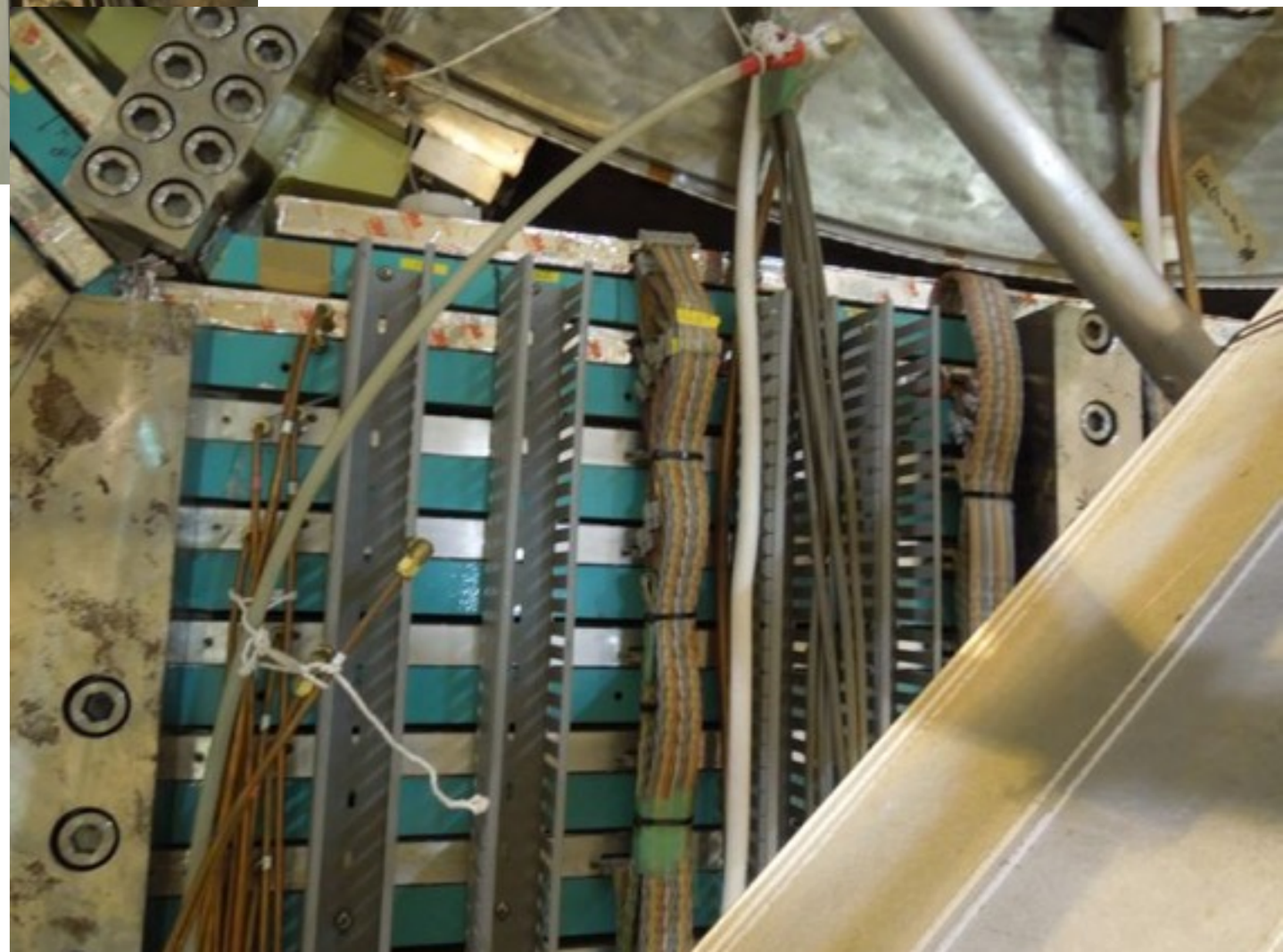
Octant#7

Left



Tray 60mm wide

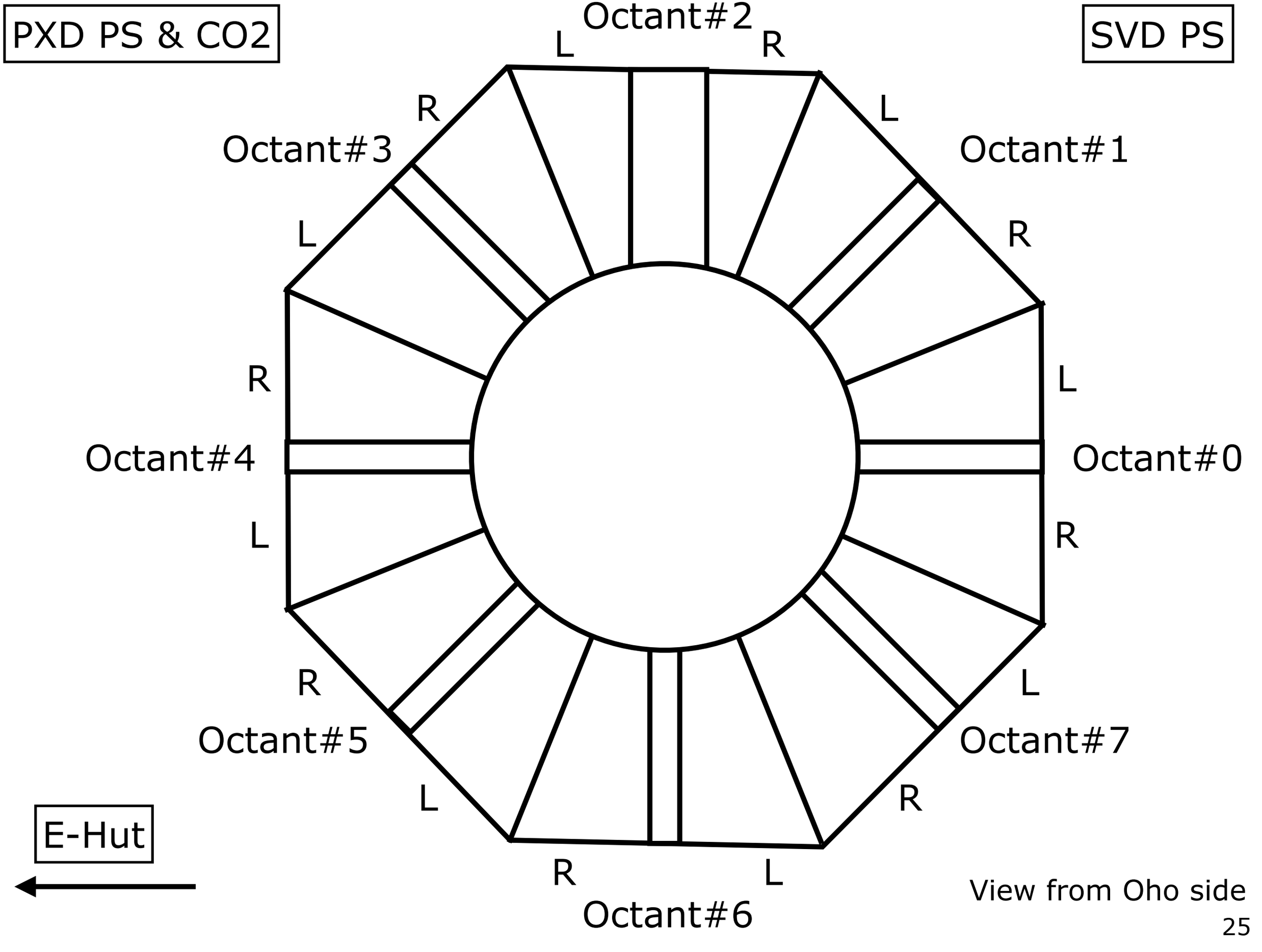
Right



FWD

PXD PS & CO2

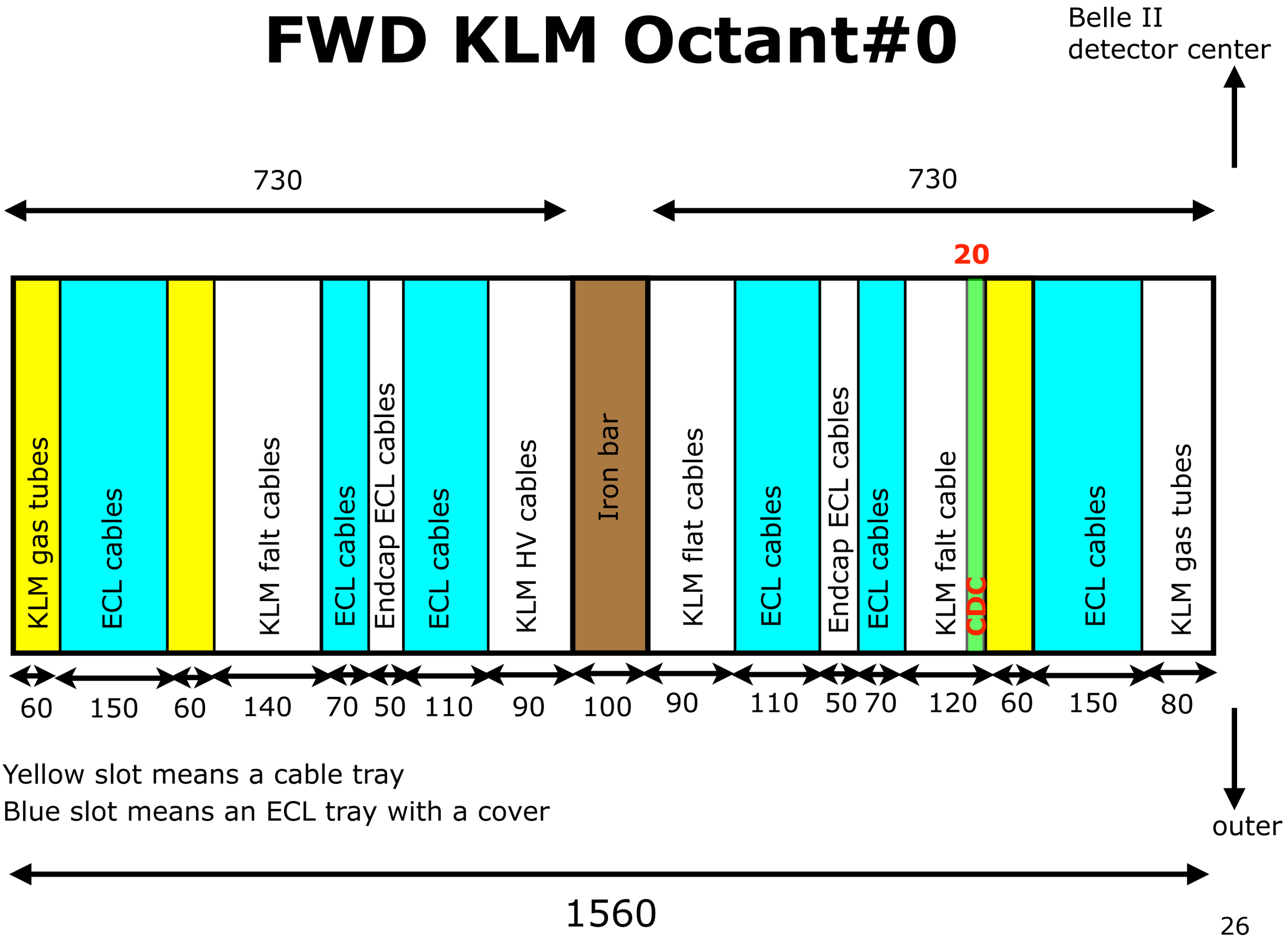
SVD PS



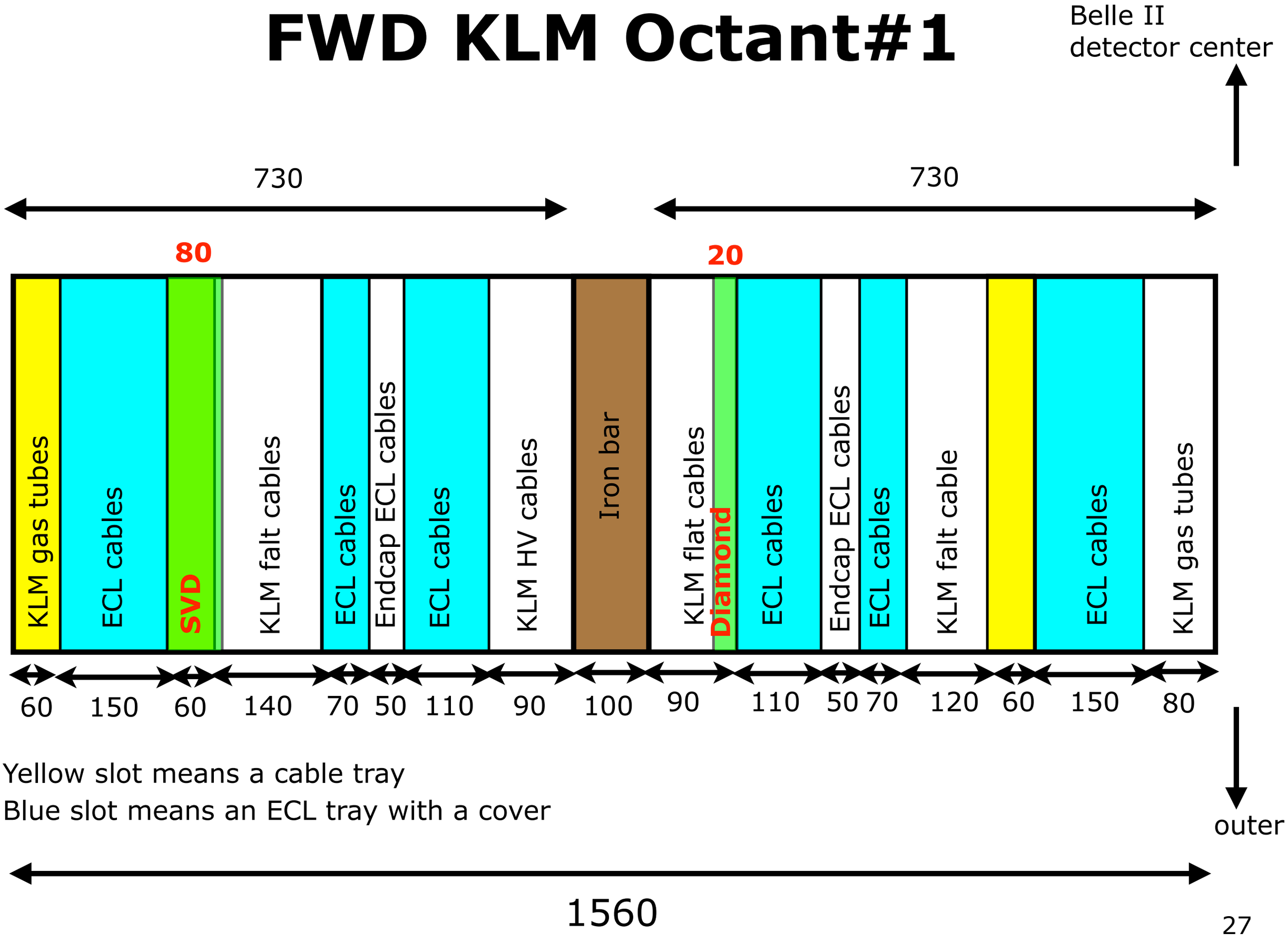
E-Hut

View from Oho side

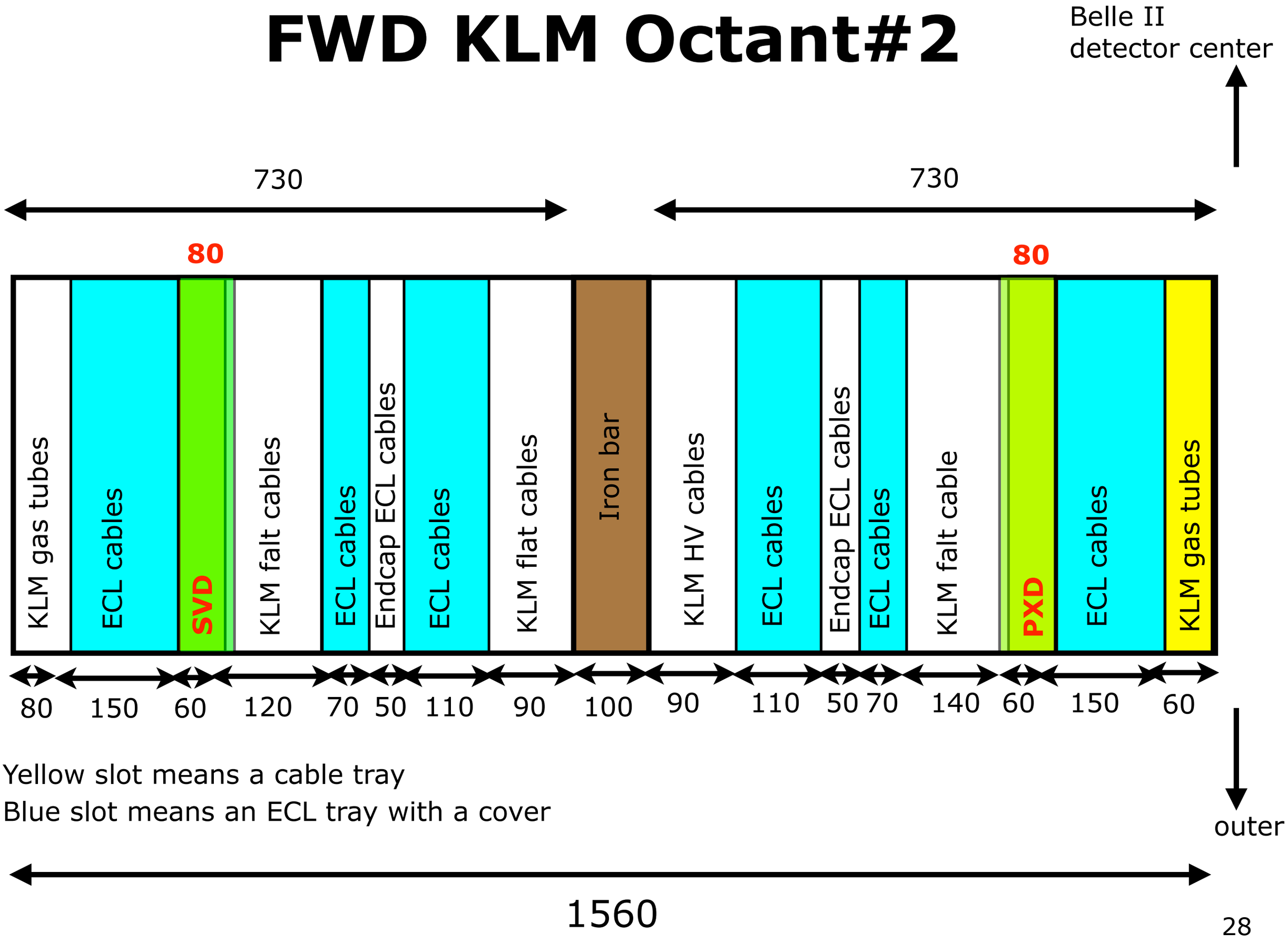
FWD KLM Octant#0



FWD KLM Octant#1



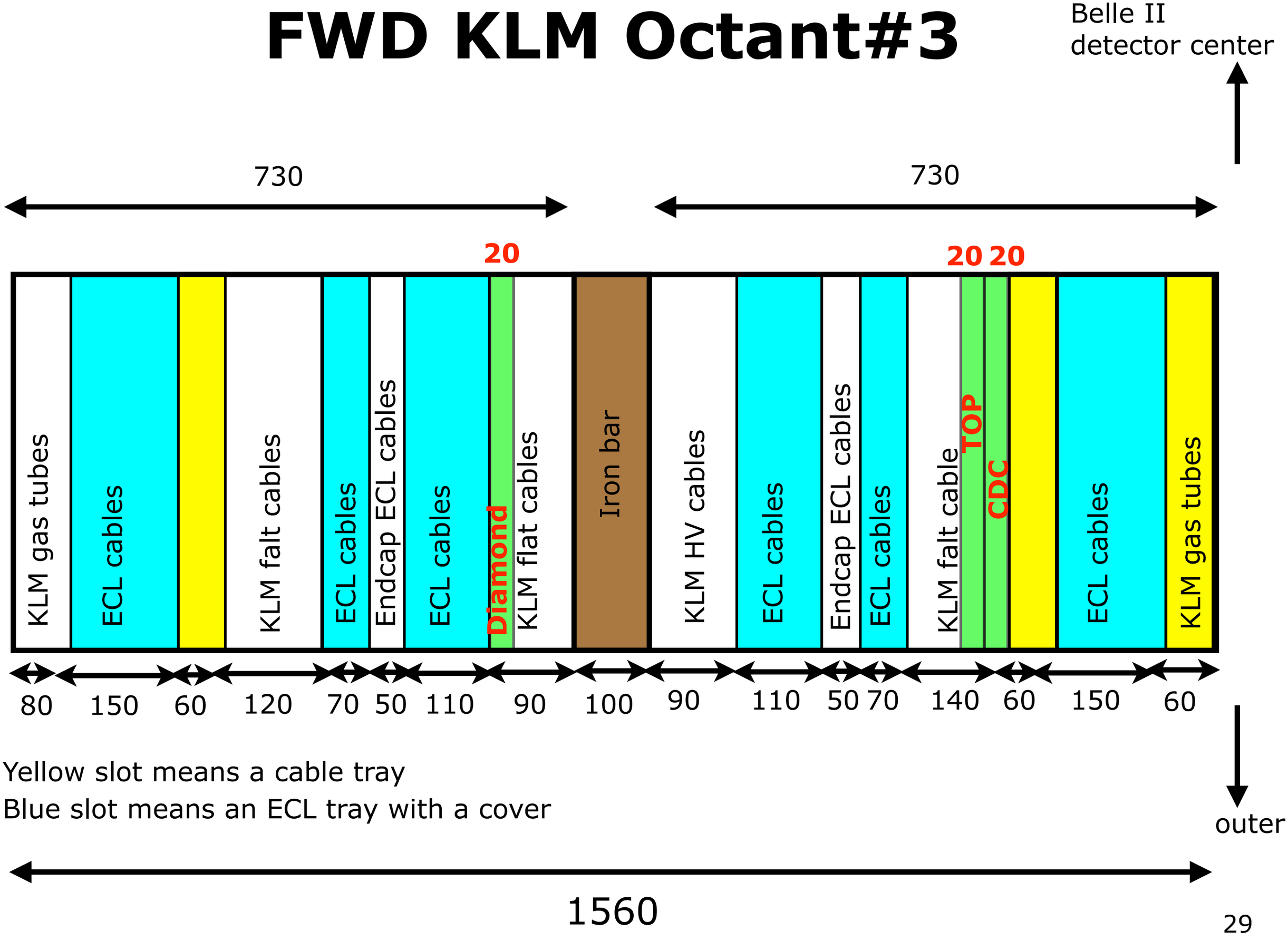
FWD KLM Octant#2



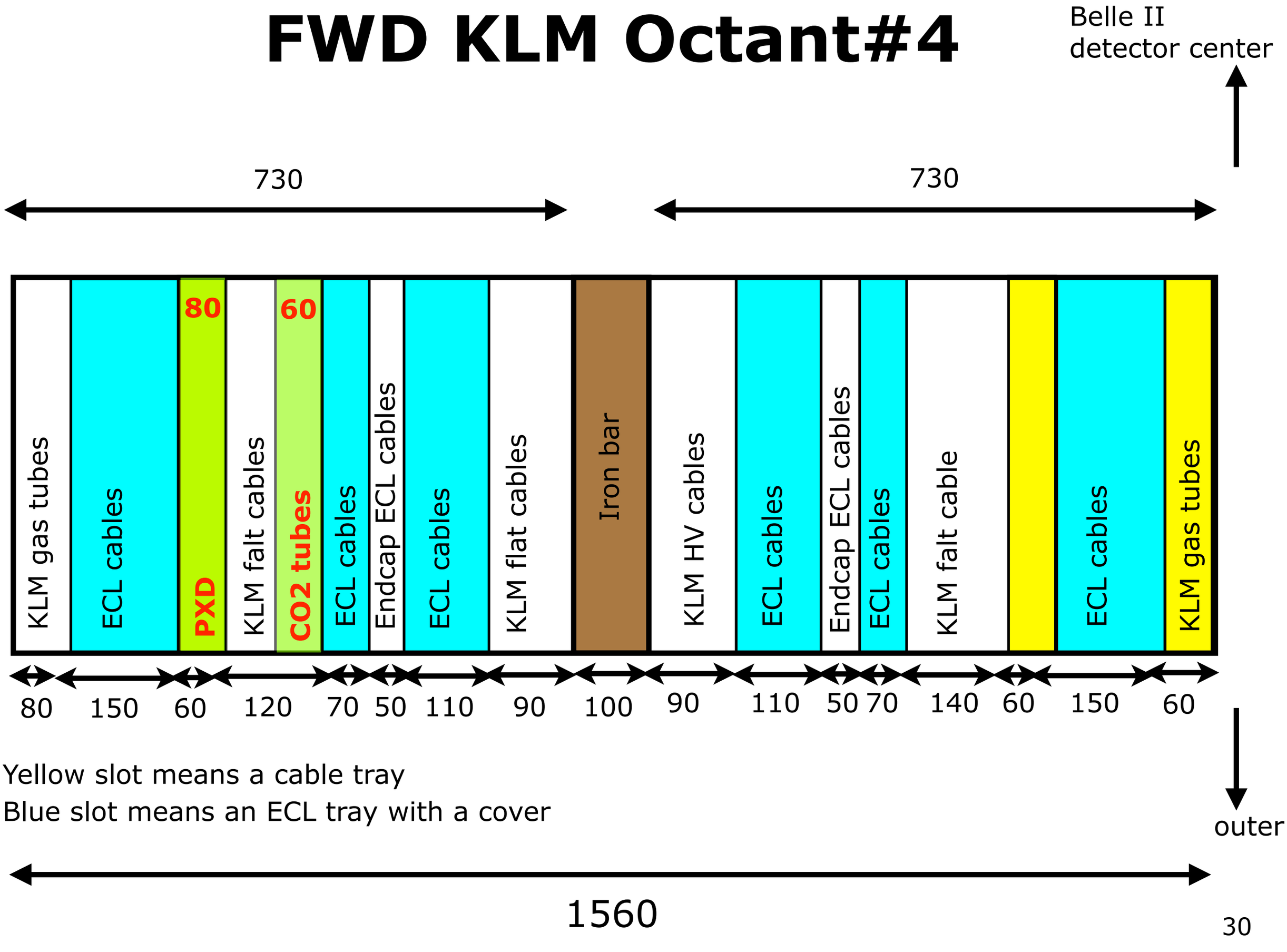
Yellow slot means a cable tray

Blue slot means an ECL tray with a cover

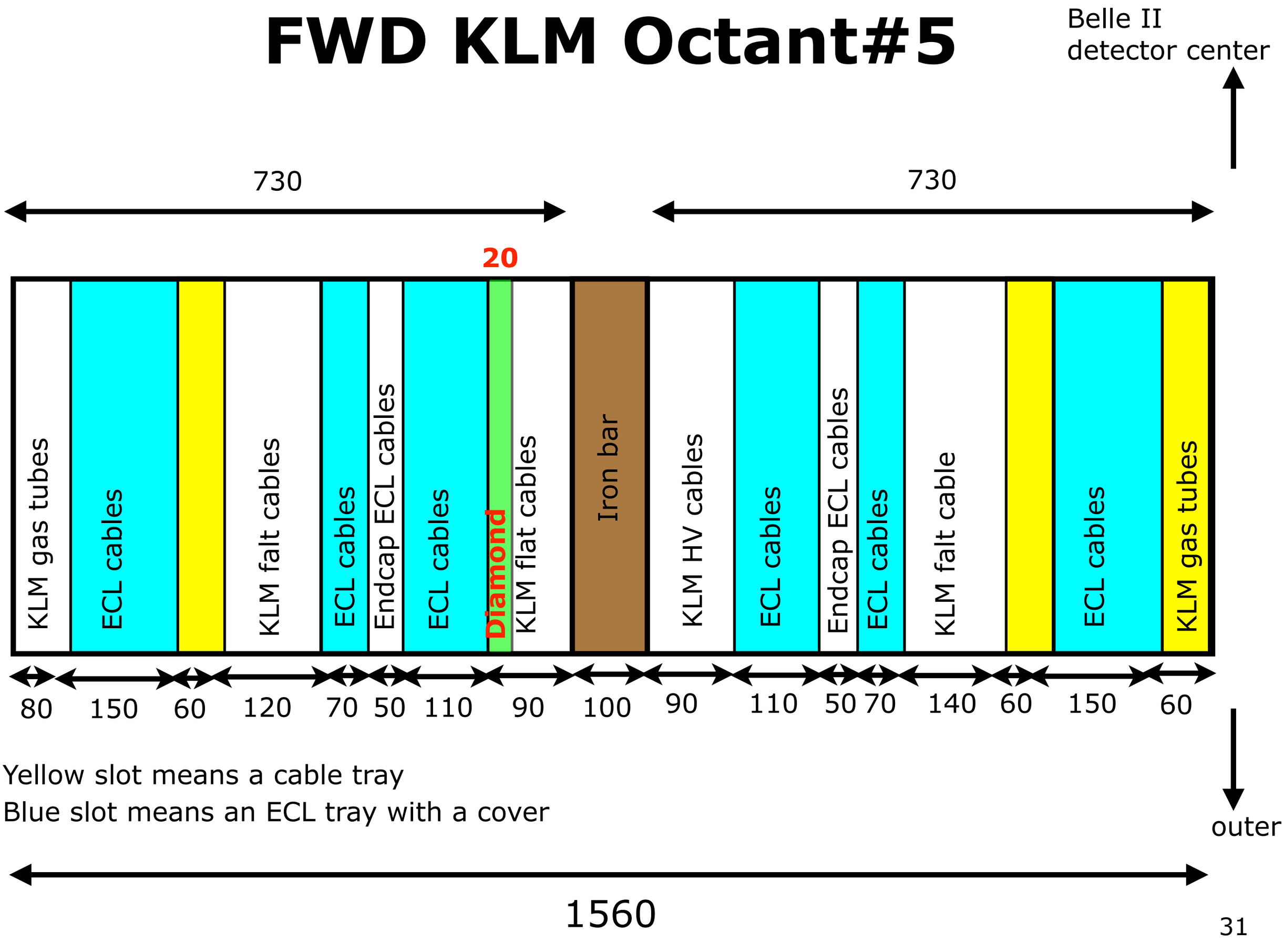
FWD KLM Octant#3



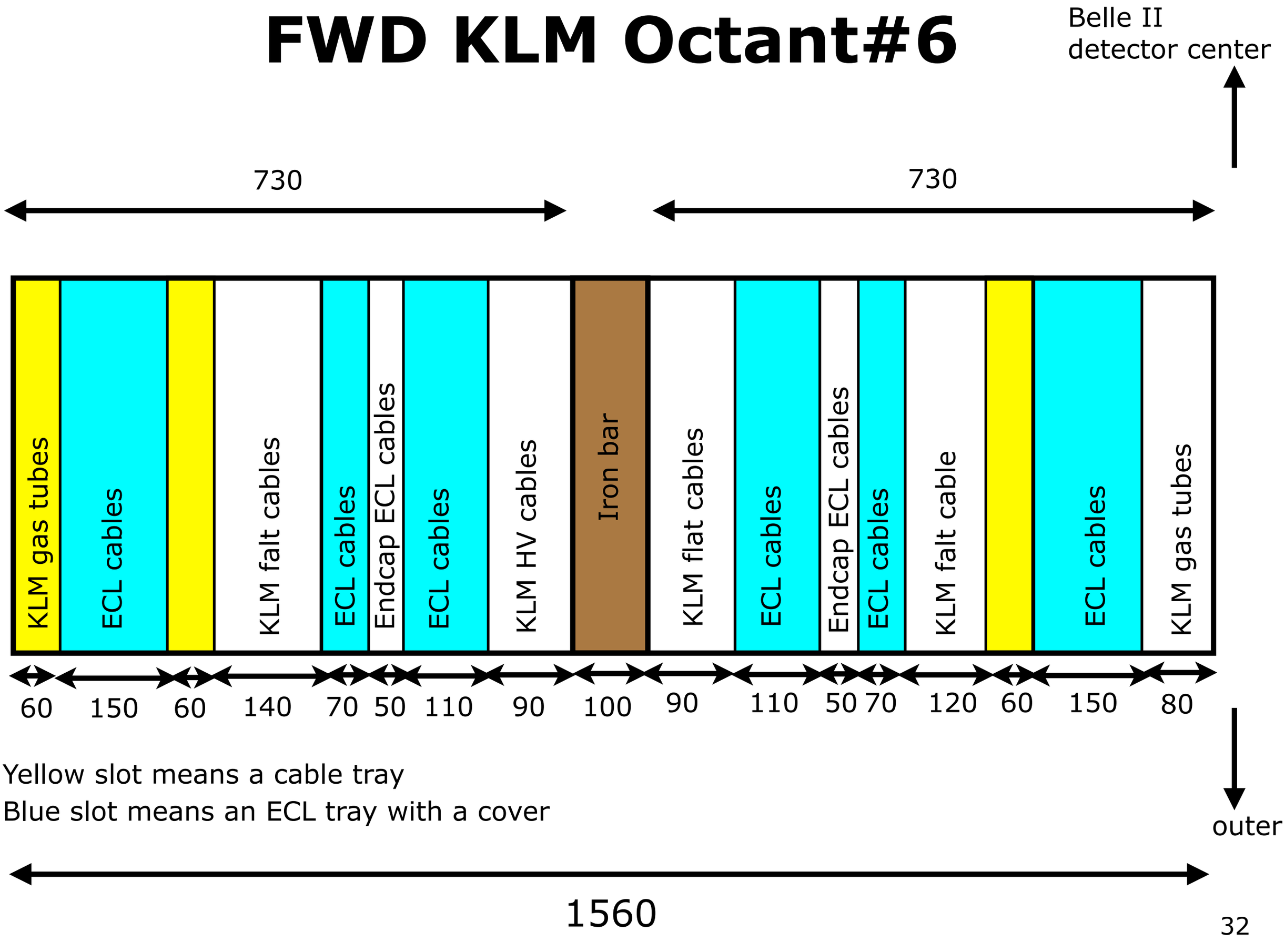
FWD KLM Octant#4



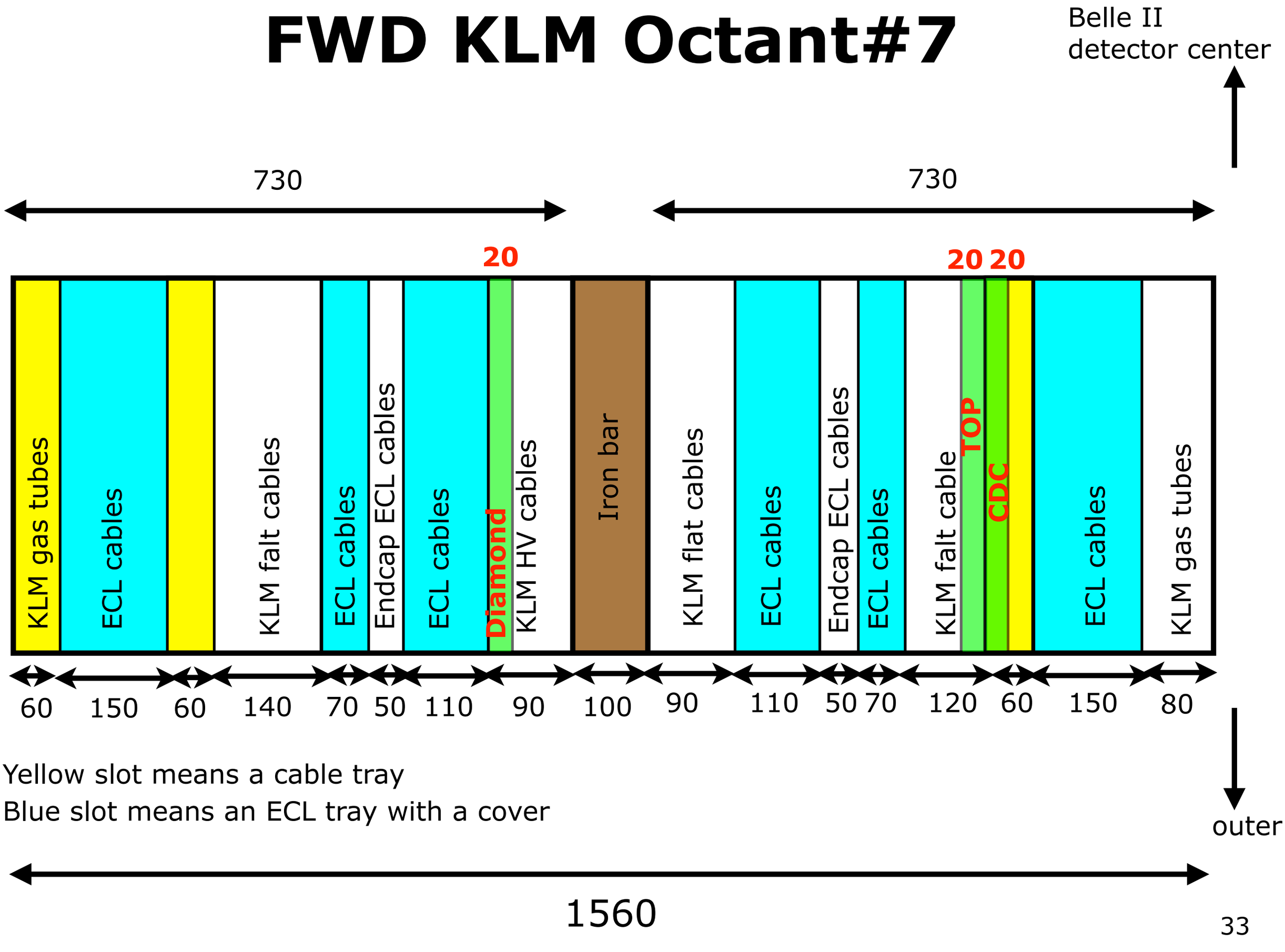
FWD KLM Octant#5



FWD KLM Octant#6



FWD KLM Octant#7



Octant#0

Left

Right

Octant#1

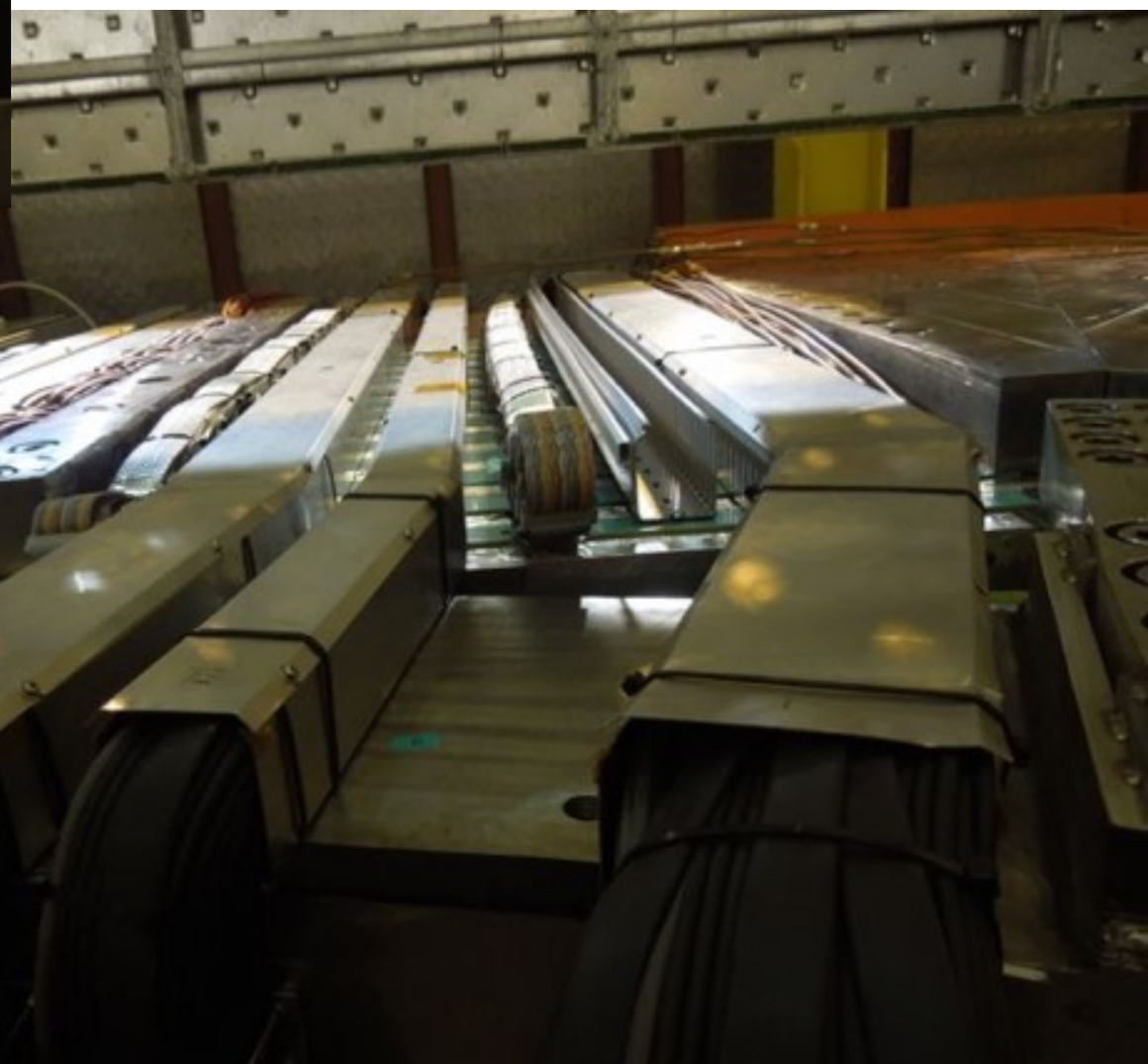
Left

Right

Octant#2

Left

Right



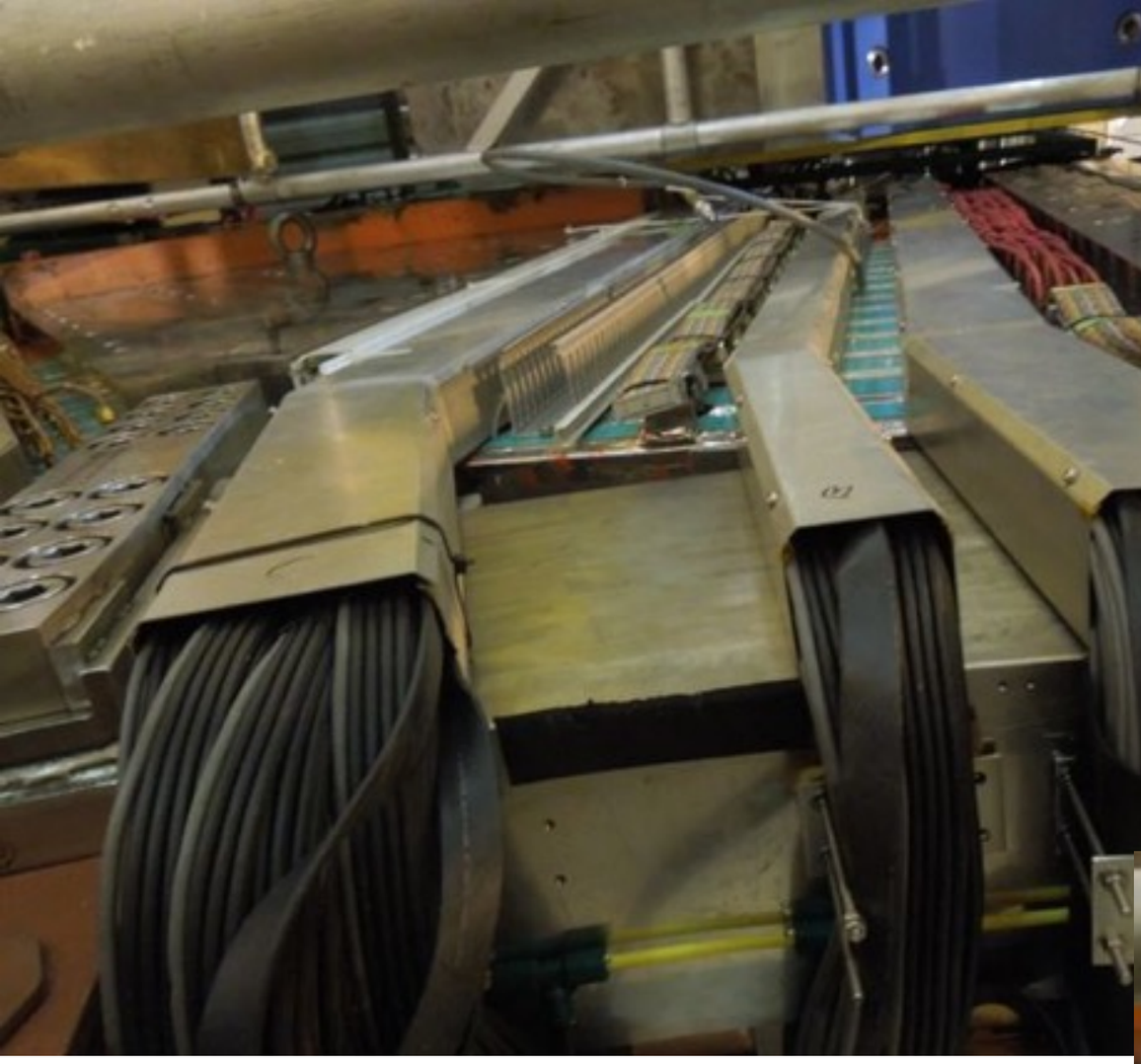
Octant#3

Left

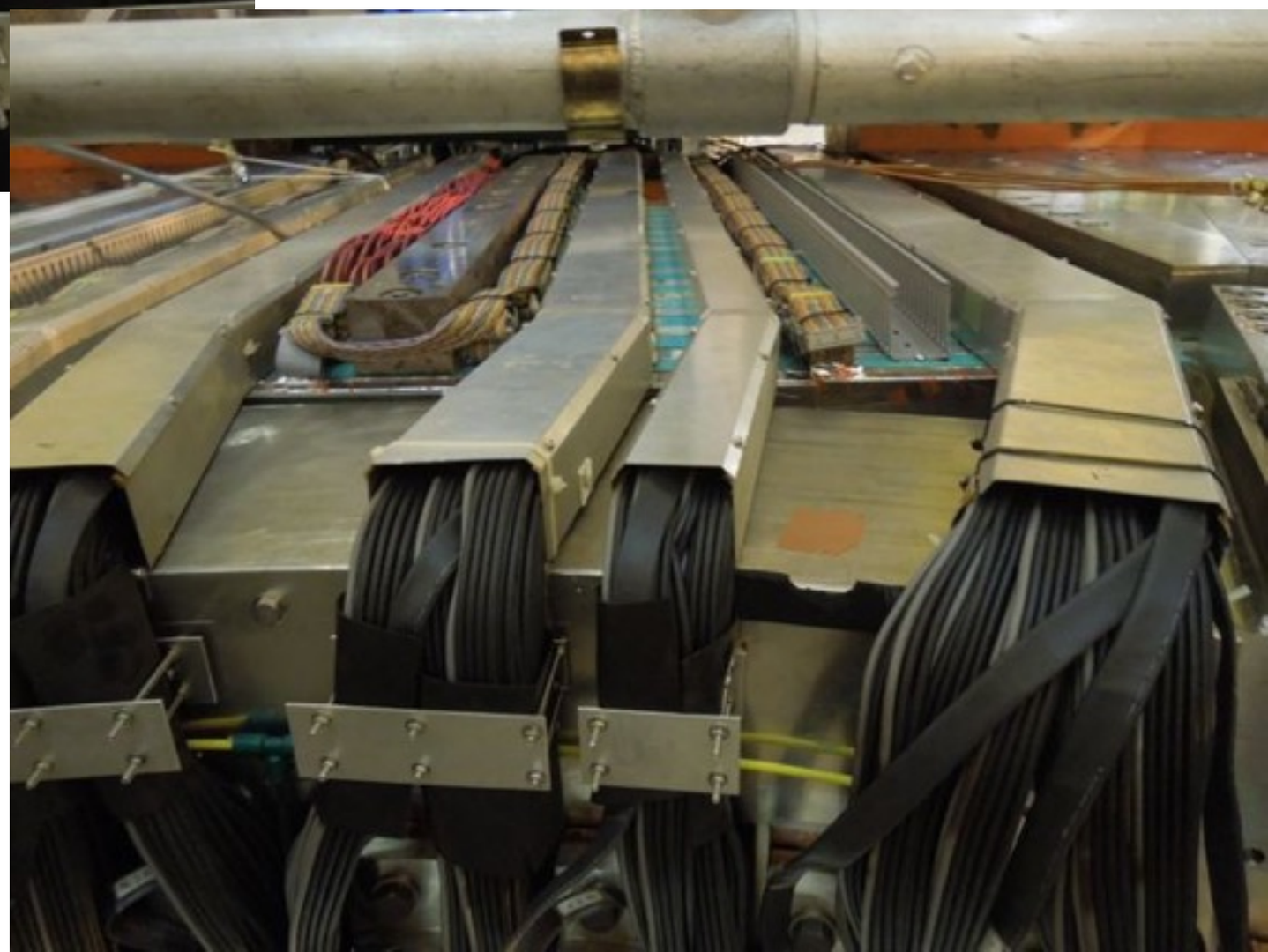
Right

Octant#4

Left



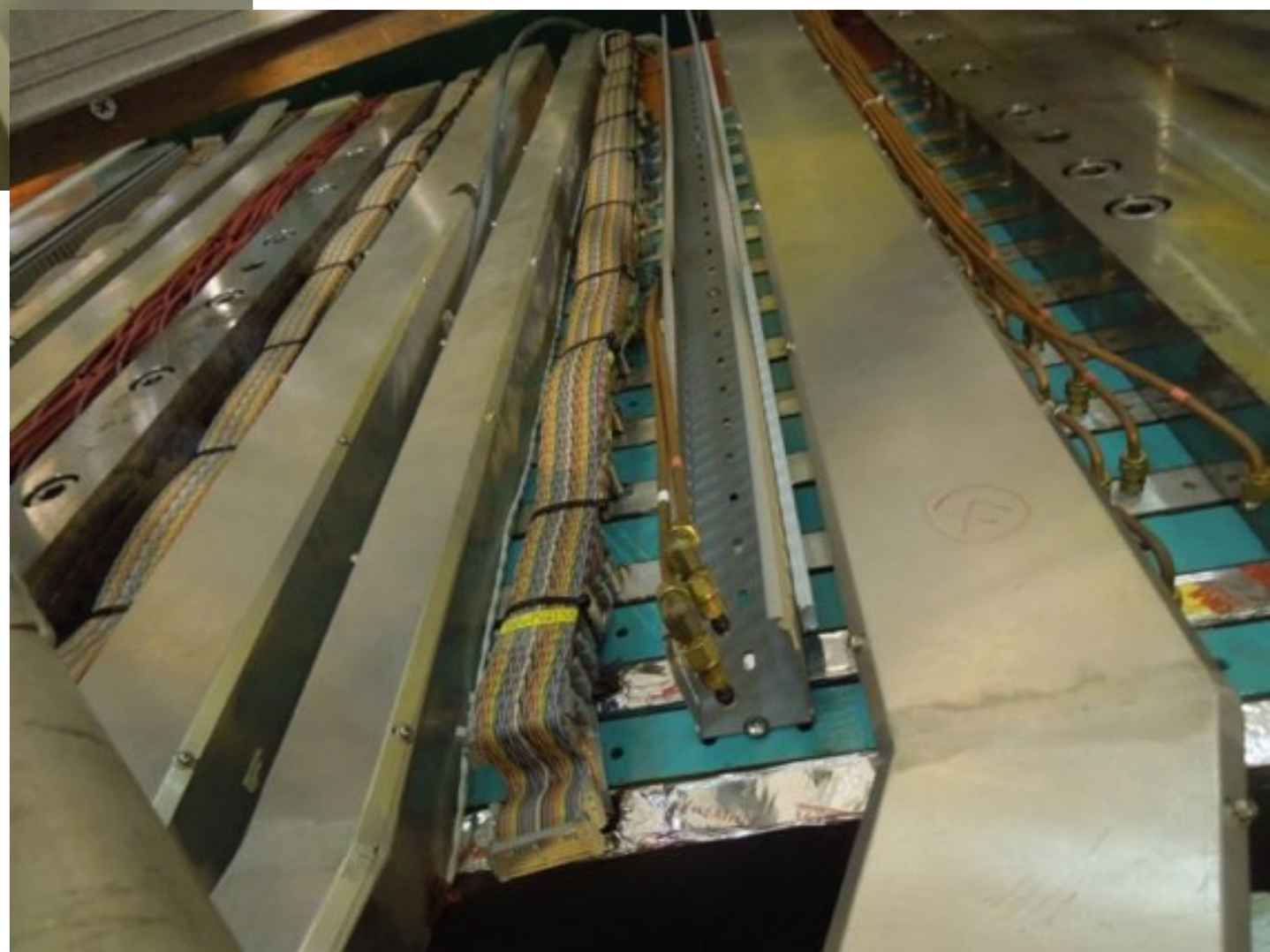
Right



Octant#5

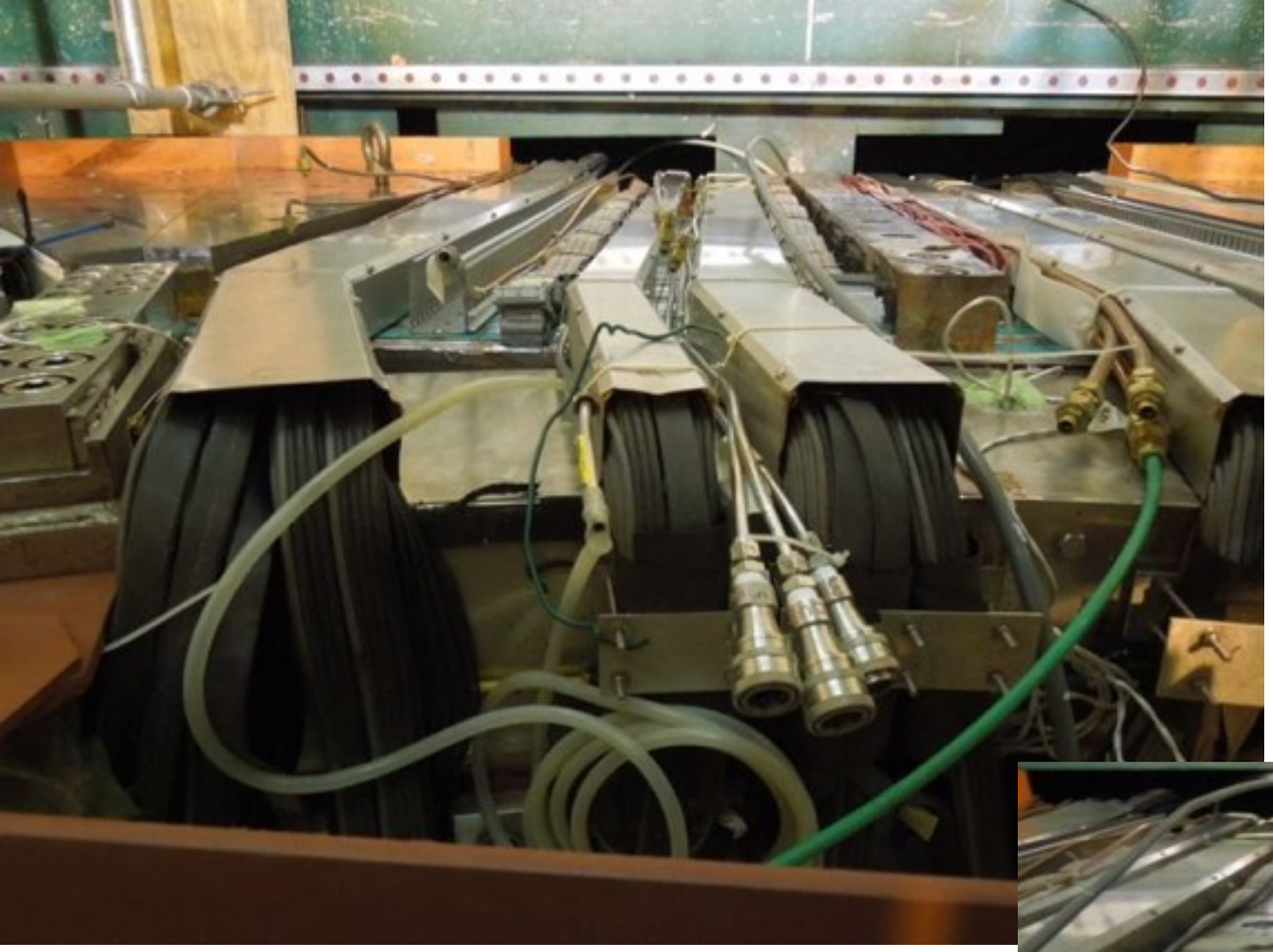
Left

Right



Octant#6

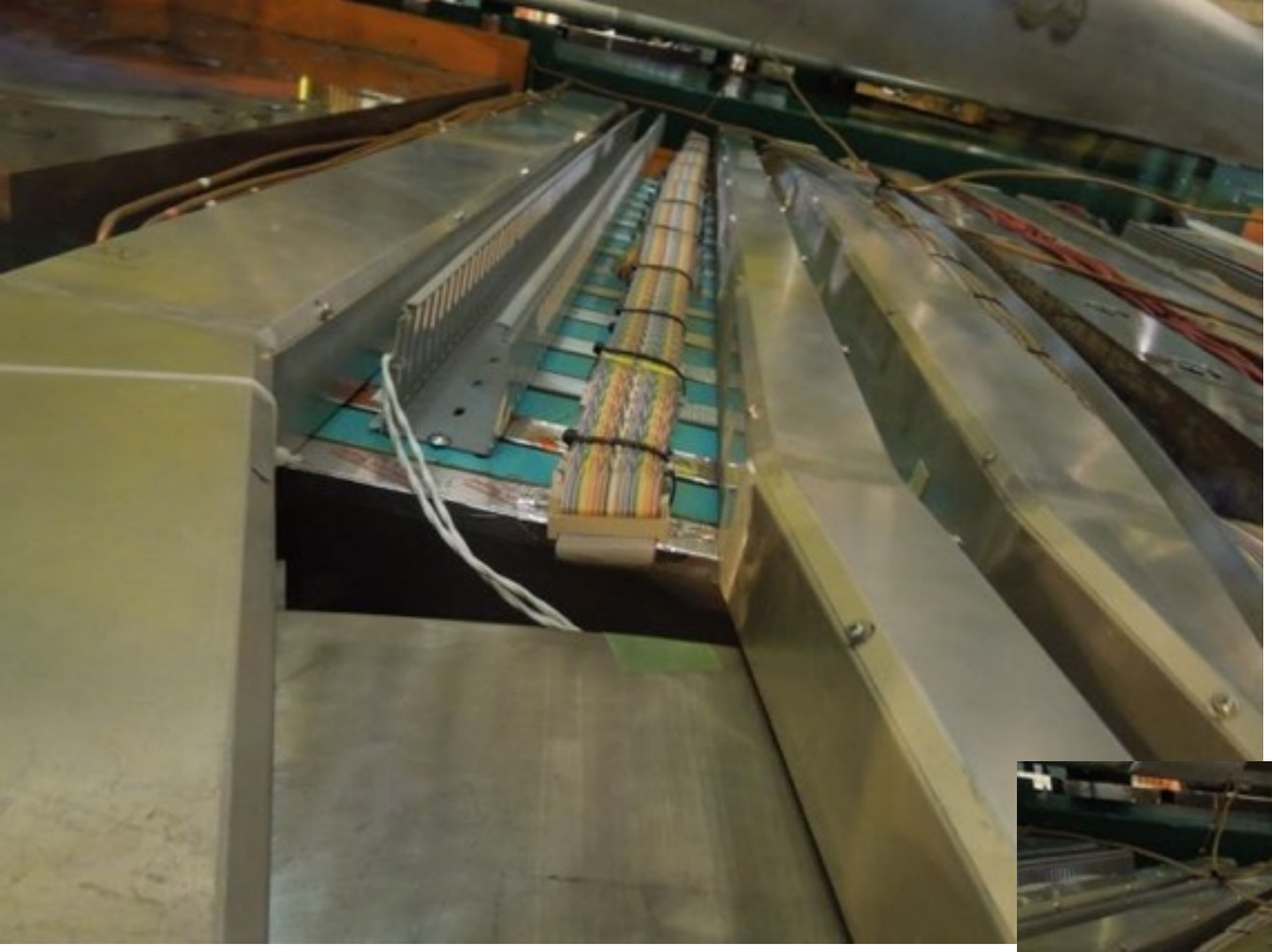
Left



Right

Octant#7

Left



Right

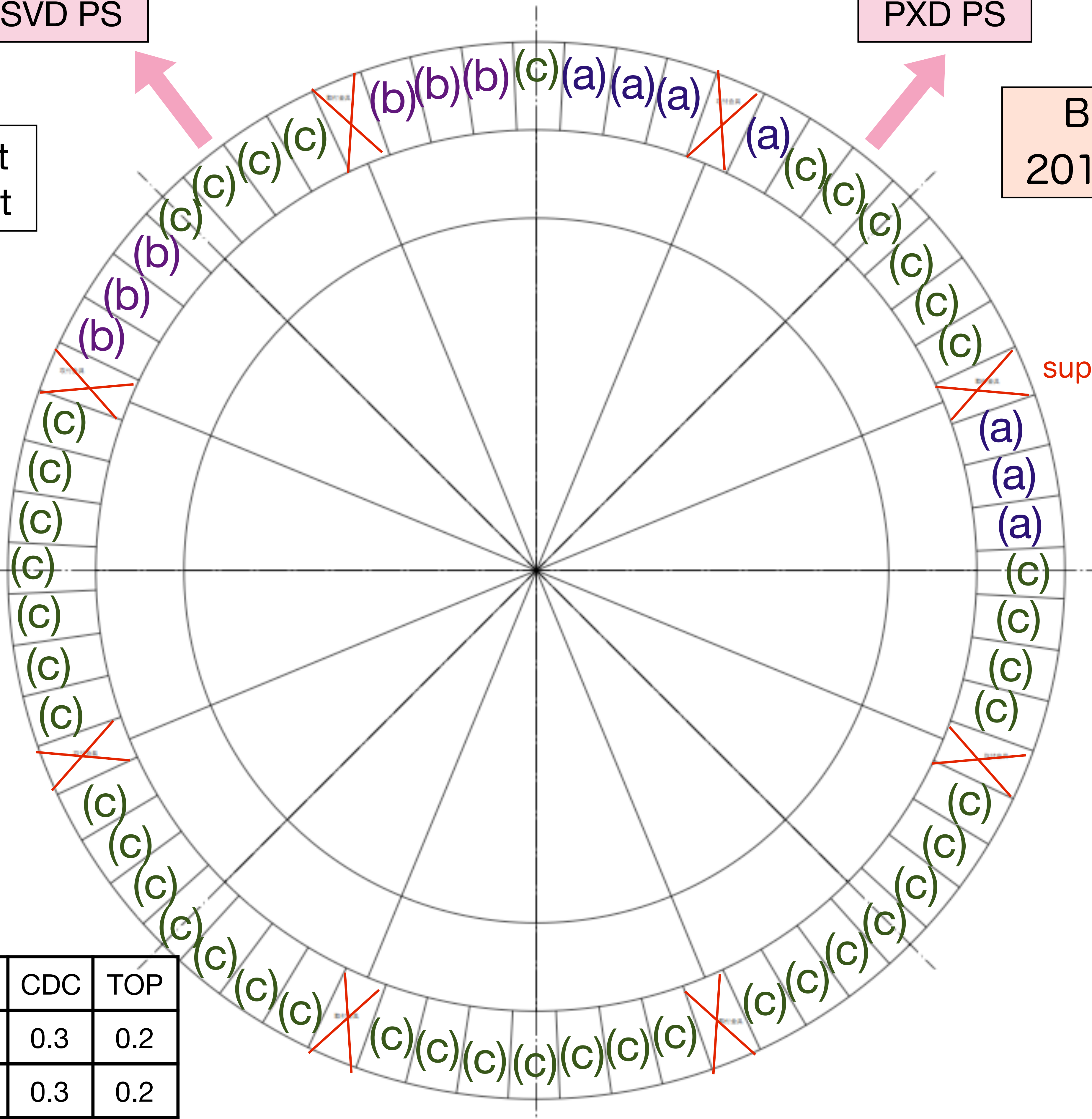
ECL Gap Assignments (as a reference)

SVD PS

PXD PS

BWD space
2012 11 B2GM

TOP: 0.2 slot
CDC: 0.3 slot



3 patterns

	PXD	SVD	CDC	TOP
(a)	0.5		0.3	0.2
(b)		0.5	0.3	0.2
(c)			0.5	0.5

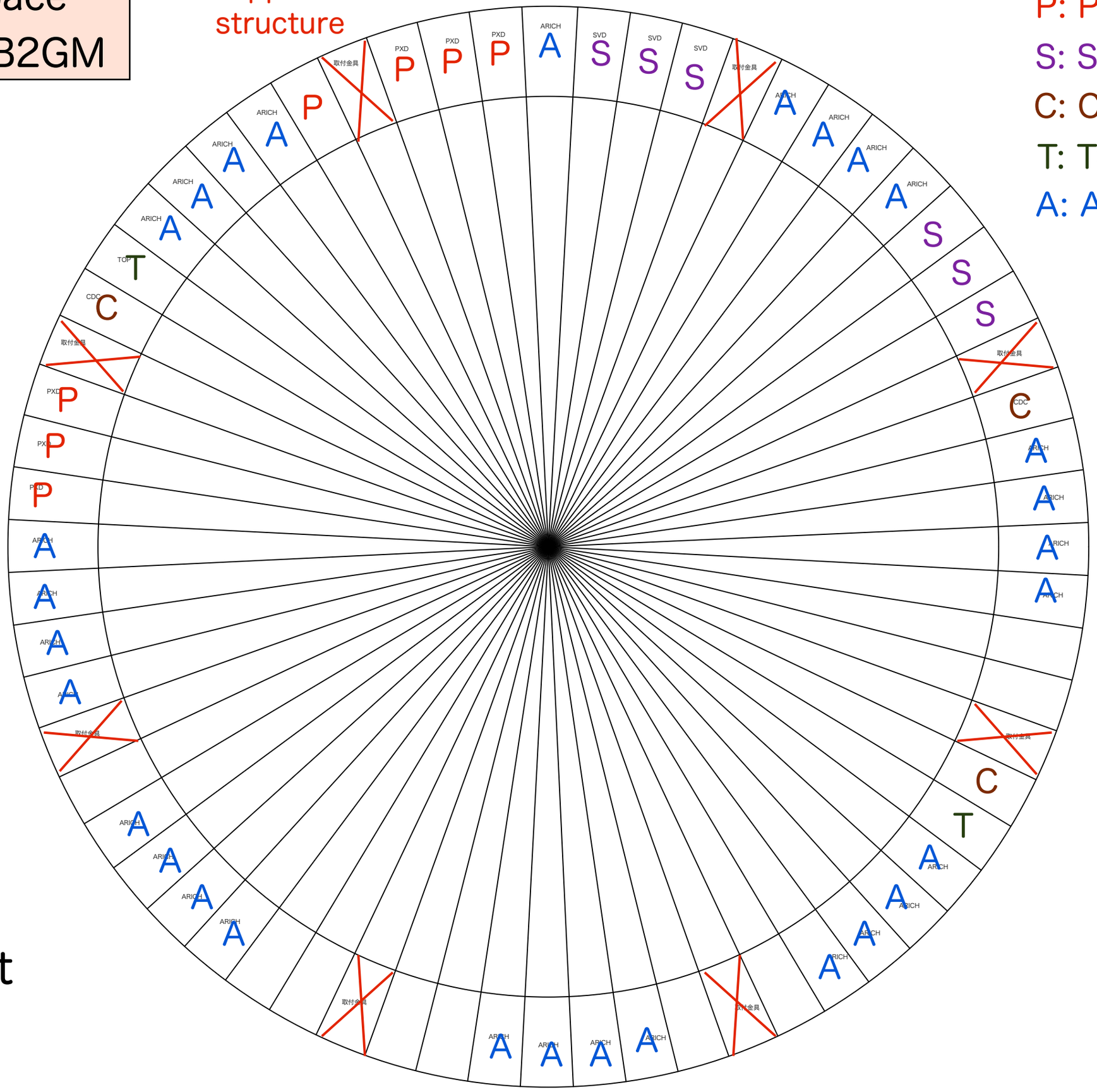
in unit of slot

E-Hut --->

FWD space
2012 11 B2GM

support
structure

P: PXD
S: SVD
C: CDC
T: TOP
A: ARICH



<--- E-Hut