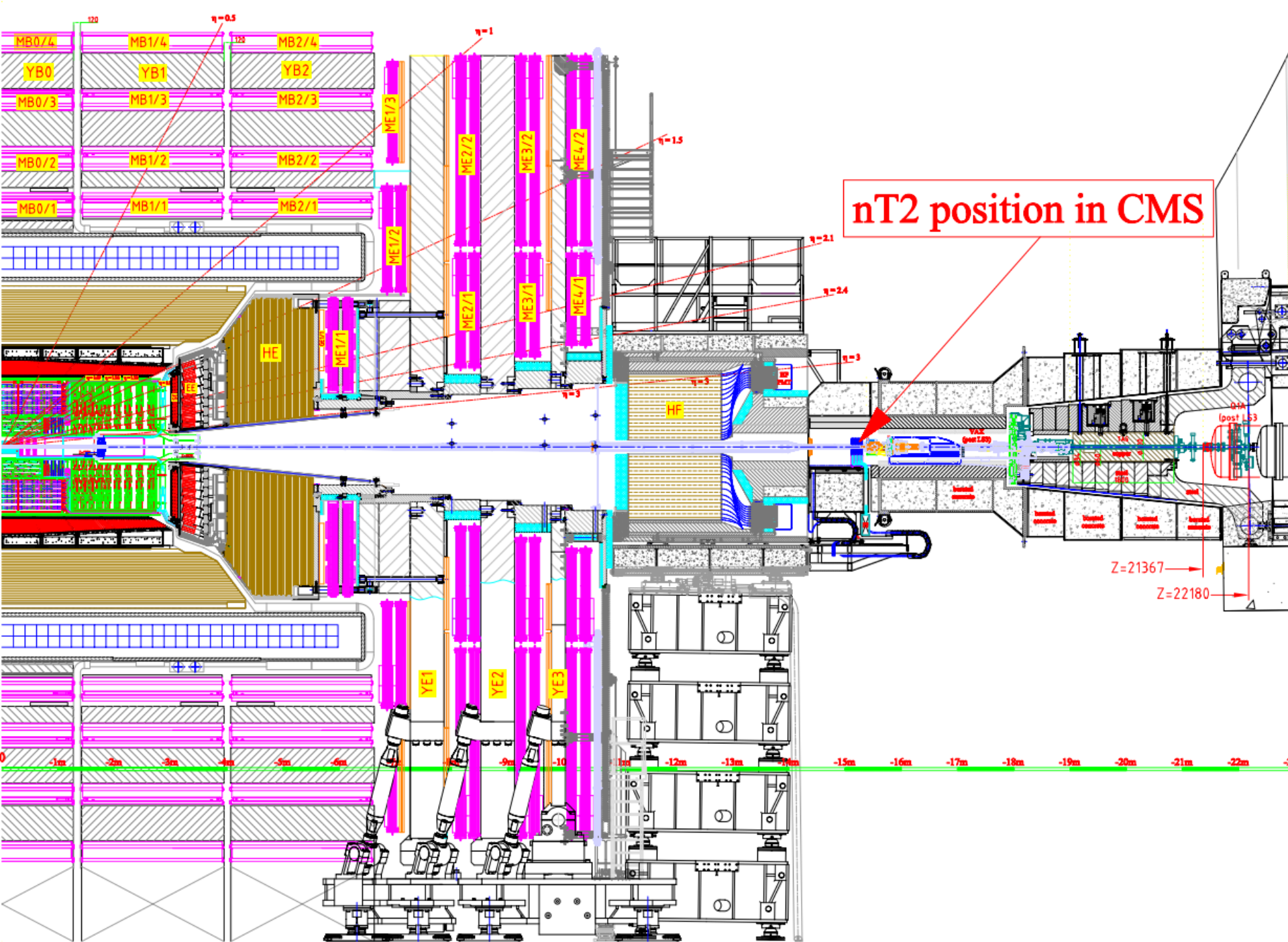
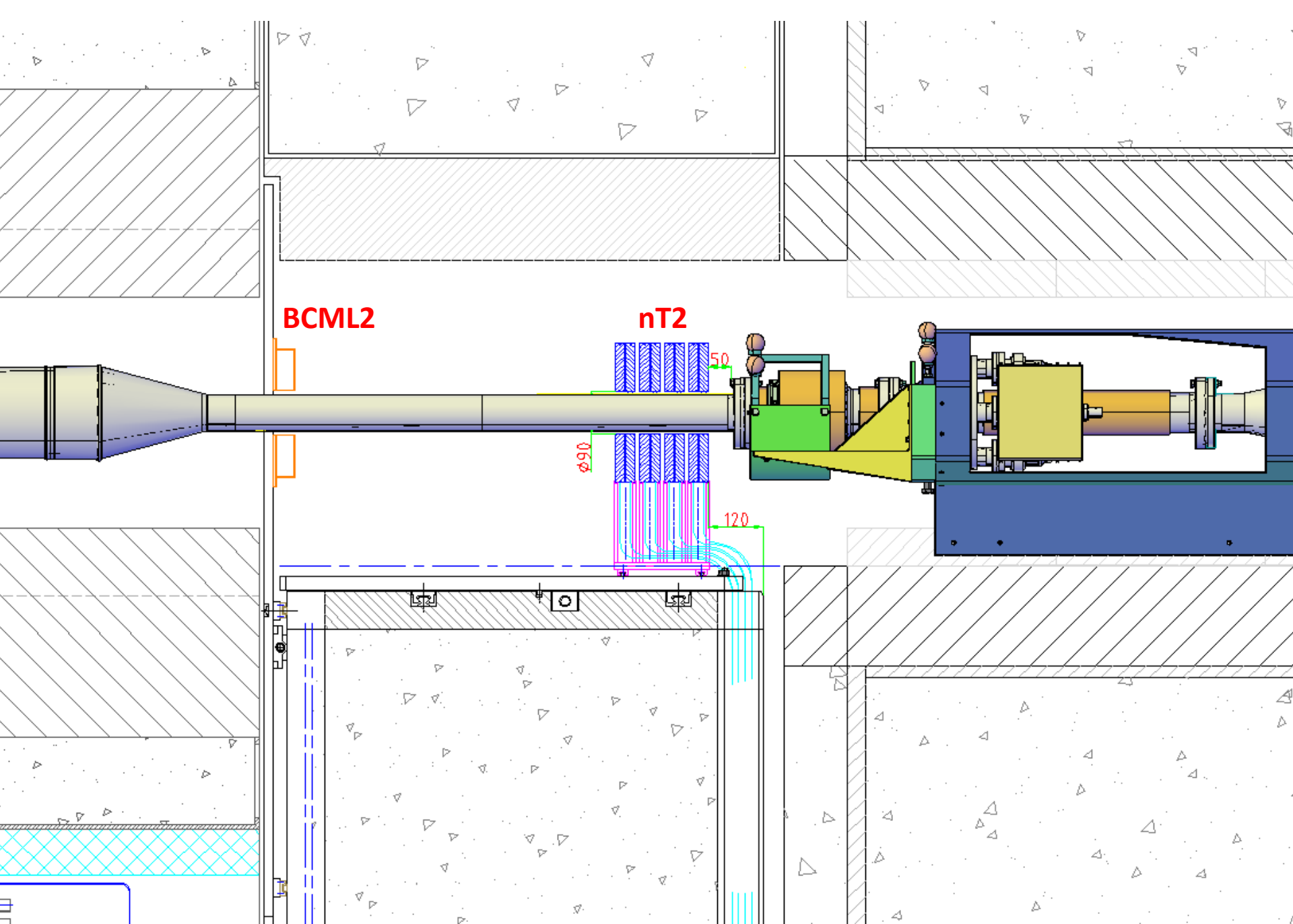


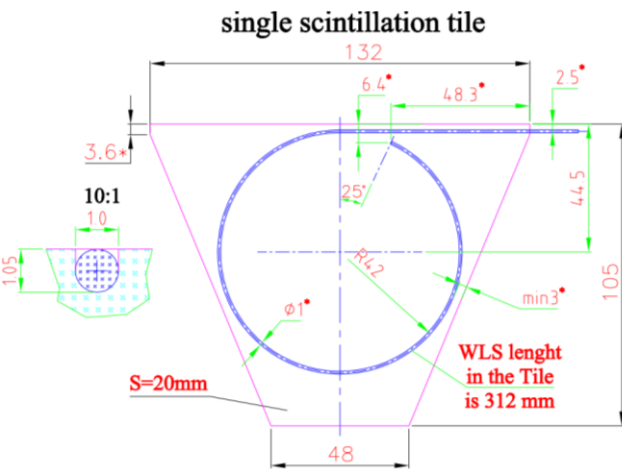


nT2 integration in CMS

current status and plans of activity in 2020





[illegible]

D90mm → $\dot{\eta}=6.51$
D100mm → $\dot{\eta}=6.4$

dimensions in mm

In 2019 (performed):

- **TDR**, Endorsed by LHCC in September, Approved by Research Board in September.
- Scintillator, WLS, fiber choice;
- Cosmic and source tests in B.226
- DESY beam tests (2019, May and September);
- Mechanical Mock-up in P.5

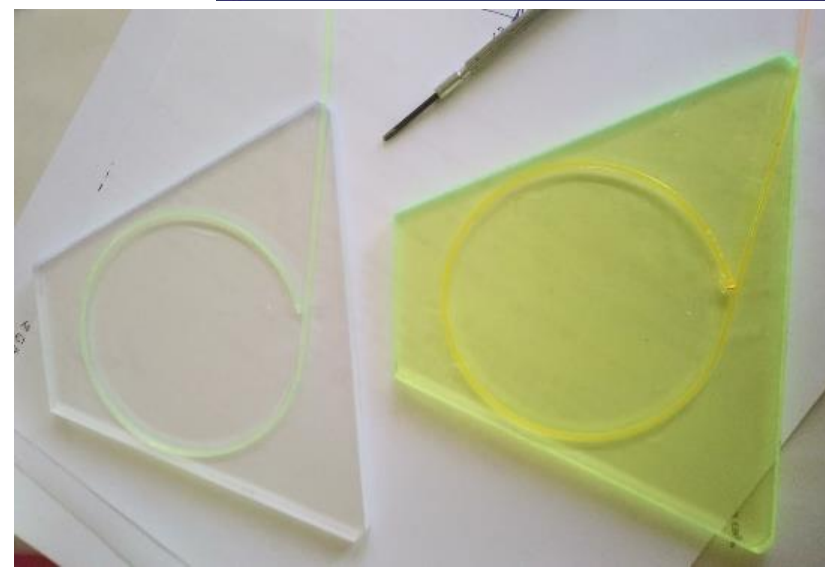
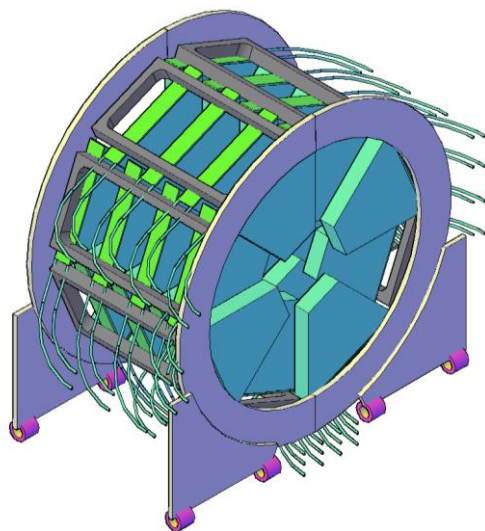
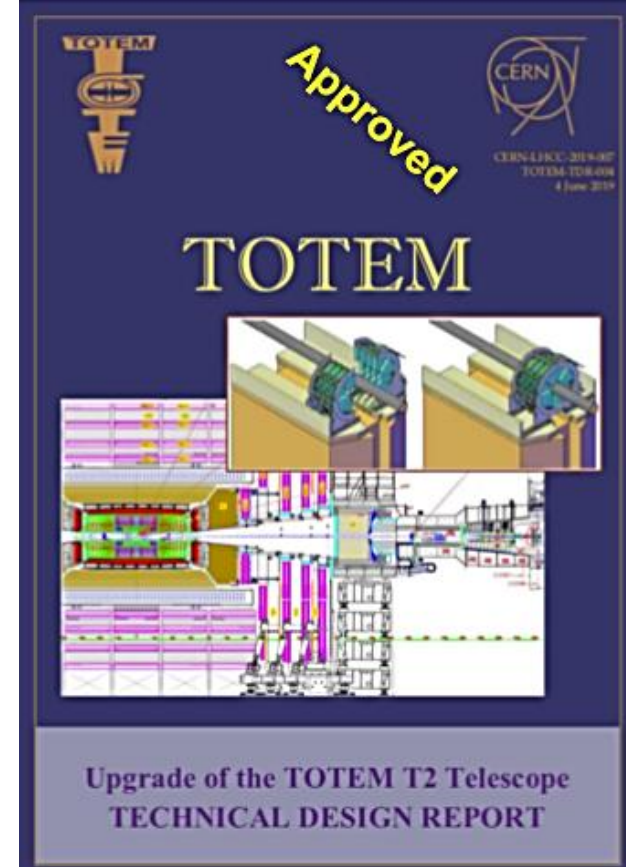


Plans:

In 2020 readout (SiPM), mass-production (**4 sets**), assembly, tests, PP and cabling on CMS, adaptation on Collar table.

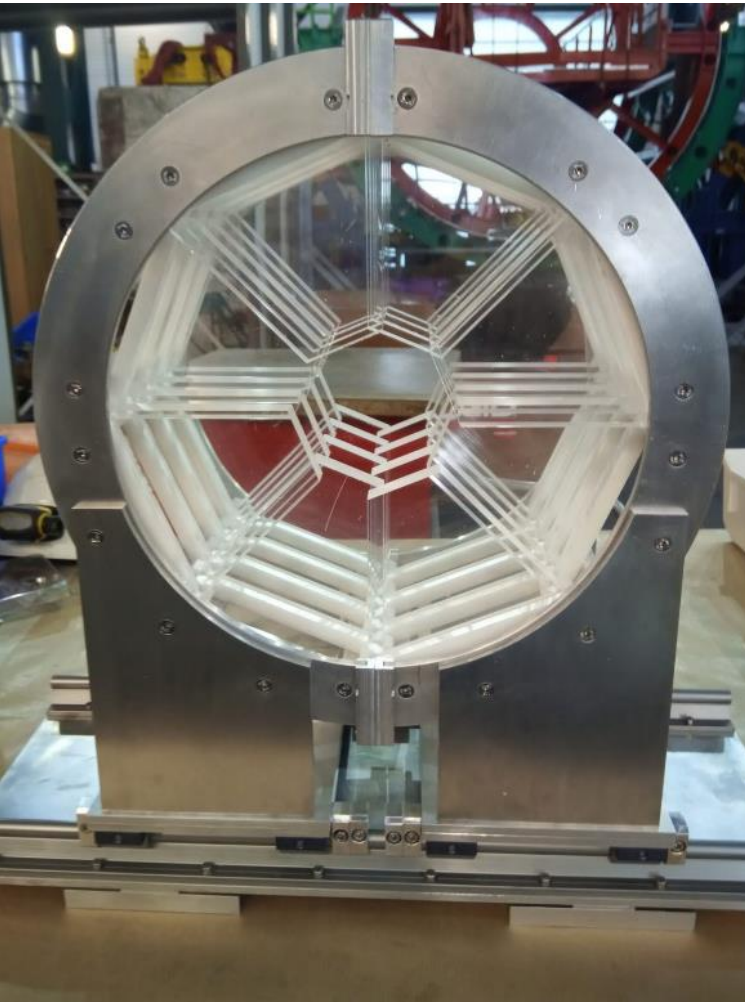
In 2021 installation / adjusting test on both CMS Ends.

Roman, Sasha works: mock-up, tests, assembly, gluing of WLS and fibres (+Berkan), milling of the grooves (good experience), ...

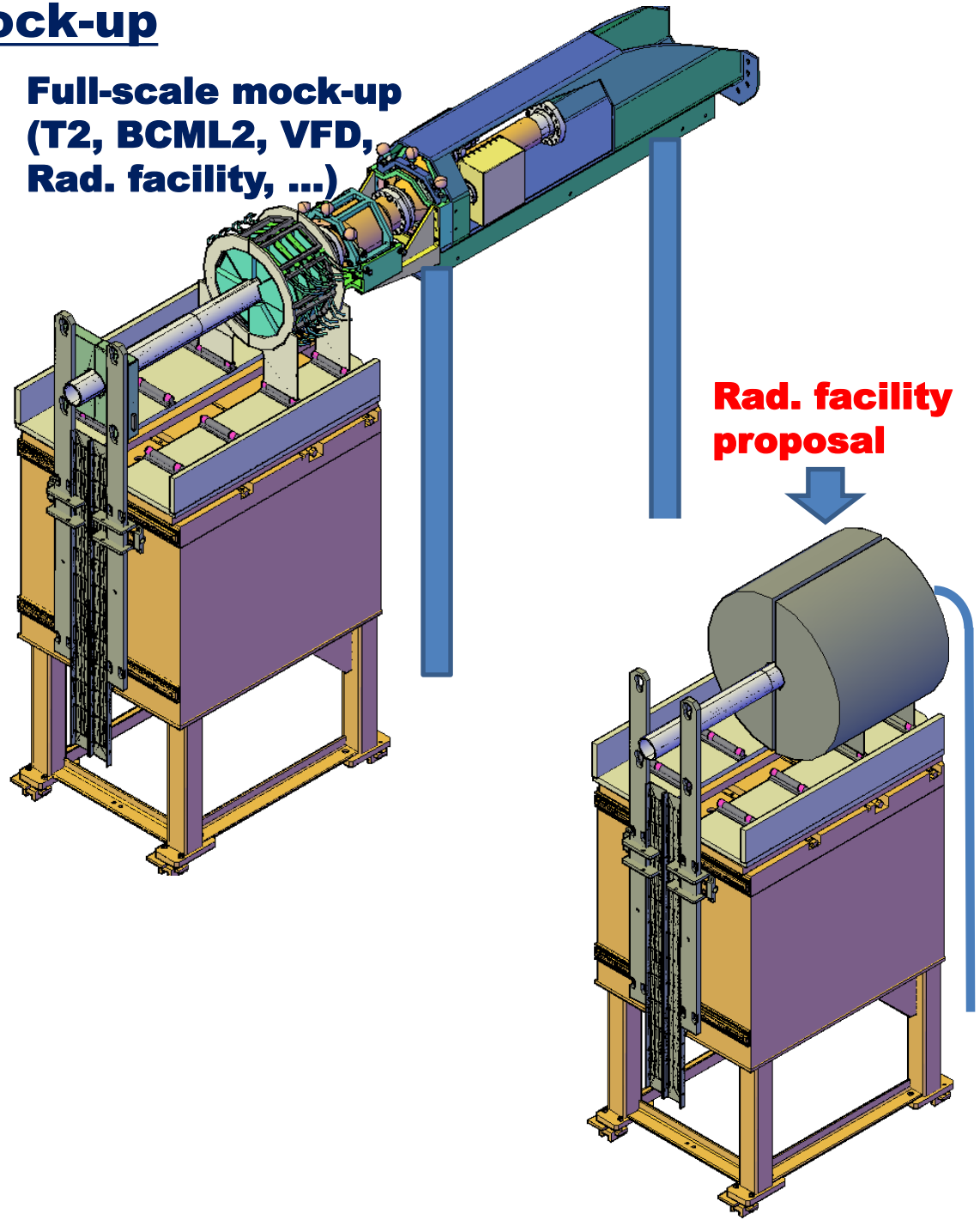


Mock-up

Full-scale nT2 mock-up



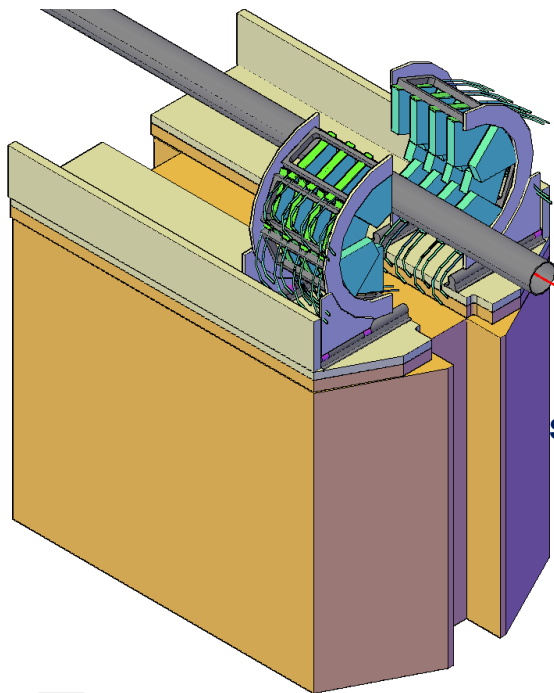
Full-scale mock-up (T2, BCML2, VFD, Rad. facility, ...)



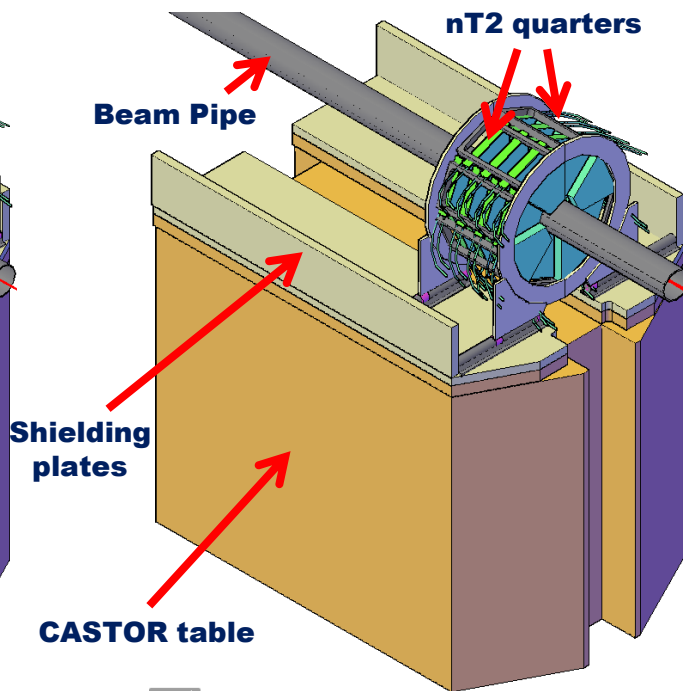
Mechanical Mock-up in P.5
Next steps: fibres routing, PP, fast
installation/removal tests, ...

Mock-up

Installation/removal position



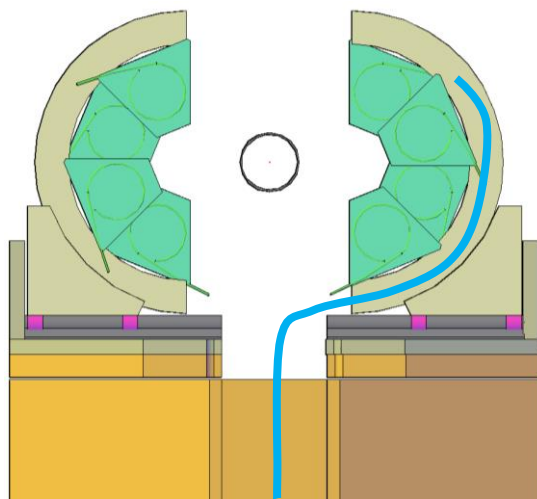
Run configuration



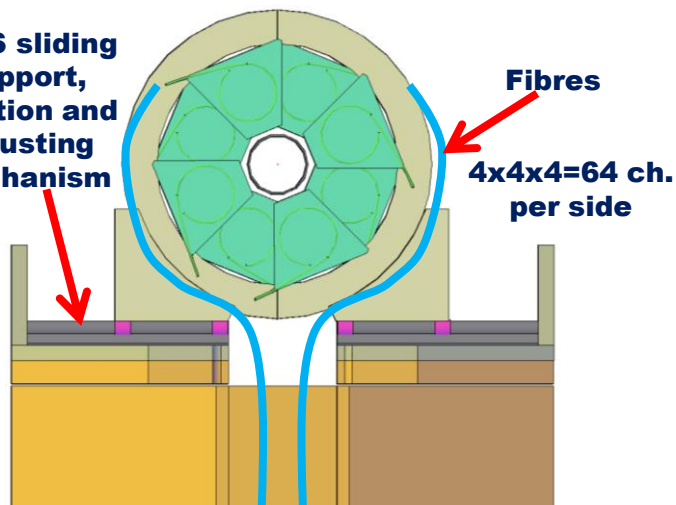
Mock-up completely simulates the CMS Forward area where nT2 will be installed. Also, the Mock-up is completely identical to nT2 in which the scintillator tiles are replaced with exactly the same ordinary plastic tiles.

Mock-up consists of:

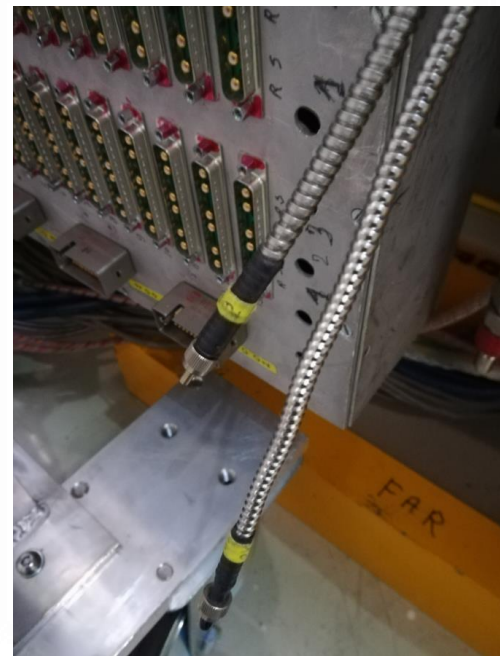
- the table with vertical cables groove,
- Shielding plates around the Beam Pipe,
- New CT2 Beam Pipe,
- Two (left and right) nT2 quarter with its fibres bundles and PP.



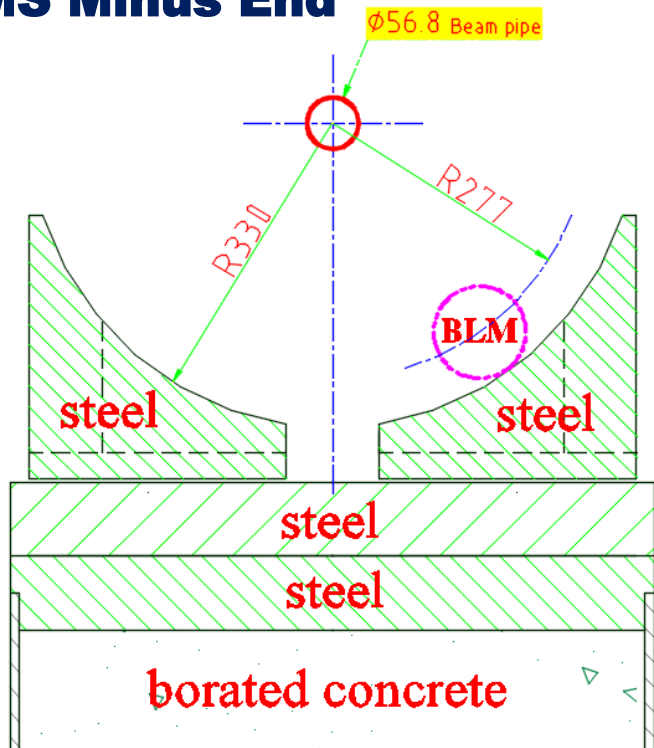
IGUS sliding support, Fixation and adjusting mechanism



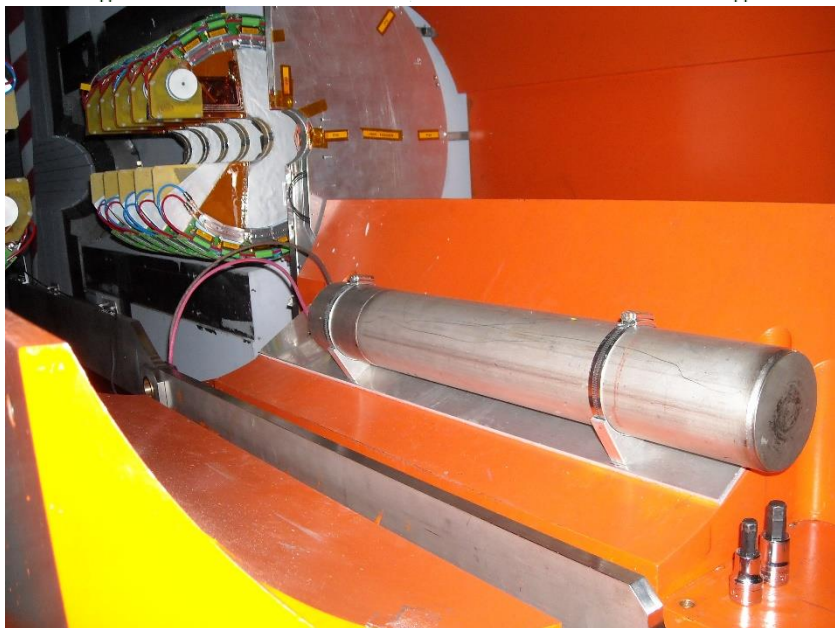
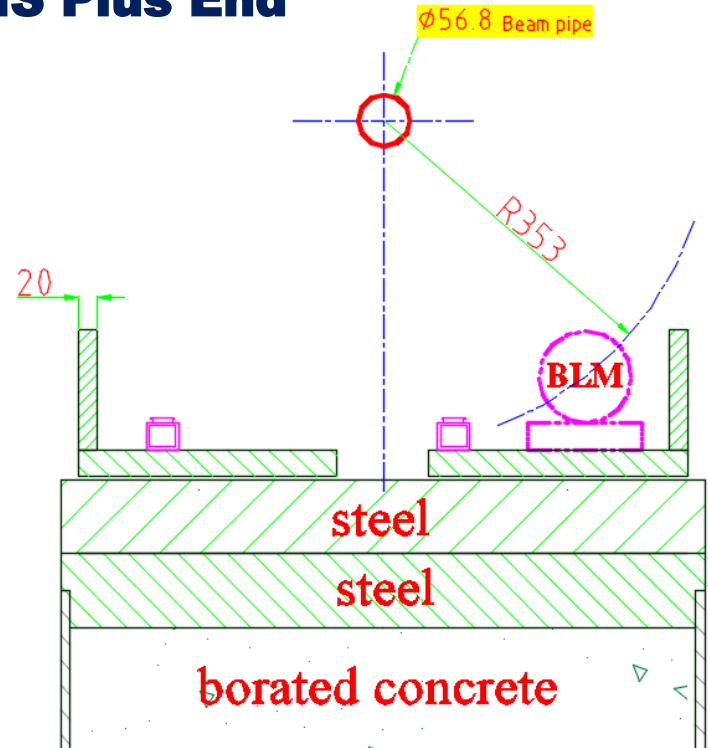
4x4x4=64 ch. per side



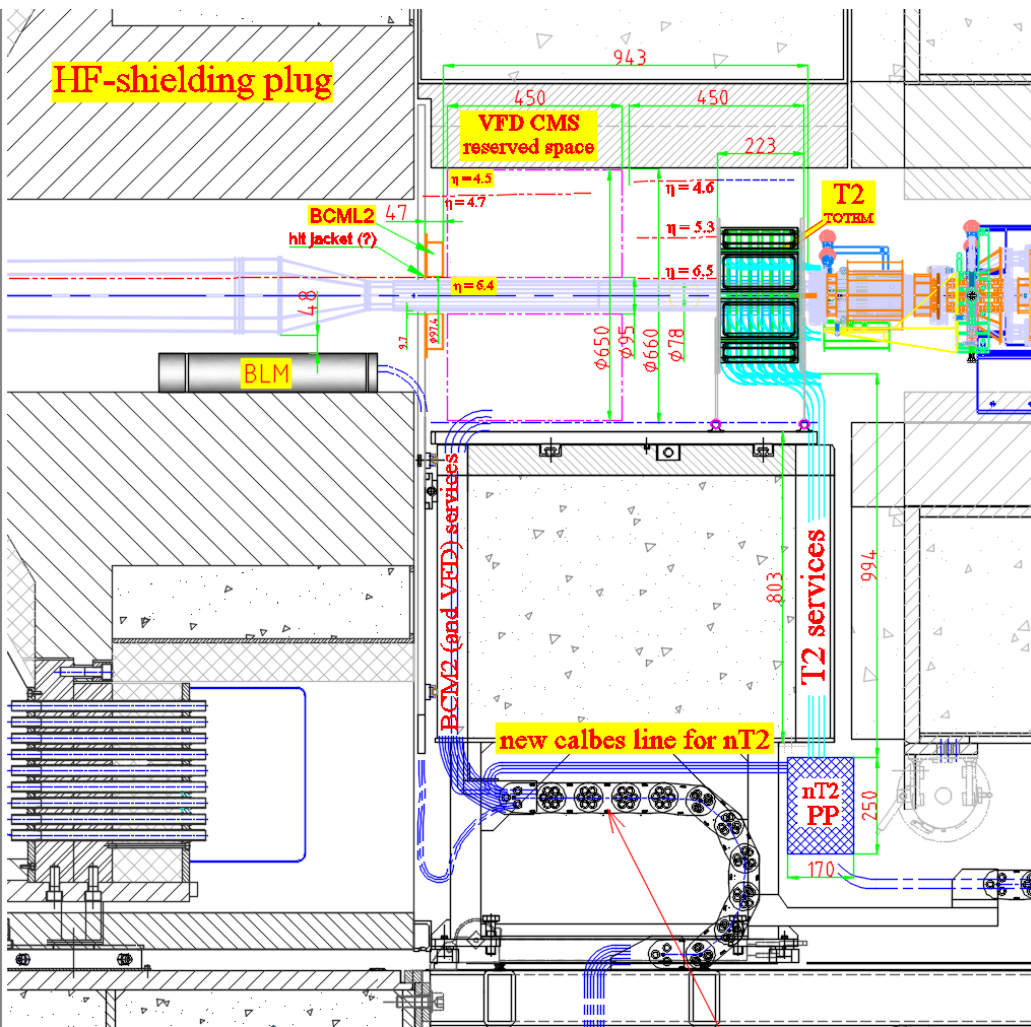
CMS Minus End



CMS Plus End



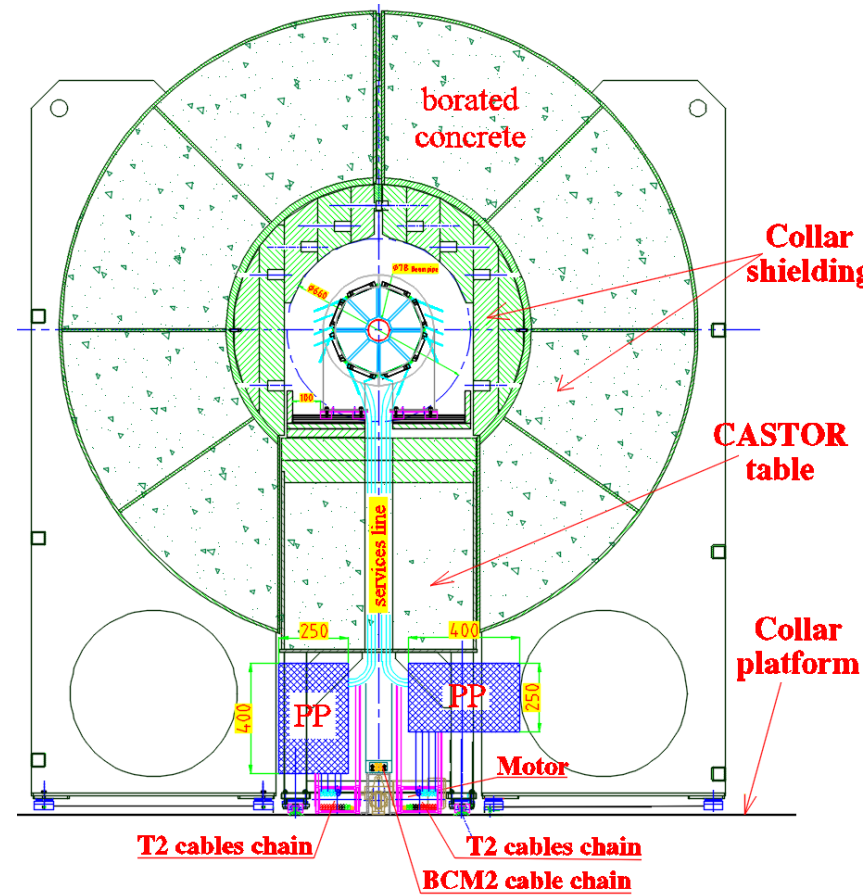
Services routing



nT2 PP - 400x250x170mm

BLM

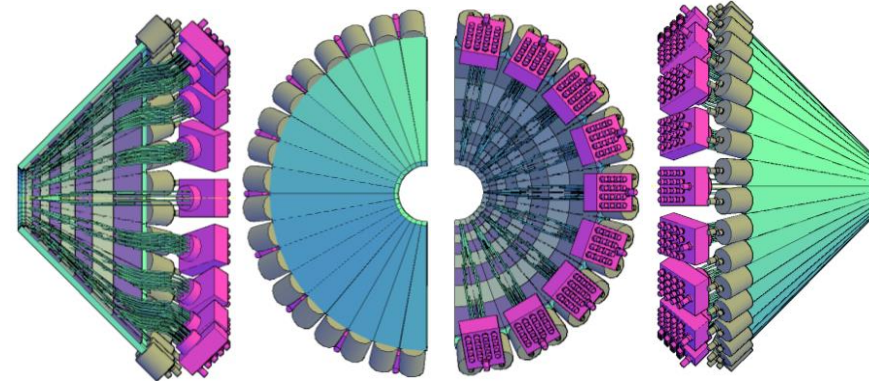
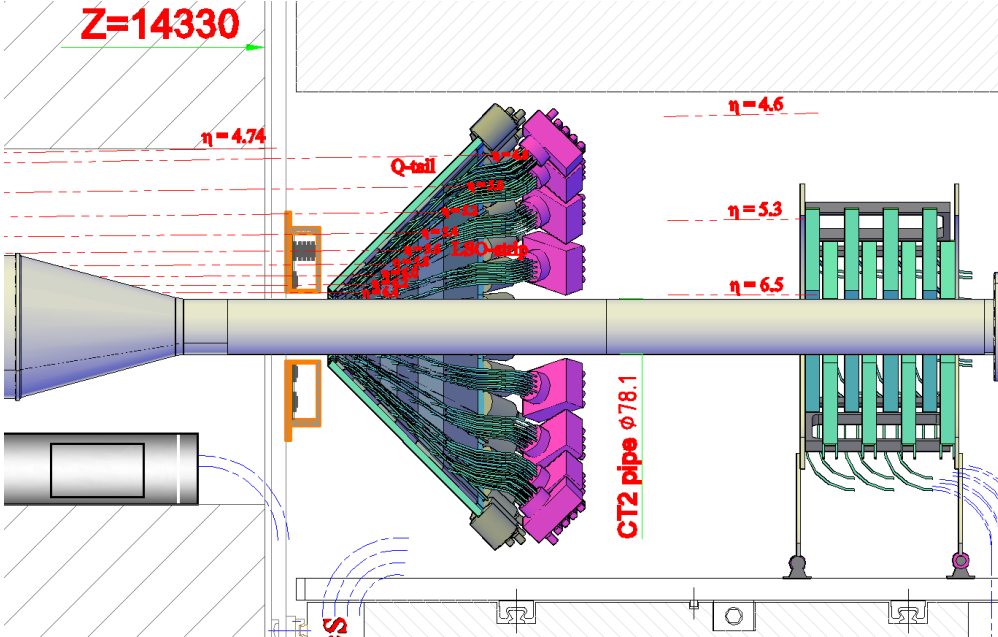
BCML2



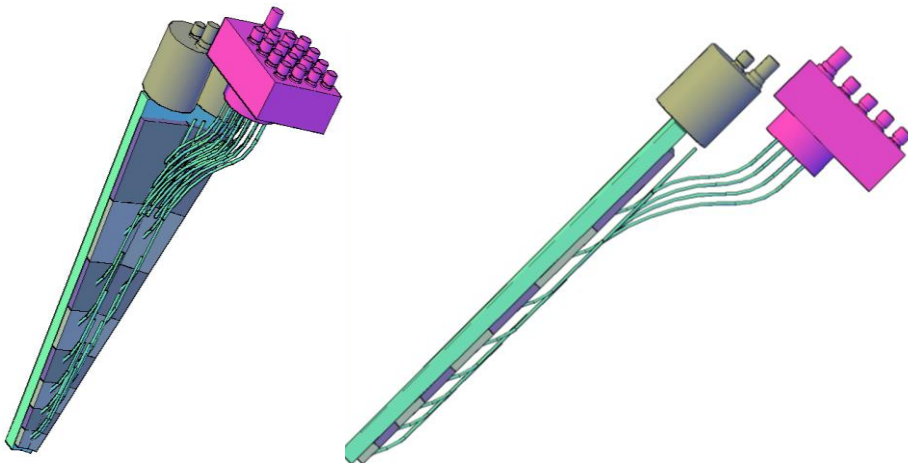
Back-up

VFD on CMS

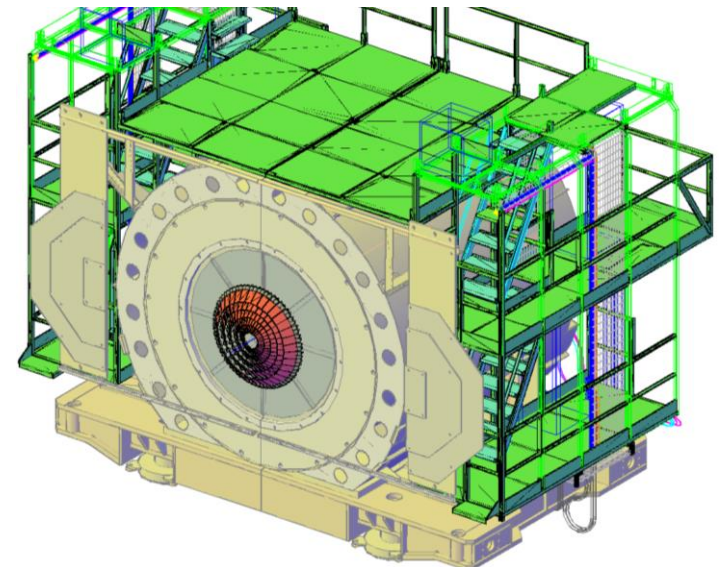
Nine VFD modules are assembled in one design, forming two symmetrical detector halves mounted around the Beam Pipe (CT2 part) on the distance at 14.5m from IP5 on both CMS Ends.



VFD single module

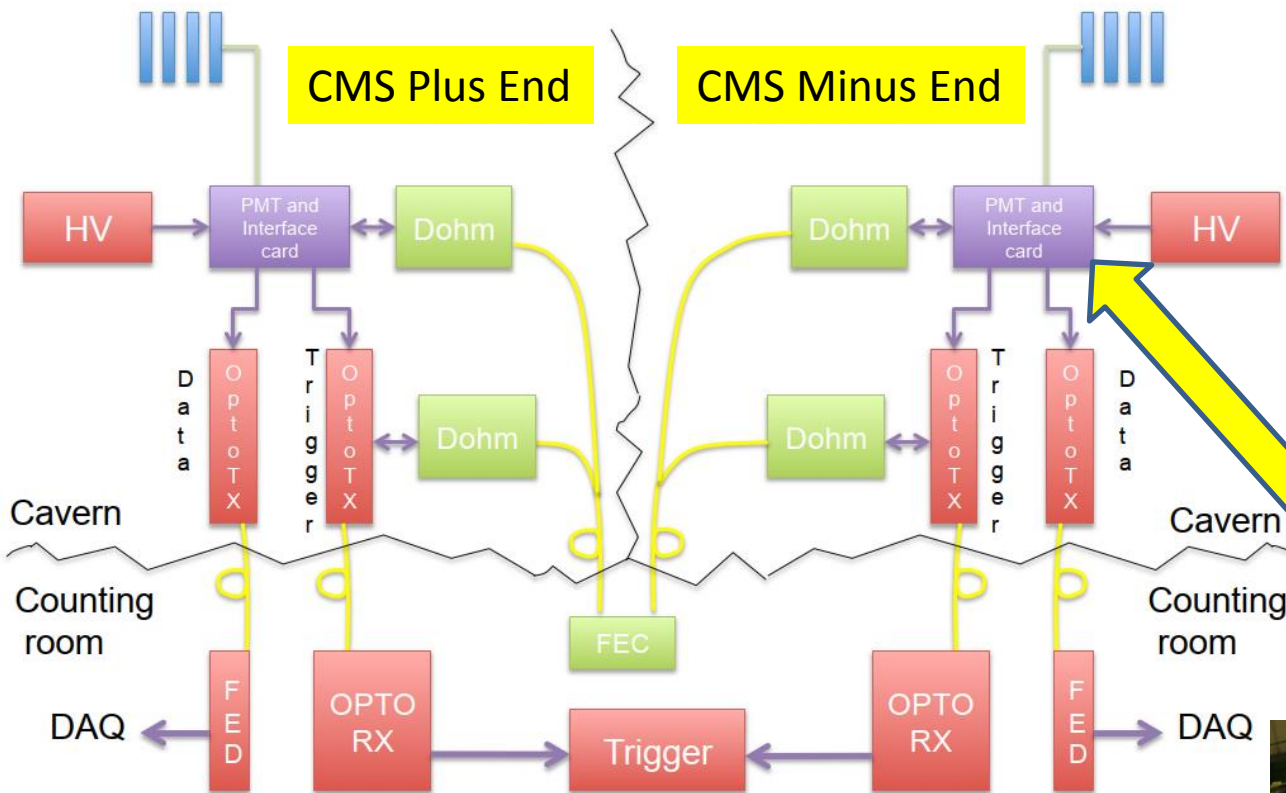


FTL

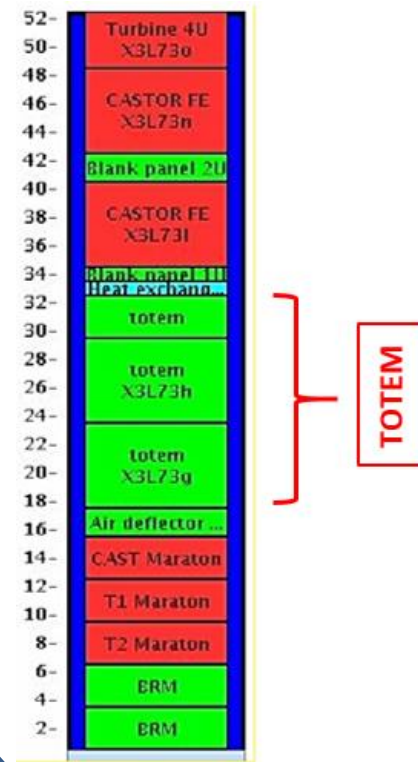


DAQ and Trigger

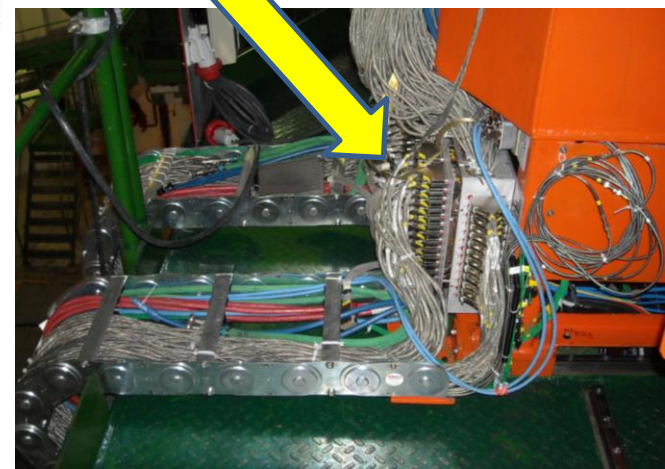
Existing Electronics
New



Z - X3L73
Z+ X3R73



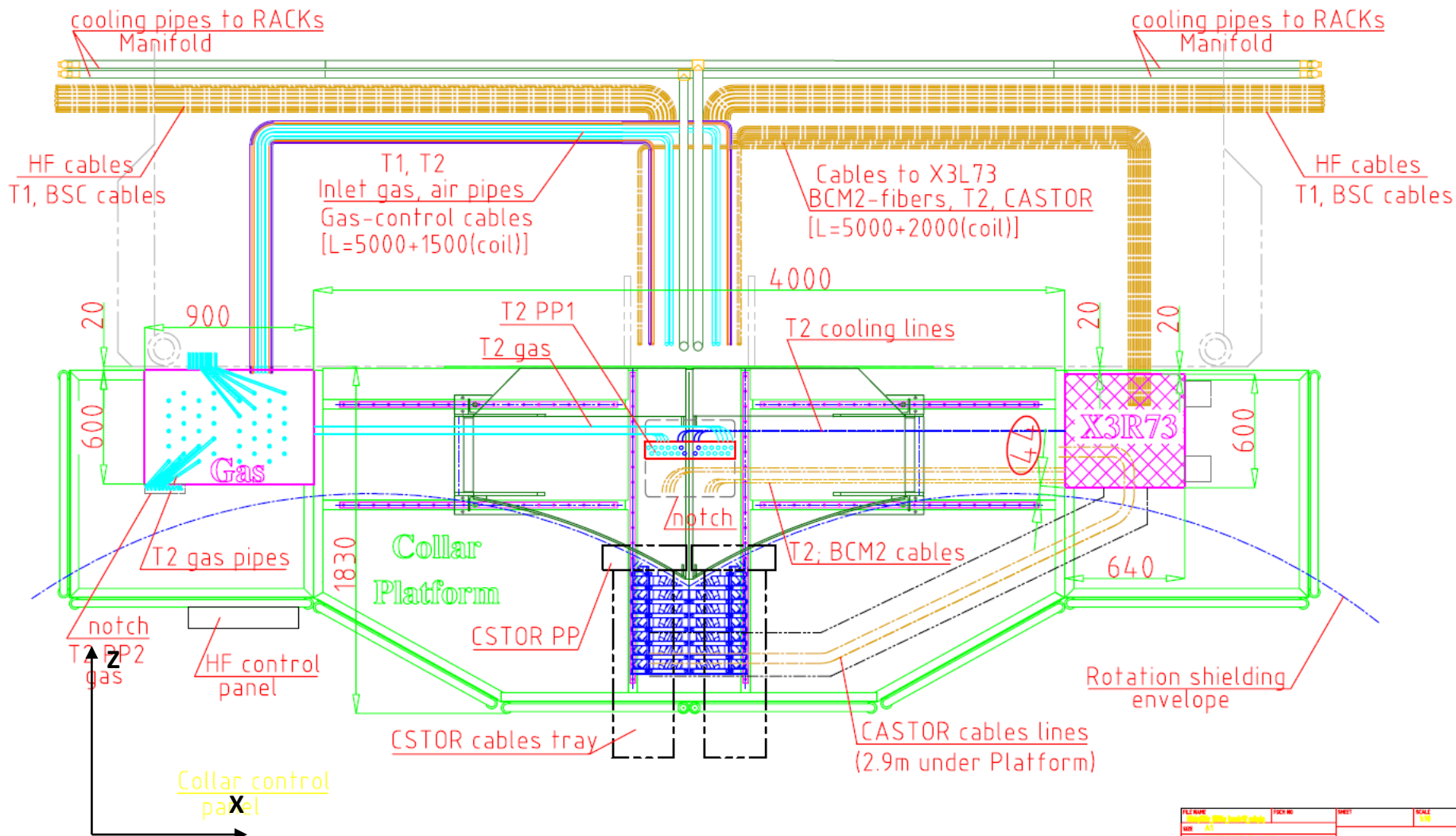
CASTOR: 14 x 8 = 112 ch.
nT2: 4 x 4 = 16 ch.



NEARSIDE

HIF platform(-)

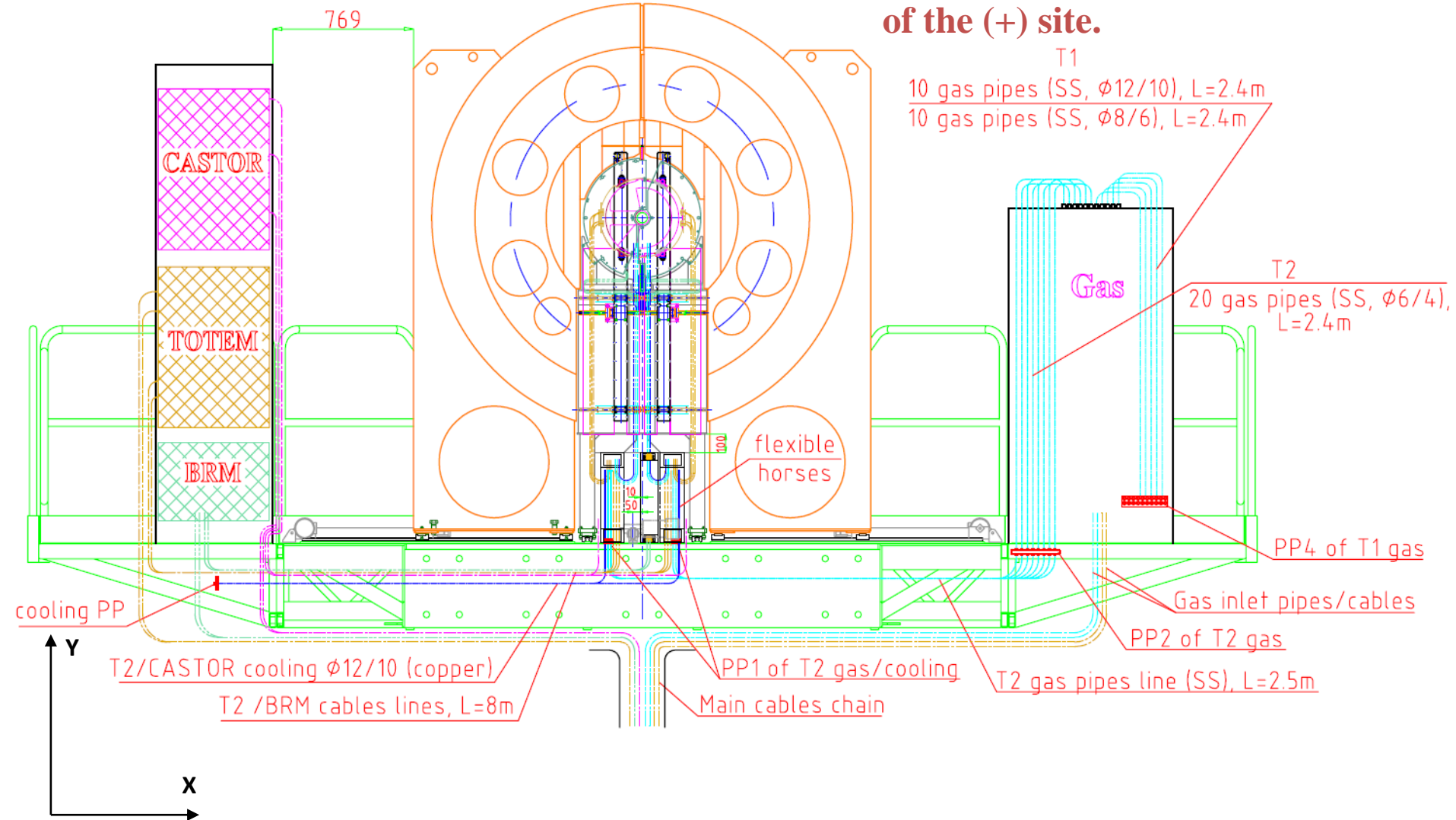
FAR SIDE

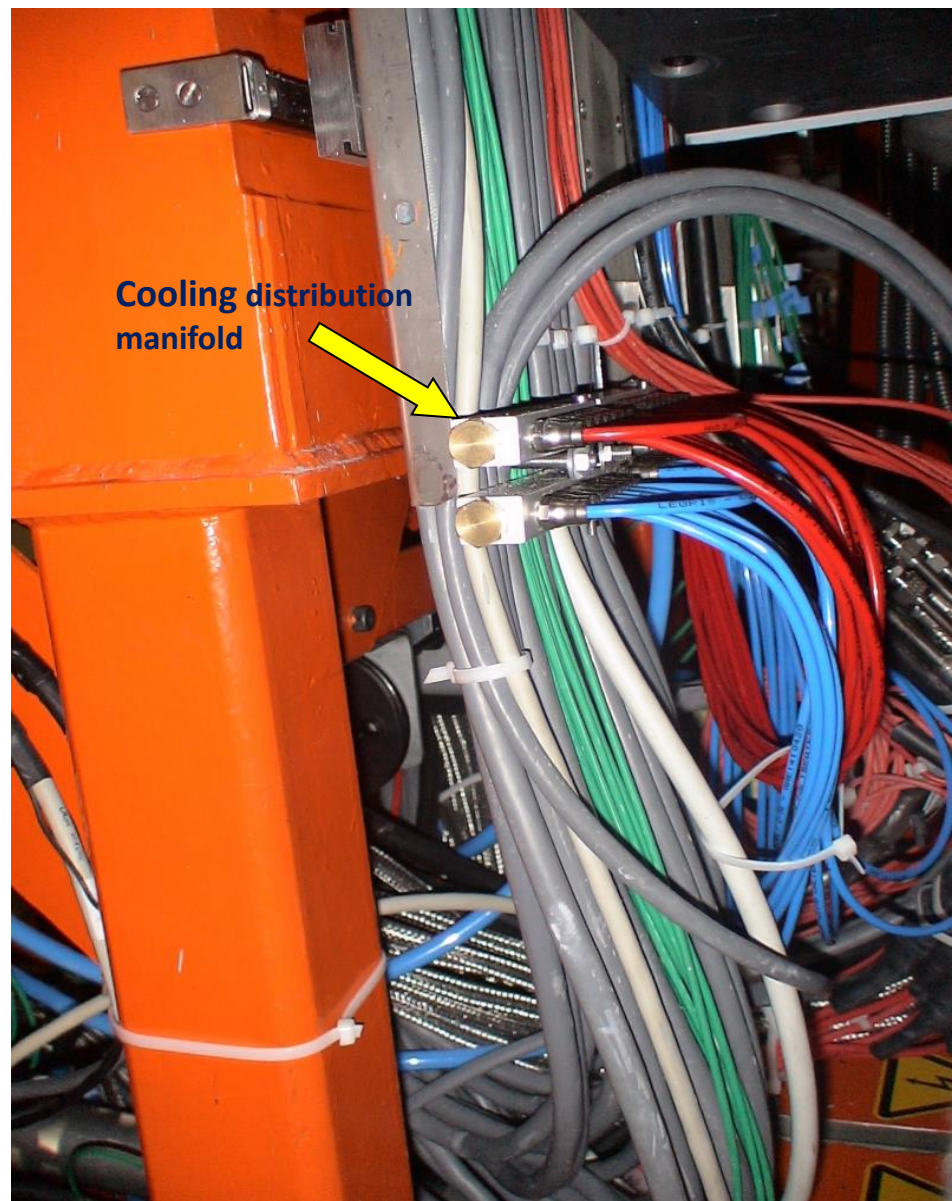


FILE NAME	Working title: hif platform	SHEET	1/1
DATE	21		
DESIGN	01/28/2008	Drawn	
CHECK			
DATE			
DESIGN			
KEY			
OWNER			

Work (close) position

**The(-) site is mirror reflection
of the (+) site.**







Cooling plastic
pipes

Gas flexible
hoses