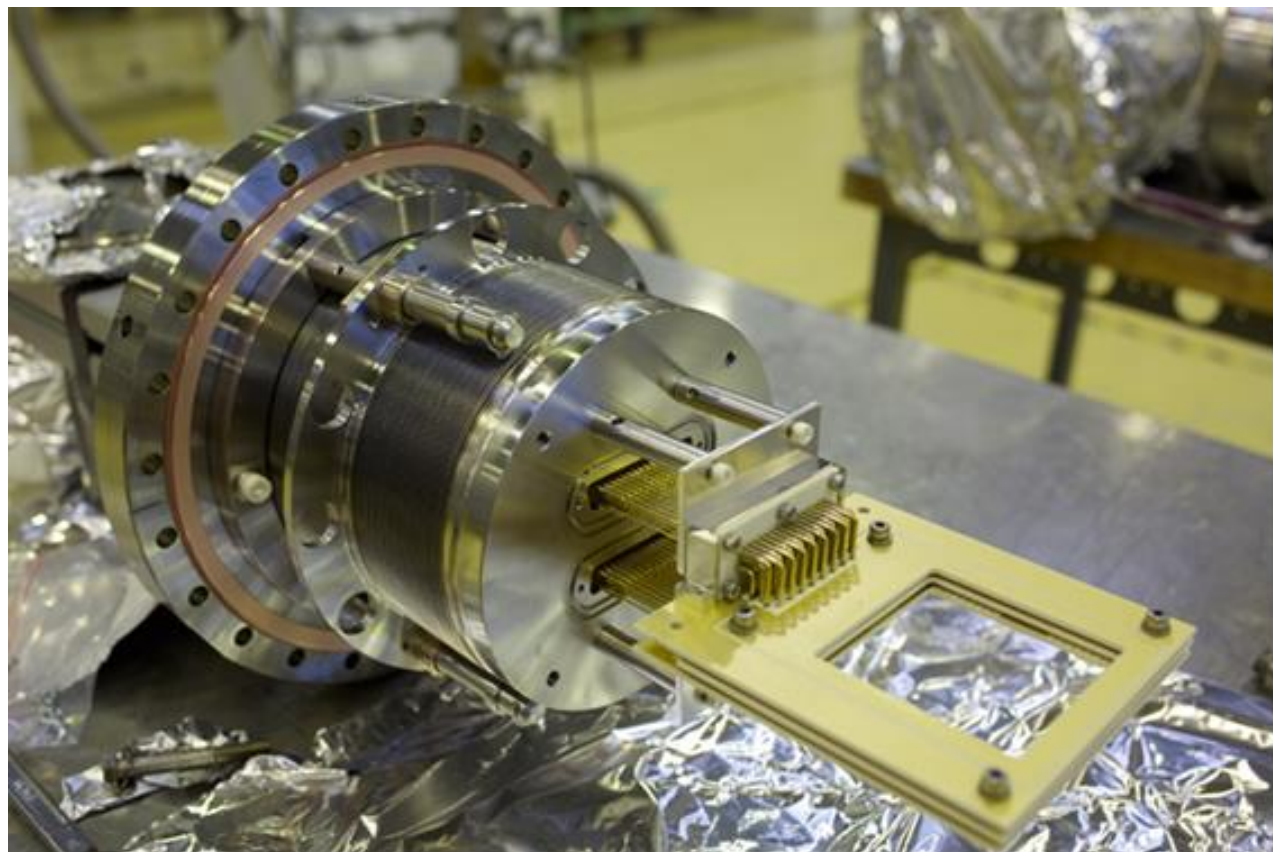
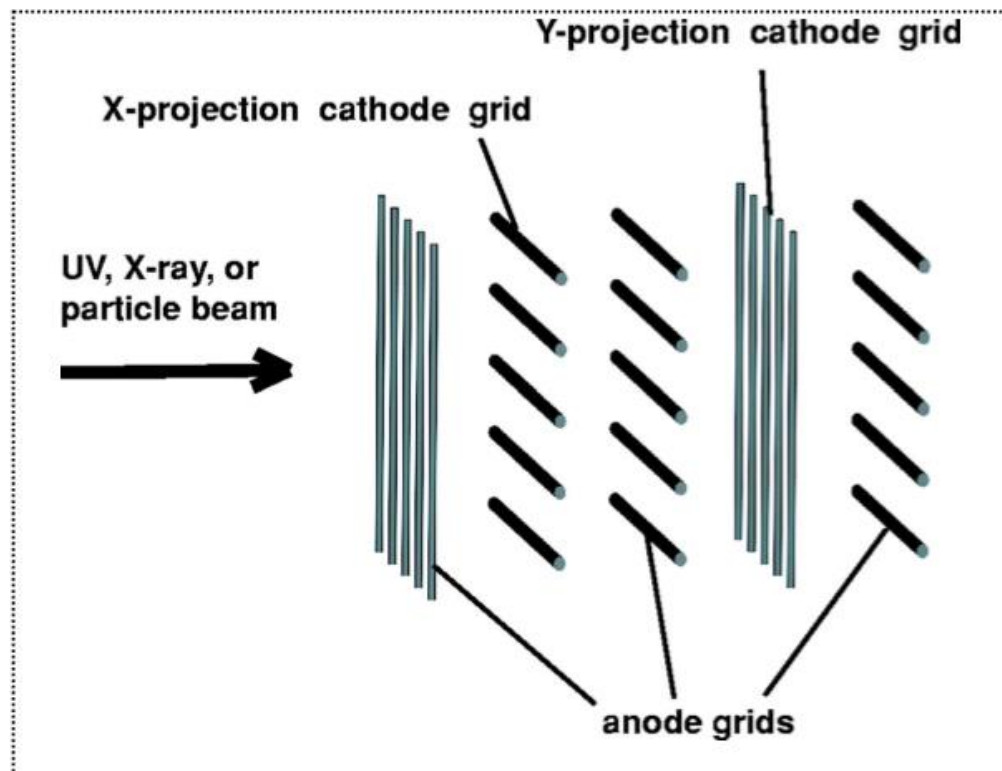
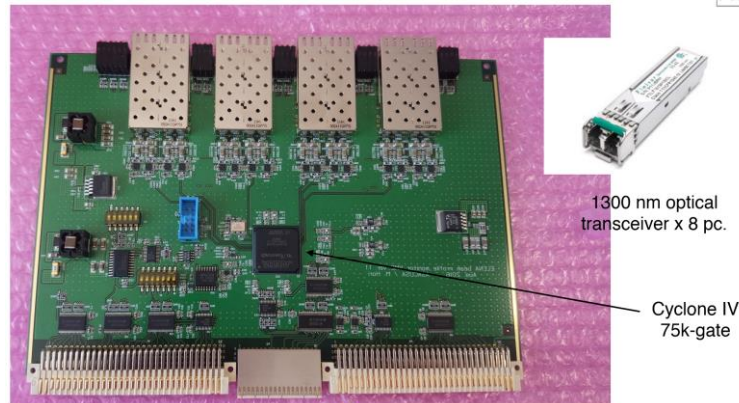
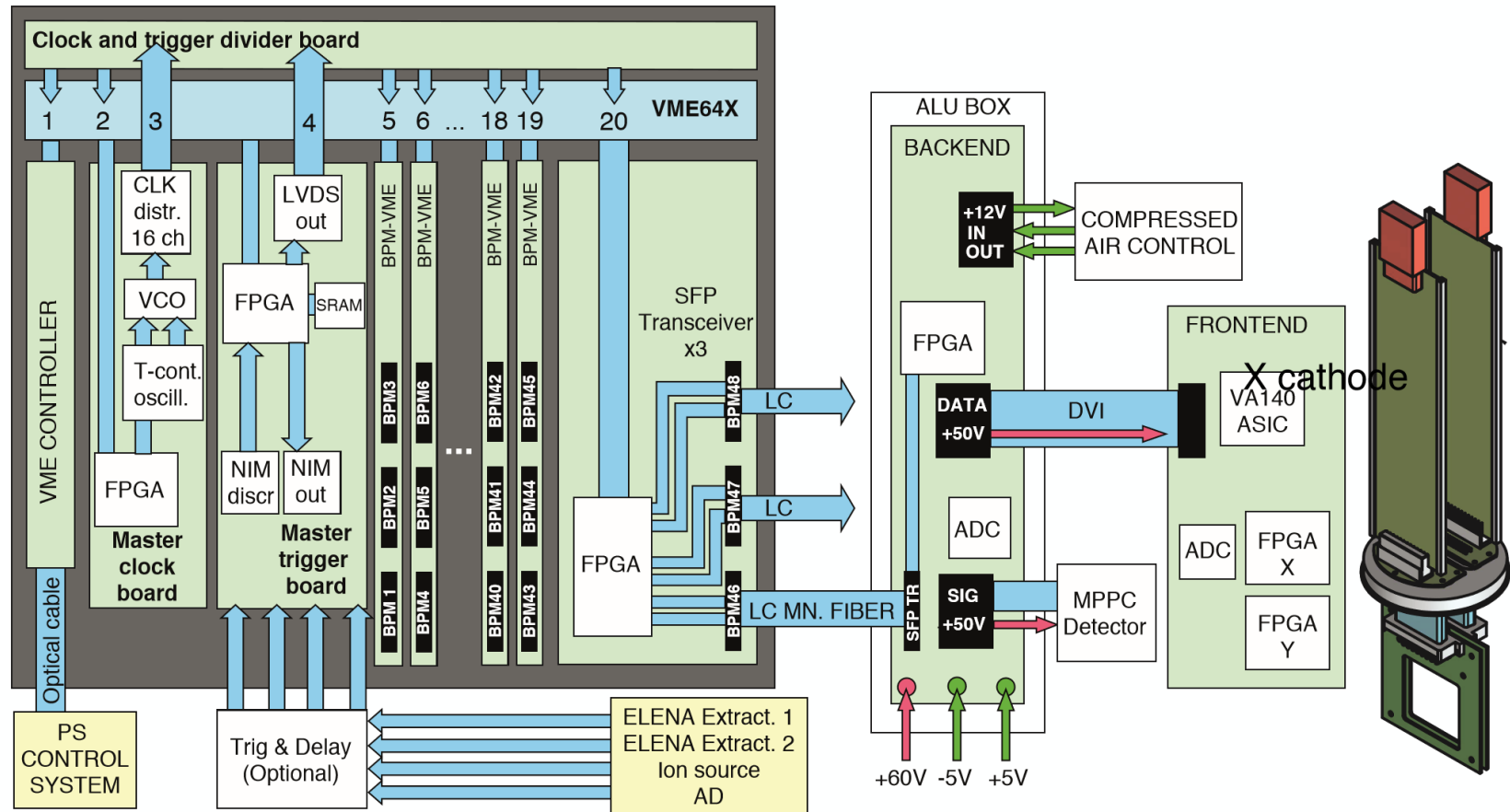
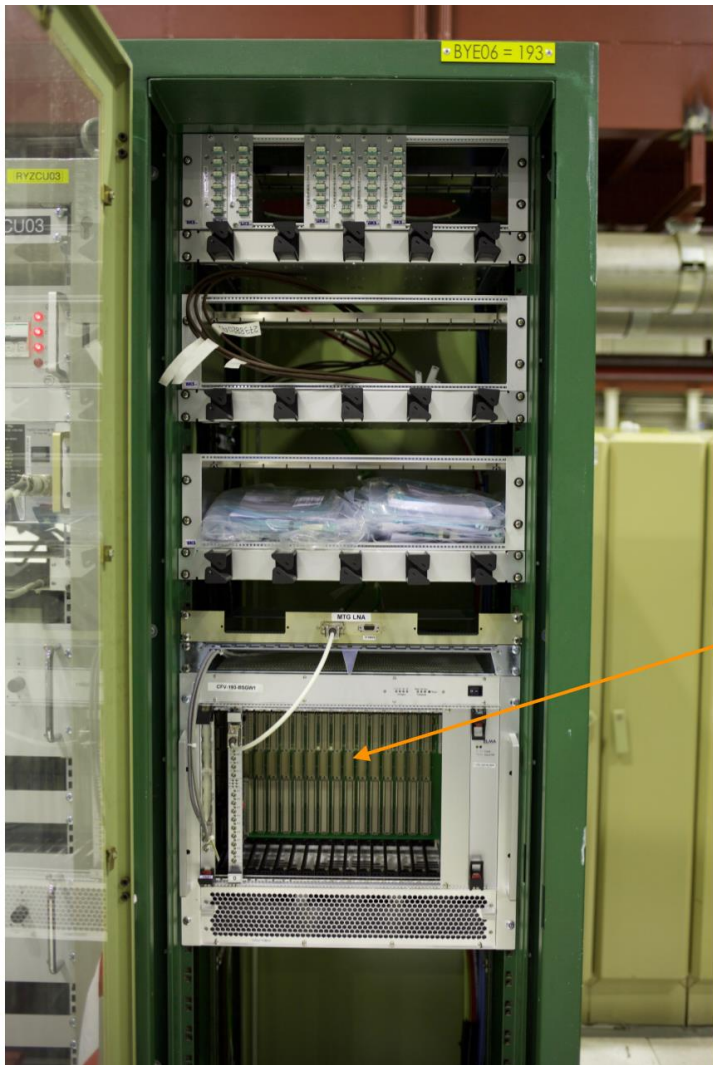


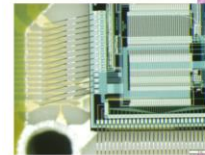
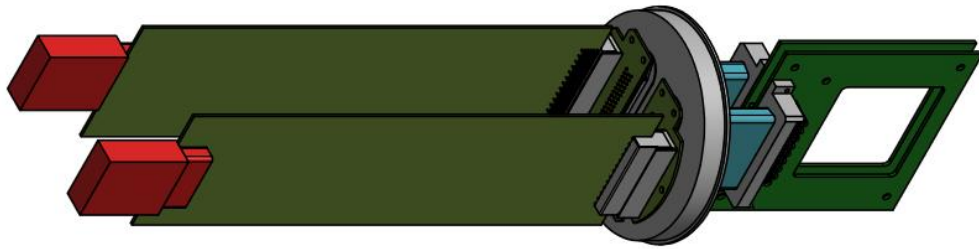
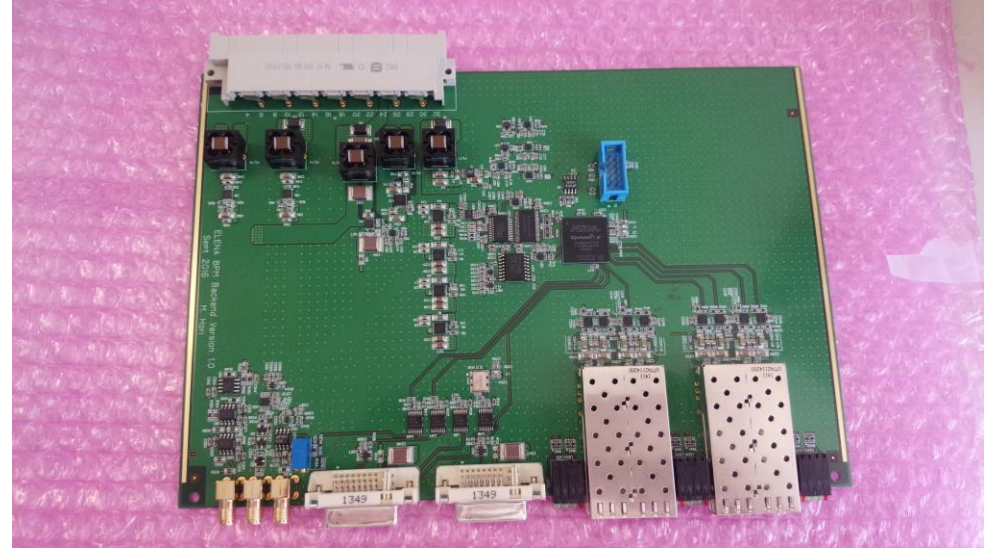
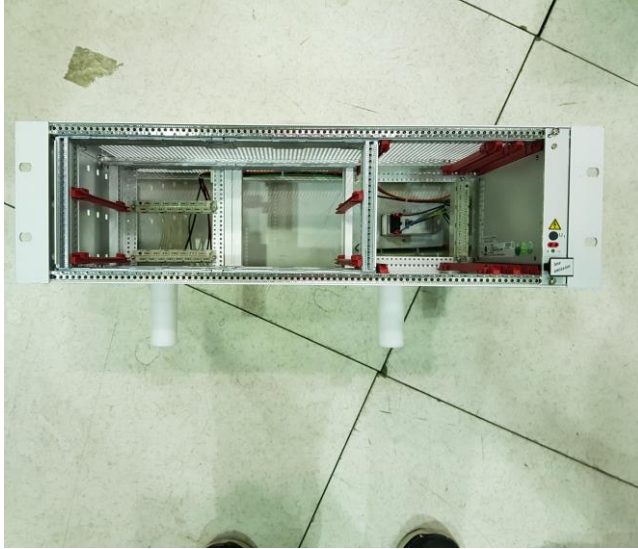
SEM monitors for the beam
lines

- Semi-non-destructive monitor allows most of the particles to pass through without any degradation, while the small portion (1-3%) intercepted by the wires produces the signal.
- The device is sensitive to antiproton, proton, and H⁻ beams of energies between $E = 10$ keV and 5.3 MeV.
- It consists of two position-sensitive photocathode grids providing the X- and Y- projections of the beam, sandwiched between three anode grids with a distance of 2 mm between them.
- Each grid consists of 48 gold-coated tungsten wires of diameter of 10 μm stretched over a ceramic frame, with a pitch of 1.0 mm between neighbouring wires.
- The cathode grids at ground potential are irradiated by the beam, and the secondary electrons emitted from them are accelerated toward the anode grids biased at 50 V.
- The beam profile is obtained by using charge-sensitive preamplifiers to measure the charge Q_i ejected from the cathode wires on the X- and Y-grids with high sensitivity.

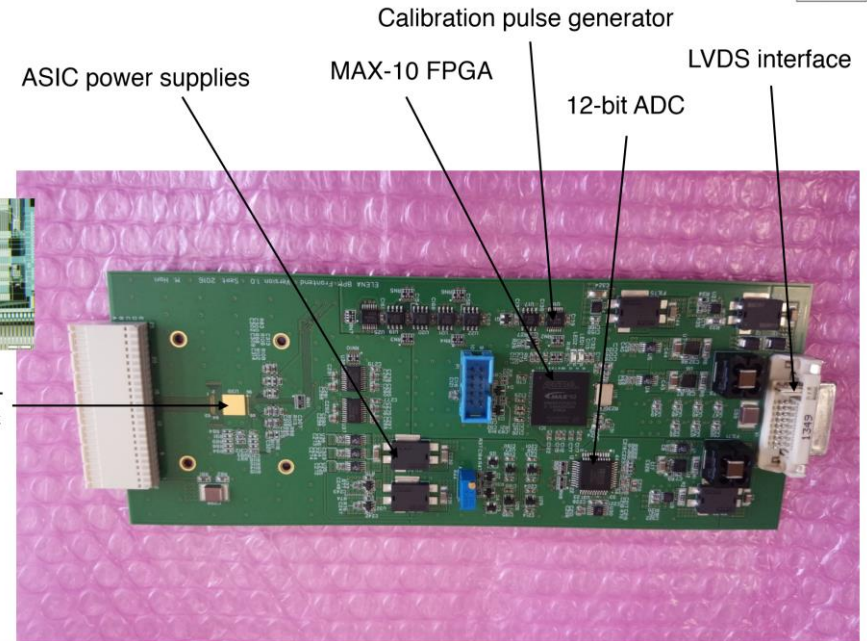


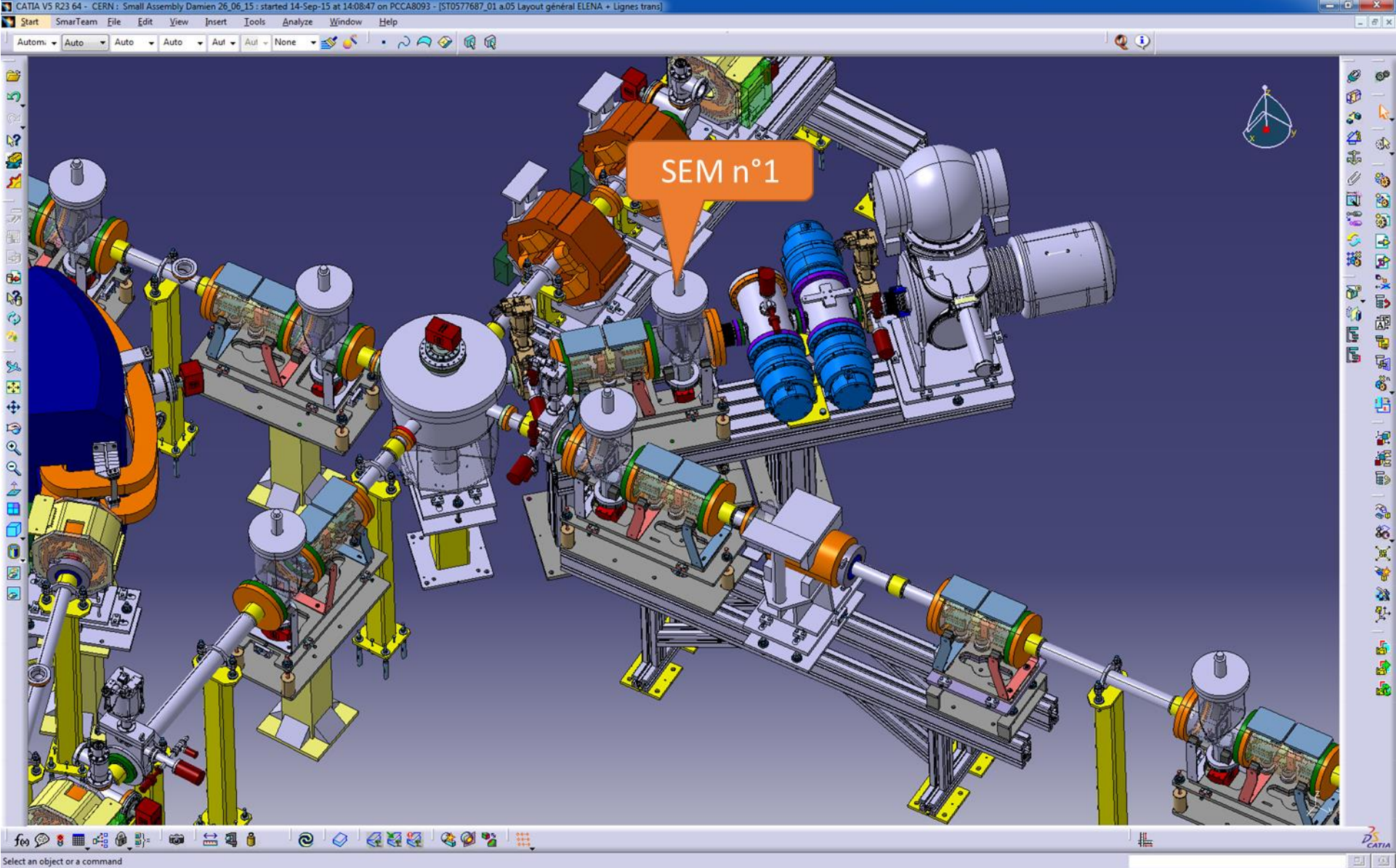
- 8 monitors have been installed for beam commissioning with H⁻/protons/pbars:
 - One in LNS
 - Two in LNI
 - Two in LNE00
 - Two in LNE50
 - One for the GBAR experiment (taken from LNE00)
- Only two monitors have acquisition electronics

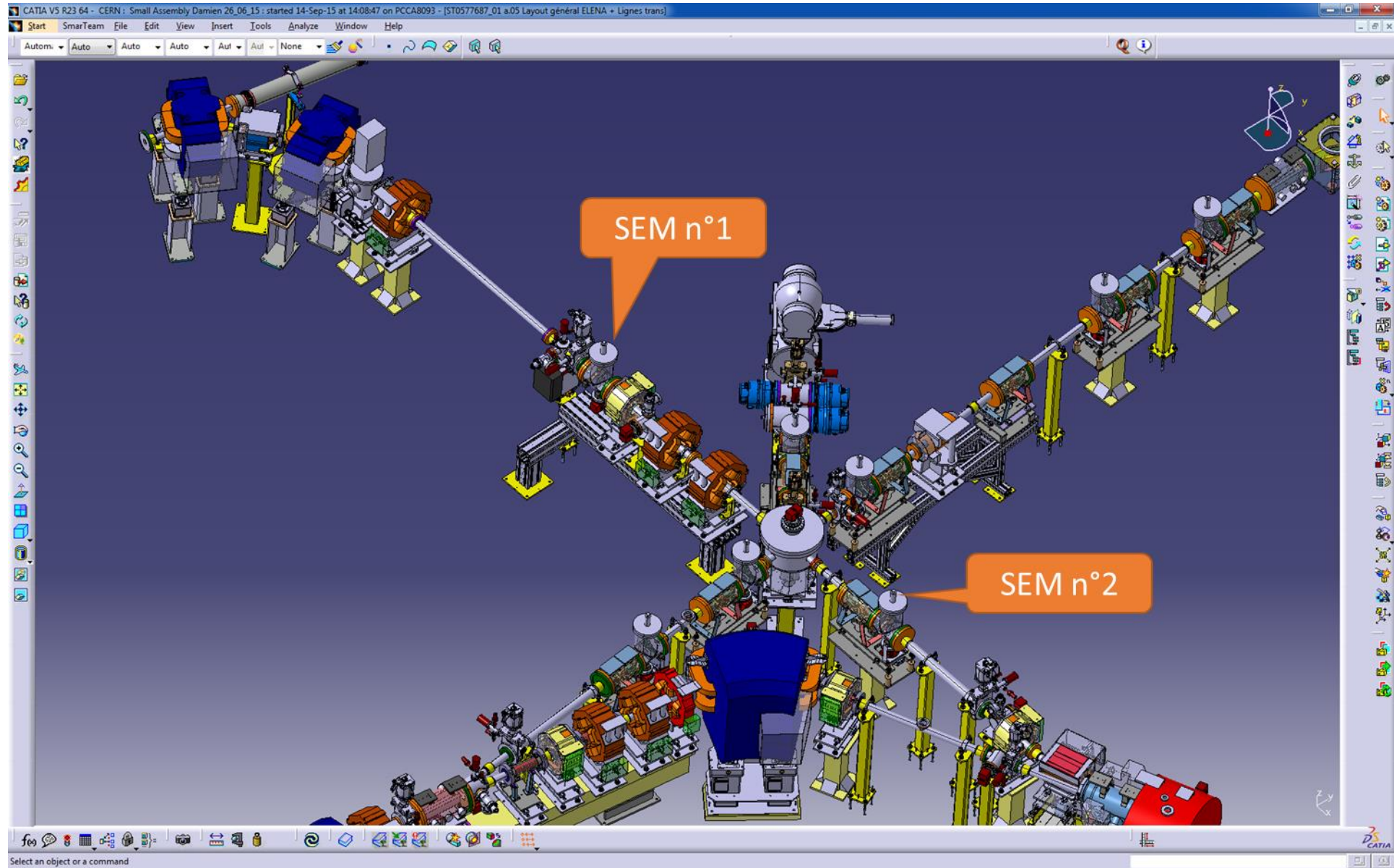


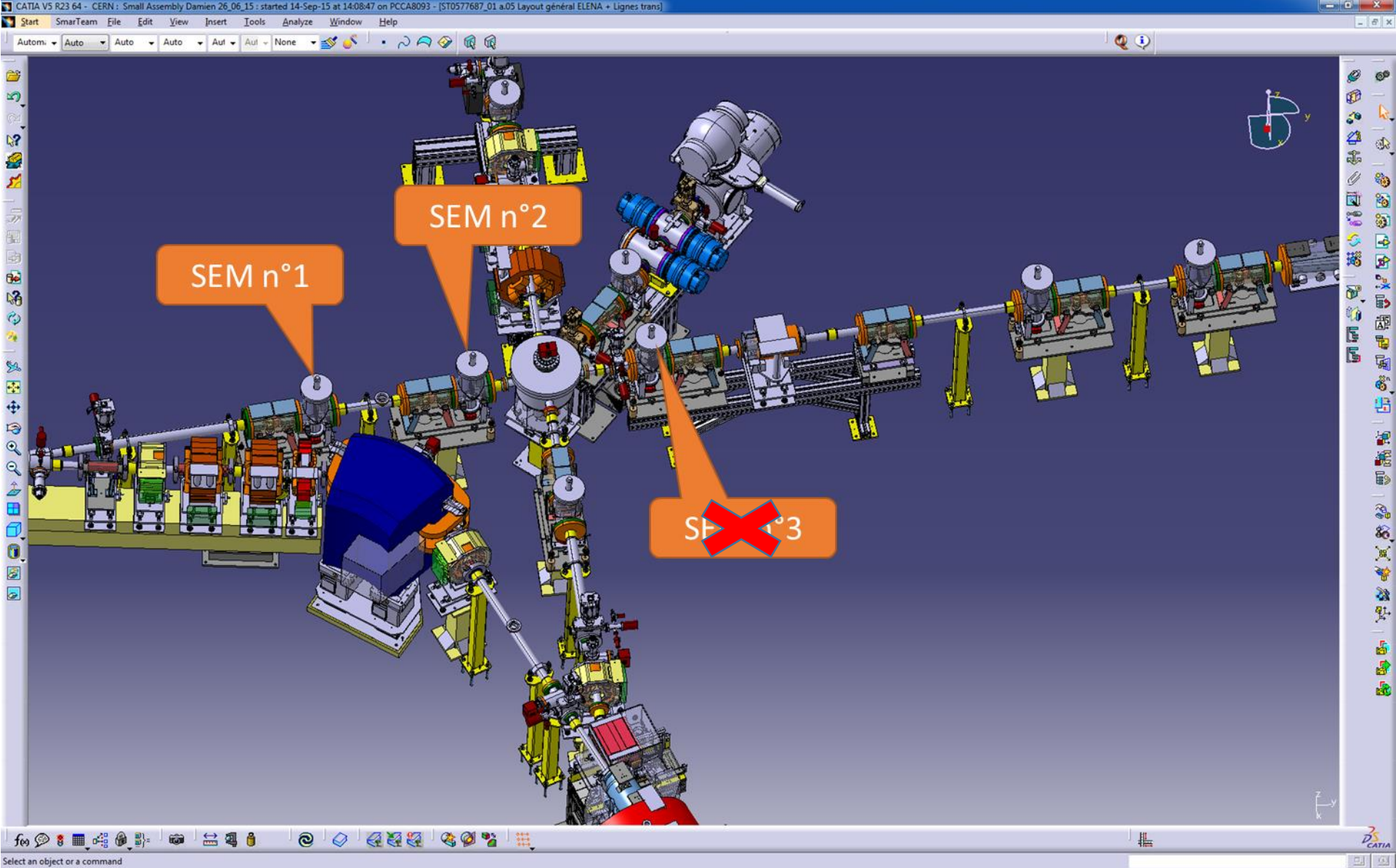


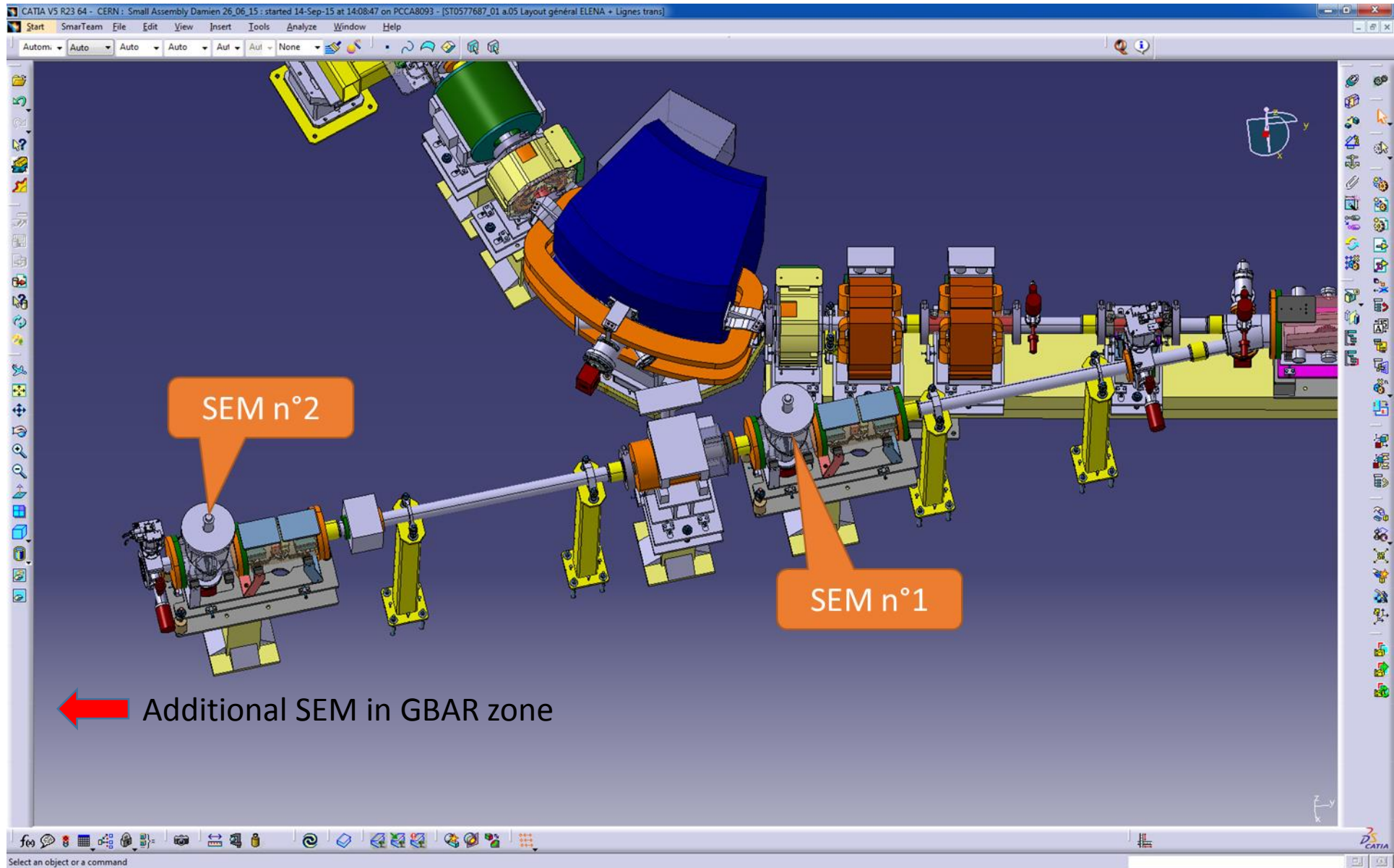
VA140 charge-sensitive ASIC





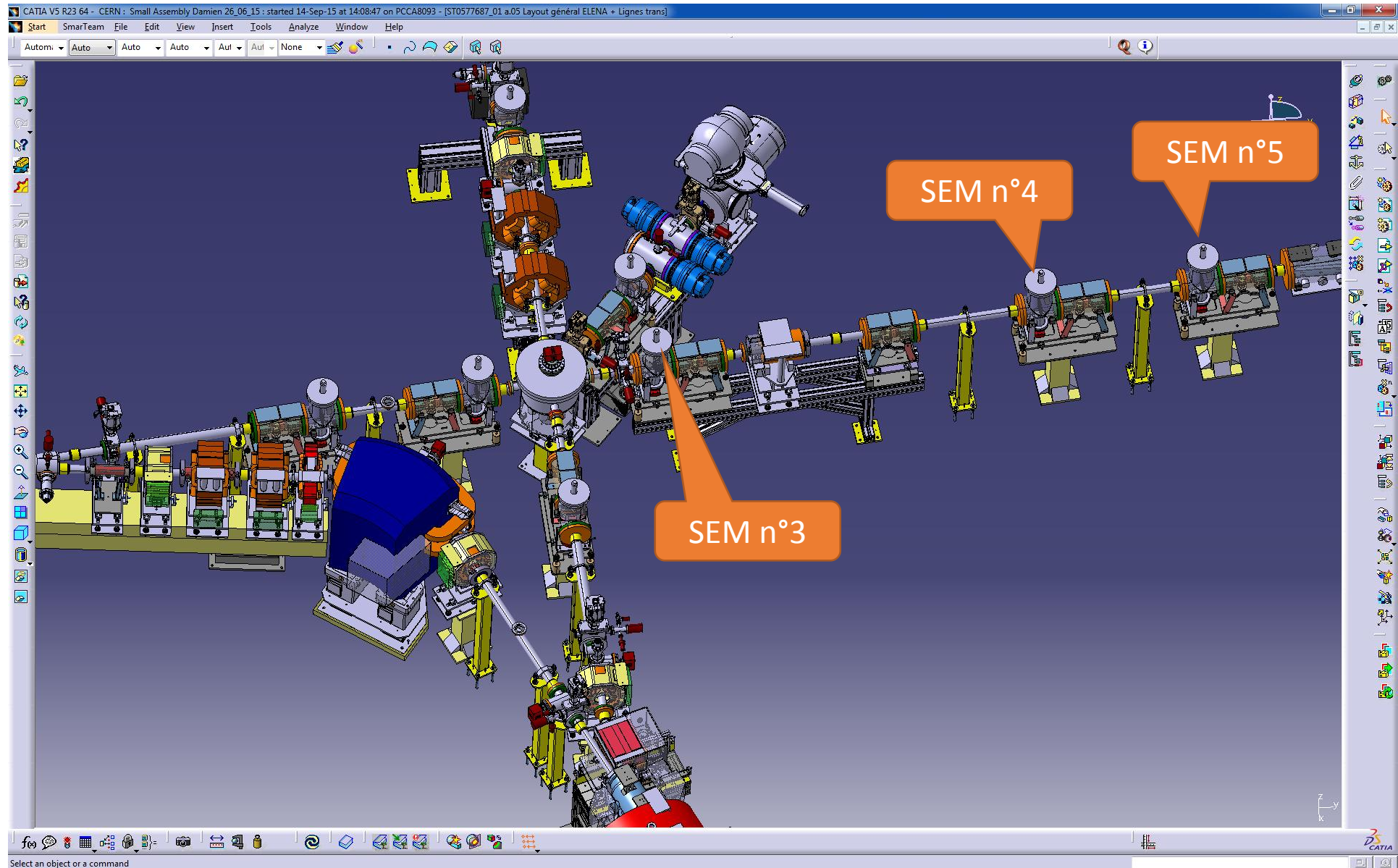




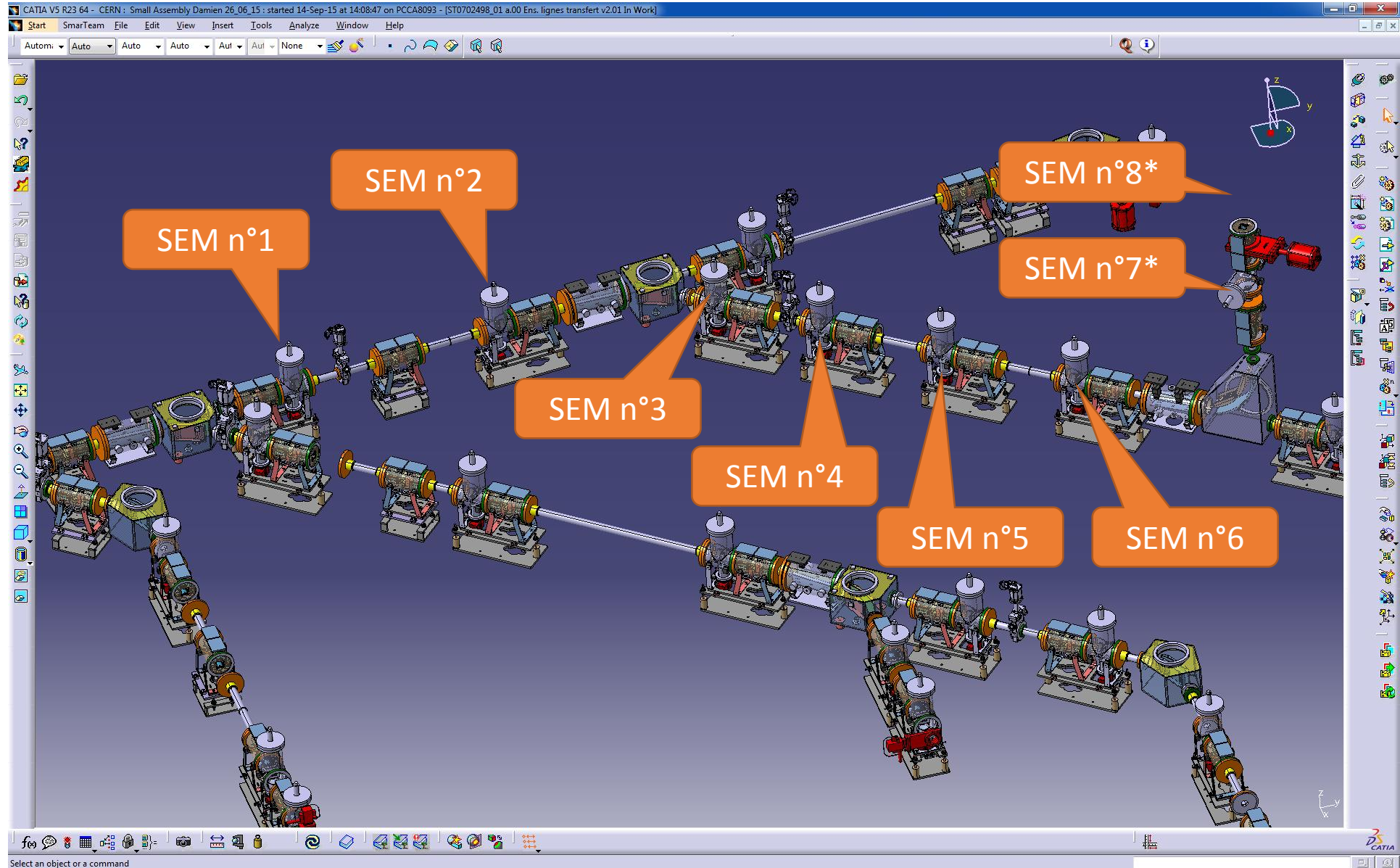


- For LS2 we have to build and install another 36 complete monitors:
 - LNE00: 3
 - LNE01: 8*
 - LNE02: 2
 - LNE03: 5*
 - LNE04: 4
 - LNE05: 6
 - LNE06: 5
 - LNE07: 3
- LNE01 and 03 will have 4 special SEMs (no IN/OUT, compact design) for ATRAP

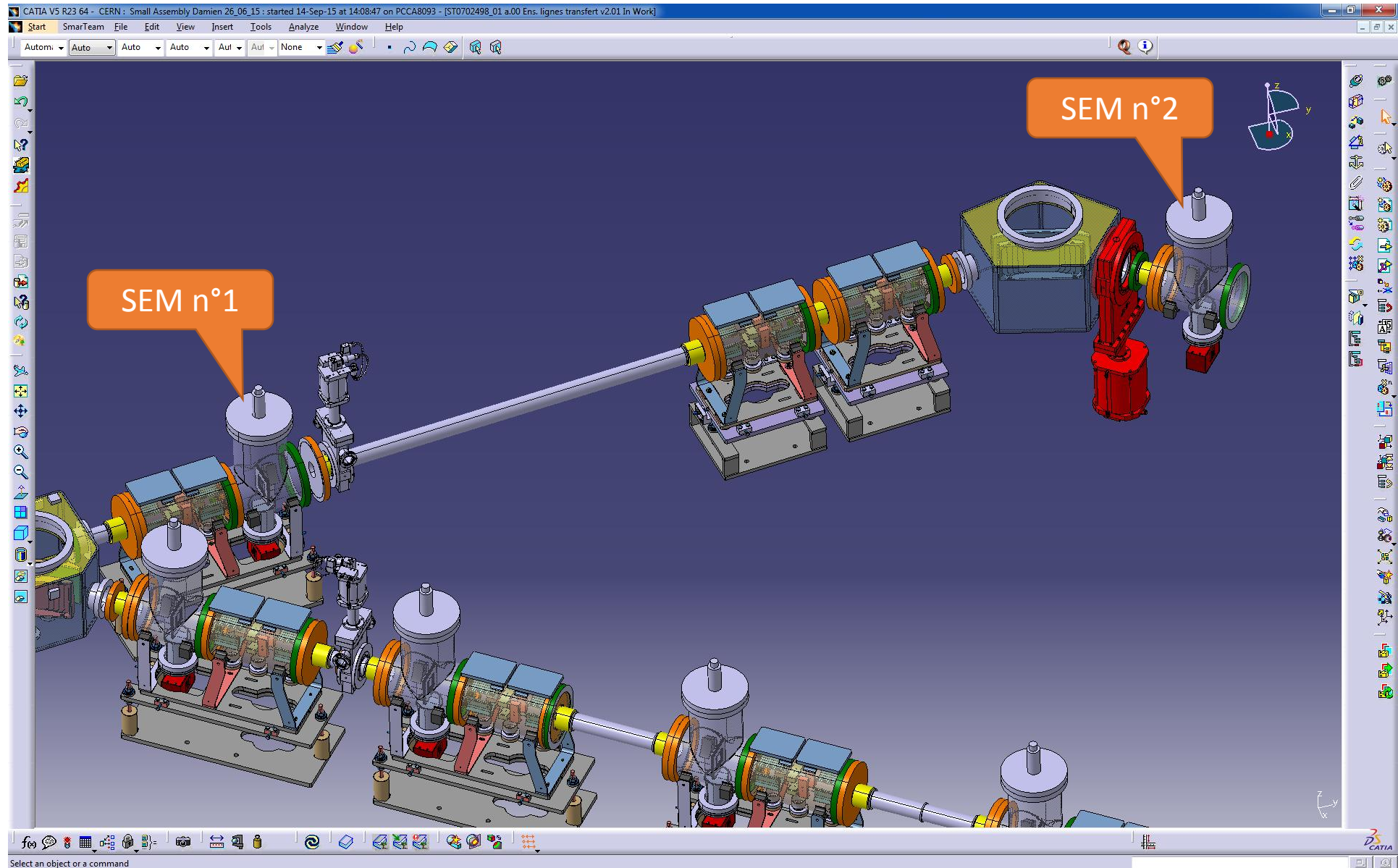
LNE00



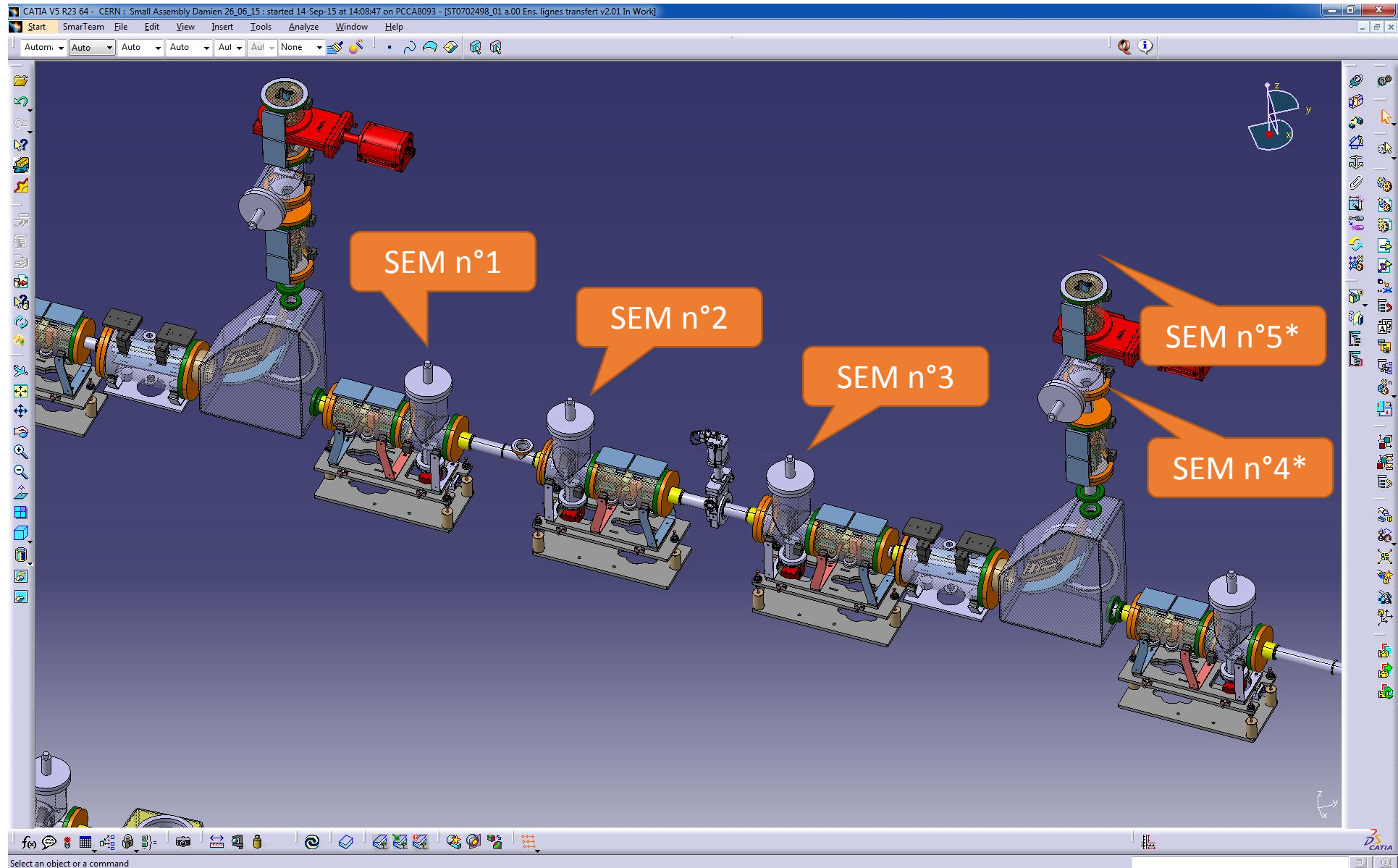
LNE01



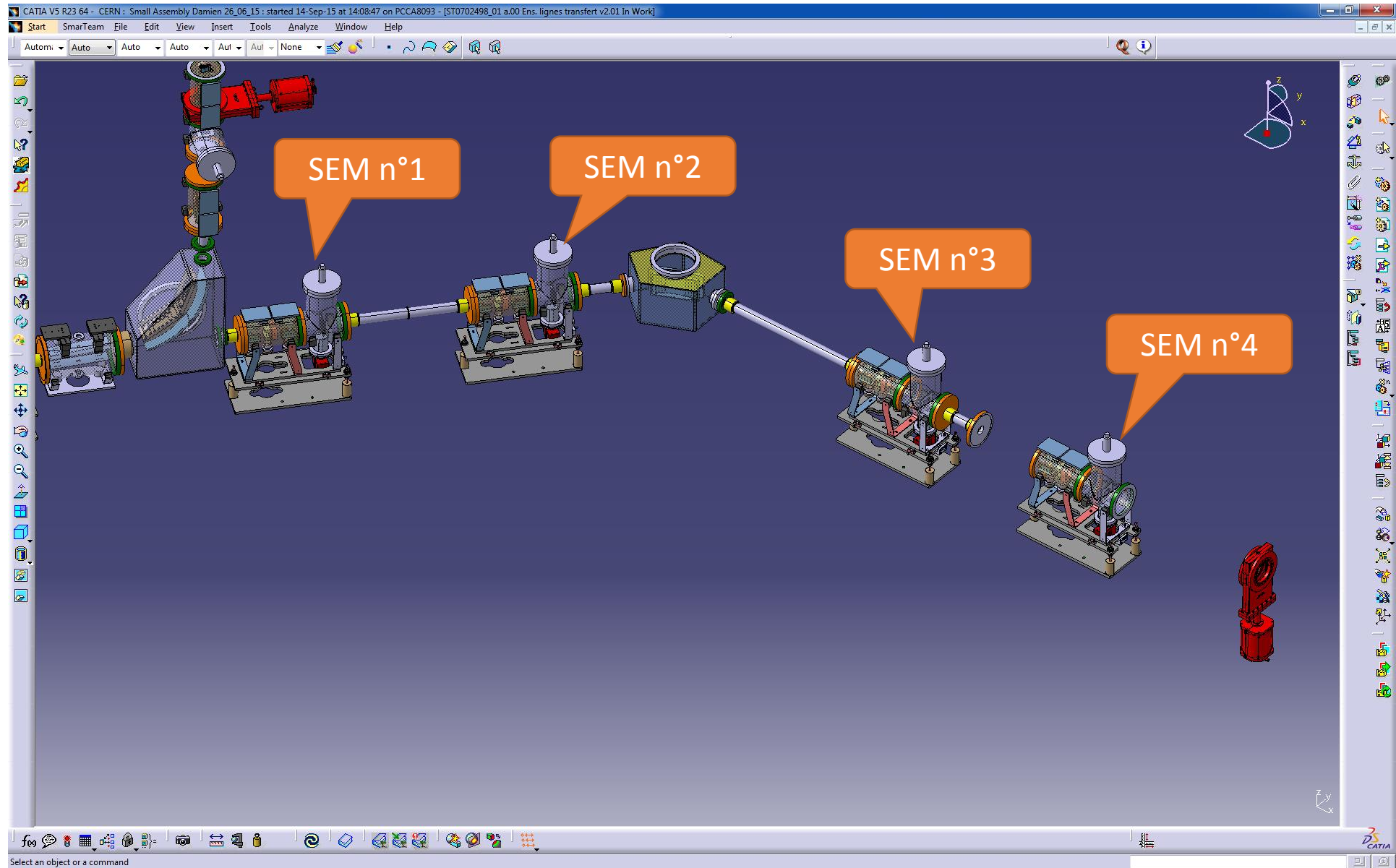
LNE02



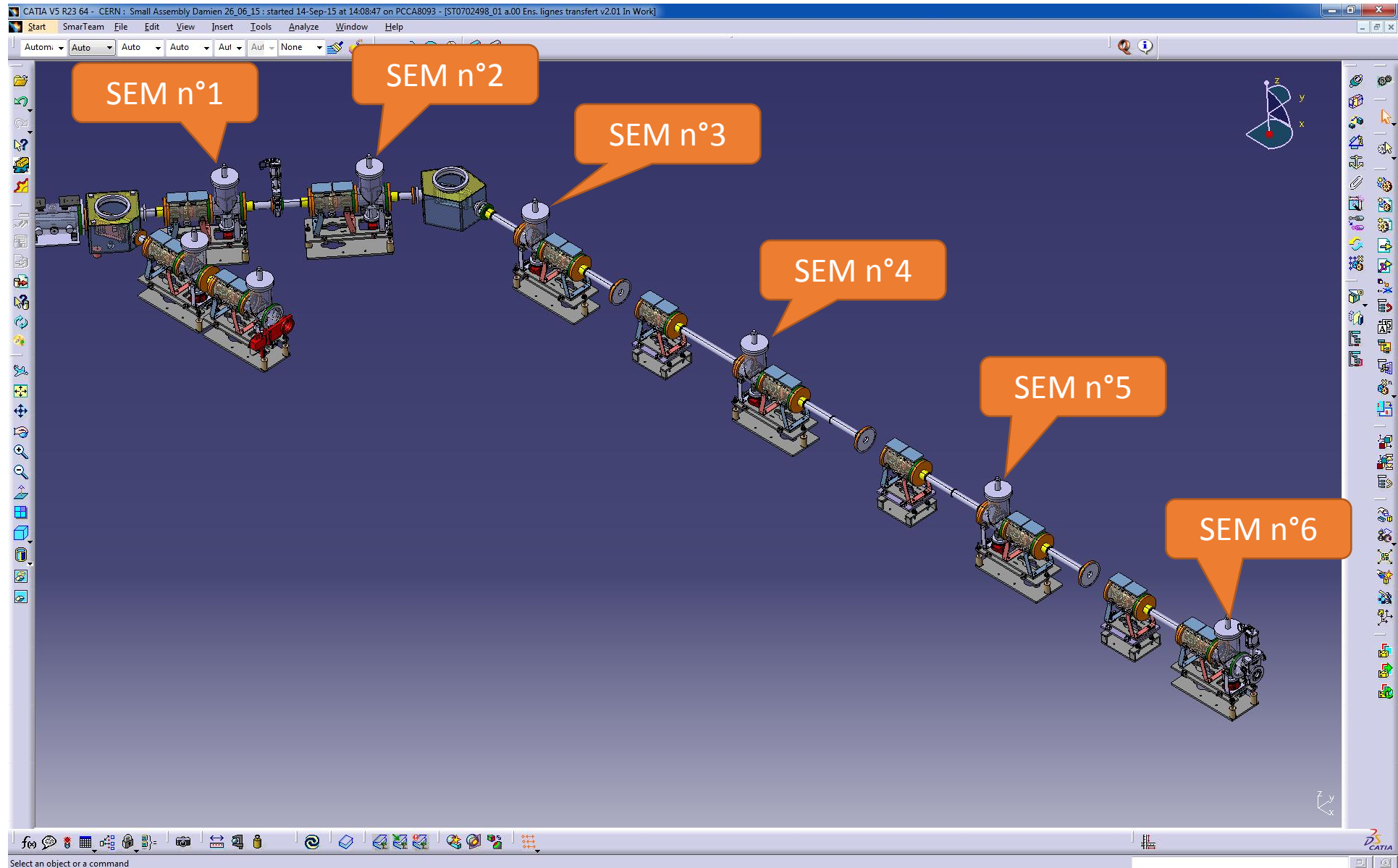
LNE03



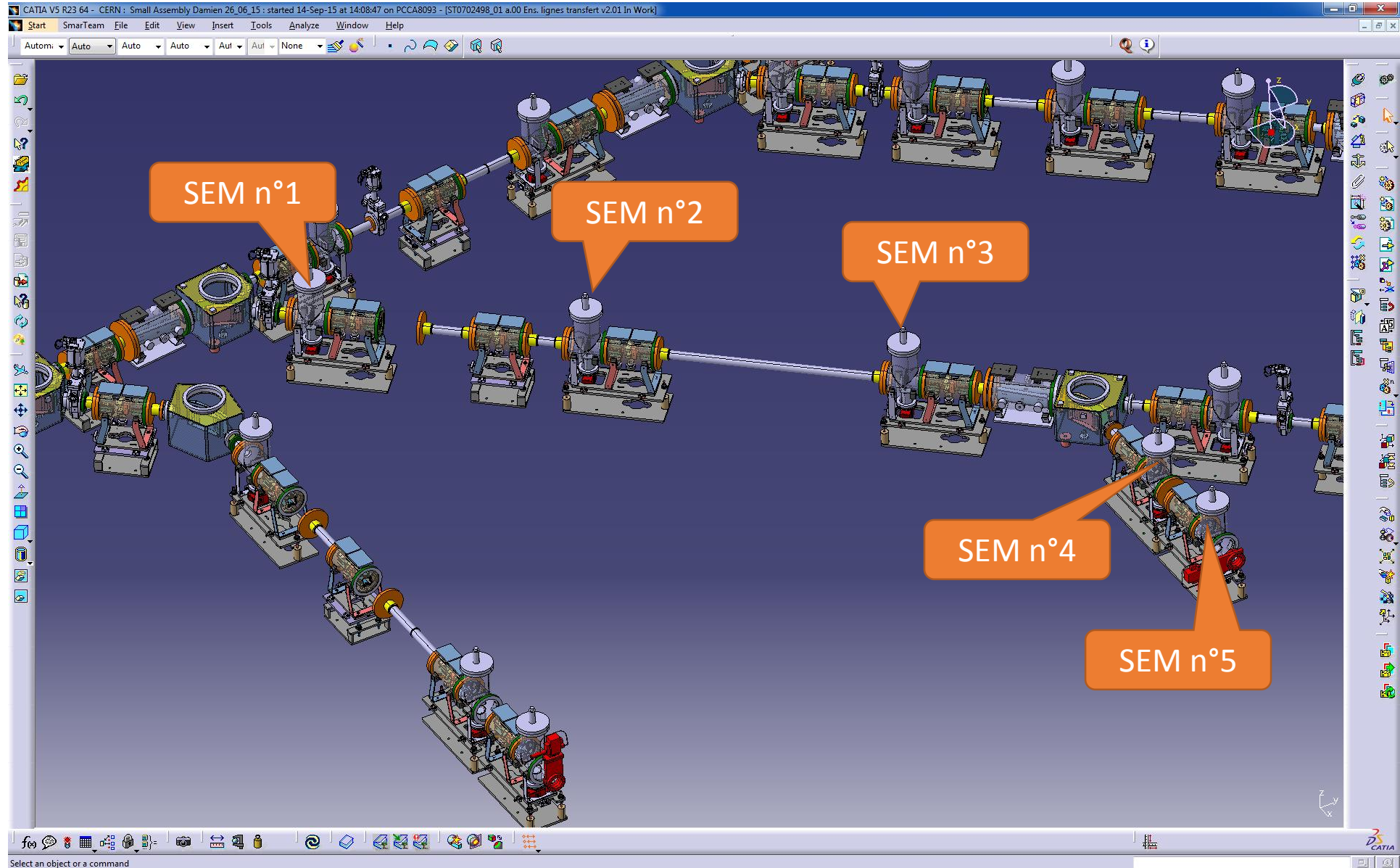
LNE04



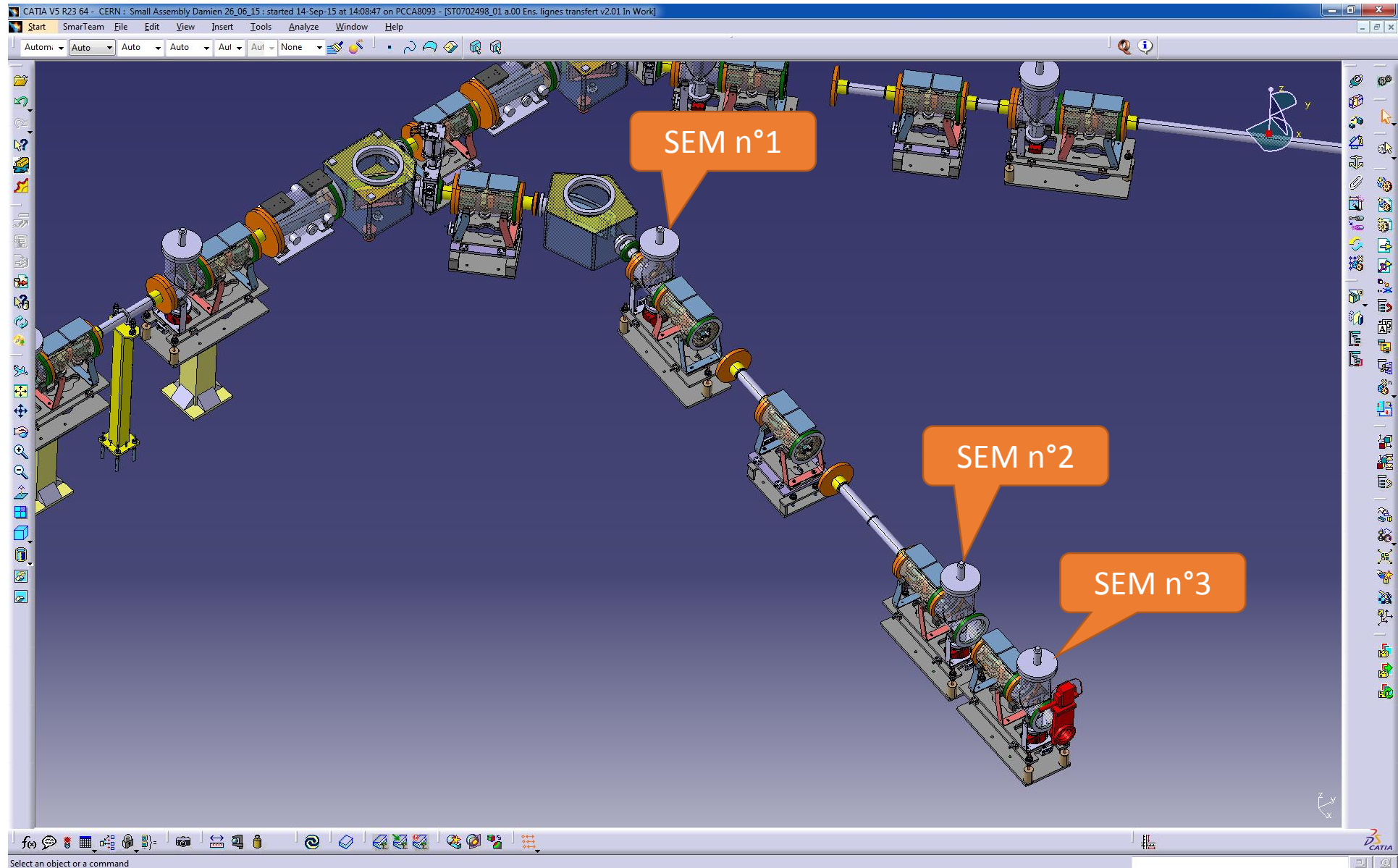
LNE05



LNE06



LNE07



Désignation	Références CDD/Fournisseurs	Datasheet Plans détaillés	Installés / en cours Installation	Disponible	manquantes
Tank Chambre à vide	Kurt Lesker	???	11	31	0
Ensembles Vérin	MPQ special	???	8	33 +1 leaked*	0
Vérin	CKD Corp. UFCD-KL-63-90-F-M3WV- D	???	8	33	0
Cylinder Body shaft	Catia : ST0985706_01	Catia : ST0985706_01	0	42	0
Connexion Cylinder / piston	Catia : ST0985706_01	Catia : ST0985706_01	0	40	0
Pins Contact	JC Electronics Corp. NB15-F22L62-GG	???	XXX	4000 pc. Ok pour 42 SEMGRID	0
Assemblage DN200 + Soufflet + SUD 50	???	???	XXX	31	1
Ensemble Céramique X	MPQ special	???	8	4 +1 broke*	35
Ensemble Céramique Y	MPQ special	???	8	4	35
Céramique common anode	MPQ special		8	9 at CERN 40 in 2 weeks	0
Distrib.uteur 5/2 – 12VDC Actuator	CKD Corp. 4F310-08-E DC12	???	0	44	0
Air silencer	CKD Corp. SLW-8A	???	1	90	0
Upgrade precision screw Design change	Vacuum Products		1	42	0
Upgrade MoS2 rods design change.		???	3	0	120 manufactured at CERN, coat in Japan

Upgrade PCB spacers design change			0	170	0
Air speed controller	CKD Corp. SC3W-8-6	???	1	90	0
Cable support rods		???	0	90	0
Air joints	CKD Corp. GWS6-8-6P & GWT6-O-P6	???	2	90	0
Readout cable	Distrelec 847679	???	2	108	0
UHV connection pins					
Timing distribution backplane VME64x	MPQ special P0card-BPM v1	???	1	4	0
Timing adjustment VME64x module	MPQ special VMETRIG v3	???	2	0	0
New alu covers for ASIC	MPQ special	???	0	0	100
VME64x optical interface	MPQ special VME1BPM v1	???	2 (ok for 8 monitors)	0	13 (PCB exist, only need to stuff)
BPM readout mainboard	MPQ special VMEMAIN v1	???	2	0	45 (PCB exist) ordered
BPM preamplifier board	MPQ special BPMFRONT v1	???	4	0	90 (PCB need to be slightly modified as a result of beam test)

BPM XY connector	MPQ special Preamplifier X/Y	???	4	8	100 (PCB exist, only need to stuff)
In/out control board	Multi-PCB	???	0	0	45 (PCB almost finished designed)
60 V 0.4 A module	Kniel CAA 60.0,4	???	1	17	27
+/- 6V 4A module	Kniel GmbH	???	2	19	23
+12V 2 A module	Kniel GmbH	???	2	19	23
Optical transceiver	Avago HFBR 57E0LZ RS components	???	12	170	0
19 inch subrack	EuropacPRO RS components	???	1	9 assembled + 35 not yet assembled	0

DIF prepared (?) for the FO cables from VME to the zones.

Exact position/number of distribution boxes to be determined by EN/EL.

Open question: AEGIS beamline (LNE02)

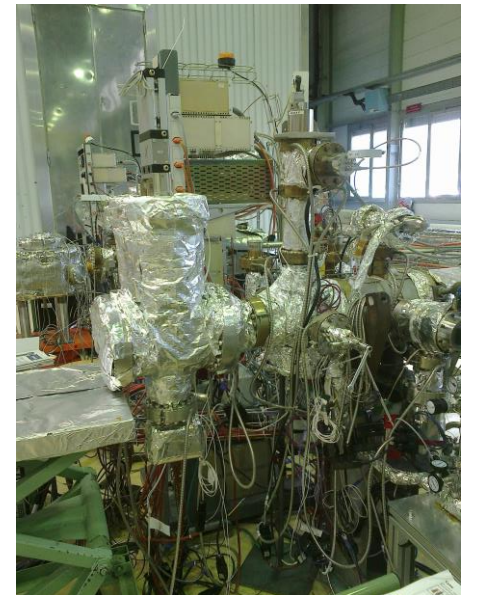
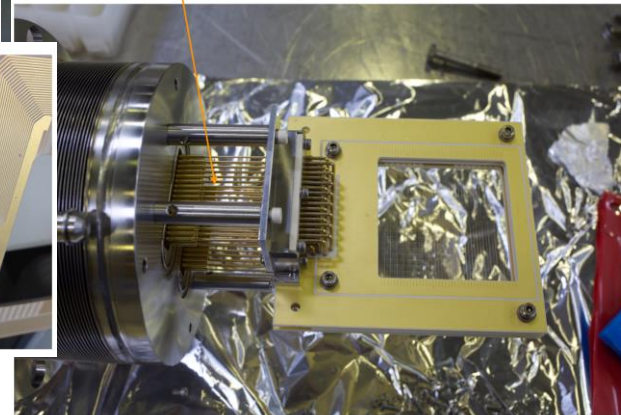
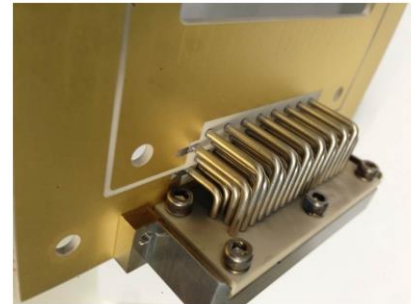
When the material arrives :

Mount 3 SEMs, install in tanks and send for vacuum acceptance

Labour intensive task (FSU), about 2 days/SEM



CuBe readout pins x 100 pc.



Given the situation, it will be impossible to have all the SEMs ready for June 2019