

Integration - update
17/9/2020

Chinotto (see next)

CYGNO COPPER SHIELDING VESSEL - Preliminary study -

WHICH KIND OF COPPER WE HAVE/CAN USE FOR SHIELDING...

Discussing with copper alloy supplier it's quite clear that if we are looking for large sheet with important thickness (and this is our case) we don't have choice, we have to ask for *"dedicate custom production"*.

Up to now (I found) only the KME GmbH that have a standard production of *HCP Copper alloy (CR021A)* sheet dimension: Dim 1020x3020x50 mm (Thickness) and Dim 1020x2020x100 mm (Thickness)

The HCP copper alloy has 99,95% of copper+silver composition and is not oxygen free (see below), considering the dimension of sheet available, and the cost (around 8-10 euro/kg) probably we could consider it for Lime vessel...

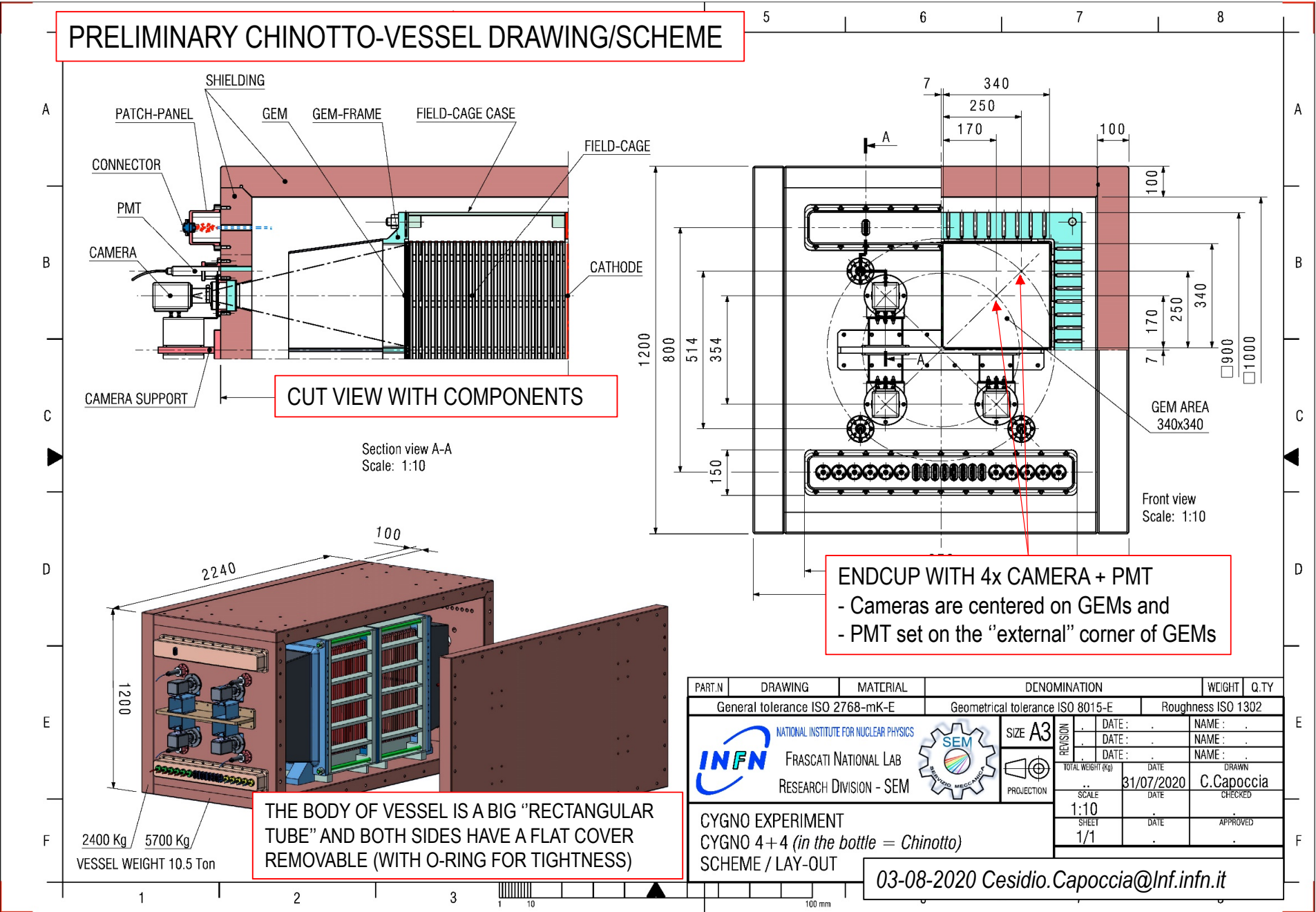
For Cygno Vessel (also for "Chinotto"), we need a larger dimensions, so a custom production is necessary:

A cost estimation is coming from KME for larger dimensions with 100 mm of thickness done in *OFE-Copper alloy (CR009A)*.

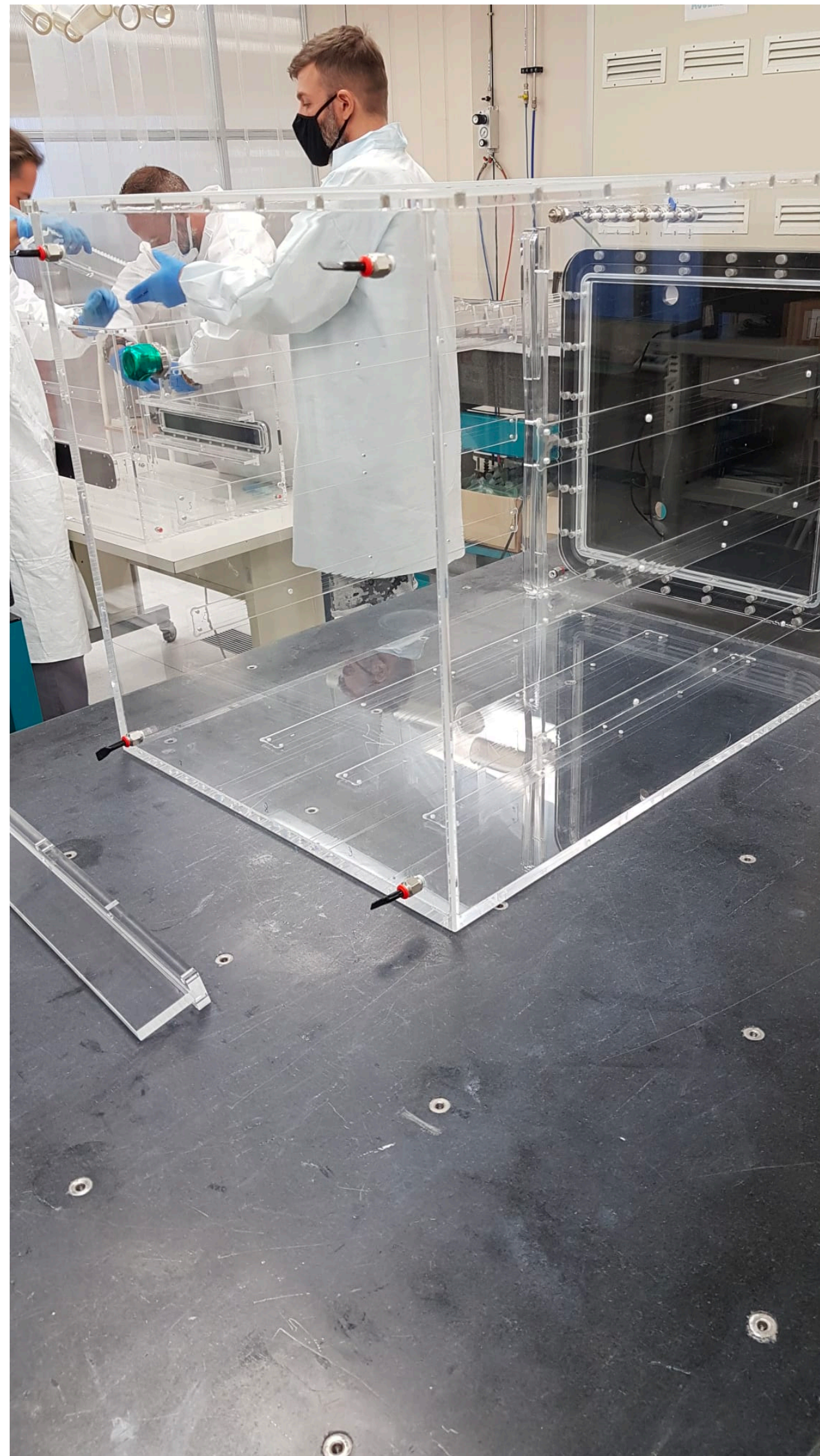
Oxygen-bearing copper														
Standard				Chemical analysis							Physical properties			
DIN EN 1976 Code	Number	UNS No.	US Standard ASTM	Copper in % min.	Oxygen in % min.	Oxygen in % max.	Silver in % min.	Silver in % max.	Phosphorus in % min.	Phosphorus in % max.	Conductivity in MS/m	Conductivity in % IACS	Recrystallization temperature in °C	Hydrogen-resistant
Cu-ETP	CR004A	C11000	B5	99.90 (Cu+Ag)	–	0.04	–	–	–	–	≥ 58.0	≥ 100	approx. 180	no
Cu-ETP1	CR003A	C11000	B5	99.99 (incl. O)	–	0.04	–	0.003	–	–	≥ 58.6	≥ 101	approx. 180	no
Cu-ETP1	CR003A	C11000	B5	99.99 (incl. O)	–	0.04	–	0.003	–	–	≥ 58.6	≥ 101	approx. 170	no
Cu-ETP1	CR003A	C11000	B5	99.99 (incl. O)	–	0.04	–	0.003	–	–	≥ 58.6	≥ 101	(RRR* ≥ 400)	no
CuAg0.10	CR013A	C11600	B152	99.97 (Cu+Ag+O)	–	0.04	0.08	0.12	–	–	≥ 58.0	≥ 100	approx. 320	no
Oxygen-free copper														
Cu-OFE	CR009A	C10100	B170	99.99	–	≤ 0.0003	–	0.003	–	0.0003	≥ 58.6	≥ 101	approx. 200	yes
Cu-OF	CR008A	C10200	B170	99.95 (Cu+Ag)	–	0.001	–	–	–	–	≥ 58.0	≥ 100	approx. 210	yes
CuAg0.10 (OF)	CR019A	C10700	B152	99.99 (Cu+Ag+O)	–	0.001	0.08	0.12	–	–	≥ 58.0	≥ 100	–	yes
Phosphorus deoxidized copper														
Cu-PHCE	CR022A	C10300**	B379	99.99	–	–	–	0.003	0.001	0.006	≥ 58.0	≥ 100	approx. 230	yes
Cu-HCP	CR021A	C10300**	B379	99.95 (Cu+Ag)	–	–	–	–	0.002	0.007	57.0 – 57.9	98.3 – 99.8	approx. 260	yes
Cu-HCP	CR021A	C10300**	B379	99.95 (Cu+Ag)	–	–	–	–	0.002	0.007	≥ 57.0	≥ 98.3	approx. 260	yes
Cu-PHC	CR020A	C10300**	B379	99.95 (Cu+Ag)	–	–	–	–	0.001	–	–	–	–	–
CuAg0.10P	CR016A	C10700**	B152	99.97 (Cu+Ag+P)	–	–	0.08	0.12	0.001	–	–	–	–	–

03-08-2020 Cesidio.Capoccia@Inf.infn.it

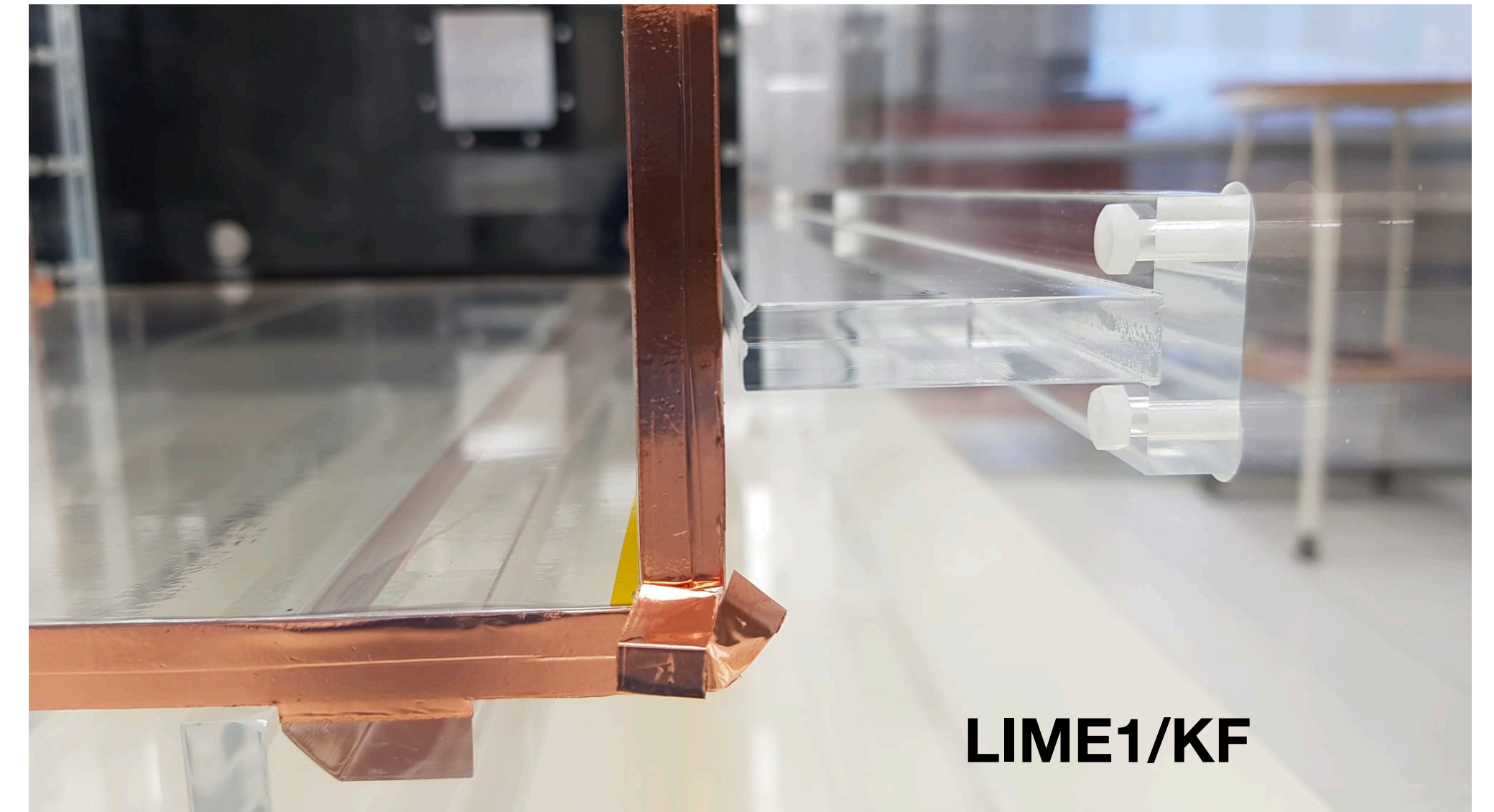
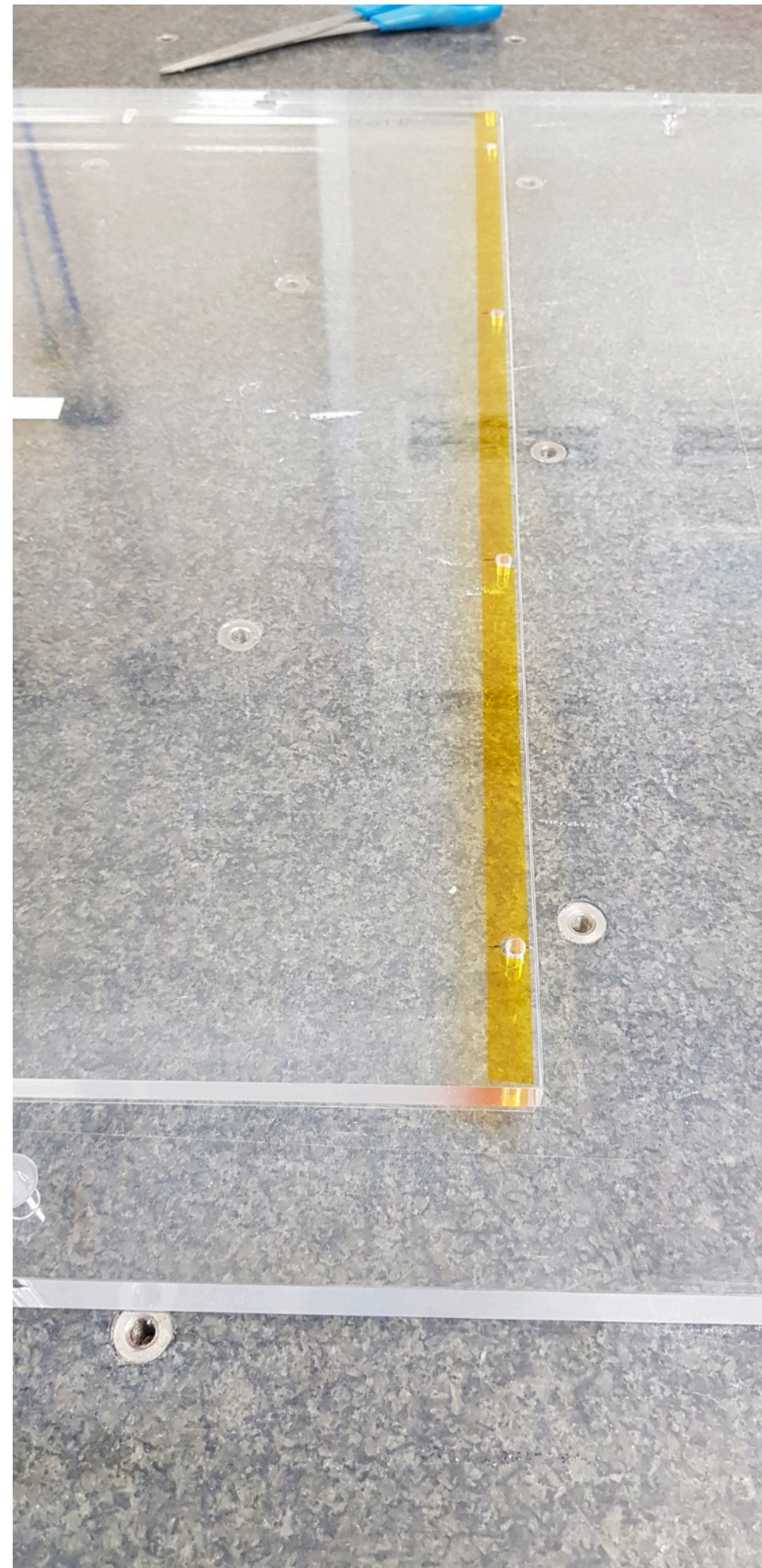
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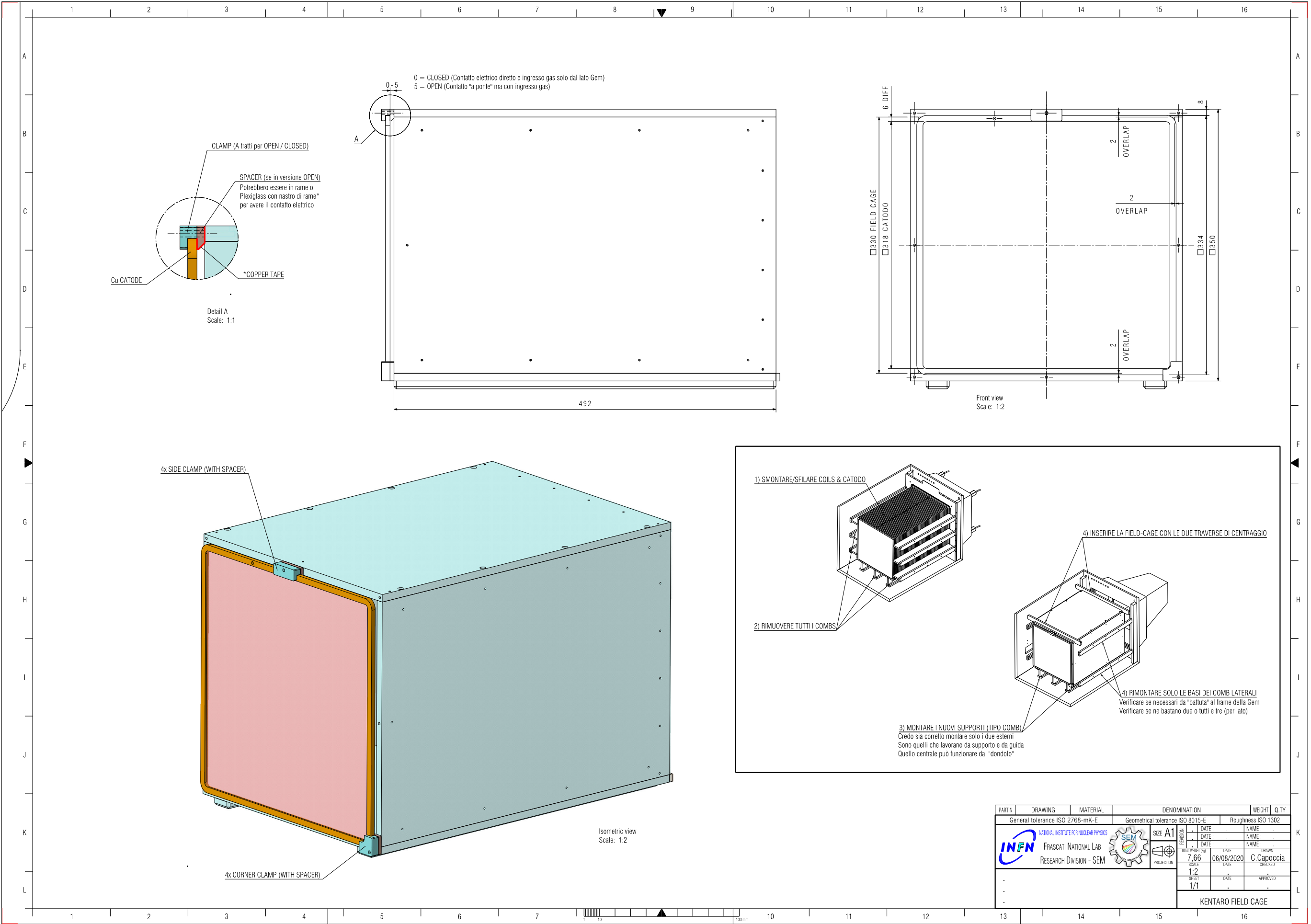
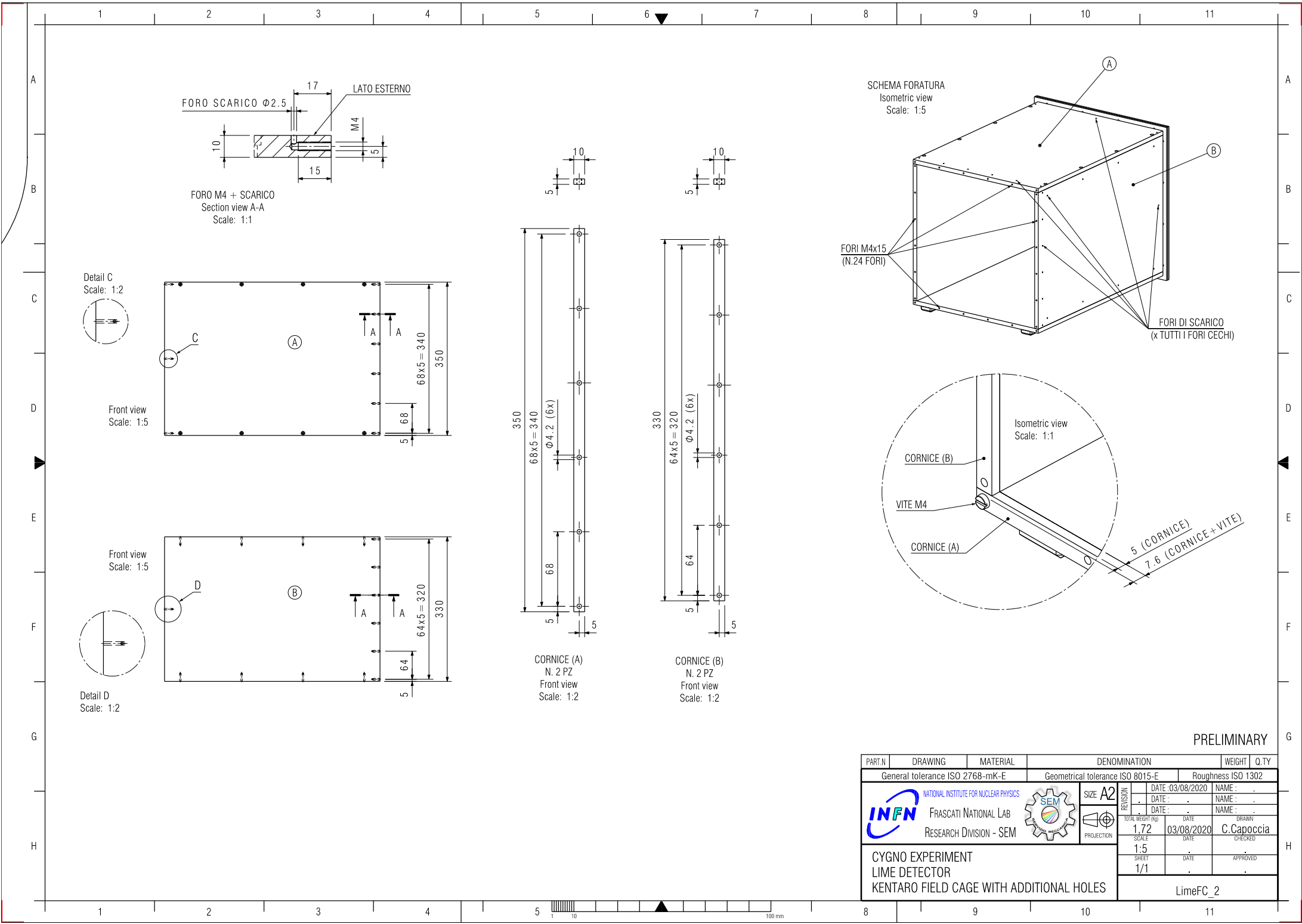
Kentaro Field Cage (KF)



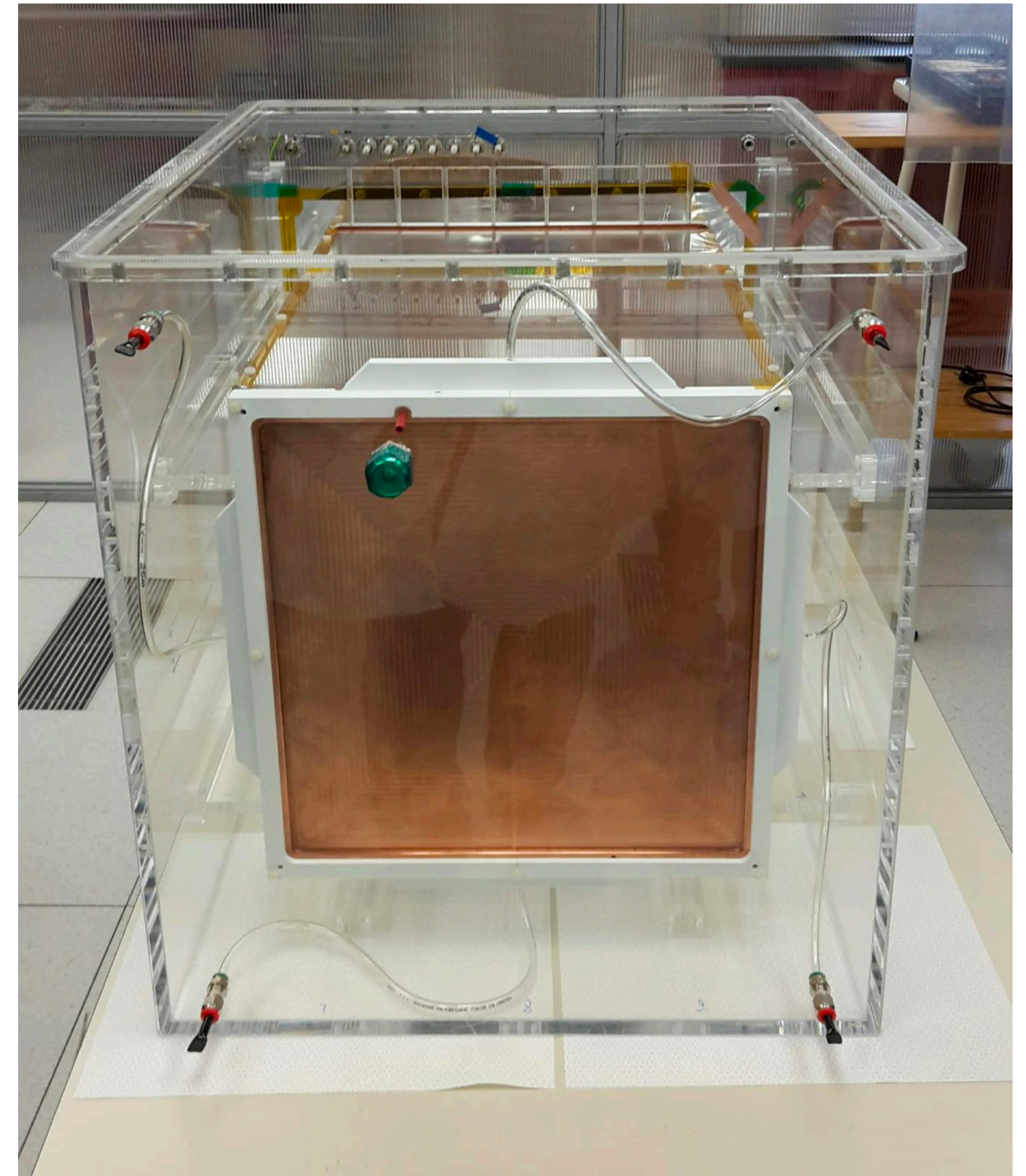
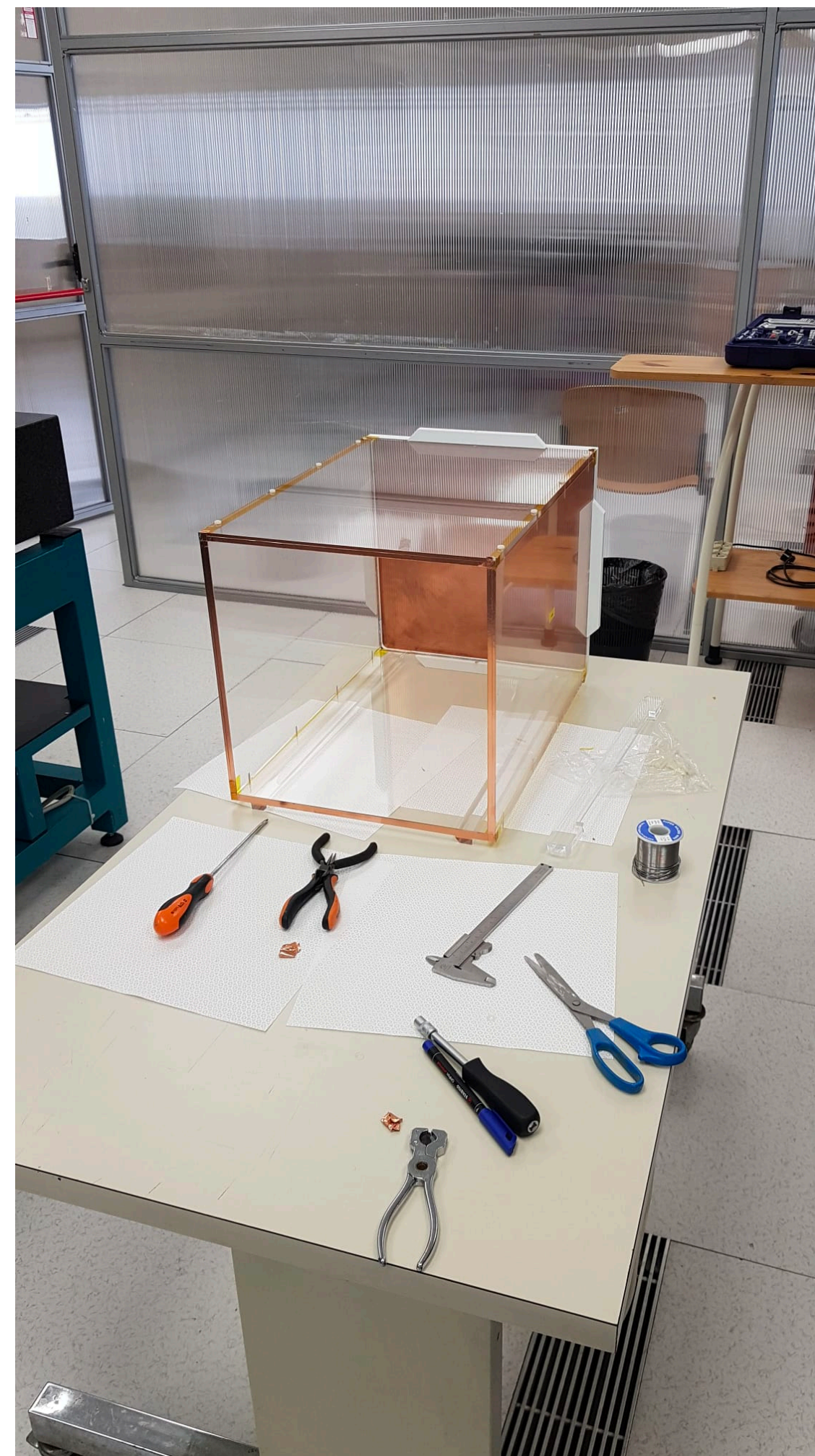
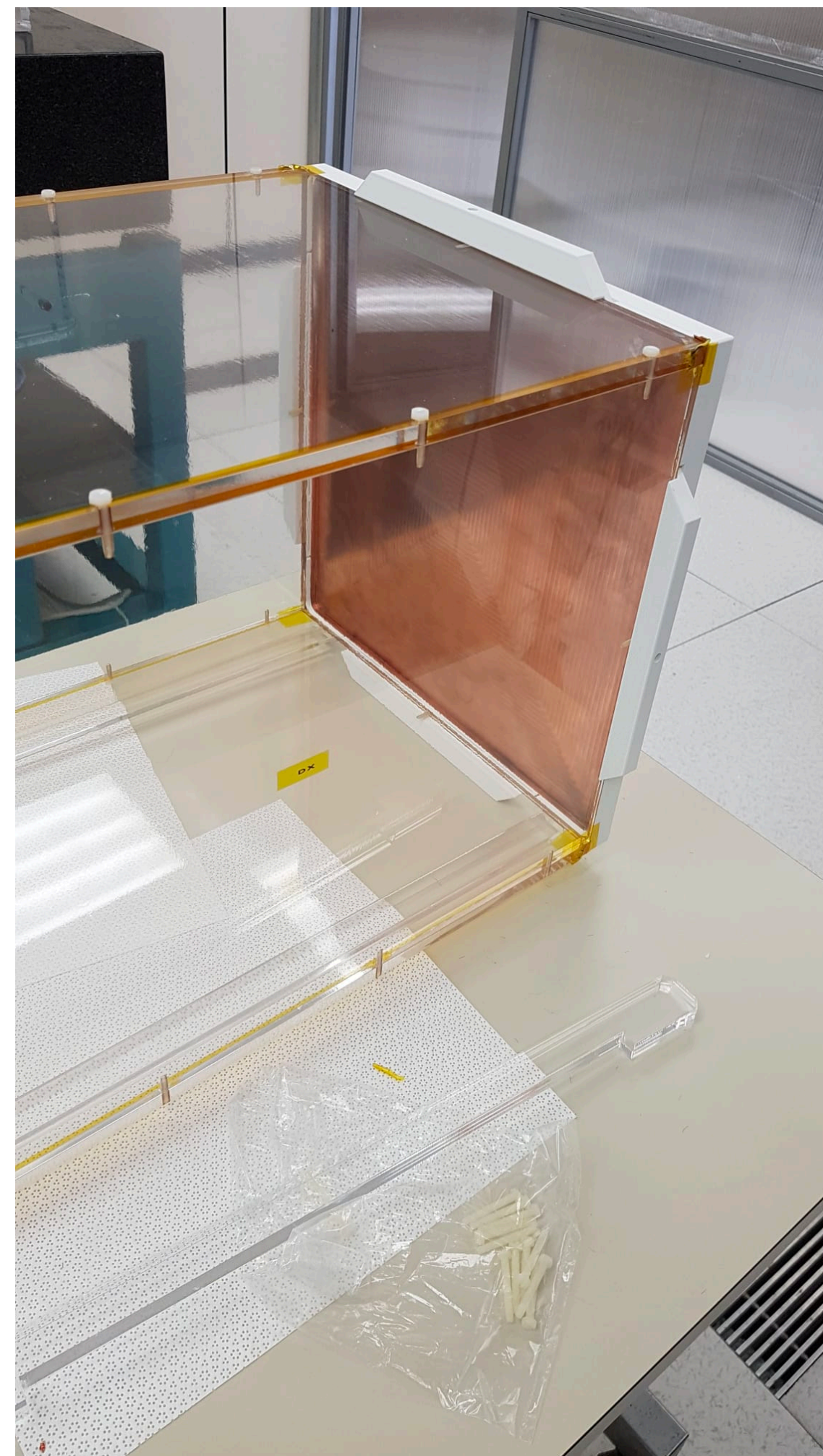
24/8



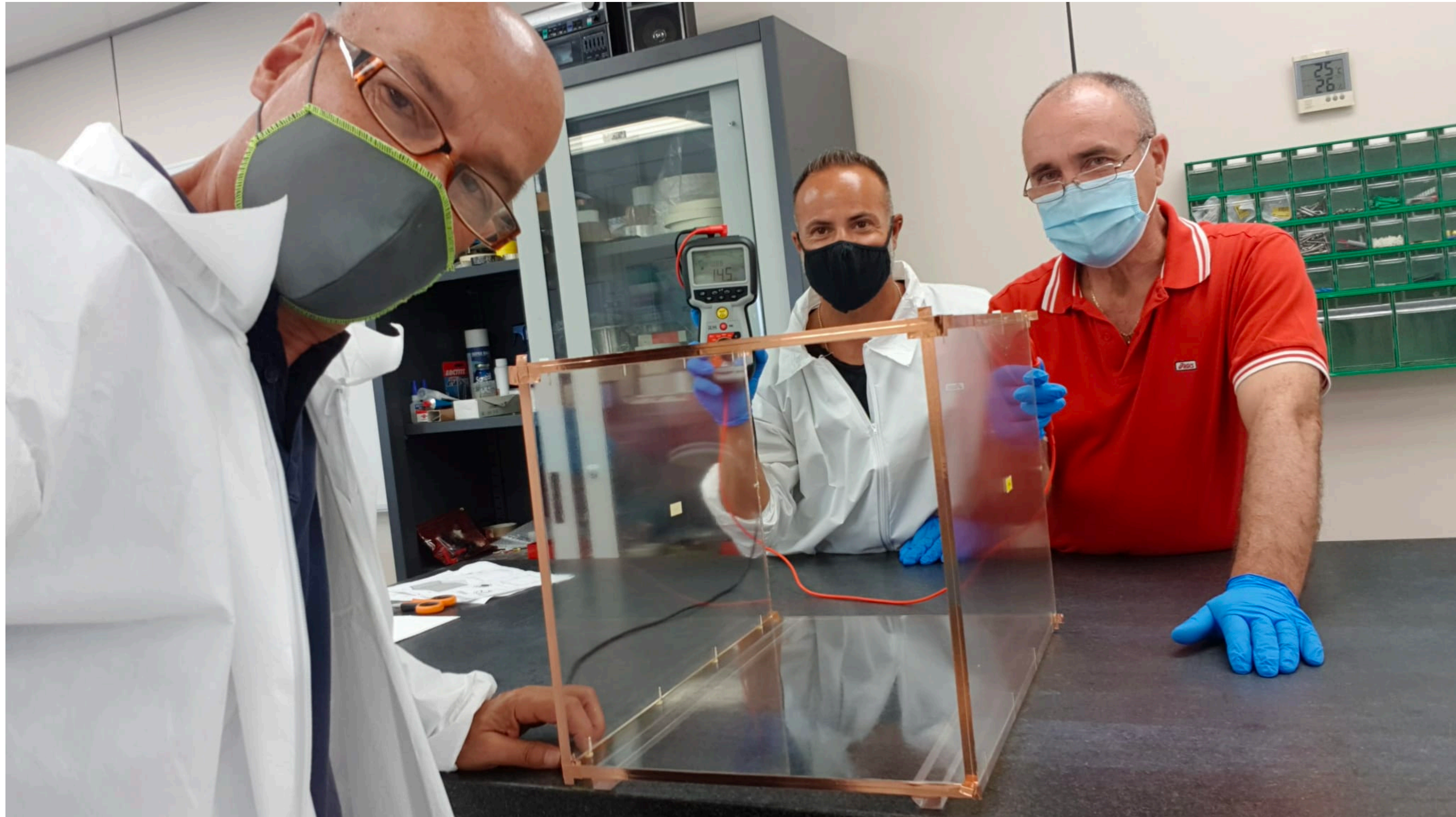
Cu cathode integration study



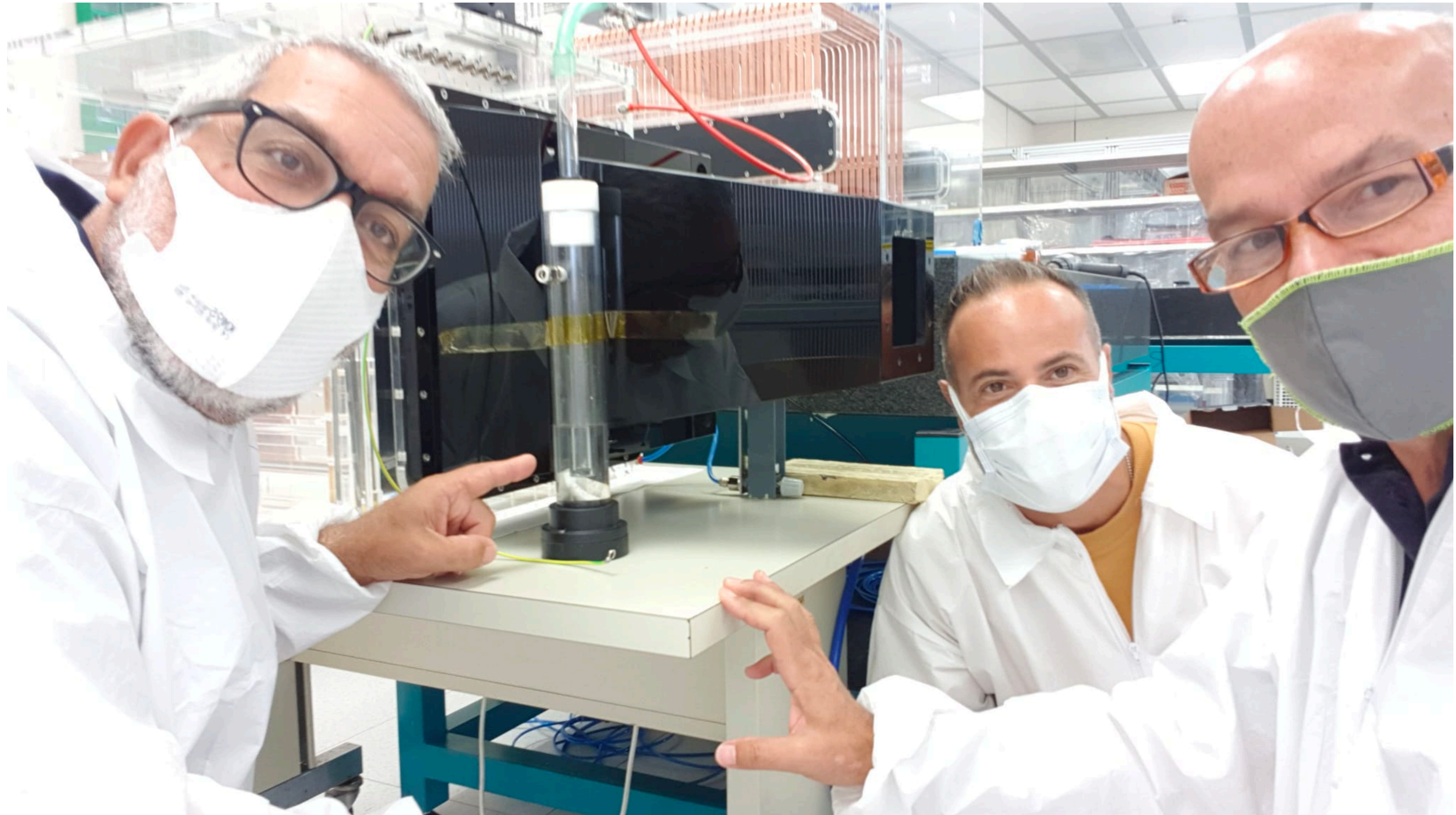
KF and cathode fitting



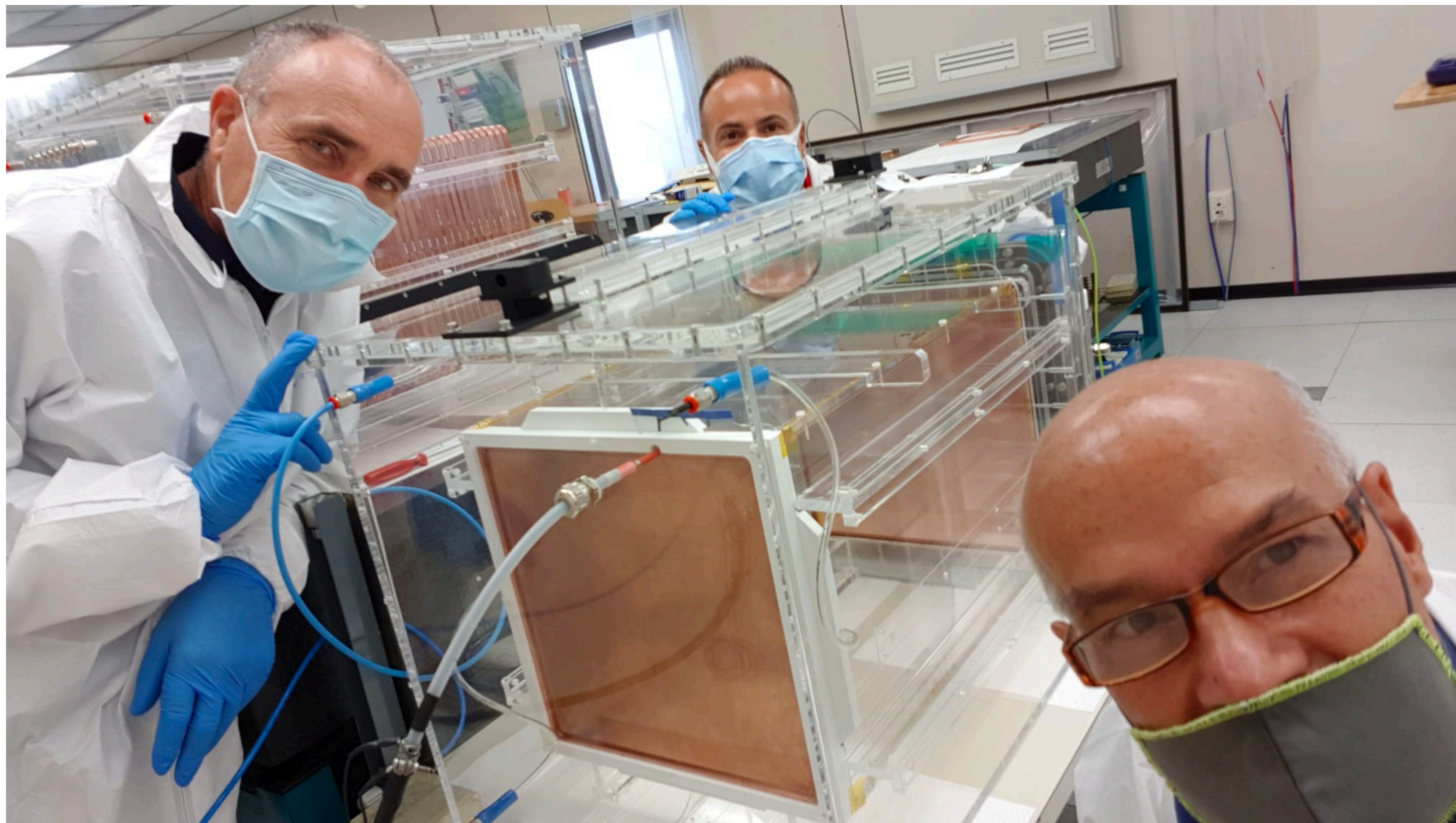
ohmic test



Gas test



HV test



Lomba cathode test



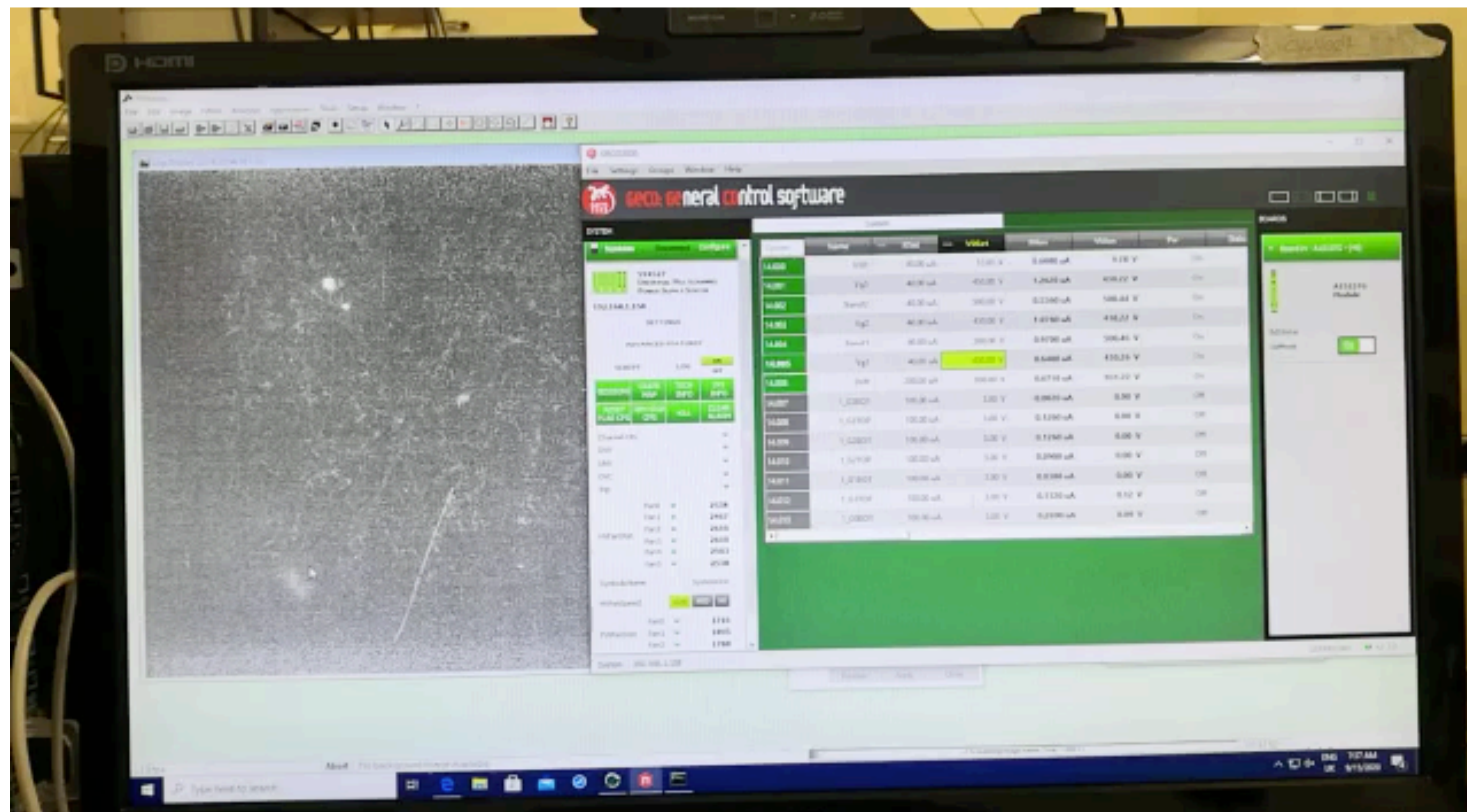
Integration - update 17/9/2020



11/9

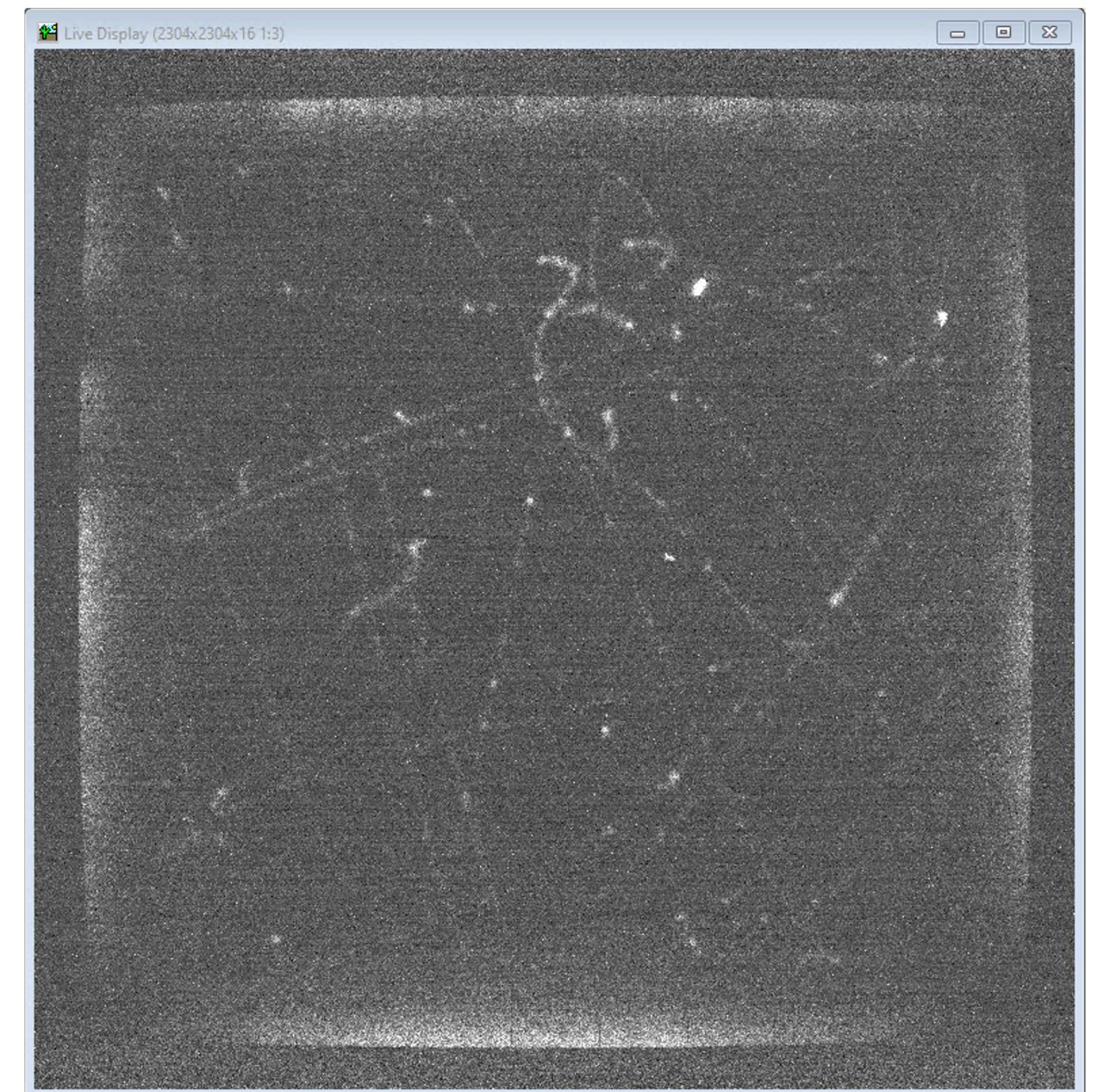
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First “vagiti” with KF



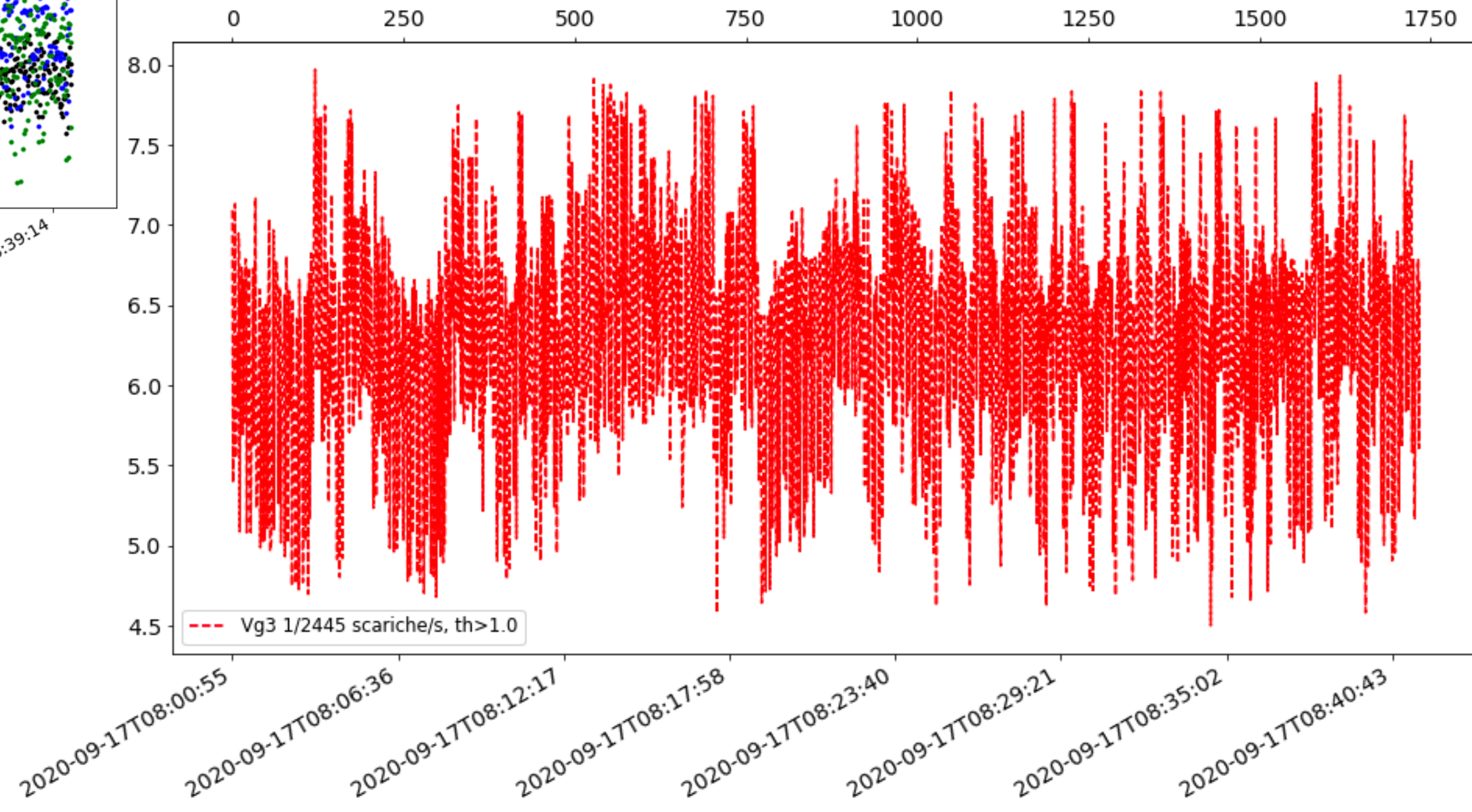
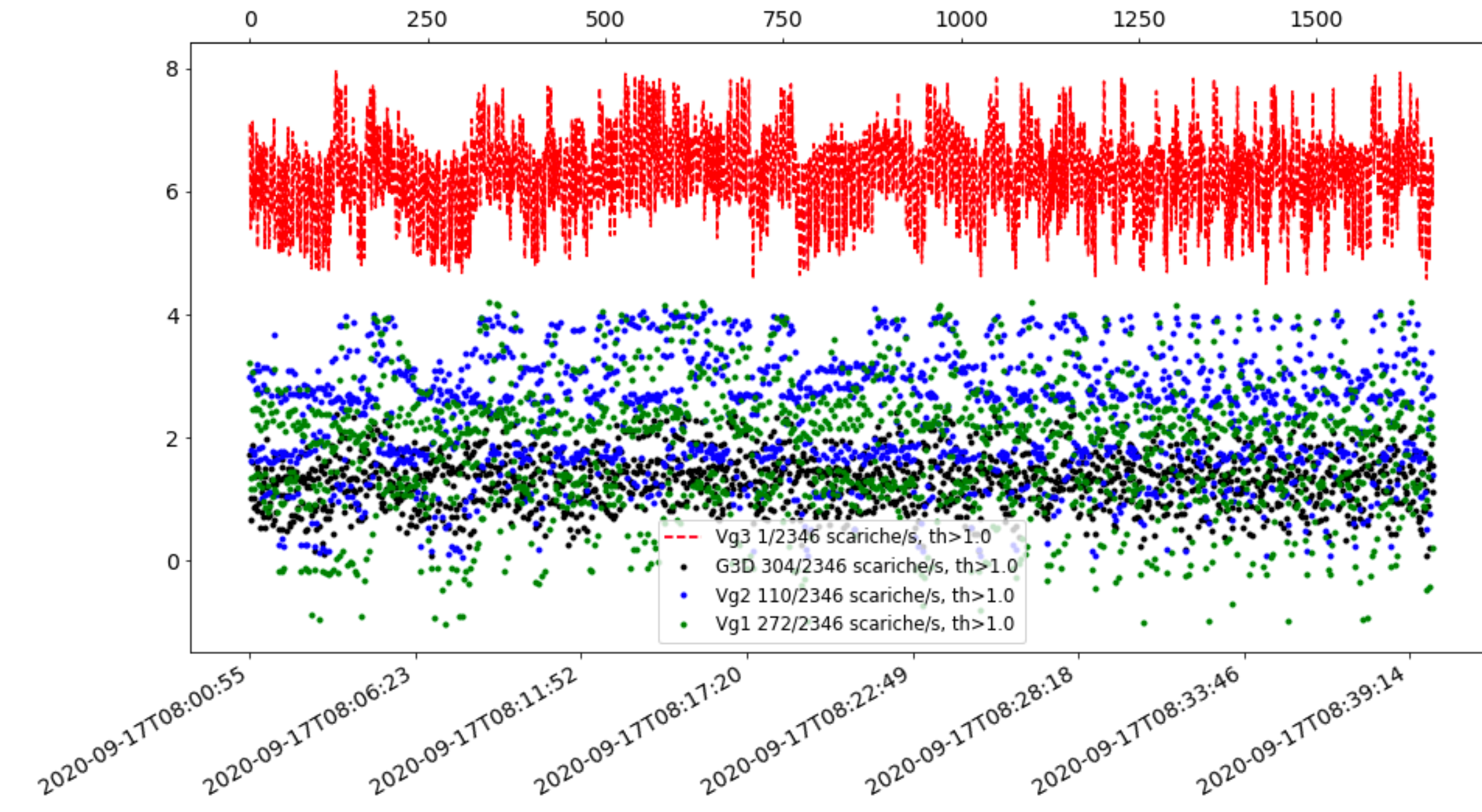
14/9

But since yesterday with FC on we see “discharge” on the border



16/9

Currents load



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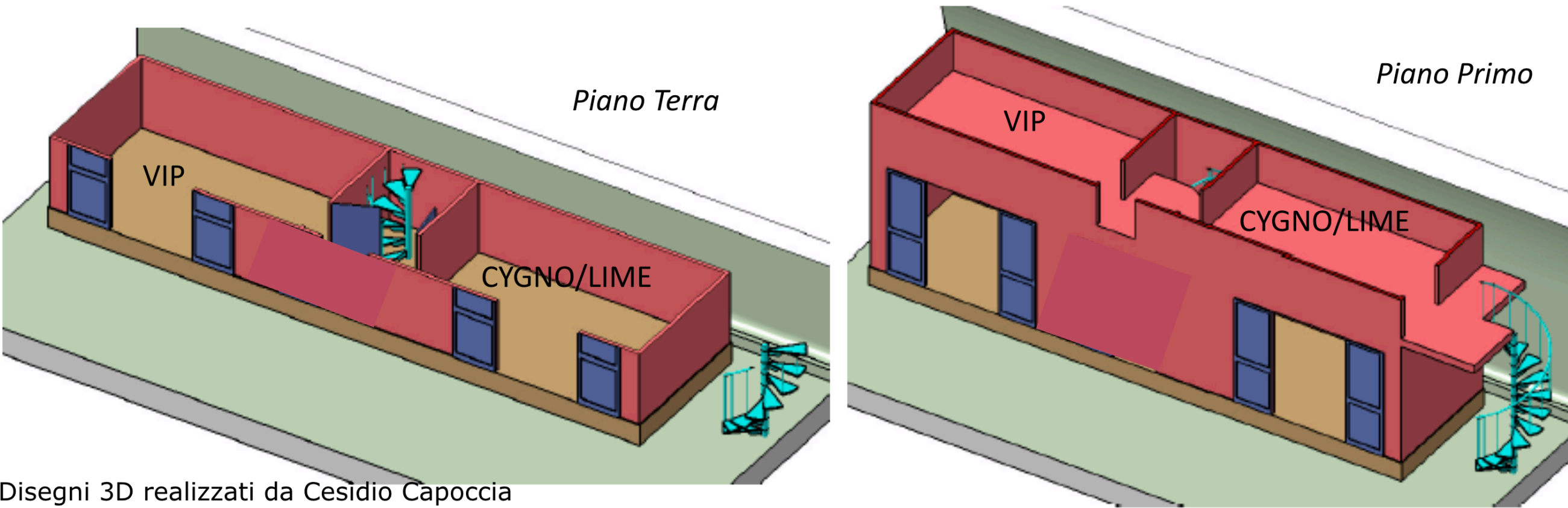


LNGS “baracca” update (see next)

The 7th of Sep. we have a meeting with LNGS services and VIPs people about the baracca upgrade

OBIETTIVO: Riorganizzazione degli spazi della struttura

- Realizzare una Control Room sul primo piano lato ovest per l’esperimento VIP di circa 9 m²
- Installare il setup LIME al primo piano lato est con relativa Control Room al primo piano
- Realizzare una scala a chiocciola centrale a servizio di entrambi gli esperimenti per accedere al piano superiore



*Disegni 3D realizzati da Cesidio Capoccia



L. Leonzi

SPAZI

PRE-INTERVENTO:

VIP : Piano Terra 9,5m² (area sperimentale)+ 5,5m² (control room/area deposito)

POST-INTERVENTO:

VIP : Piano Terra □ 9,5m² (area sperimentale)
 Piano Primo □ 8,2m² (control room)

CYGNO/LIME: Piano Terra □ 9,5m² (area sperimentale)
 Piano Primo □ 9,4m² (control room)

INFO TECNICHE

Portata pavimento : circa 200 kg/m2



L. Leonzi

	Tempi	Risorse	mese 1	mese 2	mese 3	mese 4
Spostamento control room VIP	07 gg	LNGS	<div></div>			
Progettazione apertura solaio	30 gg	LNGS	<div></div>			
Fornitura mateirali (porte, pareti, scala)	15/30gg	esterne	<div></div>			
Realizzazione lavori edili		esterne		<div></div>		
Progettazione impianti	30/60gg	LNGS(?)	<div></div>			
Fornitura + Realizzazione impianti	30/45gg	LNGS(?)			<div></div>	

LNGS “baracca” update (see next)



INFN
LNGS
Istituto Nazionale di Fisica Nucleare
Laboratori Nazionali del Gran Sasso

DocID

Rev.
2.0

Validità
DRAFT

Riferimento

FASCICOLO TECNICO-Esp LIME



Via G. Acitelli, 22 – 67100
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26-06-2019

Documento interno

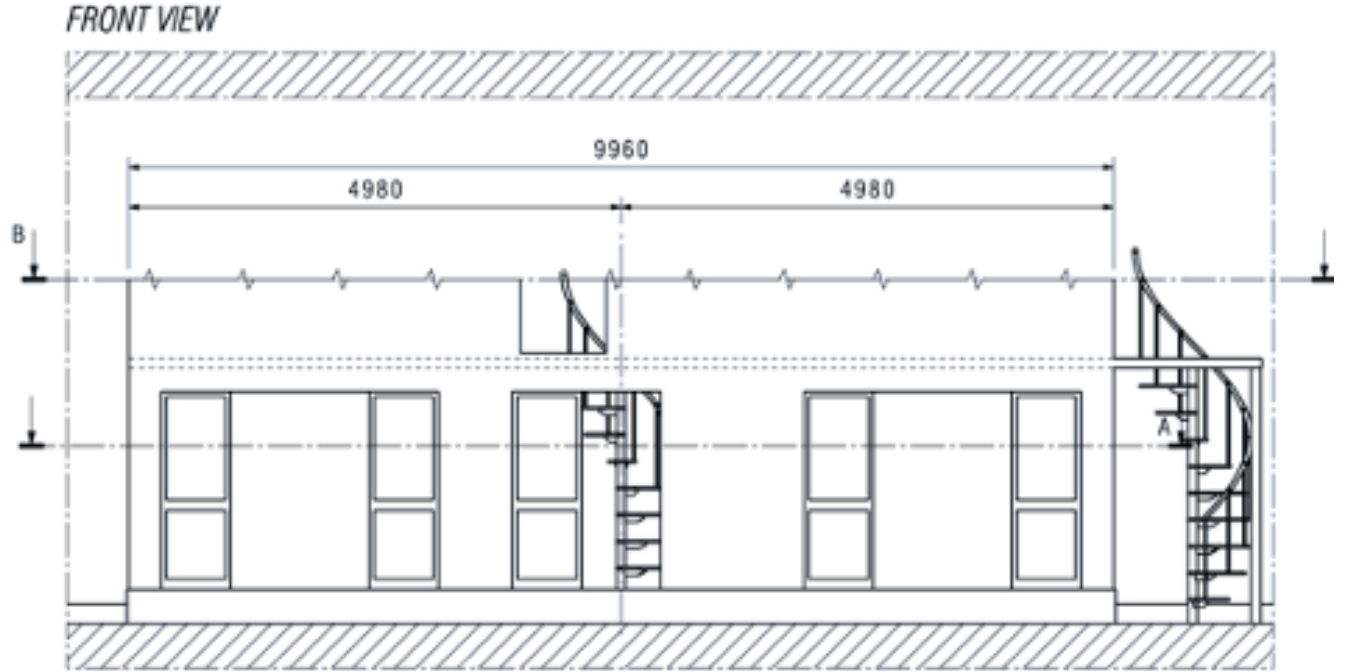
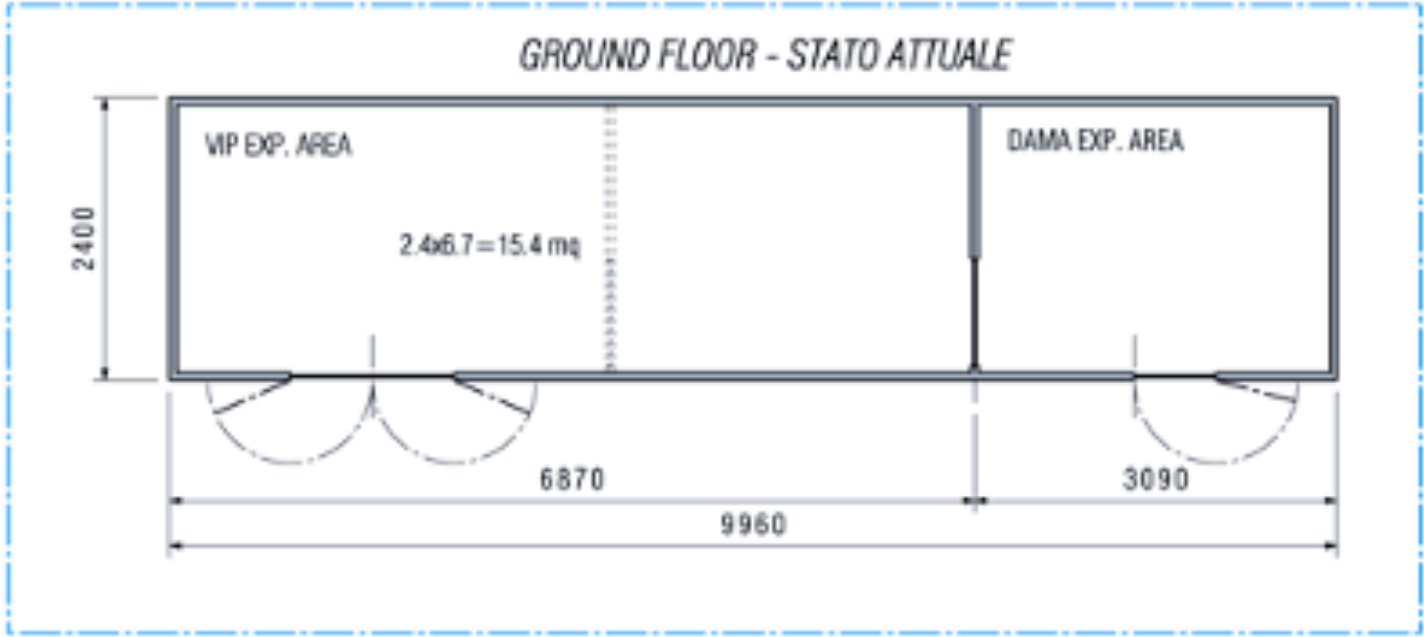
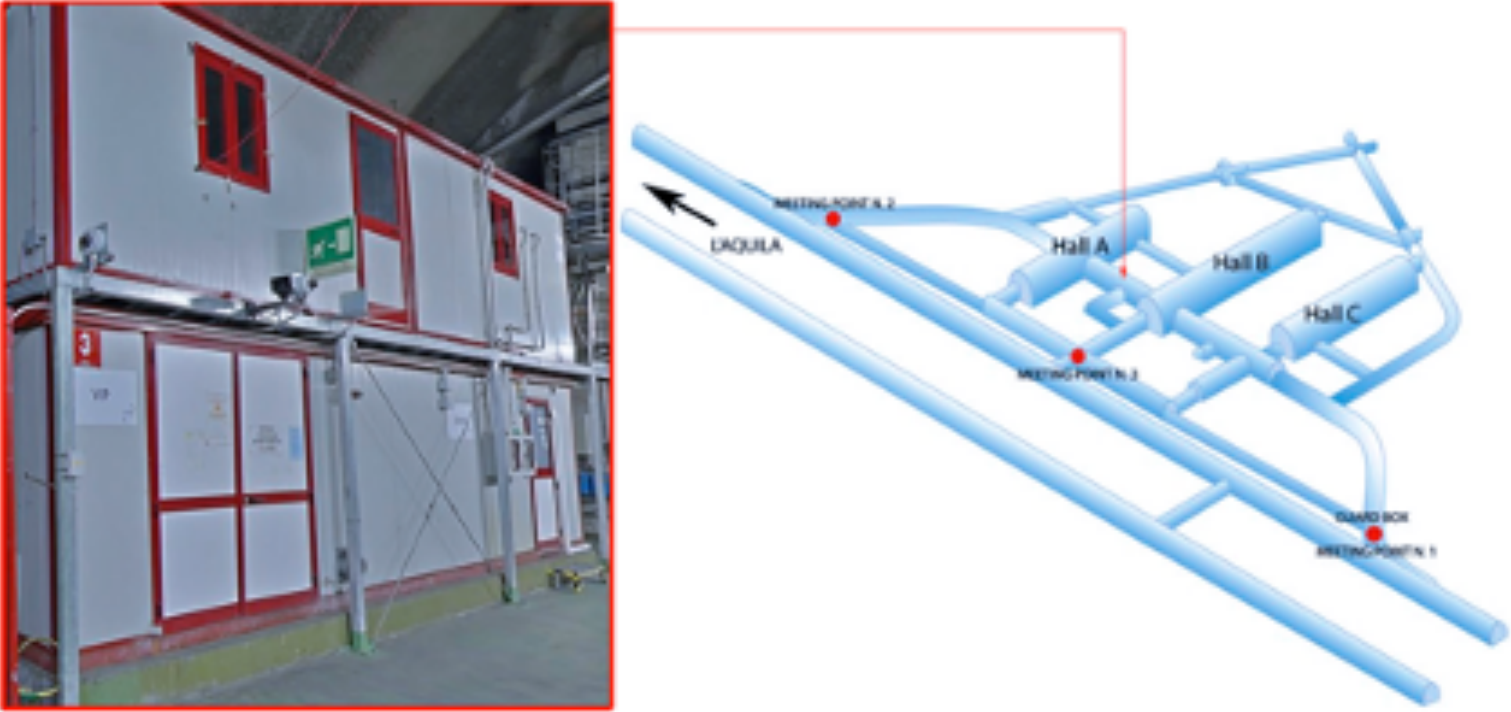
Fascicolo tecnico dell’Esperimento sperimentale LIME

- LABORATORI ESTERNI/SOTTERRANEI -

Il presente documento individua e descrive le caratteristiche e le richieste tecniche da parte dell’Esperimento LIME relative all’area **ovest** presso l’edificio **GALLERIA TIR** dei laboratori sotterranei che saranno sottoposte a valutazione e validazione da parte delle Divisioni e Servizi competenti dei LNGS

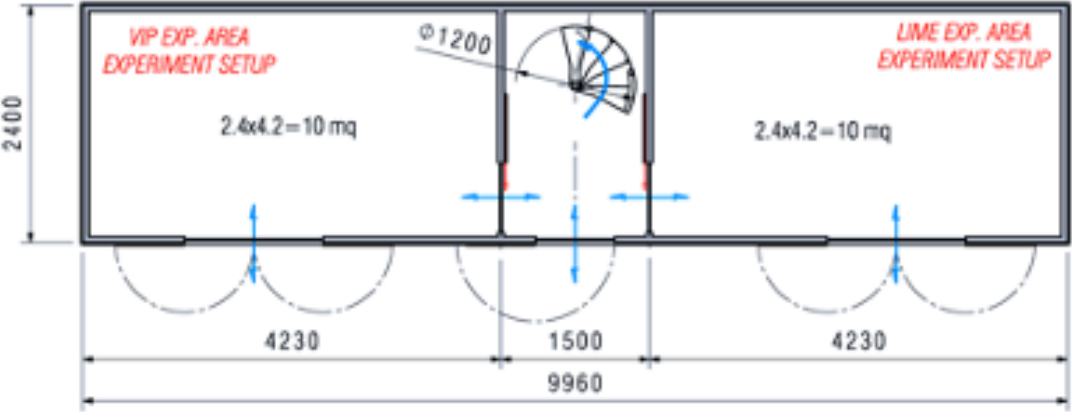
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Lista di distribuzione:



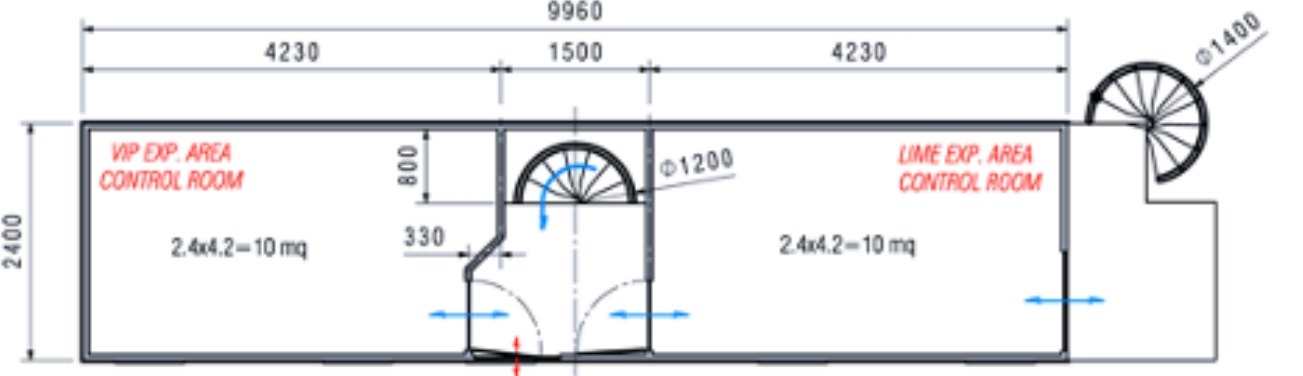
GROUND FLOOR

Section view A-A
Scale: 1:50



UPPER FLOOR

Section view B-B
Scale: 1:50



LNGS “baracca” update

LIME

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