

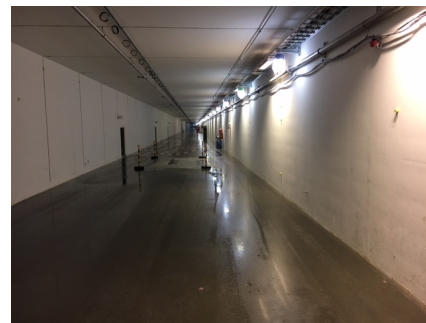
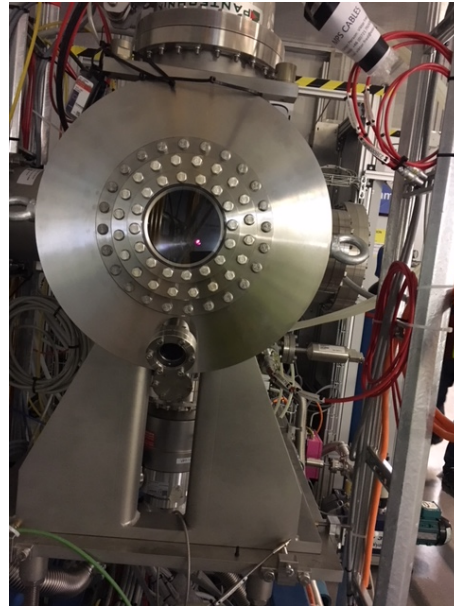
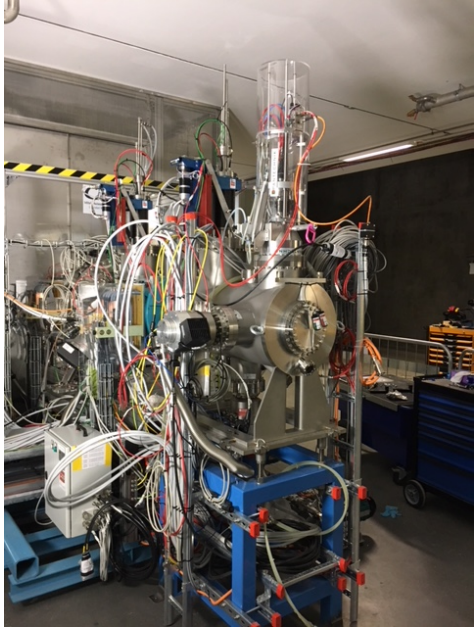
Lessons, status and plans of installation

Viatcheslav GRISHIN

European Spallation Source ERIC

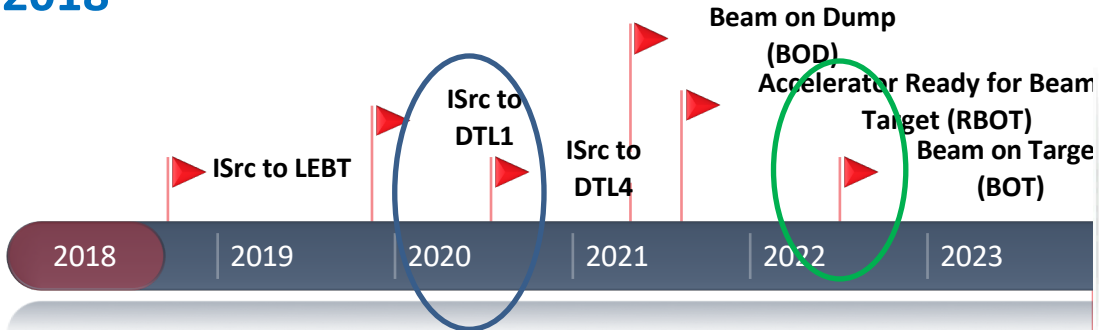
24 October 2019 , BI & WUT forum

BD team and IS&LEBT 2018



ESS Project – The Big Picture

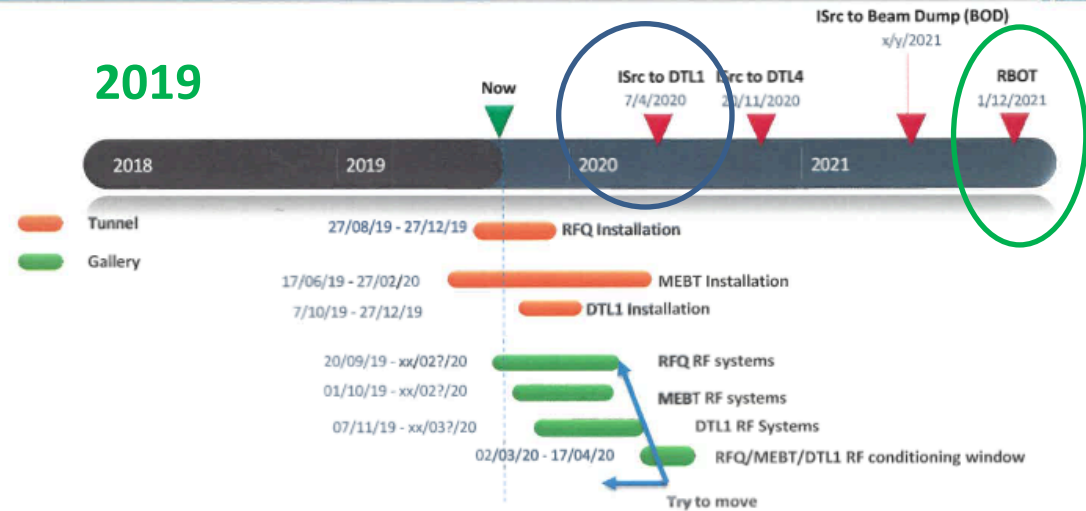
2018



Courtesy Ciprian Plostinar

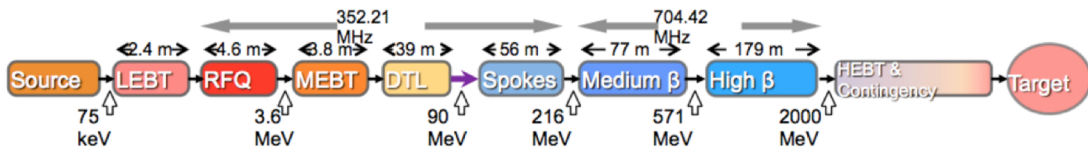
NC Linac – Installation Timeline (Anders S)

2019



https://confluence.ess.lu.se/download/attachments/170820382/ITC_Plan_Update_October_2_2019.xlsx?version=1&modificationDate=1570090355607&api=v2

This link goes to the latest official version of the waterfall plot - Updated monthly



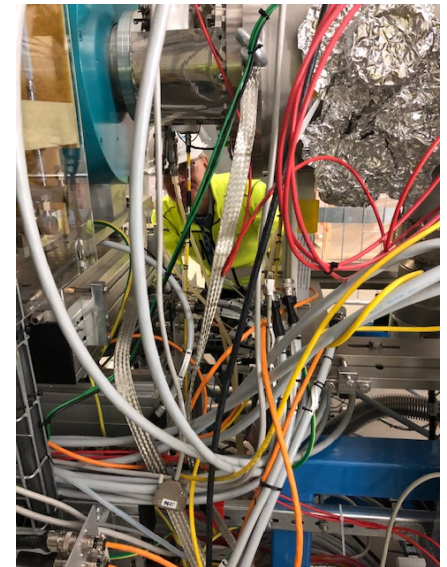
Lessons from IS&LEBT



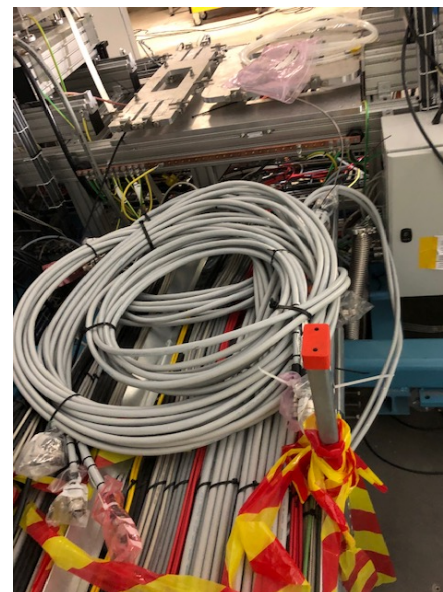
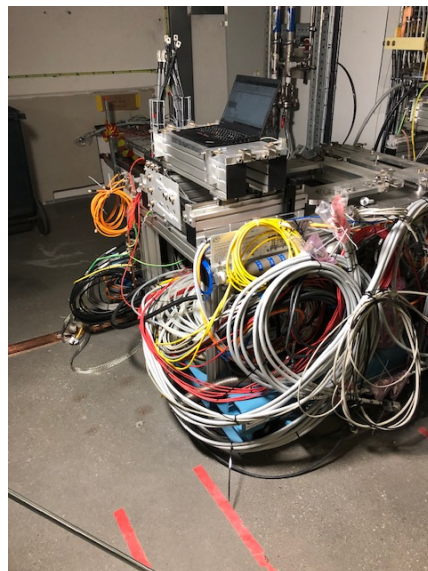
2018



2019



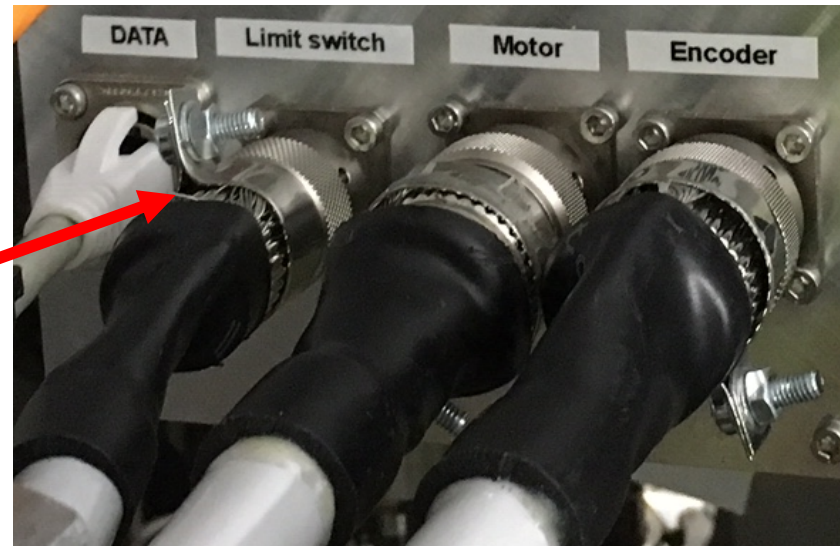
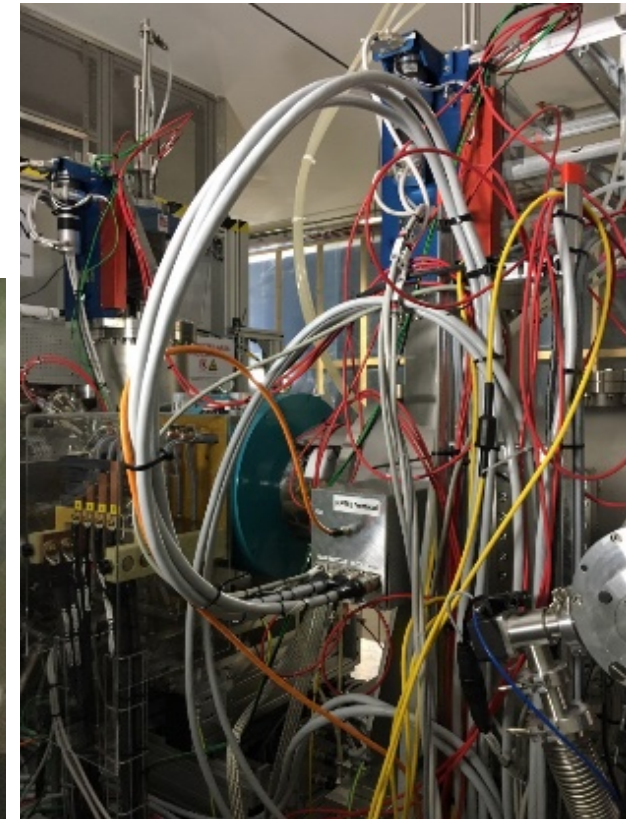
1) Cables



1) Cables

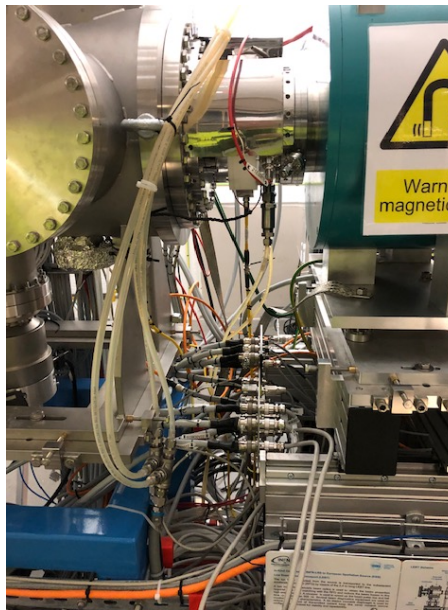
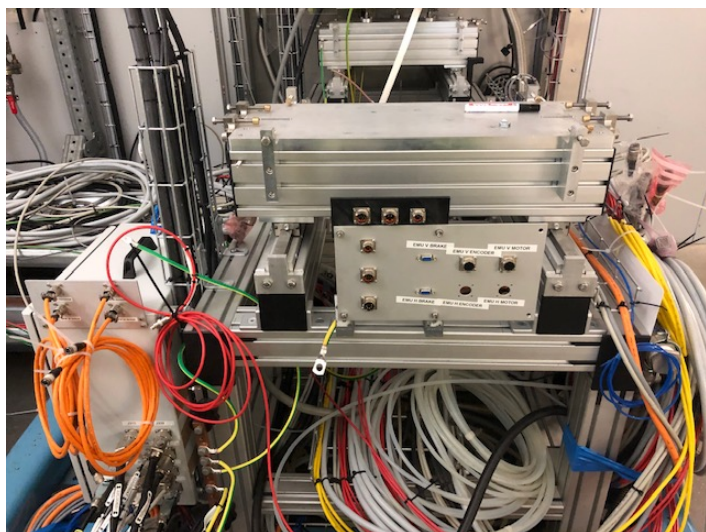
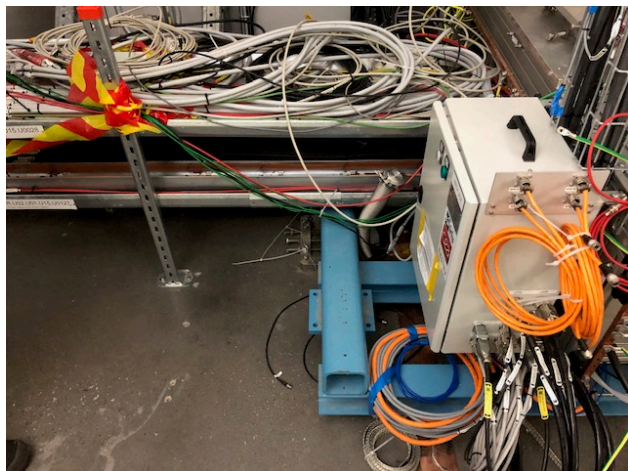
The presently installed cable is 4P18IOSLSHF. This cable is rigid, hard to bend and twist, and difficult to connect in many places due to the large bending radius. Additionally, the wires tend to slip out after some disconnections and connections. The weight and stiffness also makes the wires to slip out of the connectors. We have the same problem on rack side too, the rack crates are not that strong so these cables need extra support.

Big bending radius necessary

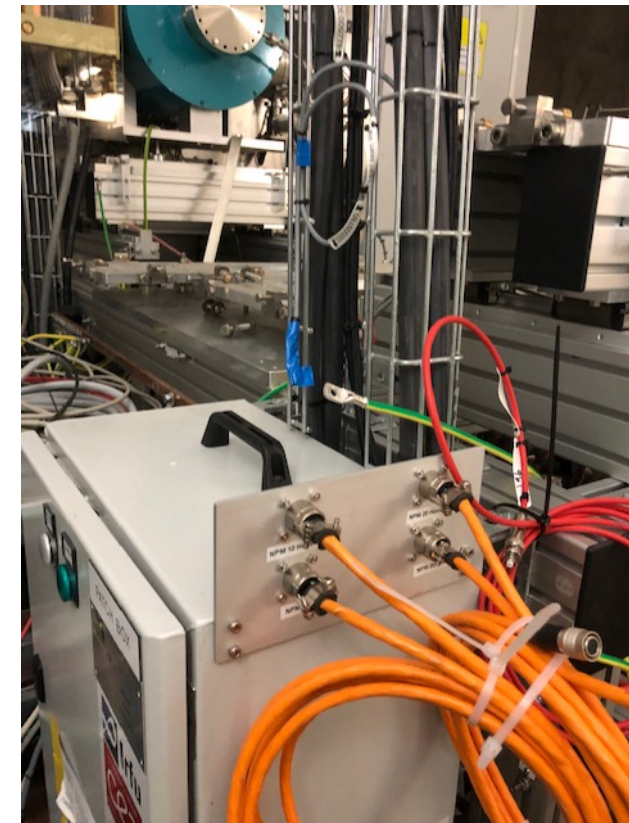


Braid wires fasten with metal strap and nut. The wires tend to slip out after a while.

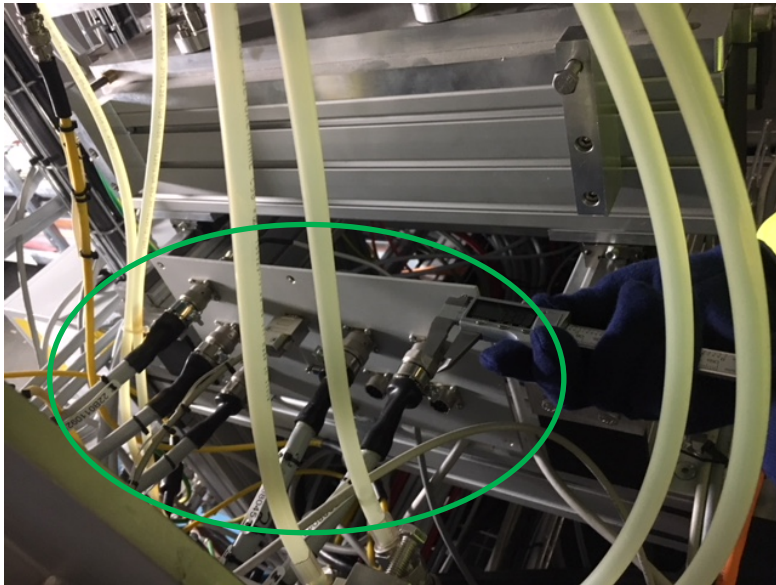
2) Patch panels



Former patch-panel to be able to connect NPM & EMU.

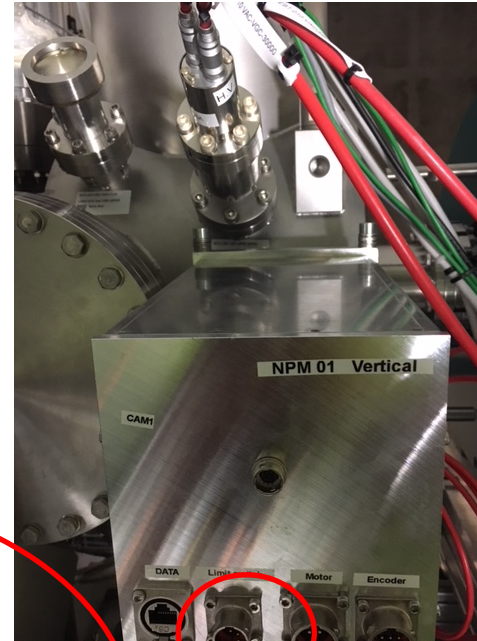


3) 3D integration



WUT PP!

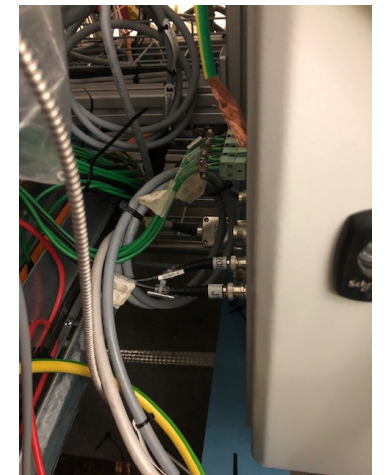
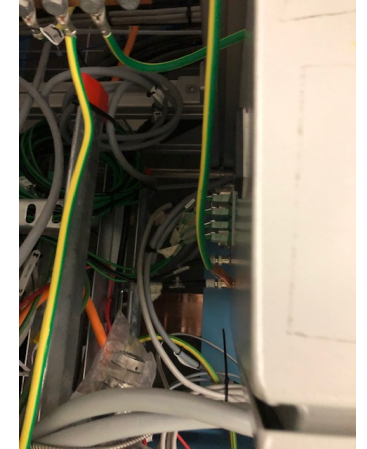
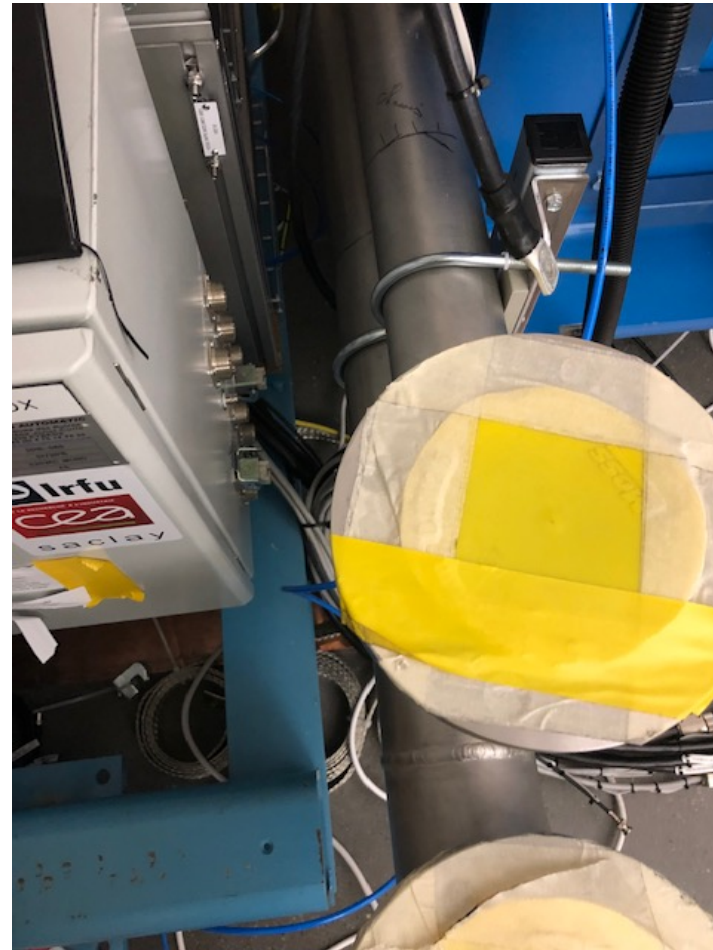
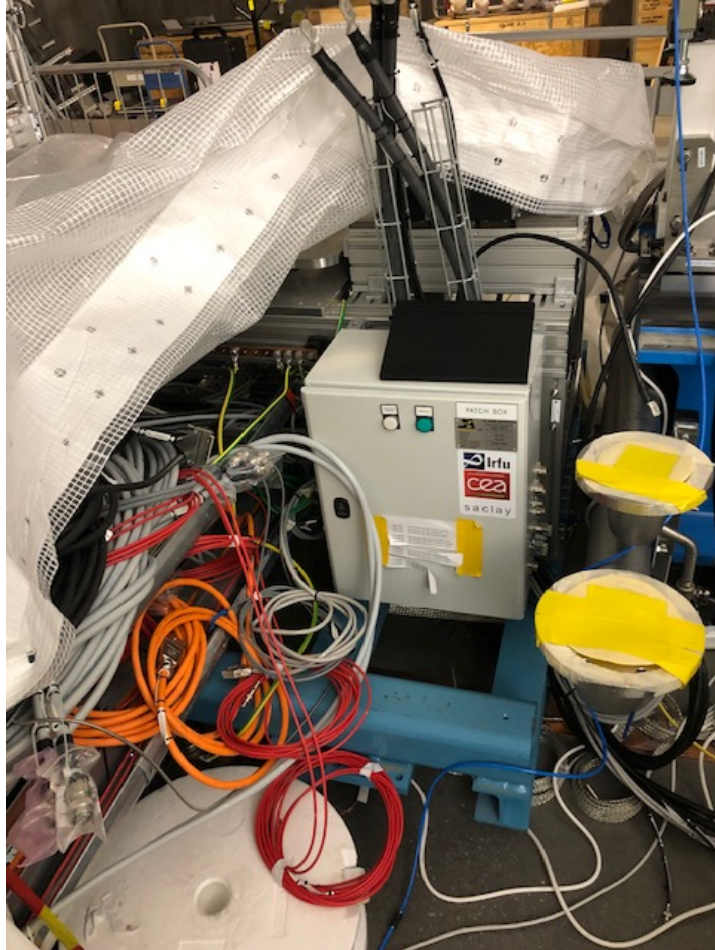
NPM PP LEBT 2018



PP

3D drawings
are not all absolutely correct

3) 3D integration 2019



Solution 2. (Best option!)

The replacement cables are already ordered. For the rest of LINAC the heavy cables have been replaced with smaller ones, as an extra quantity of cables are already ordered by default. Routing are rather easy since the cables simply will replace already existing ones.

This solution makes it possible to skip the patch panel for all of the cables, except 4 (EMU), as the replacement cable can connect directly to the beam line elements. There will be some savings in patch panel design and termination costs.

In total 24 Cables for the NPM, DPL, EMU and FC systems are affected. The total cable length can be estimated to approximately 1km.

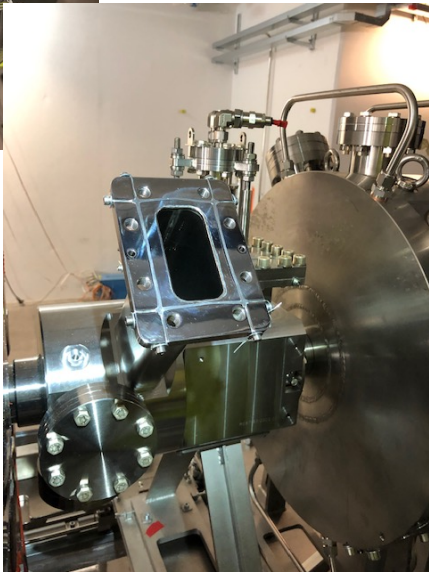
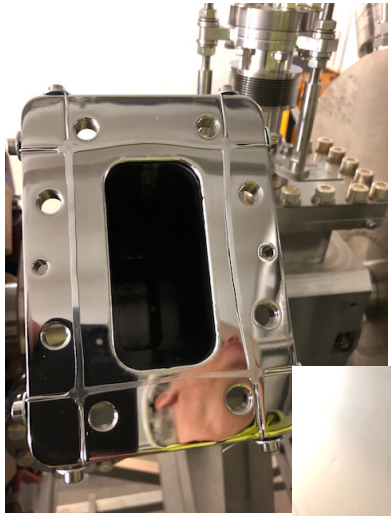
4) Repair in time



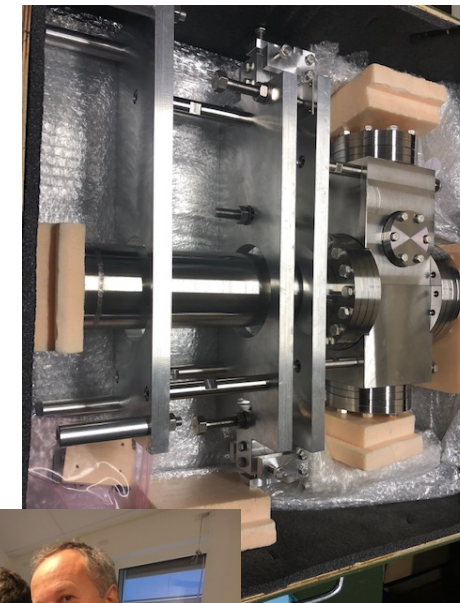
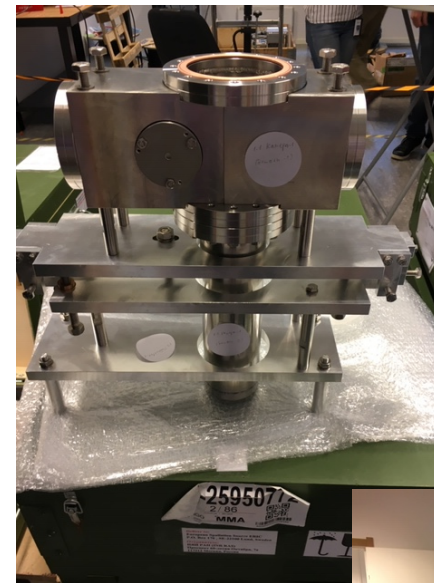
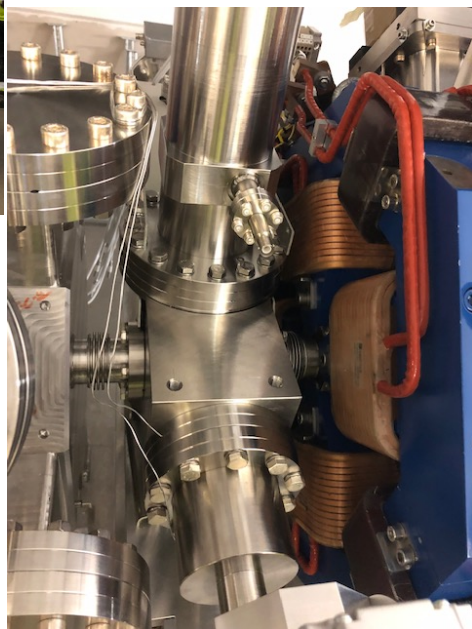
- the Doppler actuator was stuck in inserted position in the LEBT permanent tank , removed and moved to the BI lab.



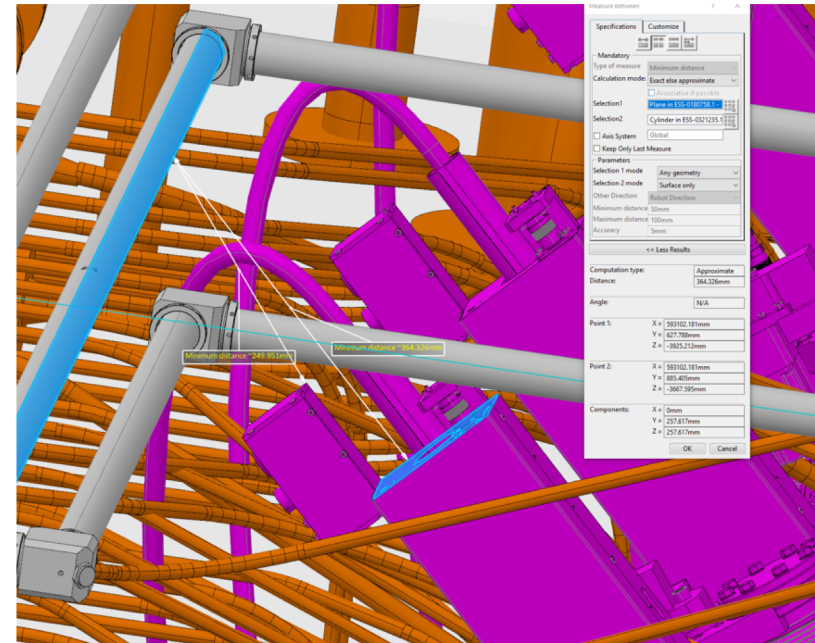
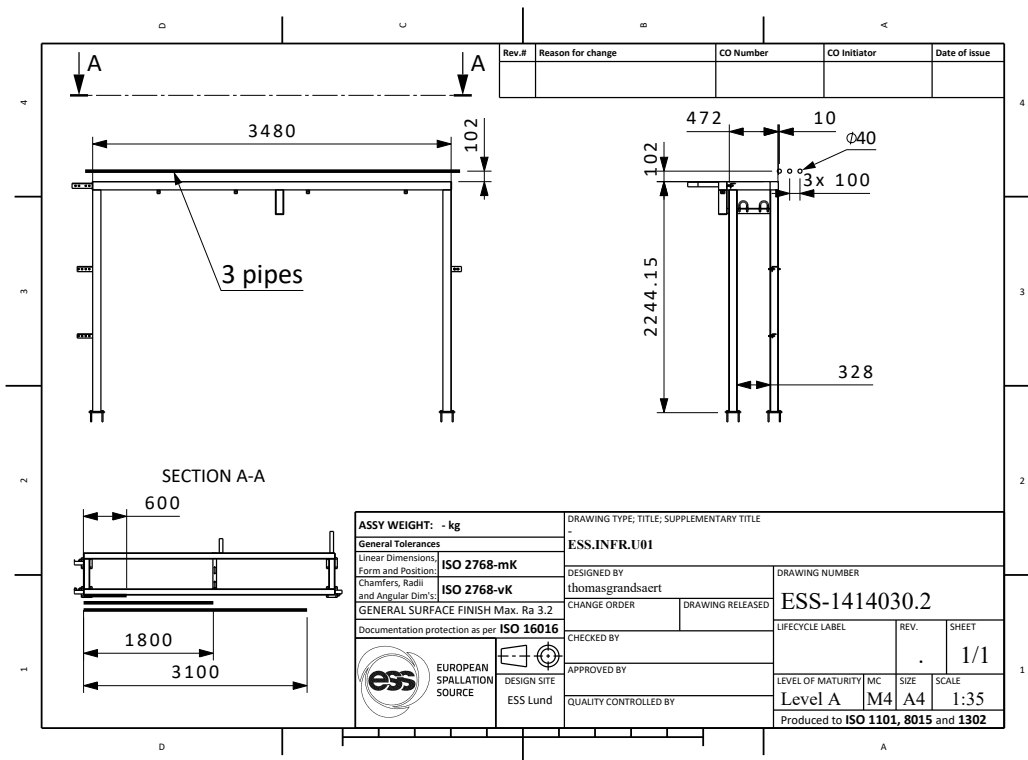
MEBT BD check



MEBT: BSM and Bilbao



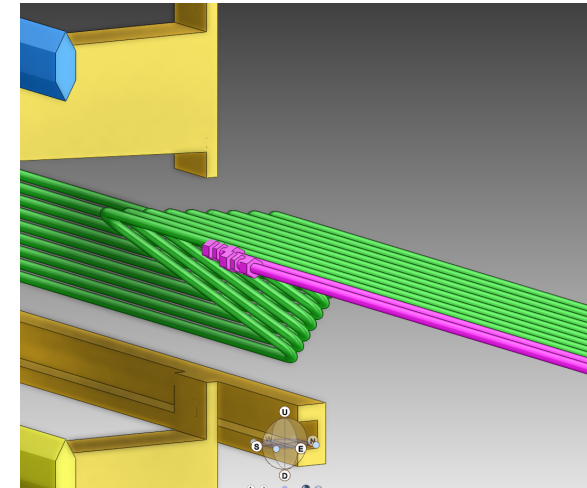
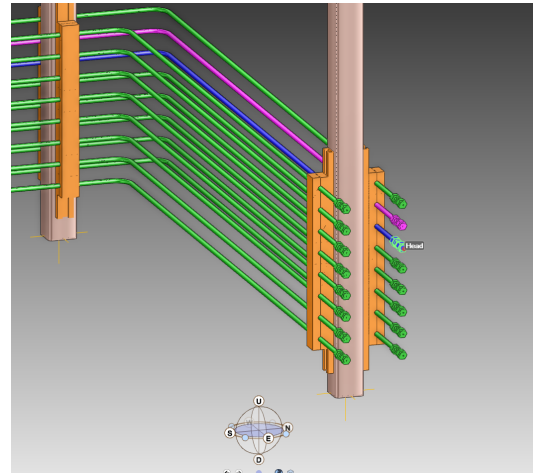
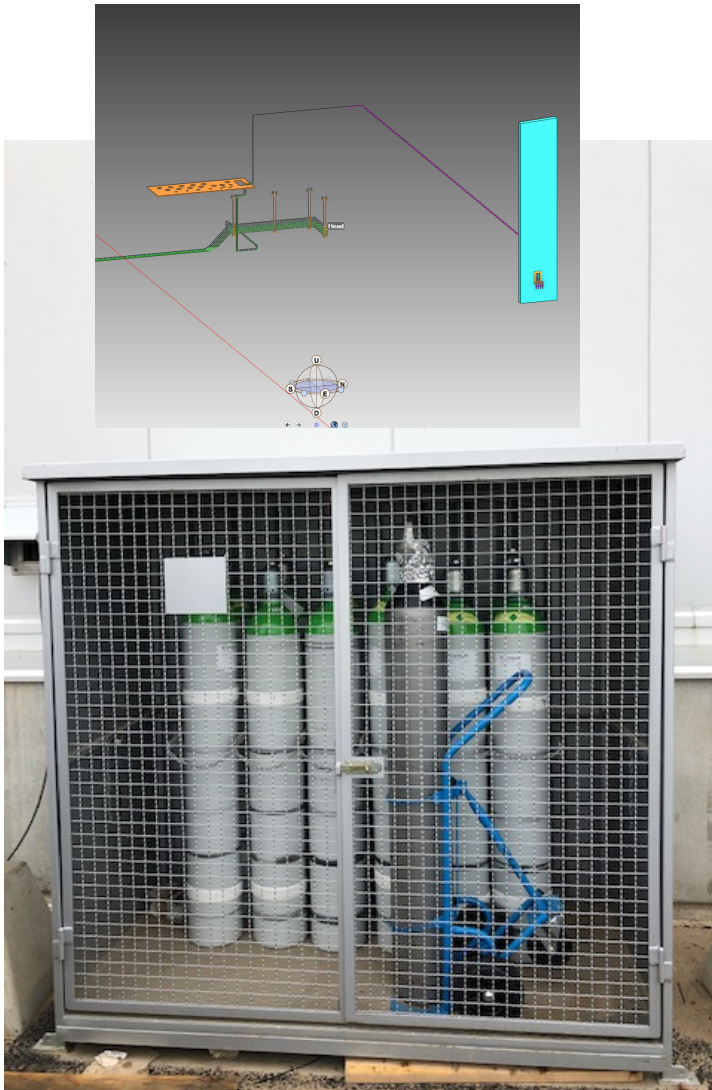
MEBT manifold and BD



MEBT manifold and BD



Infra structure support



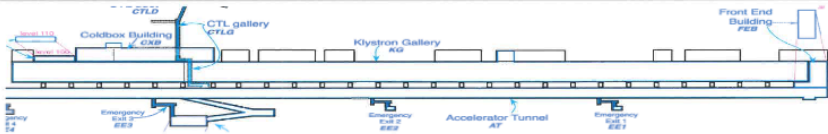
Installation schedule

2019	week	October				November				December					
		42	43	44	45	46	47	48	49	50	51	52			
	Access through FEB					Red	Red	Red	Red	Yellow	Yellow	Yellow			
	Access through HEBT					Yellow	Yellow	Yellow	Yellow						
	RFQ	Green	Green			Green	Green			Green	Green	Green			
	ESS Vacuum					Orange	Orange	Orange							
	MEBT repair reassembly					Blue	Blue					Blue	Blue		
	LEBT											Yellow	Yellow		
	PRL piping 100-RFQ		Dark Blue	Dark Blue											
	RF WG 100-RFQ			Orange	Orange	Orange	Orange								
	MEBT Manifold installation									Grey	Grey				
	PRL tap points		Dark Grey												
	Stub110 raceways + stub			Green	Green										
	RFQ Raceways		Blue												
	MEBT Raceways										Blue	Blue			
	Cablepulling FEB		Yellow	Yellow	Yellow	Yellow	Yellow						Yellow	Yellow	Yellow
	Cablepulling Stub 100	Red	Red	Red	Red								Red	Red	Red
	Cablepulling Stub 110					Grey	Grey	Grey	Grey						
	Pollex flushing pipes			Green	Green										

RED = No access, Orange = Limited

Installation schedule

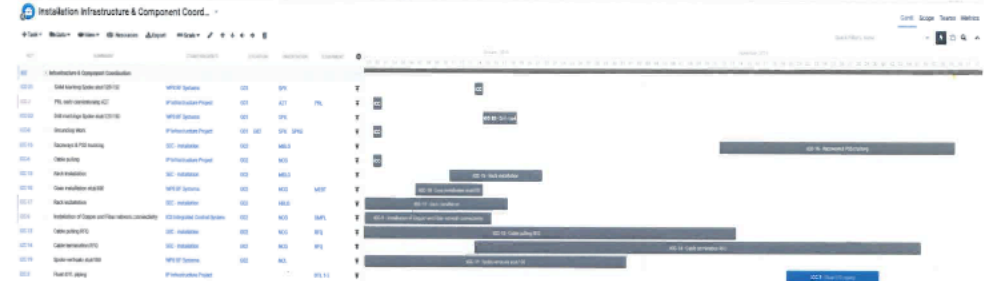
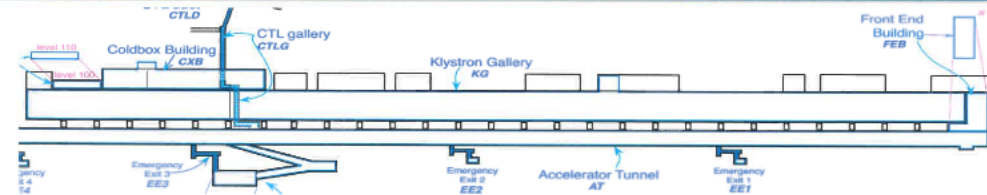
4 week installation outlook /WP7/BD/Slava



Activity/IPL/IB#	Location (e.g. G02; NC)	Start & End Date	Comment
EMU box new location	G01, LEBT	17 Oct- 25 Oct	Peter,Edvard,Clement,Johan
MEBT BD: EMU grid, WS1, BPM, WS3	G01, MEBT	1 Nov – Nov 29	Bilbao's, vacuum , BD teams
MEBT BSM patch panel	G01, MEBT&RFQ	21 Oct – Oct 31	Peter, Hooman, Slava, Tommi
MEBT BD electronics	FEB	4 Nov – Dec 13	Rafael, Clement , BD team
nBLM piping /Magnus J /lb195	Feb 100 & G02; NC	11 nov – 10 dec	May be delay

10

4 week installation outlook G01, G02



<https://iira.ess.lu.se/plugins/servlet/softwareplant-bigpicture/gantt?program=130&applicationBaseUrl=https%3A%2F%2Fiira.ess.lu.se>

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