



Joint COMPASS-AMBER Technical Board 19-June-2022

Stefano Levorato
19.07.2022

Agenda

- **Communications**
 - Approval of the minutes of the last TB
 - De-cabling Campaign requests
 - Gas Status CERN
 - COMPASS/AMBER GAS systems
 - AMBER UTS test stand
 - GEM 12 support
 - Agenda
 - AoB

Minutes of the last TB

Available on https://codimd.web.cern.ch/Pg8_uW9pRnONFQqnNTp4fA

REMINDER

Each speaker, presenting at the TB, will enter the minutes of its presentation, preferably before than the TB and maximum one week after the TB was held.

On the next TB Indico page (<https://indico.cern.ch/event/XXXXX/>) you can already find the link to the minutes document (<https://codimd.web.cern.ch/xxx>).

You can find more information on the tool use and features at <https://codimd.web.cern.ch/>

→ <https://codimd.web.cern.ch/pfAycG6dT0KK7cyActjiyg> **for this TB**

DE-CABLING

De-cabling Campaign 2022-2023 YETS

Meeting on 12/07/22

- Y. Kadi, M. Jeckel, M. Bartosz Szewczyk
- N. Doshita, C. Pires, M. Veith,
- Cryo colleagues C. Luguet, M. Cugnet

Content

Introduction of EHN2 & BA82 De-cabling campaign

Planning

Required power during lock-out of EHN2

Lock out of EHN2 & BA82

Wed. 15.11.22

End of beam in EHN2 & ECN3

15.11. – 18.11.

Magnet inspection with RP

@ EHN2, ECN3, TT83-85, TDC8 & 85 **NO TCC8**

18.11.22 – 29.03.23

Lock-out of EPC in BA82

30.03.23 ??

Test alim. EPC BA82

16.01.23 - 17.03.23

Time window for de-cabling BA82

Lock-out of EHN2 & BA82

01.05.23

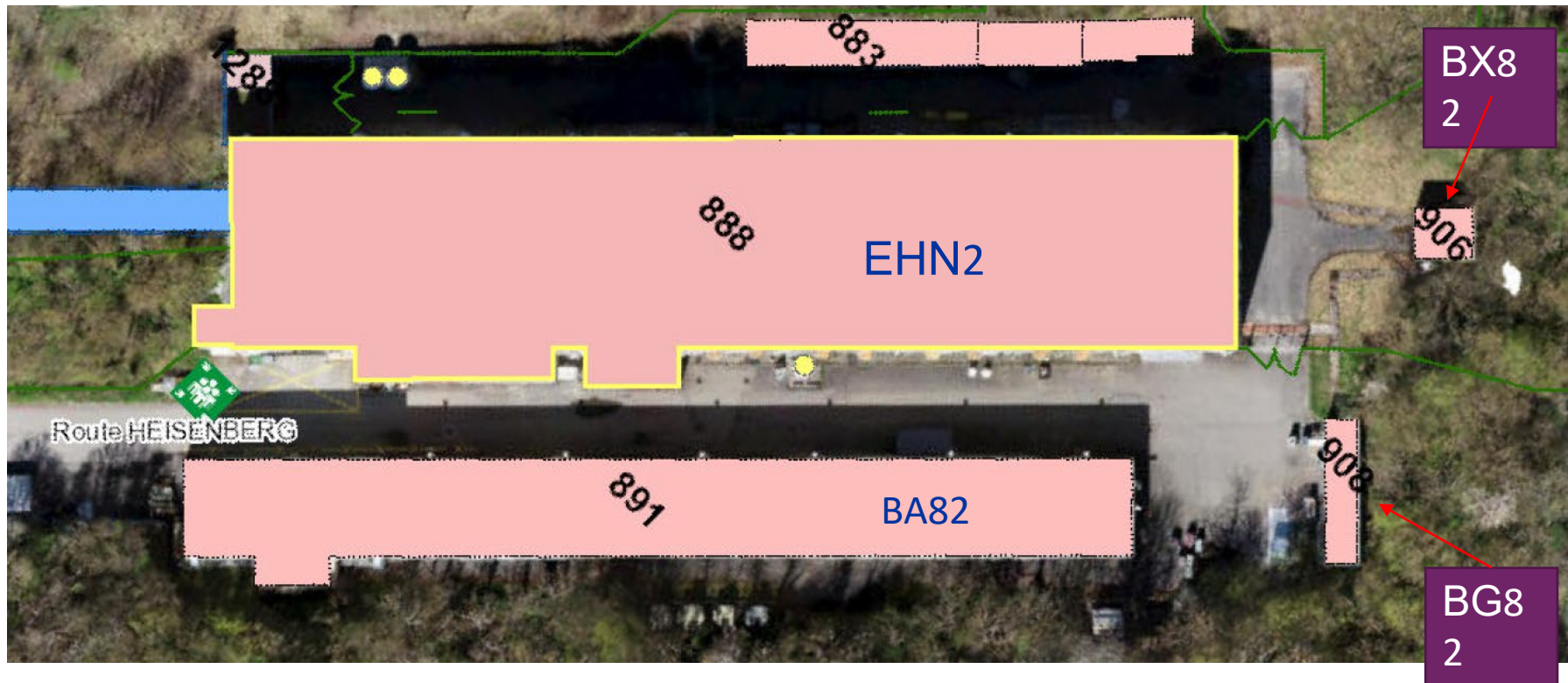
Physics in EHN2

Introduction of EHN2 & BA82 De-cabling Project

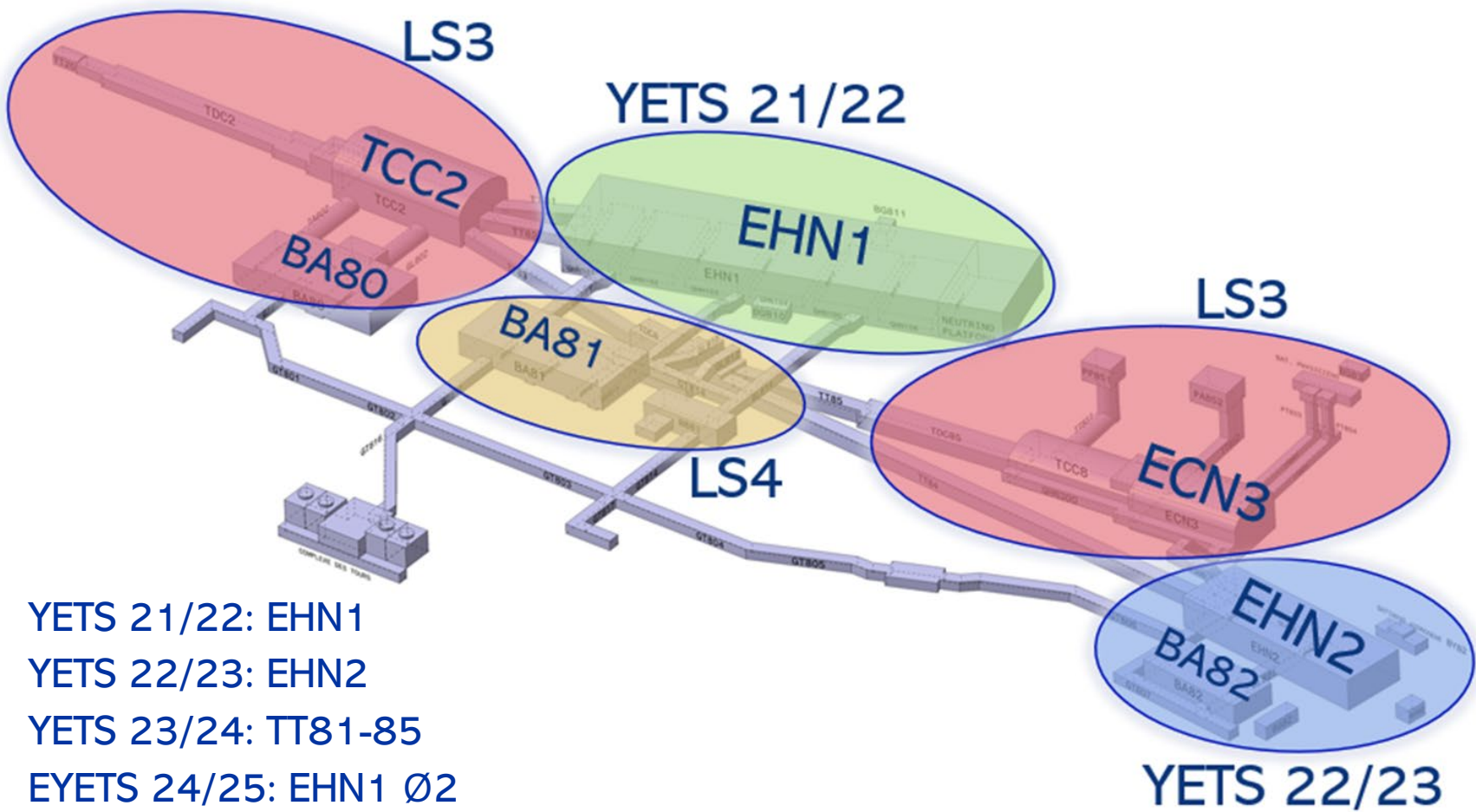
Foreseen start of de-cabling campaign is 16.02.2023 **for 6 weeks**

Buildings concerned: EHN2, BA82, BX82, BG82 & TT84

888, 891, 906, 908 & 812

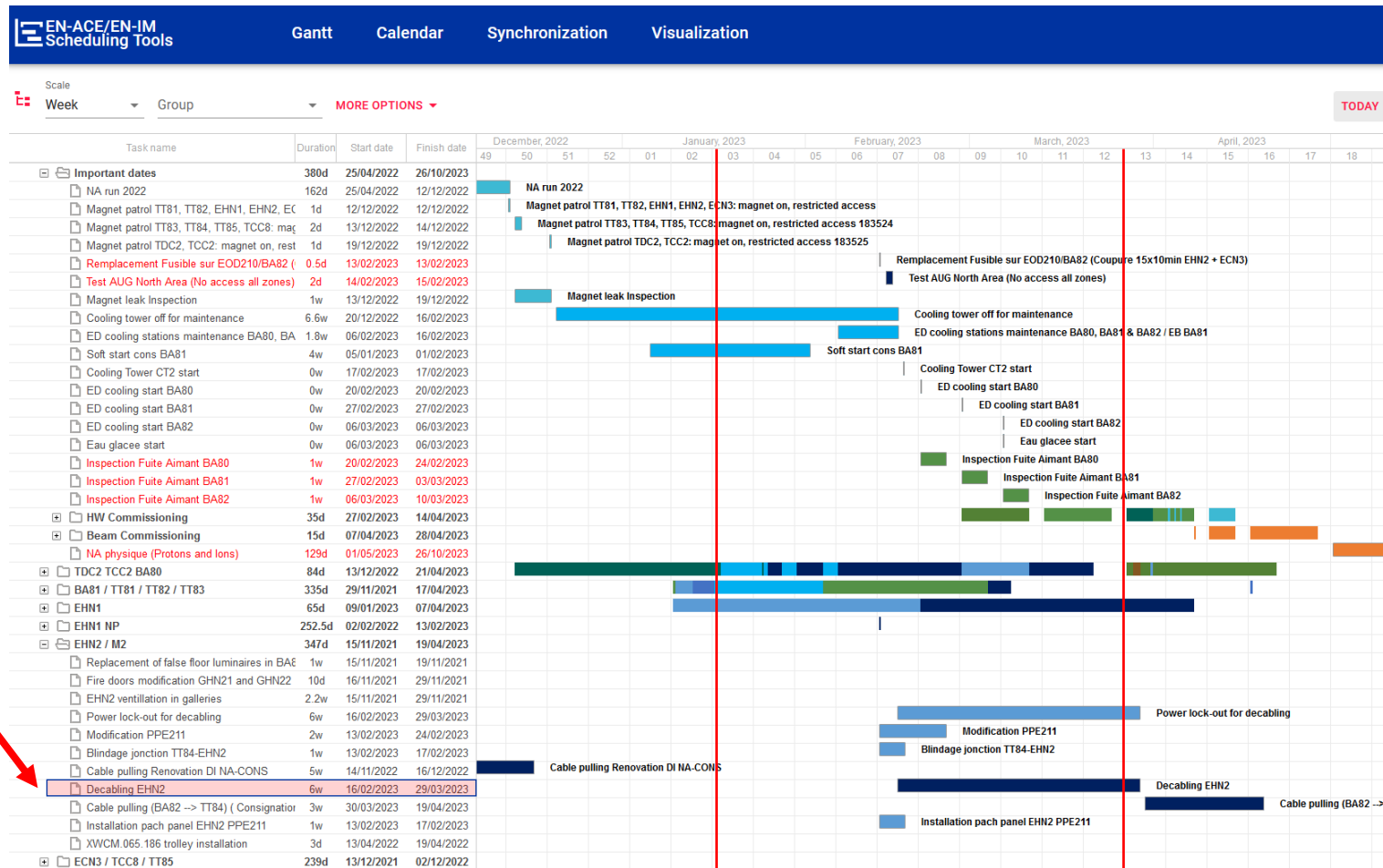


Planning – NA De-cabling Roadmap



- YETS 21/22: EHN1
- YETS 22/23: EHN2
- YETS 23/24: TT81-85
- EYETS 24/25: EHN1 Ø2
- LS3: TCC2, BA80 & ECN3

Planning



Time window for de-cabling : 16.01.23 - 17.03.23

<https://oss-coordination.web.cern.ch/gantt/latest>

Required power during lock-out of EHN2

- 1- Start point network locations (3 positions)
- 2- Cooling for DAQ
- 3- Recharging point for Crane radio commands
- 4- COMPASS Gas area
- 5- Polarized Target Pump room
- 6- Polarized Target Magnet Control and safety System
- 7- Polarized Target experimental Area
- 8- Polarized Target Control room
- 9- COMPASS DAQ room
- 10-COMPASS DCS room
- 11- Traka Box
- 12- Cryo – He liquefier
- Hall heating – Cranes



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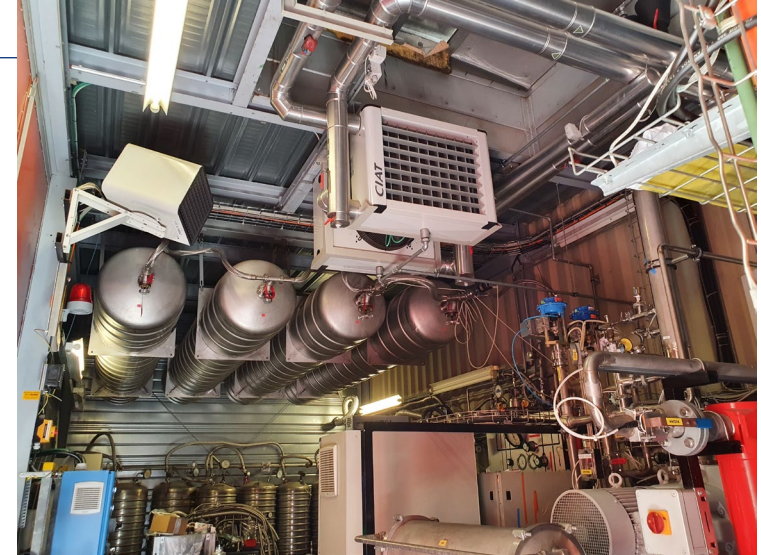
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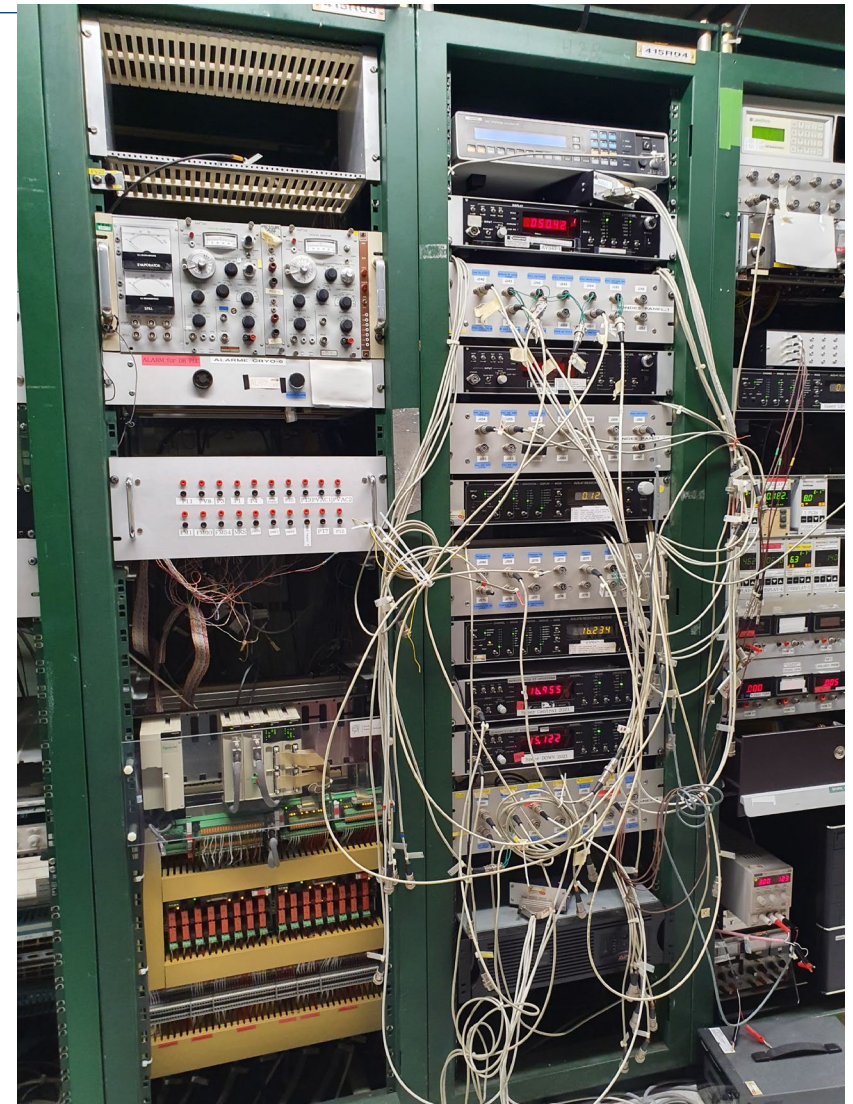
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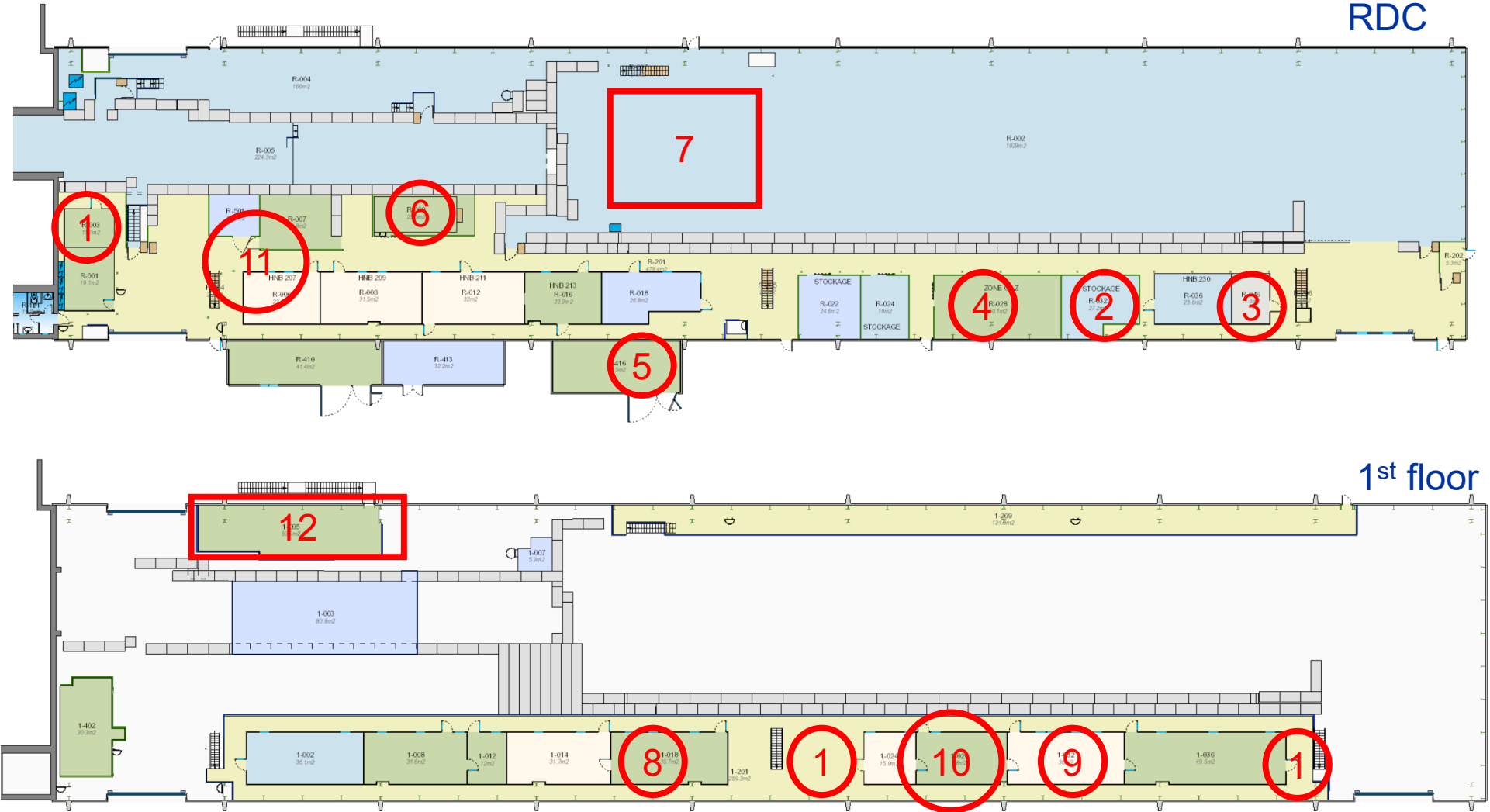


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Required power during lock-out of EHN2



Required power during lock-out of EHN2 (Nori)

Polarized target the target warming up will start during the first days of December which means the following can not be de-energized till middle of December

Target control room

EXD401 DEP26 from EOD401/04

Hall

EXJ04/HN2 from EXD 401.43HN2
EXD415/HN2 from EXD413.02/HN2
EAD415/HN2 from EAD210.03/HN2
ECJ415/HN2 from ECD21.05/HN2

Required power during lock-out of EHN2 (Nori)

Magnet control

EAD417/HN2 from EAD211.11/HN2

EXD417/HN2 from EXD24.05/A82

Pump room

EBD43/HN2 from GHN22.10/HN2

EOD43/HN2 from EOD210.03/BA82

After the warming up is over, approximately around 15 / 20 December, we can de-energize the sources but the **ECJ415/HN2**. It is needed for **monitoring of the dilution refrigerator** so we have to keep it live.

Plus heating in the pump room → avoid below zero during YETS

Required power during lock-out of EHN2 (Moritz/Martin)

DAQ

The followings can not be de-energized at all **except during the period 20 December 15 January 2023.**

EOD1.4/EHN2	EOD417.02	EOD417.06
EOD1.5/EHN2	EOD417.03	EOD417.07
EOD1.6/EHN2	EOD417.04	EOD417.08
EOD1.7/EHN2	EOD417.05	EOD416.03
EOD1.8/EHN2	EOD418.02	EOD416.04
EOD1.9/EHN2	EOD418.03	EOD416.05
EOD1.10/EHN2	EOD418.05	
EOD1.11/EHN2		
EOD1.12/EHN2		
EOD1.13/EHN2		

Required power during lock-out of EHN2 (Christoph/Stefano)

3) GAS System

The following can not be de-energized at all **EXD402.30/HN2**

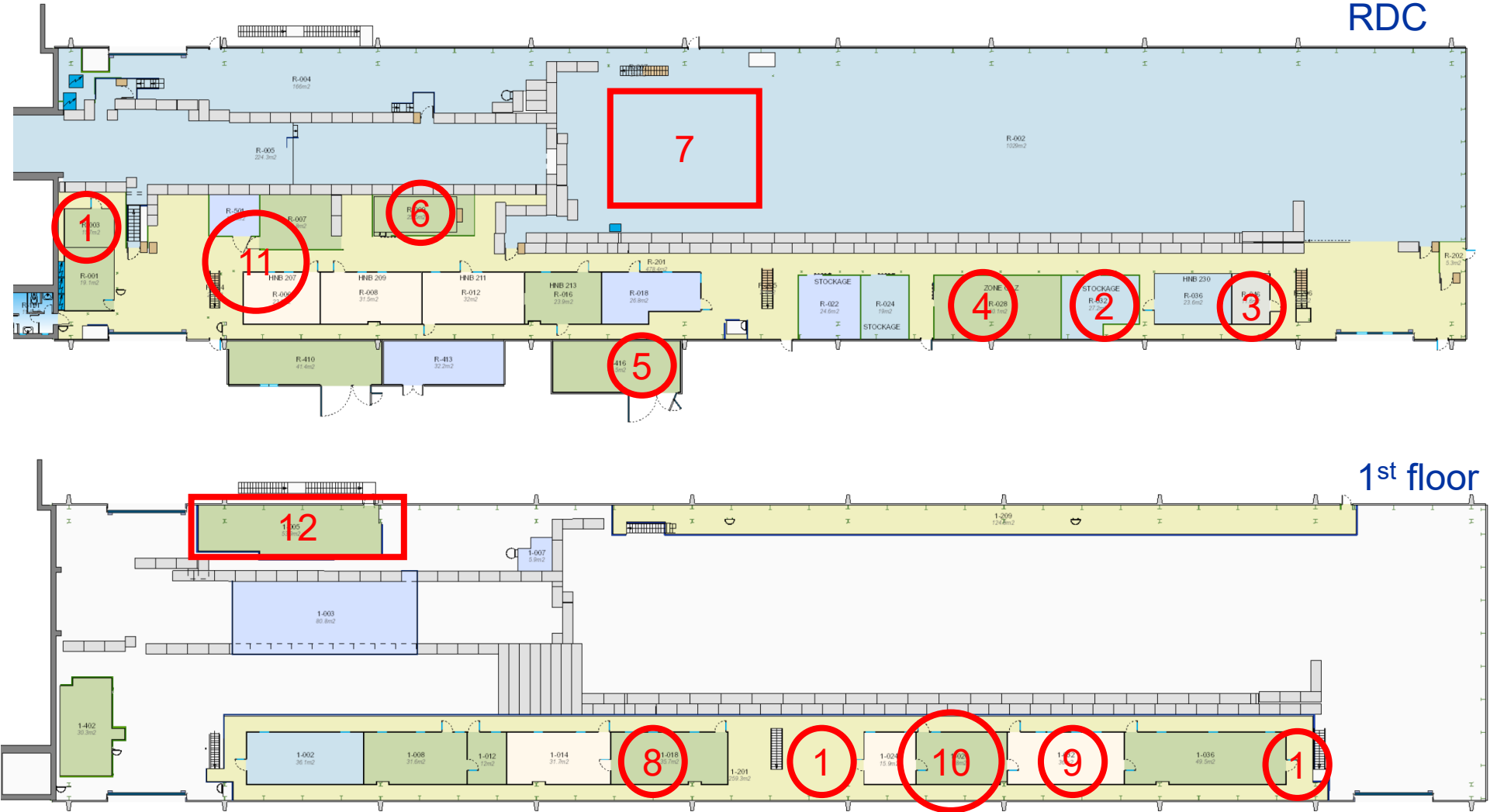
4) DCS

The following can not be de-energized at all **EXD402.21/HN2, EXD401 DEP 29**

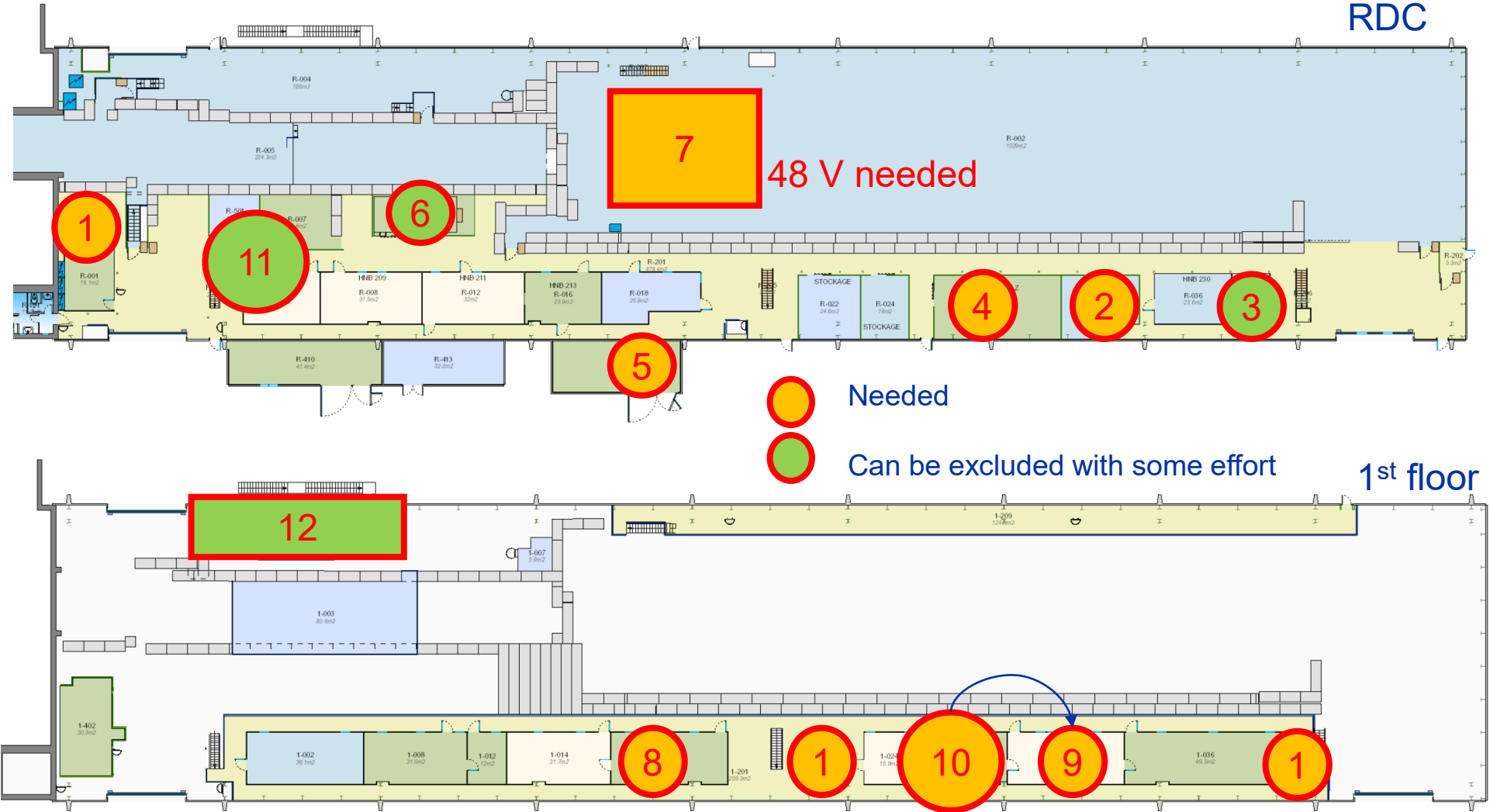
5) Network connection

Star point network has to be kept up and running all the time, I would kindly ask you to verify their power sources

Required power during lock-out of EHN2



Required power during lock-out of EHN2



Required power during lock-out of EHN2

- No request of power for the experimental Area → **requests from DE?**
- **CRYO Liq. system** can be fully locked out
- **Compatibility with PT restart ~ mid March looks ok**
- **All power sources (not requested) will be locked out in the time window: 16.01.23 - 17.03.23**
 - Compatible with the planning for the interventions next year before the begin of the data taking (?)
 - CEDARs (?)
 - Detector Repair ?
- **Concern: shared paths between fibers and cables to be removed**
- **Pressure to reduce more our request (can we ?) → to be discussed: deadline Beginning of September**

Gas Status (22→23)

Gas Status (CF4, Neon)

2022

- CF4 → received the 20 bottles batch (to be shared with CMS) **not enough till YETS**
- + request to Nippon GASES (not yet confirmed AFAIK, quality 4.7)
- Neon → Ok for this year

2023

- **CF4** → Request of furniture to NIPPON GASES
- **Neon** → Request of furniture to NIPPON GASES



BE-EA-AS
David Jaillet
Beatrice Mandelli
Anastazja Sedzicka



At the moment we have enough gas to run till end of September/October with current consumption (t. b. x-check)

Gas Systems at COMPASS

Gas System at COMPASS

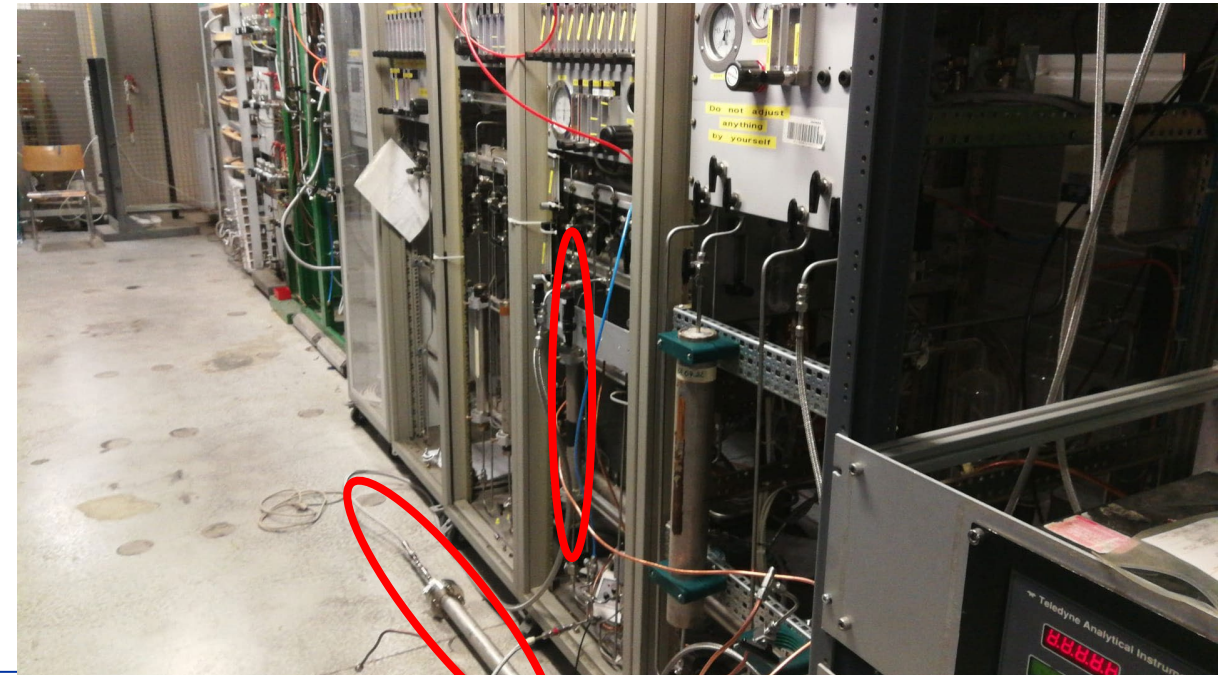
Increased the recycling of gas for Straws/W45/MWPC due to the lack of CF4

- Trigger for the measurement of the gas contamination for the corresponding gas system
- X-checked the Straw system, with known sample gas bottle 30 % difference (100ppm, 72 measured)
- X-checked the Trieste Teledyne system with known sample gas bottle ~ 25 % difference (100ppm, 76 measured)
 - Can be used to measure **Oxygen contamination of MWPC and W45**
 - MWPC are not equipped with any monitoring system
 - W45 stations Oxygen monitoring system all the time at saturation
- **Further request CERN Gas group to perform some gas analysis**

Gas System at COMPASS (ST03 our tests V.A.-S.L.)

Increased the recycling of gas for Straws/W45/MWPC due to the lack of CF4

- Trigger for the measurement of the gas contamination for the corresponding gas system
 - Straw station 3 is equipped with H2O and O2 monitor + filter system
 - Added a MS 3A filter (The system uses only active Cu filters)



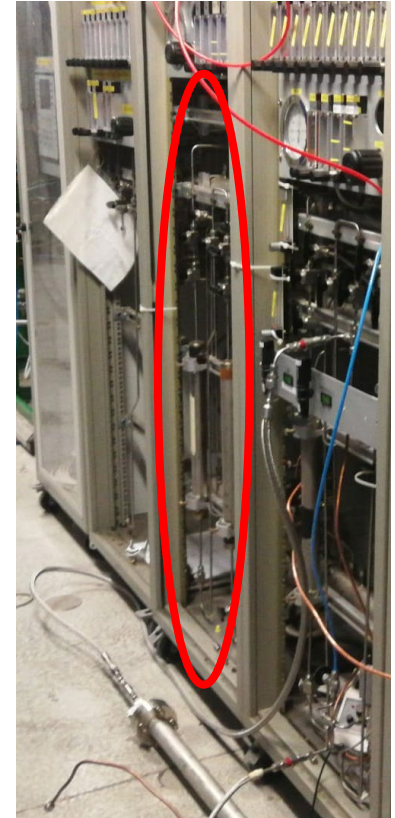
Gas System at COMPASS (MWPC)

Increased the recycling of gas for Straws/W45/MWPC due to the lack of CF4

→ Trigger for the measurement of the gas contamination for the corresponding gas system

→ Two Cu filter installed, gas flow trough only one filter

→ No monitoring available



Gas System at COMPASS (W45)

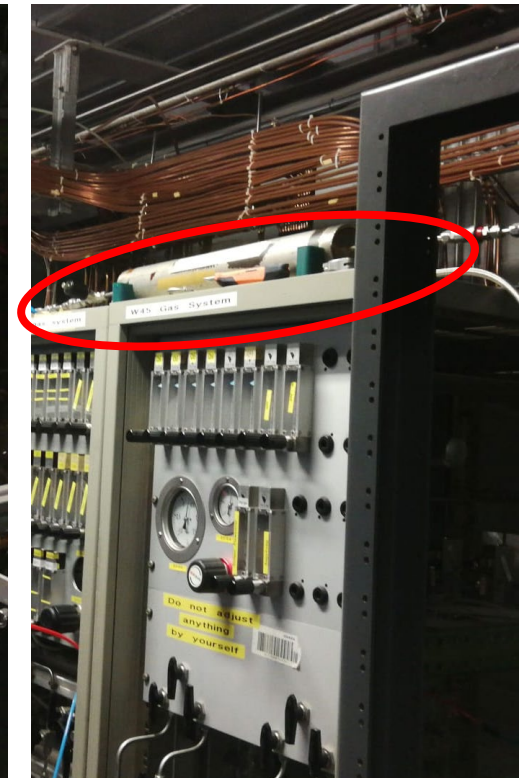
Increased the recycling of gas for Straws/W45/MWPC due to the lack of CF4

→ Trigger for the measurement of the gas contamination for the corresponding gas system

→ W45 two filters larger capacity than STRAW/MWPC,

→ Added one MS 3A

→ Oxygen meter always at saturation (as it was las year !)



Gas Systems at COMPASS some results

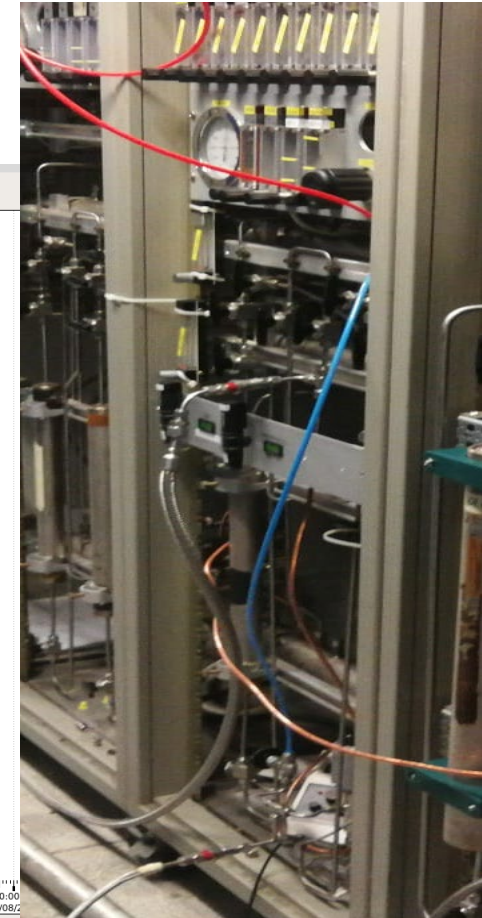
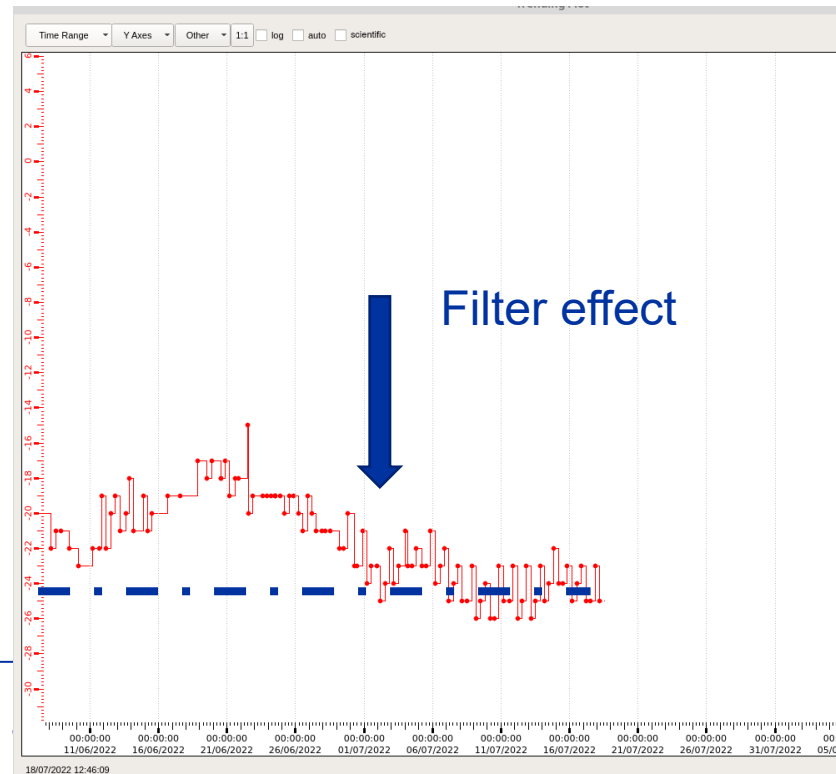
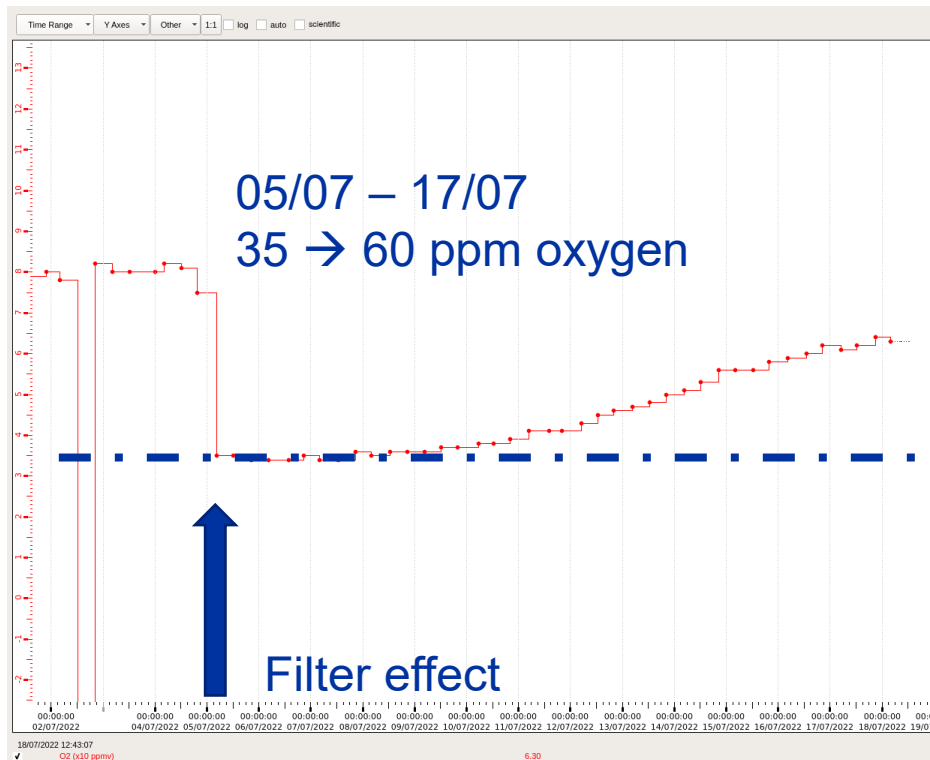
Gas System at COMPASS (ST03 our tests V.A.-S.L.)

Increased the recycling of gas for Straws/W45/MWPC due to the lack of CF4

→ Trigger for the measurement of the gas contamination for the corresponding gas system

→ Straw station 3 is equipped with H2O and O2 monitor + filter system

→ Added a MS 3A filter (The system uses only active Cu filters)



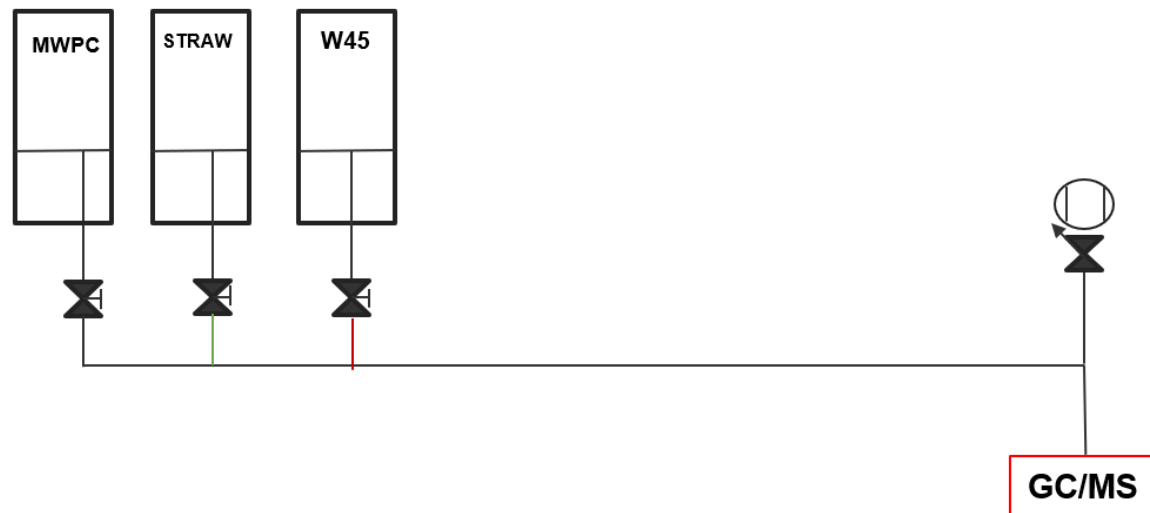
Gas Systems at COMPASS

Gas Chromatography

COMPASS - GC Analysis (Maria Cristina Arena)

GC/MS Setup

- **Gas Chromatograph:** PPU + OV1+ MS5A column > identify Air, Ar, CO₂, CF₄, H₂O, O₂, N₂
- **Carrier:** Argon



COMPASS - GC Analysis (Maria Cristina Arena)

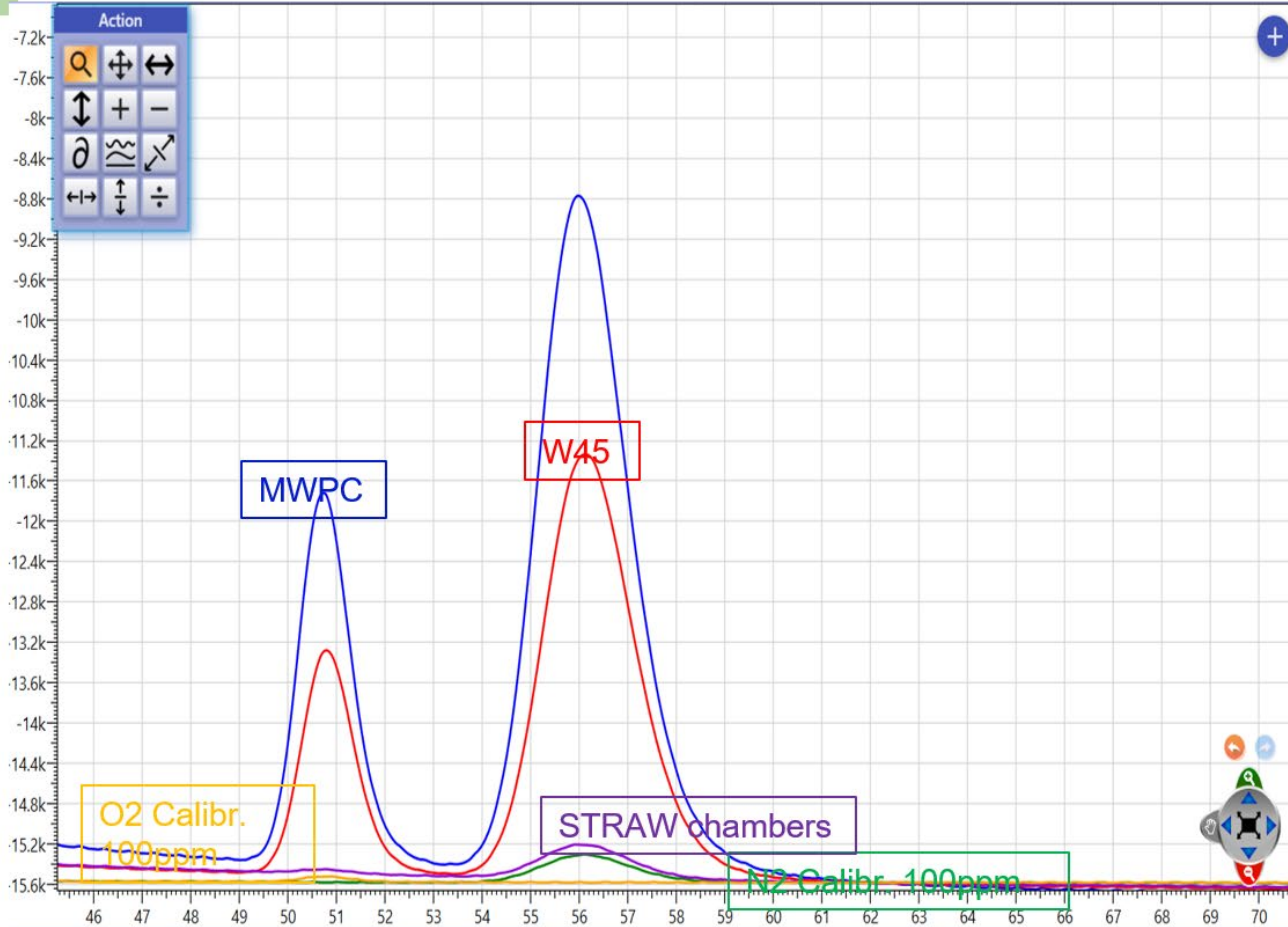
- **Calibration Oxygen:** 100 ppm O₂ in Argon → CF 1.4881
- **Calibration Nitrogen:** 1000 ppm N₂ in Argon → CF 1.6710

Detector	Area O ₂ (mV)	Area N ₂ (mV)	ppm O ₂	ppm N ₂
MWPC	4767	14608	7094	24410
STRAW chambers	37	678	56	1133
W45	2859	9177	4254	15335

MWPC and W45 contaminations are high!

COMPASS - GC Analysis (Maria Cristina Arena)

GC Results



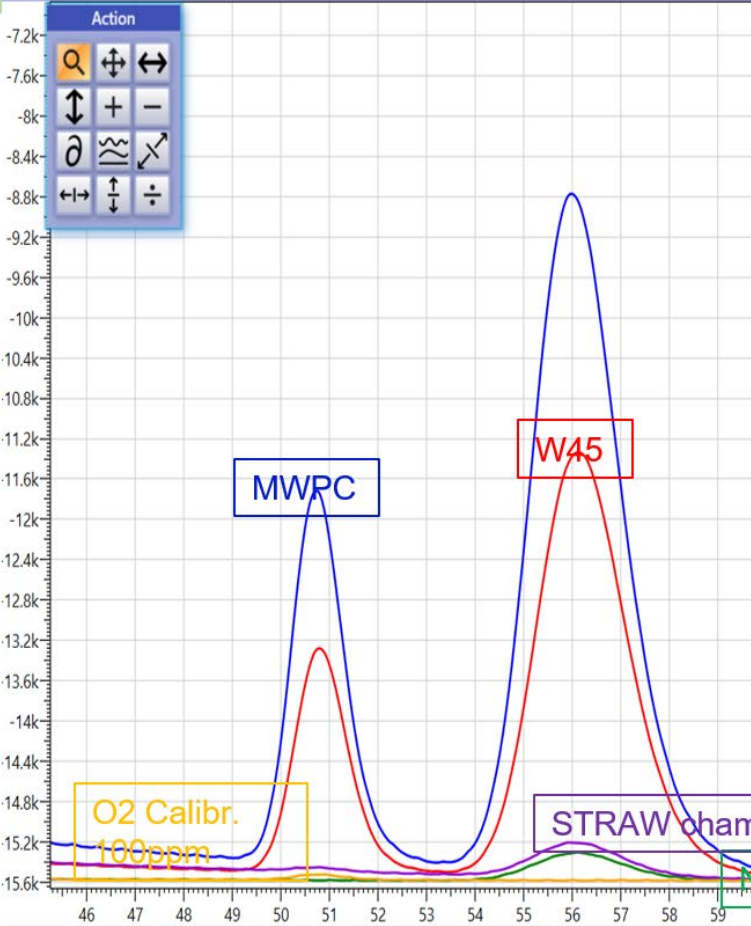
→ MWPC contamination worsening (we measured ~ 3000 ppm)
→ Filter is exhausted (?)
→ More frequent replacement
→ Parallel filtering
→ Include H2O filters
→ Need to implement monitoring system

→ W45
→ Situation similar to last year (2000,3000 ppm?)
→ Need to implement monitoring system/leak search

In the next days measurement of HF contaminants

COMPASS - GC Analysis (Maria Cristina Arena)

GC Results

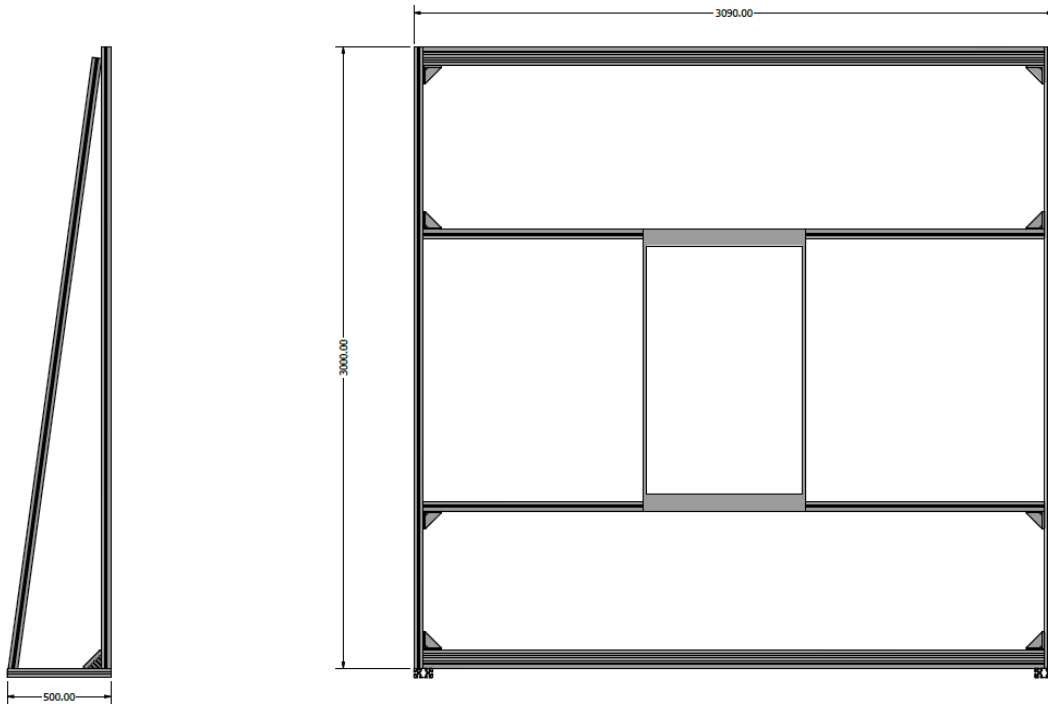


R3000ugc
COMPASS_MW
COMPASS_W45
N2_calib_1000p
COMPASS_STR
O2_calib_100pp

- MWPC contamination worsening (we measured ~ 3000 ppm)
 - Filter is exhausted (?)
 - More frequent replacement
 - Parallel filtering
 - Include H2O filters
 - Need to implement monitoring system
- W45
 - Situation similar to last year (2/3 kppm?)
 - Need to implement monitoring system/leak search

GEM 12 support

GEM 12 Support



Most of the support is out of acceptance



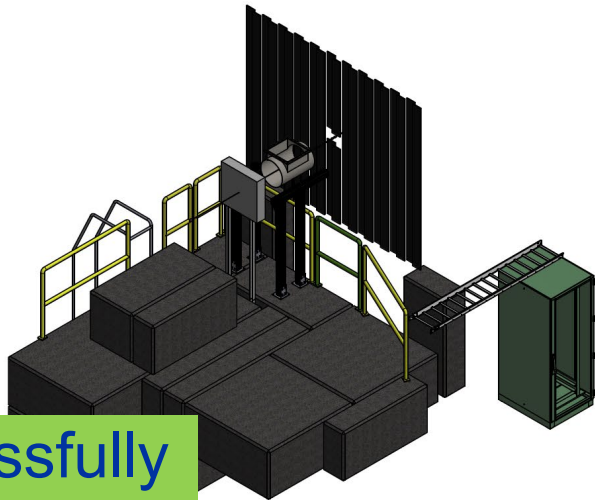
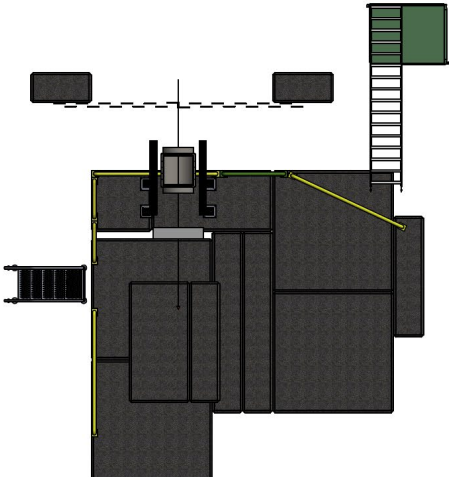
- ready for installation
- concrete block 8x8x2 ordered

Missing input from Bonn for the gas line deployment

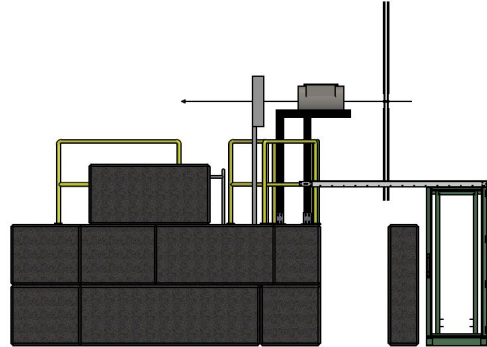
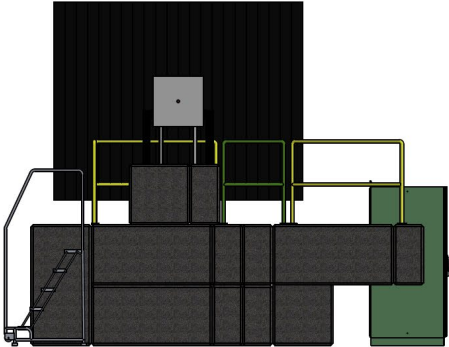
Installation ?

AMBER UTS stand (short update)

Proposal for the UTS tests at COMPASS



The model proposed was successfully validated by A. Shunko



DRAWN	4/19/2022		
CHECKED		TITLE	
QA			
MEG			
APPROVED			
		SIZE	DWG NO
		D	

Sent to people involved in the Project: scientific coordinator, spokesperson

- Waiting for feedback
- Material procurement
- Installation
- Missing information about the UTS fixing ...
- The ... the feedback the ... construction and the ... the run starts
- funds for purchasing

Waiting for the delivery! delayed due to material procurement

Thanks!


Agenda





Joint COMPASS -AMBER Technical Board

Tuesday 19 Jul 2022, 08:50 → 18:00 Europe/Zurich

892/1-D20 (CERN)

Description Speakers, please fill this template of the minutes for the meeting:
<https://codimd.web.cern.ch/pfAycG6dT0KK7cyActjiyg>

Videoconference  COMPASS Technical Board [Join](#) 892/1-D20

09:00	→ 09:10	Communication Speaker: Stefano LEVORATO (INFN Trieste (IT) and CERN)	🕒 10m	
09:10	→ 09:30	Polarized target status Speaker: Norihito DOSHITA (Yamagata University (JP))	🕒 20m	
09:30	→ 09:50	ECAL2 MSADC readout Speakers: Bruno VALINOTI (Universita e INFN Trieste (IT)), Igor KONOROV (Technische Universitaet Muenchen (DE))	🕒 20m	
09:50	→ 10:10	Status of the new GEM stations Speaker: Dmitri SCHAAB (University of Bonn (DE))	🕒 20m	
10:10	→ 10:20	ALPIDE status Speaker: Maxim ALEXEEV (Universita e INFN Torino (IT))	🕒 10m	