



# **Joint COMPASS-AMBER Technical Board 06-December-2022**

Stefano Levorato  
06.12.2022

# Agenda

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## Communications

- Approval of the minutes of the last TB
- TB Membership (AMBER)
- ECAL usage
- SciFi
- BMS ( upgrade ? )
- Network Infrastructure
- Spectrometer Shutdown
- Transition Apparatus
- AoB

# Approval of the minutes of the last TB

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Available at <https://codimd.web.cern.ch/BmqDvxgQS0aRVjPboVvaNQ?view>

## 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/LTPcSL9vSEyH1hRYOoI\\_UA?edit](https://codimd.web.cern.ch/LTPcSL9vSEyH1hRYOoI_UA?edit) for last joint this TB

# TB Membership (AMBER)

DAQ	Martin Zemko	Accepted
DCS	Christophe Pires	Accepted
MWPC/SILICON	Maxim Alekseev	Accepted
FEE/DAQ	Igor Konorov	Not Available
GEM	Bernhard Ketzer	Accepted
ECAL/HCAL	Vladimir Poliakov	Accepted
CEDARS	Marcin Ziembiky	Asking for replacement -->Robert Kurjata
TRIGGER	Moritz Veit	Accepted
PID	Fulvio Tessarotto	Accepted
TPC	Aleksey Dziuba	Asking for replacement --> Evgeny Maev
Phase 2 HW	Bjorn Seitz	Accepted
Silicon DY	Kun Liu	Accepted
Permanent Guests	Oleg Kiselev	
Permanent Guests	Alexander Shunko	
Ex-officio members	Technical Coordinator	
Ex-officio members	Spokepersons	
Ex-officio members	Physics coordinator(s)	
Ex-officio members	Resource Coordinator	
Ex-officio members	Analysis Coordinator	

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TRIGGER	Moritz Veit
PID	Fulvio Tessarotto
TPC	Evgeny Maev
Phase 2 HW	Bjorn Seitz
Silicon DY	Kun Liu

# TB Membership (Calendar)

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
SUN 1	WED 1	WED 1	SAT 1	MON 1	THU 1	SAT 1	TUE 1	FRI 1	SUN 1	WED 1	FRI 1
MON 2	THU 2	THU 2	SUN 2	TUE 2	FRI 2	SUN 2	WED 2	SAT 2	MON 2	THU 2	SAT 2
TUE 3	FRI 3	FRI 3	MON 3	WED 3	SAT 3	MON 3	THU 3	SUN 3	TUE 3	FRI 3	SUN 3
WED 4	SAT 4	SAT 4	TUE 4	THU 4	SUN 4	TUE 4	FRI 4	MON 4	WED 4	SAT 4	MON 4
THU 5	SUN 5	SUN 5	WED 5	FRI 5	MON 5	WED 5	SAT 5	TUE 5	THU 5	SUN 5	TUE 5
FRI 6	MON 6	MON 6	THU 6	SAT 6	TUE 6	THU 6	SUN 6	WED 6	FRI 6	MON 6	WED 6
SAT 7	TUE 7	TUE 7	FRI 7	SUN 7	WED 7	FRI 7	MON 7	THU 7	SAT 7	TUE 7	THU 7
SUN 8	WED 8	WED 8	SAT 8	MON 8	THU 8	SAT 8	TUE 8	FRI 8	SUN 8	WED 8	FRI 8
MON 9	THU 9	THU 9	SUN 9	TUE 9	FRI 9	SUN 9	WED 9	SAT 9	MON 9	THU 9	SAT 9
TUE 10	FRI 10	FRI 10	MON 10	WED 10	SAT 10	MON 10	THU 10	SUN 10	TUE 10	FRI 10	SUN 10
WED 11	SAT 11	SAT 11	TUE 11	THU 11	SUN 11	TUE 11	FRI 11	MON 11	WED 11	SAT 11	MON 11
THU 12	SUN 12	SUN 12	WED 12	FRI 12	MON 12	WED 12	SAT 12	TUE 12	THU 12	SUN 12	TUE 12
FRI 13	MON 13	MON 13	THU 13	SAT 13	TUE 13	THU 13	SUN 13	WED 13	FRI 13	MON 13	WED 13
SAT 14	TUE 14	TUE 14	FRI 14	SUN 14	WED 14	FRI 14	MON 14	THU 14	SAT 14	TUE 14	THU 14
SUN 15	WED 15	WED 15	SAT 15	MON 15	THU 15	SAT 15	TUE 15	FRI 15	SUN 15	WED 15	FRI 15
MON 16	THU 16	THU 16	SUN 16	TUE 16	FRI 16	SUN 16	WED 16	SAT 16	MON 16	THU 16	SAT 16
TUE 17	FRI 17	FRI 17	MON 17	WED 17	SAT 17	MON 17	THU 17	SUN 17	TUE 17	FRI 17	SUN 17
WED 18	SAT 18	SAT 18	TUE 18	THU 18	SUN 18	TUE 18	FRI 18	MON 18	WED 18	SAT 18	MON 18
THU 19	SUN 19	SUN 19	WED 19	FRI 19	MON 19	WED 19	SAT 19	TUE 19	THU 19	SUN 19	TUE 19
FRI 20	MON 20	MON 20	THU 20	SAT 20	TUE 20	THU 20	SUN 20	WED 20	FRI 20	MON 20	WED 20
SAT 21	TUE 21	TUE 21	FRI 21	SUN 21	WED 21	FRI 21	MON 21	THU 21	SAT 21	TUE 21	THU 21
SUN 22	WED 22	WED 22	SAT 22	MON 22	THU 22	SAT 22	TUE 22	FRI 22	SUN 22	WED 22	FRI 22
MON 23	THU 23	THU 23	SUN 23	TUE 23	FRI 23	SUN 23	WED 23	SAT 23	MON 23	THU 23	SAT 23
TUE 24	FRI 24	FRI 24	MON 24	WED 24	SAT 24	MON 24	THU 24	SUN 24	TUE 24	FRI 24	SUN 24
WED 25	SAT 25	SAT 25	TUE 25	THU 25	SUN 25	TUE 25	FRI 25	MON 25	WED 25	SAT 25	MON 25
THU 26	SUN 26	SUN 26	WED 26	FRI 26	MON 26	WED 26	SAT 26	TUE 26	THU 26	SUN 26	TUE 26
FRI 27	MON 27	MON 27	THU 27	SAT 27	TUE 27	THU 27	SUN 27	WED 27	FRI 27	MON 27	WED 27
SAT 28	TUE 28	TUE 28	FRI 28	SUN 28	WED 28	FRI 28	MON 28	THU 28	SAT 28	TUE 28	THU 28
SUN 29		WED 29	SAT 29	MON 29	THU 29	SAT 29	TUE 29	FRI 29	SUN 29	WED 29	FRI 29
MON 30		THU 30	SUN 30	TUE 30	FRI 30	SUN 30	WED 30	SAT 30	MON 30	THU 30	SAT 30
TUE 31		FRI 31		WED 31		MON 31	THU 31		TUE 31		SUN 31
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# WEB pages AMBER

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Start to build the Hardware related web pages

Indico as DB as we agreed, but a la COMPASS

- A web page where the dates and indico pages of TB are listed
- A web page where DE experts and responsible are listed
- A web page with visits to the experiments are listed ( more user friendly than the one we have for COMPASS)

# EHN2 activities during the YETS ( busy schedule in the hall )

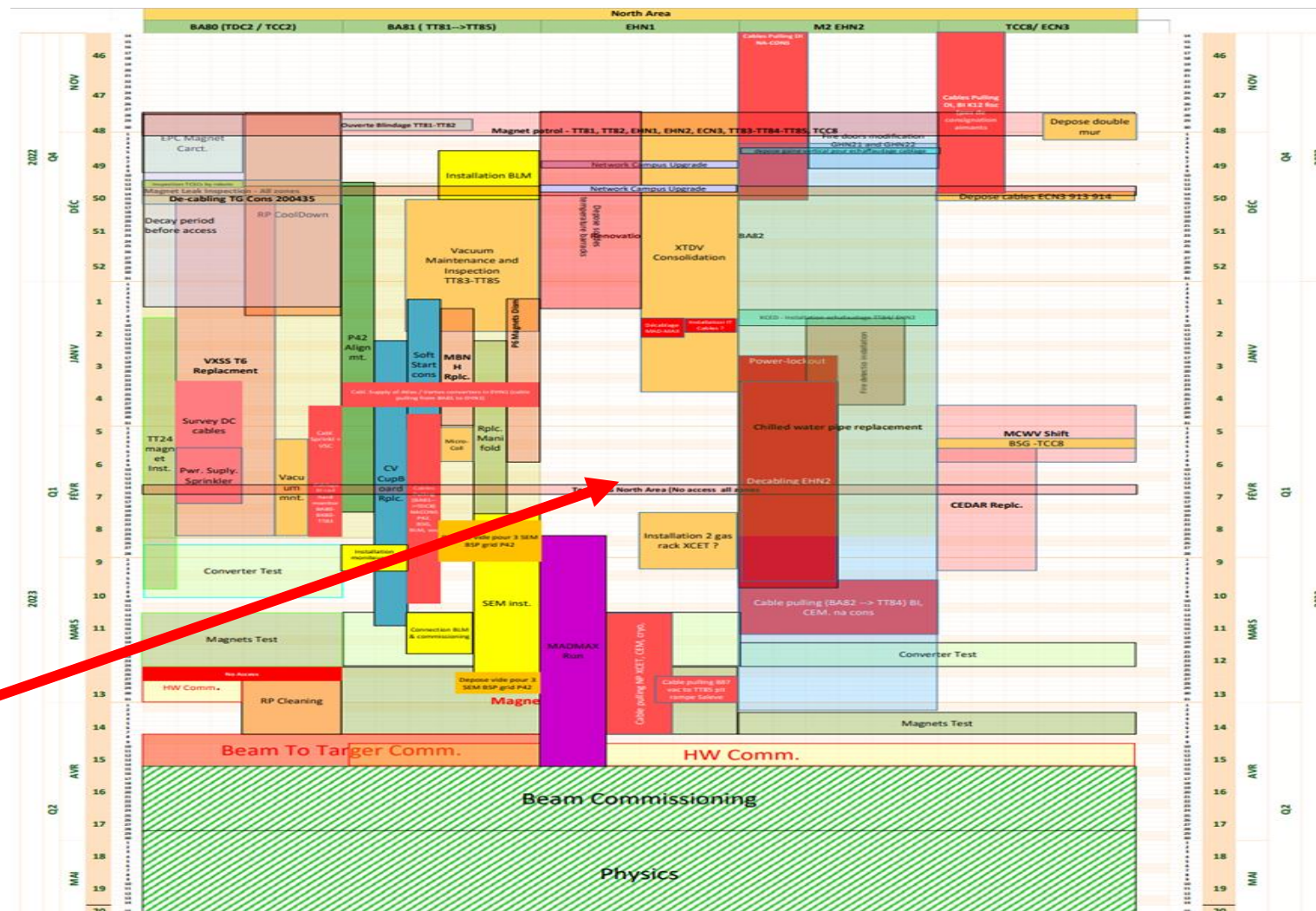
## North Area YETS22-23 Linear Planning

(extract 30.11.2022)

### Important dates:

- First activities began: 14.11.2022
- Access to EHN2 after Yellow door: 14.11.2022
- NA YETS22-23 began: 28.11.2022
- Power Lock-out for de-cabling: 19.01.2023 -10.03.2023
- De-cabling EHN2: 23.01.2023 - 07.03.2023

AUG Test 14.02.23 – 15.02.23





## EHN2 activities during the YETS ( busy schedule in the hall )

- Replacement electrolytical capacitors (SY-EPC): 12.12.2022 – 24.02.2023
- **Chilled Water Pipe** replacement EHN2: **05.12.2022 – 07.04.2023**
- **Fire Detection** Installation: **09.01.2023 – 27.01.2023**
- **Installation Scaffolding CEDARs** area TT84/EHN2: **17.01.2023 – 19.01.2023**

- Power Back in the hall on 10 March
- Cooling water back in the beginning of April  
→ Helium availability for target
- HW BEAM Commissioning: **27.02.2023 – 14.04.2023**
- Beam Commissioning: **07.04.2023 – 28.04.2023**
- NA Physics (Protons & Ions): **01.05.2023 – 26.10.2023**
- **No crane usage till 10 of March**



# ECAL usage

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We would like to have the ECALs included in the setup in 2023.

There are other possible interesting measurements that could eventually be done, a part from pbar xsec measurement, in which the ECALs would be needed, for example the pi0s xsec (indication from Fiorenza Donato)

→ Need of ECAL calibrations (?) → to be planned for 2023 and to be requested to SPS by R.C in terms of beam time and energy.

Renting cost ~ 250 CHF/month

# SciFi

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Request of Rainer to discuss the use of the SciFi detectors in 2023.

- Which stations should be used in the existing position?
- Is there the wish to position detectors elsewhere in order to increase redundancies.
- It has been discussed to position FI15 and/or FI03 in a different position, e.g. inside of SM1 which will be off during the measurement

Information needed to

- Plan the repair the missing channels of FI15 and exchange one weak PMT.
- FI03 should then be properly repaired after the problems we had at the end of the run.

# BMS ( upgrade ? )

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Interest in using the BMS by different experiments

- AMBER
- NA64 $\mu$
- MuonE

Preliminary meeting on 31 of October:

Equipping the BMS it with precise Si tracker planes, in order to improve significantly its momentum resolution. ( replacement or adding the planes)

Liverpool colleagues in MUonE are interested in this part of activity, being expert in the matter, and would like to describe a possible proposal.

Future meeting ( being organized) should discuss

- Compass experience: present performance, limits, application to physics
- NA64mu , AMBER, MUonE : how an upgrade should serve each of the experiment (precision Dp/p, speed, DAQ integrations, ....)

Some of my considerations: it is of interest of different experiments

→ better under CERN responsibility

Expertise in case on malfunctioning during data taking, alignment, calibrations, on call/support / repair

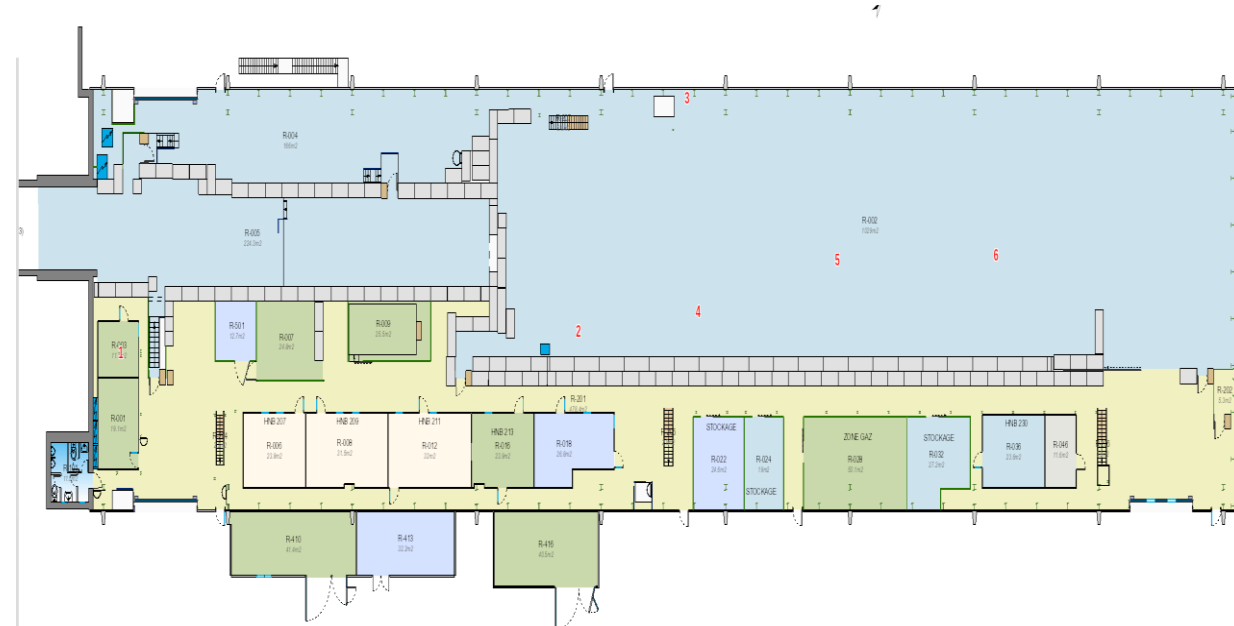
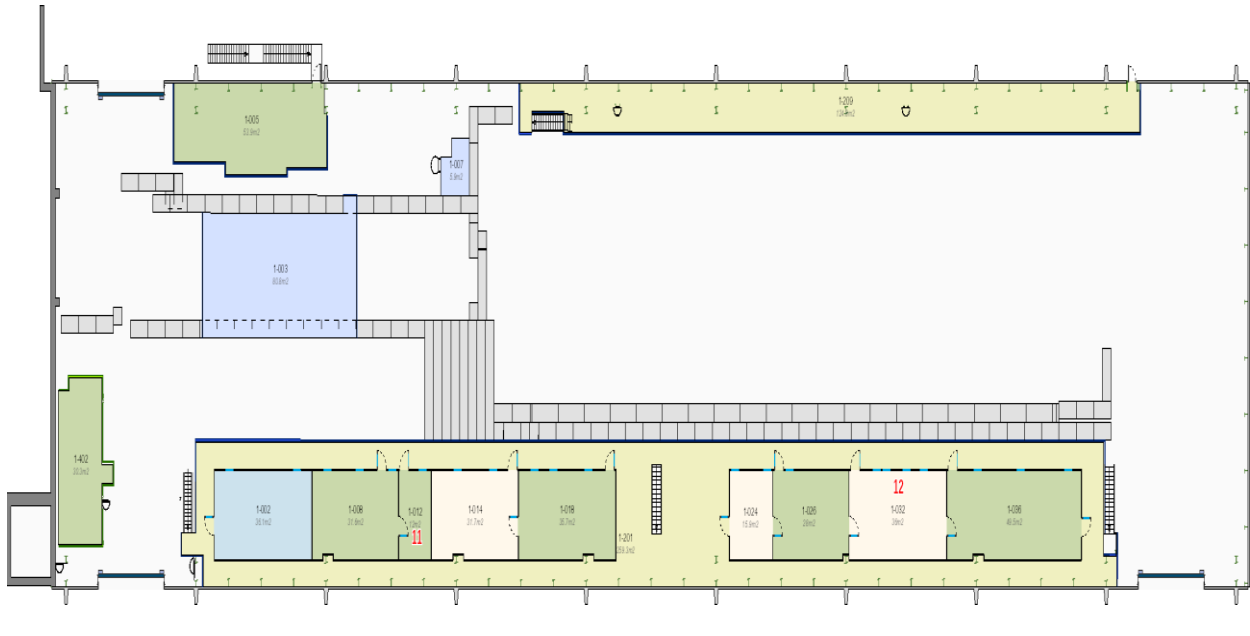
A unique (CERN) DAQ which is shared between the experiments, and not vice versa

MuonE proposed as timeline 2024-25

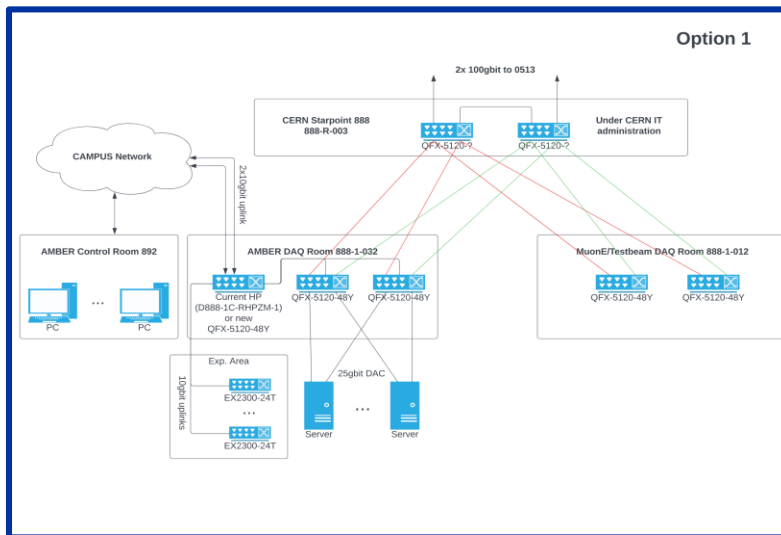
# Optical Fibers: 2023 (Moritz)

Trunk #	Far End	Near End	Name	Direct length (one level) /m	Current # Of Fibers	Comments
1	1	12	888 Starpoint → ADAQ	~85m	12 SM ST	min 48xE2000 SM
2	1	11	888 Starpoint → TDAQ	~40m	12 Sm ST	min 48xE2000 SM
4	2	12	Target → ADAQ	~55m	48 (OM2 ST)	+ 6x24MTP OM4
5	3	12	Gallery → ADAQ	~50m	48 (OM2 ST)	+ 6x24MTP OM4
6	4	12	SM1 → ADAQ	~45m	48 (OM2 ST)	+ 6x24MTP OM4
7	5	12	SM2 → ADAQ	~35m	48 (OM2 ST)	+ 6x24MTP OM4
8	6	12	ECAL2 → TDAQ	~25m	48 (OM2 ST)	+ 6x24MTP OM4
9	1	CleanRoom	888 Starpoint → Clean		?	min 12xE2000 SM

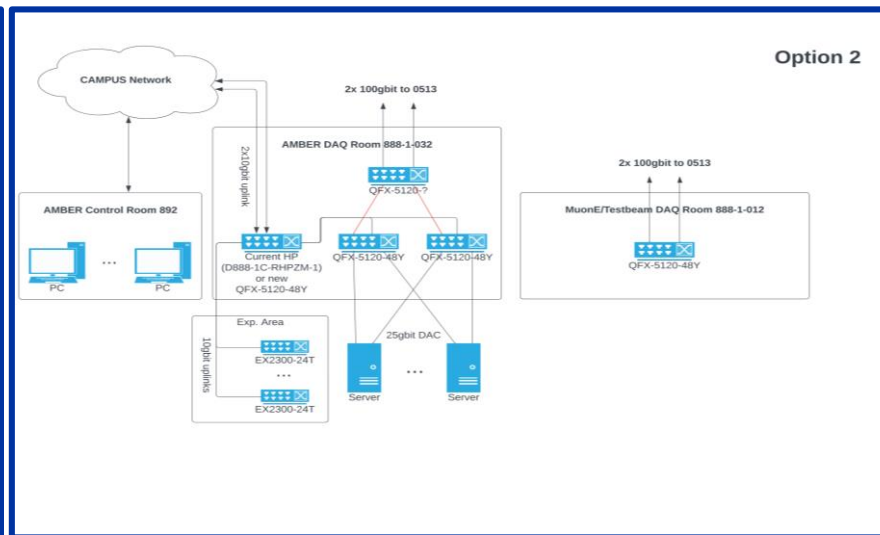
Fiber needs in 888 to be installed after the lock out for decabling ~ mid of March 2023:



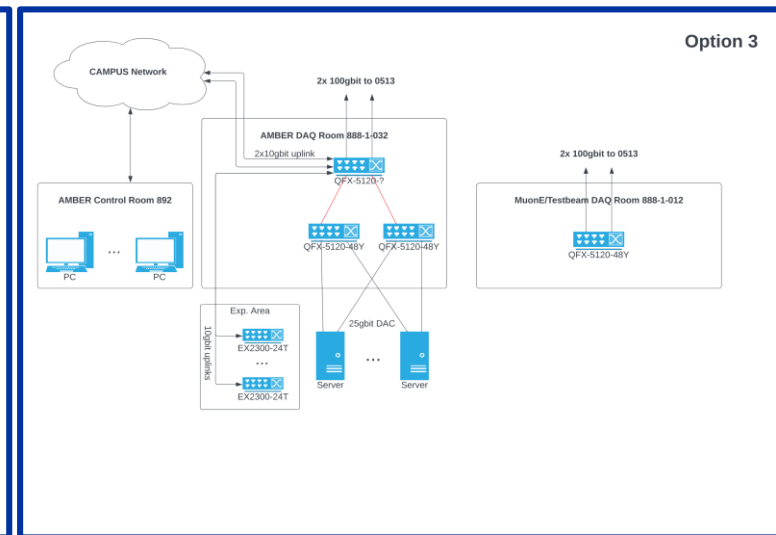
# Network Infrastructure for EHN2 (Igor, Moritz)



- Common boarder router in 888-R-003 for all experiments in 888
- dedicated experimental router/switches in the two DAQ rooms
- Hardware in 888-R-003 would be under IT administration while dedicated experimental switches in 888-1-032 and 888-1-012 are under experiment administration
- Uplink to 0513 is shared between all experiments



- Current Uplink to 0513 is not shared -> second uplink for AMBER is needed
- No hardware will be installed in 888-R-003 fiber run between 888-R-003 and 888-1-032 is needed
- Separated networks between AMBER and other experiments



- Like Option 2 but old HP Router in 888-1-032 is replaced against Juniper (QFX-5120-48Y)
- This scenario is possible for option 1

## Open general questions:

- For all three options new fiber runs between 888-R-003 and 888-1-032 as well as 888-1-012 are needed so we should place the request to EN-EL-FO as soon as possible
- How many fibers and which type of fibers + connectors should be installed to be future proof ?
- Which optics of the QFX-5120 router/switches are needed for the uplink to 0513?
- Traffic between 888 and control room in 892 runs over the CAMPUS network for the moment -> should it stay like this or should we foresee a dedicated link ?

The question if Option 1 or Option 2/3 (shared uplink to 513 or dedicated) has still to be discussed with experiments. **BE-EA-LE offered budget for common infrastructure as well as dedicated uplinks to 0513.**

# Spectrometer Shutdown

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The spectrometer is nearly off.

Several VME crates are still operative.

Soon no one will be around in case of emergency

Any need to keep em on? can DE switch them off or should/can we switch em off till next year

# Equipment Transfer NA58→NA66

Agreement  
on the  
Transfer of Equipment and Responsibilities  
between  
the COMPASS (NA58) Collaboration  
and  
the AMBER (NA66) Collaboration

2.5. This Agreement does not apply to Equipment owned either by member institutions of the COMPASS (NA58) Collaboration or the COMPASS (NA58) Collaboration as a whole that the AMBER (NA66) Collaboration does not wish to reuse.

### 3. Equipment Owned by Member Institutions

- 3.1. The ownership of the Equipment described in clause 2.2 remains unchanged.
- 3.2. With the signature of this Agreement, the responsibility for co-ordinating the use, maintenance etc. of the Equipment described in clause 2.2 is passed from the COMPASS (NA58) Collaboration to the AMBER (NA66) Collaboration.

### 4. Equipment Owned by the Collaboration as a Whole

- 4.1. With the signature of this Agreement, the ownership of the Equipment described in clause 2.3 is passed from the COMPASS (NA58) Collaboration to the AMBER (NA66) Collaboration, including all benefits and obligations rooted in the ownership.

### 5. Validity

- 5.1. This Agreement enters into force with the last signature of the parties.
- 5.2. This Agreement is valid until it has been fully implemented.

### 6. Annexes

- 6.1. The Annexes are an integral part of this Agreement.
- 6.2. The Parties will make every effort to ensure that the information contained in the Annexes to this Agreement is kept up-to-date. To this end, they shall review the information at least annually. The Parties shall inform CERN promptly of any update.
- 6.3. Notwithstanding the foregoing, it is agreed that the Parties shall have authority to decide on any update of information in the Annexes, without the need for signature of a corresponding Amendment.

### 7. Signatures

- 7.1. The COMPASS (NA58) Collaboration is represented by the Co-Spokespersons and the Chair of the Collaboration Board.

Agreement  
on the  
Use of Equipment  
between  
the Commissariat à l'énergie atomique  
et aux énergies alternatives  
Saclay, Gif-sur-Yvette, France  
and  
the AMBER (NA66) Collaboration

### 3. Ownership

- 3.1. The Commissariat à l'énergie atomique et aux énergies alternatives maintains its ownership of the Equipment described in clause 2.2 with all benefits and obligations rooted in this ownership.

### 4. Right to Use and its Termination

- 4.1. The Commissariat à l'énergie atomique et aux énergies alternatives grants the AMBER (NA66) Collaboration the right to use the Equipment described in clause 2.2 for the purposes of the AMBER (NA66) Experiment in agreement with CERN Research Board decisions and the AMBER (NA66) Memorandum of Understanding.
- 4.2. The Commissariat à l'énergie atomique et aux énergies alternatives does not guarantee in any way that the Equipment is fit for purpose.
- 4.3. The AMBER (NA66) Collaboration agrees to operate and maintain the Equipment during its use in the AMBER (NA66) Experiment. The Commissariat à l'énergie atomique et aux énergies alternatives has no obligation to contribute to operating and maintaining the Equipment.
- 4.4. For the use of the Equipment, no financial compensation by the AMBER (NA66) Collaboration is due towards the Commissariat à l'énergie atomique et aux énergies alternatives.
- 4.5. The right to use the Equipment is valid until at least the end of the antiproton run of the CERN SPS accelerator in 2023.<sup>2</sup>
- 4.6. Notwithstanding the provision of clause 4.5, the Commissariat à l'énergie atomique et aux énergies alternatives is entitled to claim the Equipment or part thereof with an advance notice of at least six months to the AMBER (NA66) Collaboration unless the Collaboration explicitly agrees to an earlier date.
- 4.7. Notwithstanding the provision of clause 4.5, the Commissariat à l'énergie atomique et aux énergies alternatives is entitled to offer that the ownership the Equipment or part thereof is transferred to an institution participating in the AMBER (NA66) Collaboration. Such transfer of ownership, including all benefits and obligations rooted in it, shall be described in a dedicated agreement between the Commissariat à l'énergie atomique et aux énergies alternatives and the receiving institution. The Agreement shall be testified by the AMBER (NA66) Collaboration and by the European Organization for Nuclear Research (CERN).

Received yesterday the DRAFT for the equipment transfer: