

ECR/Documents for Information and Approval

Giulia Romagnoli and Natalya Kahn for BE-EA, 2024-03-12

[EA Documents - Agile Board - CERN Central Jira](#)



LIST OF DOCUMENTS for Info

FOR INFORMATION EATM				
Summary	Reporter	EA Projects	EDMS number	EDMS Status
Asset Replacement Request - LNE.BSGWA.0225	Francois Butin	AD	3003071 - AD-B-ARR-0001	Released
Risk Register NA-CONS 2023	Filipa Duque Carvalho	North Area – NACONS	2958089 - SPSX-PM-MG-0045	Released
AD Power Converters Consolidation - Functional Specification	Serge Pittet	AD	2749904 – AD-R-ES-0003	Released
North Area Consolidation - 4.5 Electrical and Fibre Infrastructure Work Package Description	Eva Cano Gonzalez	North Area – NACONS	2669639 - SPSX-E-WD-0002	Engineering check
Risk Register Report 2022	Filipa Duque Carvalho	North Area – NACONS	2823410 - SPSX-PM-RPT-0001	Engineering check
XCED Thermal Housing Functional Specification	Miguel Lino	North Area – NACONS	2957089 - SPSX-X-ES-0005	Under Approval
FEM analysis of the T ₄ Target for the ECN ₃ high intensity scenarios	Calum Sharp	HI-ECN3	2812842	Engineering check
FEM analysis of the T ₄ XTAX for the ECN ₃ high intensity scenarios	Alvaro Romero Francia	HI-ECN3	2812843	Engineering check
FEM analysis of the beam windows in T ₄ for the ECN ₃ high intensity scenarios	Alvaro Romero Francia	HI-ECN3	2812844	Engineering check
Vacuum System of the P ₄ /P ₄₂ Primary Beam Line for the High Intensity Facility in ECN ₃	Matthew Fraser	HI-ECN3	3006552	Engineering check

LIST OF DOC for FUTURE APPROVAL

ECR INFO/FUTURE APPROVAL EATM				
Summary	Reporter	EA Projects	EDMS number	EDMS Status
NA-CONS Fire Safety and Access WP 5.1.3 Fire-Resistant Partition	Adem Kaymak	North Area – NACONS	3010259 - SPSX-SF-EC-0006	Engineering check
Consolidated XCRHV Installation in TT82 YETS 23/24	Jan Buesa Orgaz	North Area - NACONS	2961759 - SPSX-TC-EC-0001	Engineering check
Shielding Improvement for the High Intensity Hadron Operation of M2	Dipanwita Banerjee	North Area	2868386 - SPSX-J-EC-0002	Engineering check
User Requirement for the XABS Absorbers in M2 Line in North Area	Dipanwita Banerjee	North Area – NACONS	3012379 – SPSX-T-ES-0007	In work
BA8o Fire Detection Equipment	Florian Andre Deperraz	North Area – NACONS	2997829 - SPSX-SF-EC-0005	Under Approval
User Requirements for XCM Magnetic Collimators and XCMIB Magnetized Iron Blocks in North Area Beamlines	Dipanwita Banerjee	North Area – NACONS	2798464 – SPSX-TC-ES-0006	Under Approval
User Requirements for XTAX Absorbers in North Area Beamlines	Miguel Lino Diogo Dos Santos	NACONS, Equipment	2747997 - SPSX-T-ES-0003	Under Approval
Replacement of Big Vertical Collimator XCBV on M2 Beamline in TT84	Giulia Romagnoli	North Area - NACONS	2976670 - SPSX-TC-EC-0002	Under Approval
Installation of XCET Detectors in Neutrino Platform NPo2 and NPo4	Giulia Romagnoli	North Area	2811758 - SPSX-X-EC-0001	Under Approval

LIST OF DOC for FUTURE APPROVAL

ECR INFO/FUTURE APPROVAL EATM				
Summary	Reporter	EA Projects	EDMS number	EDMS Status
User Requirements for XCM Magnetic Collimators and XCMIB Magnetized Iron Blocks in North Area Beamlines	Dipanwita Banerjee	North Area	2798464 - SPSX-TC-ES-0006	Under Approval
User Requirements for XTCX Fixed Collimators in North Area Beamlines	Dipanwita Banerjee	North Area – NACONS	2802303 – SPSX-TC-ES-0008	Engineering check
User Requirements for the XCSH/V, XCHV and XCBV Collimators	Nikolaos Charitonidis	North Area – NACONS	2742301 – SPSX-TC-ES-0004	Under Approval
Installation Water Cherenkov Test Experiment in Tog beamline During YETS 23-24	Dipanwita Banerjee	EA	2960989 - PSZ-J-EC-0003	Engineering check
High-Intensity Beam to IRRAD/CHARM	Federico Ravotti	EA	3024761 - PSZ-L-EC-0002	Under Approval

LIST OF MISSING ECRS for YETS 23/24

MISSING ECRS			
Summary	Reporter	EA Projects	EDMS number
NP Platform Installation on H4	Filippo Resnati	North Area	Coming soon...
Installation Tuyauterie BA81-TT81/Installation Baie SDI - Detection Incendie	Michael Dole	North Area – NACONS	Coming soon...

LIST OF DOCs for APPROVAL

ECR APPROVAL EATM				
Summary	Reporter	EA Projects	EDMS number	EDMS Status
Renovation of Gas Distribution Infrastructure for Building 887 Jura Side	David Jaillet	North Area	2973540 - SPSX-F-EC-0005	Under Approval
Installation of a Radiation-Hard Profile Monitor in TT84	Inaki Ortega Ruiz	North Area	3001893 - SPSX-B-EC-0005	Under Approval
BA8o Carottage	Michael Jeckel	North Area	3016495 - SPSX-J-EC-0004	Under Approval
User Requirements for XBPF Detectors in North Area Beamlines	Nikolaos Charitonidis	North Area	2719043 - SPSX-B-ES-0001	Under Approval
Space Reservation Request - North Area Surface Fire Detection Racks	Michael Jeckel	North Area	3018433 - SPSX-SF-EC-0007	Under Approval

ECR for Approval

SPSX-F-EC-0005
Version **0.2**

By David Jaillet

Renovation of Gas Distribution Infrastructure for Building 887 Jura Side

This document covers the renovation of the gas distribution infrastructure in EHN₁ (Building 887), Jura side.

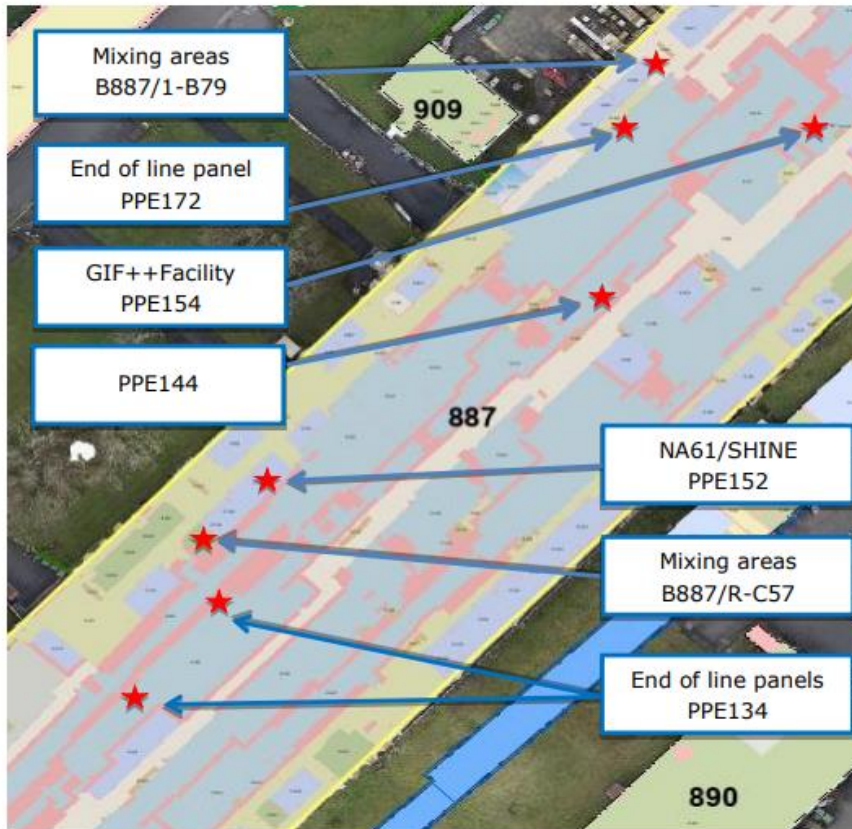


Figure 2: Overview of the gas distribution system of EHN₁ (Building 887) on the JURA side.

The renovations will involve:

- Updating the piping network from the gas buildings to the mixing areas;
- Updating the piping network from the mixing areas to the PPEs;
- Updating the ATEX-area safety criteria of the mixing areas and reducing these areas to a limited space, adding ATEX air extraction;
- Adding closed end-of-line panels in PPE134 and PPE172;
- Removing accessible flammable gas panels from the Jura wall.

The infrastructure changes include:

- Dismantling existing gas installations;
- Supply and installation of two gas mixing cabinets;
- Supply and installation of three gas end-of-line panels;
- Supply and installation of all interconnection piping between Buildings 909 and 887.

ECR for Approval

SPSX-F-EC-0005

Version **0.2**

By David Jaillet

Renovation of Gas Distribution Infrastructure for Building 887

Jura Side

— Seen by **VAXELAIRE Didier** (EN-AA) Created on 2023-11-24, 14:35

— Seen by **GENILLON Xavier** (SY-EPC) Created on 2023-11-27, 07:39
Seen

— Seen by **BEYNEL Alexandre** (BE-GM) Created on 2023-11-27, 07:51
Seen

— Seen by **ABERLE Frederic Lionel** (HSE-RP) Created on 2023-11-27, 08:29

Thank you for taking into account my comments.
Concerning my comment in §7.1: You added: "if a ζ sabre saw ζ is used, the use of a vacuum cleaner dedicated to radiologically classified areas would be mandatory." but it is in the section concerning "Alarms deactivation/activation (IS37)", but it should be in the previous section: "Fire risk/permit (IS41) (welding, grinding ζ)".

✓ Accepted by **KADI Yacine** (BE-EA) Created on 2023-11-27, 09:42

Thank you for the detailed ECR. Note is taken of the re-scheduling of activities to EYETS 2024/25.
Please ensure that both PLAN and EYETS 2023/24 baseline schedule are updated accordingly.

— Seen by **GULLEY Jonathan** (HSE-OHS) Created on 2023-11-27, 12:06
Ok, no comments

✓ Accepted by **BROCA Nicolas Michel** (EN-AA) Created on 2023-12-01, 08:25
OK

✓ Accepted by **EBN RAHMOUN Aboubakr** (BE-EA) Created on 2023-12-05, 11:25
Ok from my side

— Seen by **NONIS Mauro** (EN-PAS) Created on 2024-01-15, 16:54

— Seen by **GRENARD Jean-Louis** (SY-STI) Created on 2024-02-16, 08:24

Seeking approval from EATM



ECR for Approval

SPSX-B-EC-0005

Version **0.2**

By Inaki Ortega Ruiz

Installation of a Radiation-Hard Profile Monitor in TT84

A prototype radiation-hard profile monitor will be installed in the TT84 section of the M2 beamline to conduct tests with M2's highest intensity beams (to check for saturation at higher beam intensities (1010 particles/spill)).



Figure 1: Current layout on GIS Portal. Yellow: QWL.X0610677; Red: XION.X0610677; Blue: XCIO.X0610677.

For installation, the XION will be moved, and the vacuum chamber will be shortened by 325 mm.

To summarise, actions include:

- Pulling cables and fibre optics,
- Installing and aligning a yellow support,
- Cutting/rearranging vacuum pipes,
- All changes to be reflected in Layout Database.

ECR for Approval

SPSX-B-EC-0005
Version **0.2**

Installation of a Radiation-Hard Profile Monitor in TT8₄

By Inaki Ortega Ruiz

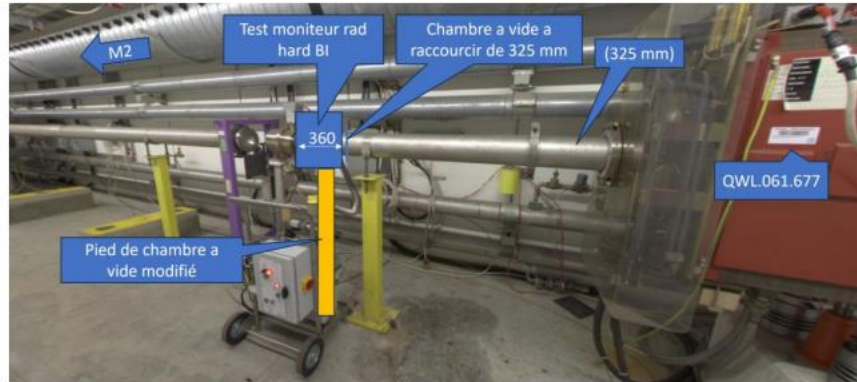


Figure 2: Planned alterations [3].

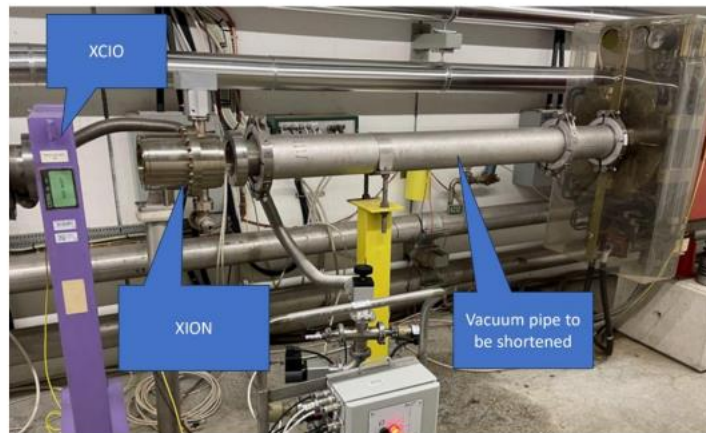


Figure 3: Situation before prototype installation [3].



Figure 4: Planned alterations [3].

ECR for Approval

SPSX-B-EC-0005

Installation of a Radiation-Hard Profile Monitor in TT8₁

Version **0.2**

By Inaki Ortega Ruiz

— Seen by DEEPTI Deepti (BE-EA)

Cr

Seen

⚠ Accepted with Warning by KADI Yacine (BE-EA)

Last modified on 2024-02-29, 11:18 | Cr

Thank you for this ECR. Important milestone in the context of the future high-intensity operation of the NA beam lines.

a 2×10^{11} p/spill user requirement is mentioned in [EDMS 2719043](#). How does this compare with the present scope ?

The ECR should be checked/validated by Survey & Alignment team (BE-GM).

3D integration models are missing, have these modifications been validated by integration team (ICEA) ?

I confirm that the budget is available within NA-CONS (APT WU#234926)

▼ Page comments

Page 5

Table 4.2: missing requirements for alignment and reference to new 3D integration models

⚠ Accepted with Warning by TAN Jocelyn (SY-BI)

Cr

As the layout is affected (shortened beam pipe), 3D integration drawings must be updated with the profile monitor model.

The aim of the prototype is to test the fibres under high particle flux. It's not an operational device: so an alignment error of the tank by a couple of mm is not a big issue for the study.

✔ Accepted by BOISSEAUX-BOURGEOIS Philippe (BE-EA)

Cr

ok for the vacuum aspects.

Seeking approval from EATM



ECR for Approval

SPSX-J-EC-0004
Version 0.2

By Michael Jeckel

BA8o Carottage

A \varnothing 200mm carottage below the fire detection rack RA1518 in BA8o – 889 R-007 is required to pass the dedicated cables from the rack to the cable tray below 889 S-411 towards the north part of the building

Additional carottage \varnothing 200mm

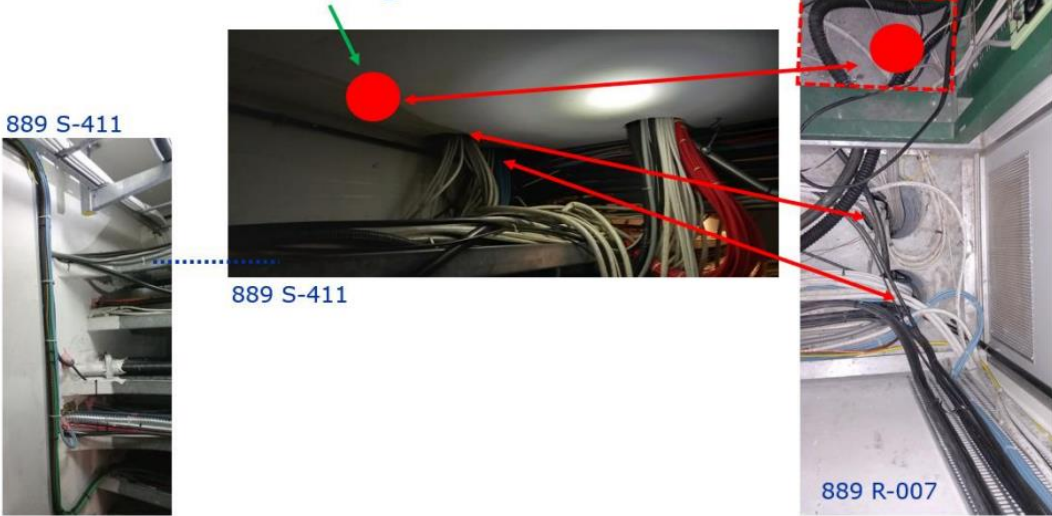


Figure 1 — Position of carottage B.889 S-411 & R-007.

A cable passage is needed to connect fire detection devices and power supply cables to the fire detection rack.

An additional \varnothing 200mm carottage dedicated to the fire detection system is needed to ensure its future evolution within NA-CONS. This will be added directly below the rack RA1518.

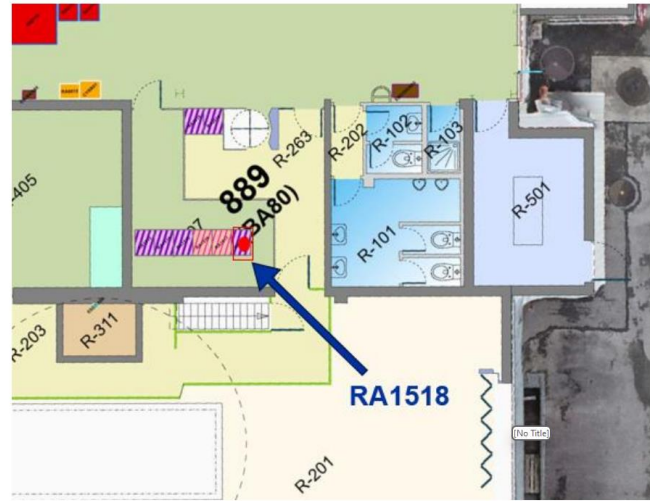


Figure 2 — Position of carottage below rack RA1518 in B.889 R-007.

ECR for Approval

SPSX-J-EC-0004
Version **0.2**

By Michael Jeckel

BA8o Carottage

— Seen by **PIRA Yann Pierre** (HSE-RP)

Seen.

— Seen by **GENILLON Xavier** (SY-EPC)

Seen

⚠ **Accepted with Warning** by **BALTASAR DOS SANTOS PEDROSA Fernando** (EN-ACE)

The core drilling has been performed already in January 2024

Seeking approval from EATM

ECR for Approval

SPSX-B-ES-0001
Version **0.3**

By Nikolaos Charitonidis

User Requirements for XBPF Detectors in North Area Beamlines

This document summarises the needs of the users and the physics requirements for the XBPF/XBTF detectors for all North Area Beamlines.

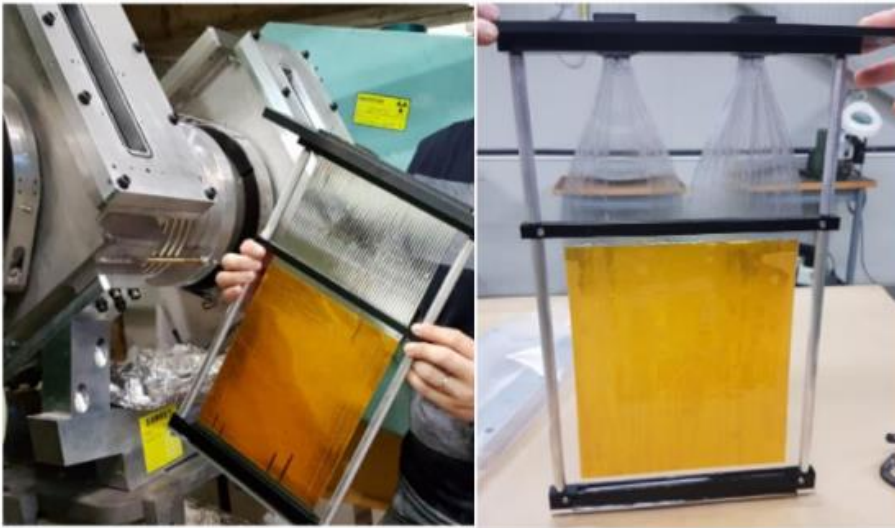


Figure 1: Photographs of the **XBPF** (left) and the **XBTF** (right).

Currently, two different types of fibre detectors have been developed by the SY-BI group: the XBPF and the XBTF.

The XBPF can be used to provide the beam profile in both planes (and therefore be also used in the application for the momentum spectrometry), while the XBTF is suitable for trigger & total intensity counting, as well as for the TOF application described above.

ECR for Approval

SPSX-B-ES-0001

Version **0.3**

User Requirements for XBPF Detectors in North Area Beamlines

By Nikolaos Charitonidis

Summary of the requirements:

- Geometrical acceptance > 99 %;
- Space resolution per channel of less than $1/\sqrt{12}$ mm for the XBPFs;
- Active area of about 30x30 cm², 20x20 cm² or 10x10 cm², depending on the beam-line and the position to be placed;
- As low as possible material budget ($\sim 0.3\% X_0$);
- Sustainable rate, ranging within $10^3 - 2 \times 10^{11}$ p/s (necessary range for M₂, not applicable for the VLE lines, relaxed low intensity end & maximum $\sim 10^8$ p/s would be also enough for the EHN₁ lines) in the full energy range of 0.5 – 450 GeV/c including various species of ions;
- Operational in vacuum and in air. A list with the detectors for vacuum and air should be discussed directly between SY/BI and the responsible physicist on a case-by-case basis;
- Possibility for remote removal IN/OUT of the beam;
- Alignment with the beam within 100 μm ;
- Radiation hardness for protons and ions;
- Compatibility with various ion species / rigidities up to 380 GeV/c/Z.
- If possible, to have divergence measurements using the XBPFs, then a maximum individual fiber size of 0.5 mm would be acceptable. In the case of an eventual integration of a scintillator tile with the XBPF (motorised and in-vacuum), a way to retrieve the analogue signal from the photomultiplier should be envisioned;
- If new XBPF/XBTF are produced, the alignment strategy should be re-evaluated with BE-GM to ensure the possibility of measuring the position of the equipment without dismounting.

For the Neutrino Platform lines, additional requirements are:

- Particle by particle identification using a Time-of-Flight (TOF) configuration;
- Fast trigger signal generation;
- Momentum spectrometry.

ECR for Approval

SPSX-B-ES-0001

User Requirements for XBPF Detectors in North Area Beamlines

Version **0.3**

By Nikolaos Charitonidis

Seen by LENDARO Jerome (BE-CEM)	Created on 2023-07-25, 15:07
Seen by VENDEUVRE Camille (BE-GM)	Created on 2023-07-31, 15:43
Seen by DEVINE James Dilwyn (EP-DI)	Created on 2023-08-07, 15:30
No comment.	
Seen by ZICKLER Thomas (BE-EA)	Created on 2023-08-09, 16:50
Seen	
Seen by GAILLARD Yves (SY-EPC)	Created on 2023-08-10, 15:55
Seen by TAN Jocelyn (SY-BI)	Created on 2023-08-31, 13:22
Seen	
Seen by GAINANT Christelle (BE-ASR)	Last modified on 2023-09-11, 11:01 Created on 2023-09-11, 11:00
Could you please: - specify who will be responsible to produce the Safety Documentation for the detectors ? - add the SY DSO in the loop.	
Thanks.	
Seen by ROMAGNOLI Giulia (BE-EA)	Created on 2023-11-16, 11:40
Please verify the need of ungraded XBPF on M2 according to physics requirements (vacuum in the line)	
Accepted by BERNHARD Johannes (BE-EA)	Created on 2024-02-20, 10:50
Thanks for the nice document.	

Seen by **FOLCH Ramon** (BE-EA) Created on 2023-07-20, 18:16

Thanks for this important document.

We must check if we have sufficient information to decide the design solution for the supports, which shall be compatible with the survey requirements, and the integration constraints.

I think that BE/GM should be added to the checkers list.

Seen by **GENILLON Xavier** (SY-EPC) Created on 2023-07-21, 07:34

Seen

Seen by **BEYNEL Alexandre** (BE-GM) Created on 2023-07-21, 07:53

Seen

Seen by **SCHWARZ Philip** (TE-MSD) Created on 2023-07-21, 08:32

Seen by **LINO DIOGO DOS SANTOS Miguel** (BE-EA) Created on 2023-07-21, 09:54

Thank you very much,

It would be good to have the justification mentioned in the document for the required precision.

Accepted by **KADI Yacine** (BE-EA) Created on 2023-07-21, 11:02

Thank you for these clear and complete requirements.

Now that both Phase-1 and Phase-2 budget of NA-CONS has been approved (MTP 2023), it is important to clarify the alignment strategy and corresponding mechanical support requirements as these may have an impact on the already approved budgets

Seen by **EBN RAHMOUN Aboubakr** (BE-EA) Created on 2023-07-24, 09:46

Seen

Seen by **AHDIDA Claudia Christina** (HSE-RP) Created on 2023-07-25, 13:39

Seen

Seeking approval from EATM



ECR for Approval

SPSX-SF-EC-0007
Version 0.2

By Michael Jeckel

Space Reservation Request - North Area Surface Fire Detection Racks

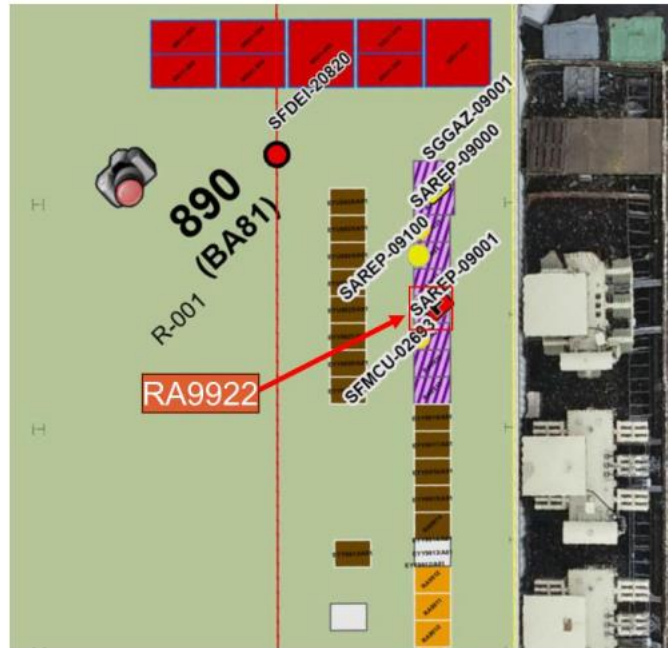



Figure 4 - BA81, 890/R-001, RA9922.

ECR for Approval

SPSX-SF-EC-0007
Version **0.2**

By Michael Jeckel

Space Reservation Request - North Area Surface Fire Detection Racks

 Accepted with Warning by **KADI Yacine** (BE-EA)


Created on 2024-02-16, 10:19

Request checked by main stakeholder (SY-EPC for BA80 and BA81 and BE-EA for EHN1). In the case of BA80, please seek validation from ICEA. As a matter of fact, BA80 toilets will be modified this RUN to host the underground fire detection system. Have you envisaged the possibility to merge with them ?

 Seen by **GENILLON Xavier** (SY-EPC)

Created on 2024-02-19, 10:33

Seen

 Accepted with Warning by **LAZZARONI Michael** (BE-EA)

Created on 2024-03-11, 09:56

- For RA1518 in BA80 (887/R-007): Position validated during ICEA#29 (see comments in the minutes).
- For RA9922 in BA81 : Position not presented/validated yet during an ICEA. The integration study of the whole BA81 will be in phase 2, and implemented during LS4. So I see no showstopper to keep your rack and make a consolidation during LS3. Note that depending the BA81 integration study, this position might change. But still to present it to an ICEA.
- For the two cases in EHN1:
1/ Salève side, to keep the same position is OK, but the false floor could be removed during the "false floors and barracks" study which will be carried out during phase 2 of NACONS. Maybe worth to evaluate if we could already remove the false floor.
2/ Jura side: OK to keep the same position.

 Seen by **GAILLARD Yves** (SY-EPC)

Created on 2024-03-11, 10:40

Seeking approval from EATM



Thank you!

