



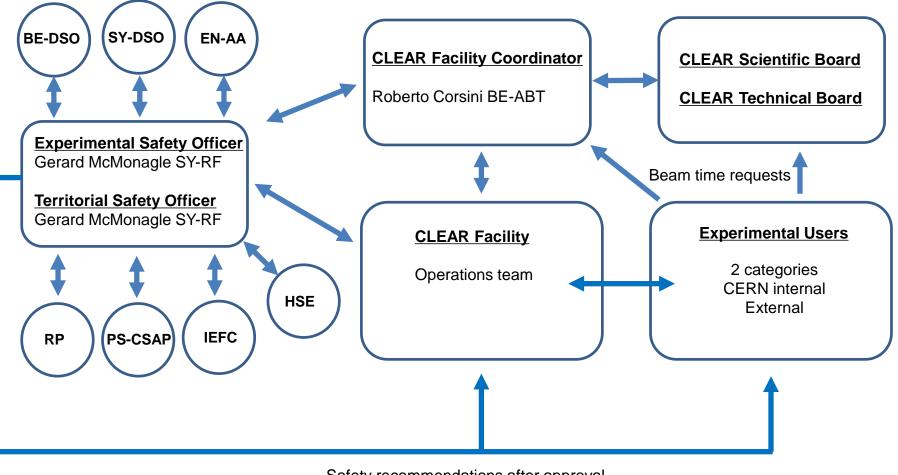
General Overview of Safety Matters in CLEAR Facility



CLEAR REVIEW 16 March 2021



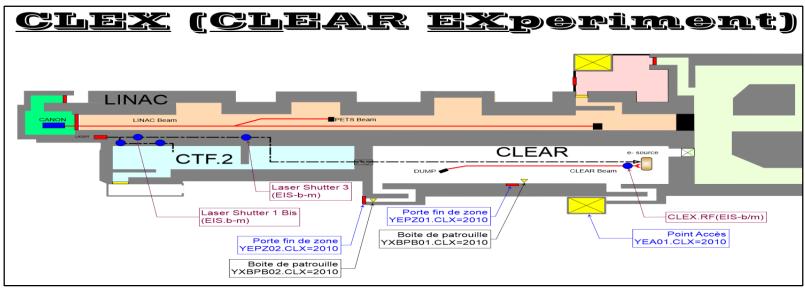
Safety Organigram



Safety recommendations after approval (Approval procedure in later slide)



Main Safety Hazards in CLEAR



The radiation hazards associated with the CLEAR experiment, which involves accelerating a highintensity electron beam when the LASER and RF are in operation, are taken into account in the personnel protection system.

Details can be found in links below

Modification of CLEX (CLear EXperiment) access safety system due to exposure to radiations related to the CLEAR Beam https://edms.cern.ch/document/2332247/1

CLEAR functional specification before ECR <u>https://edms.cern.ch/document/990217/1.3</u>

Other risks such as electricity, use of gases and ergonomics require the users and operators to follow the appropriate training required by CERN before access is authorized.

Appropriate PPE must be worn.

All equipment for experiments installed or removed from facility is registered in RP TREC tool.



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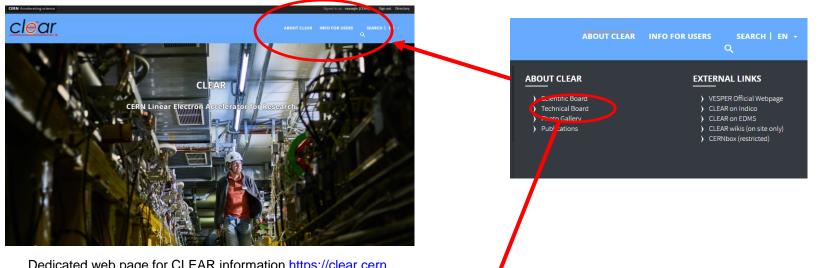


Further security measures

- Beam operation only allowed when operator presence in CLEAR control room
- Additional Laser shutter installed, operated manually with key in control room
 - Shutter closed if operators need to leave control room for short time (e.g. Toilet or lunch break)
- Operations Instructions memo to CLEAR operations team
 - EDMS Document 2507888 https://edms.cern.ch/document/2507888/1

EDMS Number 2507888 11th March 2021 MEMORANDUM		if bea	e designated key in the control room to close the shutter on the laser during ab m is not necessary immediately the next day turn off the RF systems (inf				
		operations have ceased for the day).					
o : CLEAR operations team		If RF conditioning is required overnight, or a stable RF for beam is necessary the next morning, leave RF on but assure that the designated key for the laser shutter is used to close the shutter (inform CCC operations have ceased for the day).					
rom : G. Mcmonagle SY/RF		2.	Special Access for Laser experts				
Objet : Operational procedures for CLEAR facility while awaiting E	CR change	As an extra security turn off the RF systems and ask the RF experts to lock off the power supplies.					
In order to allow the CLEAR facility to run while awaiting the implementation of the ECR to the personal protection system, the following instructions shall be implemented when the machine is in beam mode (i.e. beam permit).		3. Access to machine immediately after beam					
		For short access to machine put RF systems to standby and implement the laser shutter key. Contact RP for survey before entry.					
1. Setting up of beam, beam experiments.			For longer access, turn RF systems off and implement laser shutter key				
An operations team must always be present in the control room, (Building 2008), supervising beam activities. Minimum two persons (one can be remote connected by zoom). In case of absence of the operator in the control room, the following actions <u>must be performed</u> to prevent the possibility of unsupervised beam.		Contact RP for survey before entry.					
			<u>G.McMo</u>	nagle			
Short absence (e.g. Toilet break, lunch) Use the designated key in the control room to close the shutter on the laser during absence or but RF systems to standby.							





Dedicated web page for CLEAR information https://clear.cern



Technical Board

The CLEAR Technical Board meets several times per year to review the technical, safety and radioprotection issues of the proposed experiments and to define the detailed experimental program following the recommendations by the Scientific Board. The board gives the final authorization for the installation of the experiments, needed to get the beam permit within the agreed conditions, and allocate the scheduled beam time.

Members:

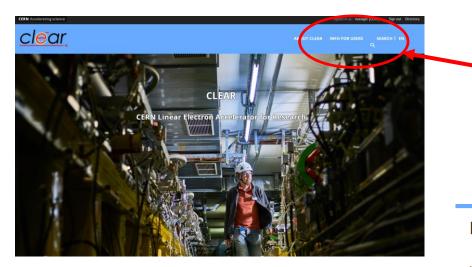
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Roberto CORSINI (BE-ABP), Facility Coordinator Gerard MCMONAGLE (SY-RF), Facility Safety Officer Wilfrid FARABOLINI (BE-ABP and CEA), Beam Expert, Operation Davide GAMBA (BE-ABP) Beam Expert, Technical Support Kyrre SJOBAK (BE-ABP and Oslo University) Beam Expert and User Representative Thibaut LEFEVRE (SY-BI), User Representative Ruben GARCIA ALIA (SY-STI), User Representative



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Dedicated web page for CLEAR information https://clear.cern

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Experin	nent Review Form	Transverse Tivlis parameters (R, or, t) or beam excelutapor	
A. EXPERIMENTER DETAIL	_\$	Critical parameters and stability regularments, (e.g. orbit, beem size,	
Principal Investiga	ator:	charge,):	
	tion:		
	ai):		
Experiment Memb	vers:	Give a detailed summary of the experimental program, including the following:	
	ons:	 Summary of the installation procedure 	
	nal):	Were the stated goals achieved	
	mel:		
	tion:		
	ime:		
	ime:		
	uest	 What additional requirements would be needed for this work 	
B. EXPERIMENT GOALS Please provide a brief recap of the e <u>verce achieved</u> or not.	experimental goals in the beam time request, noting if	F. POSSIBILITY OF PUBLICATION they	
 BEAM PARAMETERS Please provide as much detail as pr arameters achieved in reality. 	ossible on the beam parameters requested and the beam provide Requested Provide		
Yease provide as much detail as pr arameters achieved in reality.		ed	
Please provide as much detail as pr arameters achieved in reality. Bunch charge / length:	Requested Provid	ed	
Please provide as much detail as po arameters achieved in reality. Bunch charge / length: Umber of bunches / time structure: Beam energy / onergy	Requested Provid	ed Page 2 of 2	

ABOUT CLEAR	INFO FOR USERS SEARCH EN + Q
INFO FOR USERS	
) Planning) Planning) Beam Time Request) User Figistration) Logist c) Safet 	 VESPER Official Webpage CLEAR on Indico CLEAR on EDMS CLEAR wikis (on site only) CERNbox (restricted)

Beam Time Request

If you need additional informations about the facility, or if you wonder if CLEAR could fit your experimental needs, please contact us at CLEAR-Info@cern.ch.

If you already have a clear idea of the experiment you would like to perform, please download and fill the attached "CLEAR experiment request form" and send it to CLEAR-Info@cern.ch

Attached File(s)

CLEAR experiment request form

All approved experiments registered in edms

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a 🥥 2020	E 20 23	337479 1 1 有 有	19-Response of secondary standard ionisatio	6.1	In Work	2019-11-01	Anna Subiel	Specification		
2337478 (v. 1) 18-Calibrate Galchromic	30 22	337560 v.1 + 7	20°-CHUV	61	In Work	2020-01-20	DAVIDE GAMBA	Specification		
2337479 (v.1) 19-Response of seconda	171 40 22	337506 v.1 + T	21-light yield and spectrum of Chromox scre	6.1	In Work	2020-02-27	Havard Giersdal	Specification		
2337580 (v 1) 20°-CHUV 2337586 (v 1) 21°-OHUV					-					
2337566 (V 1) 21-right yate and speciel 2337591 (V 1) 22-Optical Transition Rac	E 50 23	337591 v1 ★ 菁	22-Optical Transition Radiation Interferometr	61	In Work	2020-01-30	Carsten P Welsch	Specification		
2337596 (v. 1) 23-Desimetry control and	E 60 23	337596 v1 大市	23-Dosimetry control and characterisation for	0.1	📕 in Work	2020-01-31	Vanessa Wyrwoll	Specification		
2337890 (v. 1) 24-IRRAD EPM test	10 70 23	337890 v 1 ★ 🏹	24-IRRAD BPM test	0.1	E In Work	2020-02-03	Gluseppe Pezzullo	Specification		
2337894 (v.1) 25-Fiber optic dosimetry	E 80 23	337894 v 1 🛨 🗃	25-Fiber optic dosimetry		In Work	2020-02-03	Francesco Flensa	Specification		
2337996 (v 1) 25-R2E impact of neutrol 2337992 (v 1) 27-radiation damage and		337898 v 1 👾 🕷					Rubén García Alia			
 2337902 (V 1) 27-180ation damage and 2337905 (V 1) 28-Yield of the Cherenko 					In Work	2020-02-03		Specification		
2337909 (v. 1) 29-Coherent Cherenkov	四1.2	337902 v 1 🛧 菁	27-radiation damage and stuck bits in SDRAMs	6.1	in Work	2620-62-63	Daniel Söderstörm	Specification		
2337910 (v.1) 30-Coherent Cherenkov	E t. 21	337905 v.1 🛧 🎘	28-Yield of the Cherenkov radiation within so	0.1	📕 in Work	2828-82-11	Aleksandr Kubankin	Specification		
2337913 (v.1) 31-CLIC wake field moni	E 1_ 2	337909 v 1 👾 🗃	29-Coherent Cherenkov diffraction radiation	18.1	E in Work	2020-02-19	Thibaut Lefevre	Specification		
2337914 (v.1) 32-Plasma Lens Studies 2327916 (v.1) 33-CLIC Cavity BPMs		337910 # 1	30-Coherent Cherenkov diffraction radiation i		In Work	2020-02-19	Thibaut Lefevre	Specification		
2337916 (V.1) 33-CLIC Cavity BPMs 2337920 (V.1) xx-Test of new Rad-toler;										
2337822 (v 1) xi-EOS bunch length me	E 1_ 2	337913 01 黄菁	31-CLIC wake field monitor studies	6.2	E In Work	2020-02-24	Kyme Sjobak	Specification		
2337924 (v. t) xx-impediance studies or	四1_2	337914 v1 古育	32-Plasma Lens Studies	0.2	📕 in Work	2020-02-25	Erik Adli	Specification		
2337926 (v. 1) xx-JUAB	E 1_ 2	337918 v.1 🛧 🎘	33-CLIC Cavity BPMs	0.1	E In Work	2020-03-05	Alexey Lyapin	Specification		
2396415 (v t) 38-Machine Learning for	E 1_ 2	337920 v 1 🛧 🖮	xx-Test of new Rad-tolerant cameras from M		In Work	2020-02-27	Thibaut Lafevre	Specification		
 2398850 (v 1) 39-investigation on Degr 2440179 (v 1) 40-invaluation of SmartFu 		337922 v 1 + 1								
2442530 (v.1) 41-Test of OTR and YAG					In Work	2020-02-27	Thibaut Lafevre	Specification		
2446497 (v. 1) 42-LBLM Study	四 1	337924 v 1 青菁	xx-Impedance studies on Coherent Cherenk		In Work	2020-02-27	Thibaut Lefevre	Specification		
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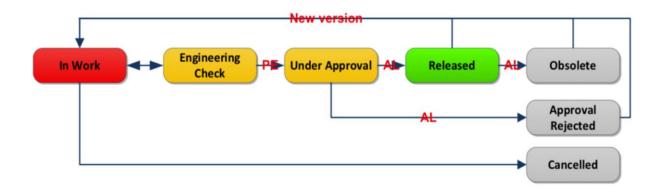


New Experimental request procedure for 2021

• Approval will be done electronically by EDMS

CLEAR REVIEW 16 March 2021

- User application, by email using experimental request form
- EDMS document creation (by designated CLEAR team)



- All stakeholders will be included in approval procedure including safety, RP and HSE as necessary
- Upon approval experiment will be registered in CLEAR planning schedule





Safety Objectives 2021

- Update organigram with new department responsibilities
- Update facility safety files
- Complete information on web interface for users
 - e.g. Recent memorandum on Electrical hazards in Accelerator Complex infrastructures





Thank you for your attention

any questions?