



NSS Shielding & Safety Systems SAR

Quality & Compliance

PRESENTED BY <IAIN SUTTON>

2025-11-12

Agenda



1 Quality

2 Compliance

Quality control



Checks and balances



Quality process

	CDR	pre-order checks (TG3)	FAT	pre-install Qgate (TG4)	SAT	NBPI Integration checks	Shutter inspection
Bunker (2)	Yes	No	Yes	Yes*	Yes	NA	NA
Beamstops	Yes	No	Yes	Yes	Yes	NA	NA
Beamline shielding	Yes	No	Yes	Yes*	Yes	NA	NA
NBOA (17)	Yes	Yes	Yes	No	Yes	Yes	NA
BWI (15)	Yes	Yes	Yes	No	Yes	NA	NA
Shutters	Yes	Yes	Yes	Yes	Yes	NA	Yes

Bunker / Beamline / Beamstop were ESS designed and Procured
and followed ESS engineering & quality process plus additional NSS QC steps

NBOA /BWI / Shutters were Partner designed and procured
And followed the NSS tollgate variant of the ESS engineering process plus additional NSS QC steps

PSS & Fire followed specific quality quality processes



Bunker

Installed quality

All components previously controlled (c2020-21) with the support of Quality division.

However, due to COVID difficulties were encountered to ensure comprehensive coverage.

In 2025 a decision taken in conjunction with Q division to perform complementary controls on this important SSC.

Completed 50%

Work in progress 50%

Site acceptance inspections (SAT) were conducted with support from Q-division

Completed 100%

NSS Quality Gate Tickets / Rich Filter Results

Key ↕	Status ↕	Summary ↕	P ↕
CET-760	0 - PREPLANNED	BUNKER D03: Reinstallation of straight wall shielding blocks	⚠
CET-749	3.2 - REVIEW	NSSQ: Bunker: Instrument Baseplates D01 and D03	⚠
CET-747	DONE	NSSQ: Bunker: False Floors D01 and D03	⚠
CET-746	DONE	NSSQ: Bunker: Stairs and Fences D01 and D03	⚠
CET-745	3.2 - REVIEW	NSSQ: Bunker: Core bunker D01 and D03	⚠
CET-741	DONE	NSSQ: Bunker D01 and D03, temporary beamstops	⚠
CET-738	3.1 - PREPARATION	NSS-EA: BUNKER Overview	⚠



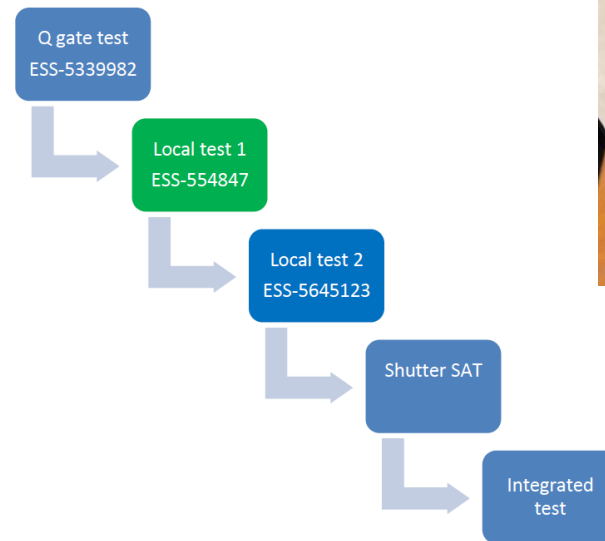
Shutters

Reinforced controls

Due to SSC nature of this device and the in-kind procurement model decision taken to reinforce in-house quality control activities.

Specific shutter inspection team and test protocols stood up and operated as part of Qgate.

- Performance testing
- Endurance testing
- Detailed Inspection
- Torque control
- Markage



Compliance

Compliance



Compliance checked during Qgate pre-installation approval.

Areas of scrutiny

Electrical safety
Chemical safety
Cryogenic safety, Oxygen
Deficiency Hazards (ODH) &
Oxygen enrichment
Ionizing radiation
Artificial optical radiation
Magnetic fields/electromagnetic
waves
Hazard due to cold/heat/fire
Mechanical safety
Pressure safety
Workplace safety
Ergonomic safety

Compliance score cards

e.g. Shutters

- BEER: [ESS-5546871](#)
- BIFROST: [ESS-5684927](#)
- CSPEC: [temp](#) shutter ongoing: <https://jira.ess.eu/browse/CET-763> .
- DREAM: [ESS-5509440](#)
- ESTIA: [ESS-5509441](#)
- FREIA: [ESS-5653332](#)
- HEIMDAL: not yet manufactured.
- LOKI: [ESS-5514988](#)
- MAGIC: [ESS-5685016](#)
- MIRACLES: [ESS-5704831](#)
- NMX: [ESS-5503894](#)
- ODIN: [ESS-5509406](#)

Developed in conjunction with Q-division has proven to be a valuable tool to ensure compliance



Compliance outcomes

Electrical compliant	Yes
Pressurised system	NA none (active shutter part of instrument SAR)
ATEX	NA
MD	NA inert shutters (Applicable to active shutters work on-going)
CE marking	NA as above



Finish presentation