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Publication and operation	Prepared publication. Actual technical approval, consultation, institutional adoption, operational effectivity and individual scope activation require separate authentic records.

Purpose and application

Education Programmes for 6 retained scope subjects. This book specifies evaluable implementation controls, scope boundaries and the complete application-specific parameter and evidence architecture. Actual engineering values, local permissions and release decisions must be separately established.

Source requirements and added implementation detail

The controlling ASTRA source is identified above by content fingerprint. Numbered source clauses and annexes retain their own authority. The retained operating material is restructured and expanded with implementation methods, additional profile controls, worked synthetic examples, decision diagrams and record contracts. Added implementation detail is not presented as an earlier institutional approval or as a change to the supplied core standard. Any additional binding criterion requires the applicable technical adoption process.

The displayed publication date identifies the edition; it is not a fabricated authoring, test, approval or operational date. Actual records retain genuine event times and controlled versions. No named outside organisation or standard is incorporated as a normative reference. AF internal instruments and separate legal or contractual duties remain applicable within their actual scope.

Acceptance boundary

A positive grant requires every applicable mandatory condition to PASS, every N/A to have independent justification, every in-scope nonconformity to be verified closed, and competent independent authority. HOLD, unknown state, missing evidence, a favourable average, a signature image or a completed form cannot substitute for those conditions.

Contents

Publication identity and use	2
Purpose and application	2
Source requirements and added implementation detail	2
Contents	3
1 Family boundary, outcome and retained subjects	5
2 Requirement and decision architecture	5
3 Prospective parameter schedule	6
P01 — Mission and scope	6
P03 — Requirements and acceptance	6
P07 — Measurement and uncertainty	6
P12 — Human and protective response	6
P14 — Software, AI and models	6
P18 — Decision, continuity and terminal duties	6
4 Detailed subject profiles	8
F04-E01 — Engineering degree programmes	8
F04-E02 — Engineering technology programmes	10
F04-E03 — Computing and digital programmes	13
F04-E04 — Applied science programmes	16
F04-E05 — Technical and vocational programmes	19
F04-E06 — Professional continuing-development programmes	22
5 Domain-specific integration dossiers	24
AK01 — Terrestrial engineering and supply	24
AK02 — Test facilities and technical providers	25
AK15 — Extravehicular and isolated crew work	25
AK25 — Human exploration and surface habitats	26
AK30 — Ground, communication and navigation services	26

AK31 — Digital and autonomous space systems	26
6 Qualification and evidence handovers	27
7 Worked calculations and technical charts	28
AM.Q03 Positive-decision conjunction and essential failure	28
AM.Q04 Committee arithmetic and accreditation panels	29
AM.Q06 Random detection sample size	30
8 Assessment and adverse-case programme	32
9 Source requirement crosswalk	32
Appendix A — Controlling source requirements	38
Appendix B — Local adoption, validation and receiving acceptance	58

1 Family boundary, outcome and retained subjects

Education Programmes for 6 retained scope subjects. This book specifies evaluable implementation controls, scope boundaries and the complete application-specific parameter and evidence architecture. Actual engineering values, local permissions and release decisions must be separately established.

This book retains each original subject code and its R01–R06 implementation controls. R07–R12 are new elaborations aligned with the latest core. They become binding only through the applicable technical adoption process. None supplies a universal engineering value or a real scope activation.

Retained subject	Exact title	Result boundary
F04-E01	Engineering degree programmes	Programme recognition does not license graduates or recognise every programme offered by the institution.
F04-E02	Engineering technology programmes	An applied programme result does not authorise every industrial task or become a professional licence.
F04-E03	Computing and digital programmes	Tool capability, benchmark scores and attendance are not evidence of learner competence or product certification.
F04-E04	Applied science programmes	Programme recognition is not laboratory accreditation or permission for unsupervised hazardous scientific work.
F04-E05	Technical and vocational programmes	Attendance and programme completion do not themselves grant maintenance-release, inspection or other restricted task privileges.
F04-E06	Professional continuing-development programmes	Continuing-development hours contribute evidence only where relevant; they do not automatically renew a role or credential.

2 Requirement and decision architecture

Apply the following logic to the exact evaluated object and responsible function. A procedural checkpoint, product characteristic, competence decision and public credential are different objects. Their states shall not be collapsed into one score. Source: ASTRA 62.1–62.7 and Annex AL.

State	Sufficient basis	Required next action
PASS	Applicable; current approved predicate met by valid, purpose-specific evidence.	Retain the original evidence and bounded inference. Other mandatory gates still apply.
FAIL	Applicable; valid evidence demonstrates that the approved predicate is not met.	Contain affected use; retain the failure; assess cause, extent and required corrective verification.
HOLD	Applicability, criterion, method, evidence, uncertainty or authority is unresolved.	Resolve the missing basis. Do not manufacture a value, favourable default or product-defect conclusion.
N/A	Activity trigger and retained responsibility are absent; independent exclusion approval exists.	Retain the scope-specific reason and reassess when activity or responsibility changes.
UNSET	Only an uncompleted field in this PDF; not a conformity state.	No conclusion is recorded. Complete review before the field can support a decision.

For a compound source clause, create a child-condition ledger containing every separately testable condition, location, phase and operating mode. A sentence-level checkpoint is a navigation aid, not permission to merge unrelated predicates. Each child receives an ID, responsible owner, criterion, method, source evidence, uncertainty where relevant, current state and independent review. The parent cannot PASS while any mandatory child is FAIL, HOLD or UNSET.

An acceptable measurement interval and an acceptable authority chain are independent prerequisites. Use finite, unit-consistent, unrounded values; negative uncertainty, reversed limits, unknown version or wrong-object evidence produce HOLD. For inclusive [L,H] and accepted interval [a,b], PASS requires $a \geq L$ and $b \leq H$; FAIL requires $b < L$ or $a > H$; otherwise HOLD. Approved one-sided or exclusive boundaries retain their own declared predicate.

Positive-decision conjunction

Every applicable mandatory child is PASS AND each N/A is independently justified AND every in-scope nonconformity is verified closed AND scope, competence, independence and actual authority are valid AND required panel participation and voting rules are satisfied. No average, majority preference or payment supplies missing evidence.

3 Prospective parameter schedule

These are required information groups from Annex AO, not pre-approved engineering limits. For every triggered group, populate actual values or observable attributes before evaluation, with unit, inclusivity, phase/mode, technical derivation, uncertainty/dependence, method version, owner, independent review, authentic approval and change trigger. An absent trigger requires an approved exclusion; an unsupported or missing essential value is HOLD.

P01 — Mission and scope

Legal owner, performer, family/module, object, domain, configuration, location, duration and modes.

Derivation and evidence: Scope tuple and mission concept; approved applicability matrix.

Completion test: No undefined essential object, duty, phase or exclusion.

P03 — Requirements and acceptance

Stable ID, owner, characteristic, units, bound inclusivity, predicate, observation and essential-step marker.

Derivation and evidence: Requirement baseline and Annex AL decision rule.

Completion test: Every condition is evaluable before observations are judged.

P07 — Measurement and uncertainty

Measurand, instrument/range, corrections, sensitivity, covariance, coverage, time/space sampling and calibration.

Derivation and evidence: Complete measurement model; valid raw data.

Completion test: Uncertainty and detection capability are fit for the approved decision rule.

P12 — Human and protective response

User/task, representative conditions, essential steps, feasible intervention, health-support interface and emergency resources.

Derivation and evidence: Specialist criteria and observed performance.

Completion test: Every essential protection is effective; no invented universal physiological limit.

P14 — Software, AI and models

Purpose/domain, source/build/weights/data, dependencies, target, errors, uncertainty, prohibited behaviour and change limits.

Derivation and evidence: Independent verification and model/use validation.

Completion test: Essential scenarios and target conditions pass; experimental outputs remain separate.

P18 — Decision, continuity and terminal duties

Closed findings, reviewer competence, independence, authority, status clocks, final-state criteria, custody and open obligations.

Derivation and evidence: Authenticated decisions and verified terminal/transfer evidence.

Completion test: Every mandatory gate is complete; incomplete or unknown terminal state remains explicit.

4 Detailed subject profiles

F04-E01 – Engineering degree programmes

Named engineering degree programmes linked to the aerospace, space, defense or supporting engineering ecosystem. Define discipline, award level, curriculum, campuses, delivery modes and all completion routes, including transfers and partner delivery.

Application-specific parameters: Discipline/level; lawful award basis; entry pathways; curriculum/version; learning depth/workload; design and experimentation outcomes; projects; facilities; assessment/rubric; learner/cohort evidence.

Profile boundary	Detail
Technical emphasis	engineering programme outcomes and completion routes
Failure / evidence risks	a showcase design project can conceal missing practical attainment in another route
Representative witnessing	Follow a learner completion route through admissions, foundational work, practical analysis and an integrated project to moderated results and later programme improvement.
Change and requalification triggers	Discipline/award level; curriculum; campus/partner; online platform; entry/transfer route; assessment method; key staff/facilities.
Outcome limitation	Programme recognition does not license graduates or recognise every programme offered by the institution.

F04-E01-R01 – Retained subject control

Connect programme objectives to assessable completion outcomes in disciplinary reasoning, problem formulation, design, experimentation, lifecycle judgement and professional responsibility appropriate to the stated level.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R02 – Retained subject control

Map each outcome to prerequisites, teaching, practice and direct assessment rather than treat course titles, credits or hours as attainment.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R03 – Retained subject control

Examine individual contributions to integrated engineering work and the ability to justify assumptions, interfaces, safety considerations, data and uncertainty.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R04 – Retained subject control

Verify safe practical resources, competent academic/technical supervision and equivalent support across all campuses and online/partner routes.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R05 – Retained subject control

Sample authentic completed learner work, including weak and failed outcomes, identity/authorship and essential practical steps under prospective rubrics.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R06 – Retained subject control

Demonstrate evidence-led academic improvement, fair progression/remedies and teach-out or transfer protection during major changes or closure.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E01-R07 – Mission and environment transfer

For engineering degree programmes, define the qualified or evaluated envelope for engineering programme outcomes and completion routes. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E01-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: a showcase design project can conceal missing practical attainment in another route. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E01-R09 – Configuration and data identity

Bind engineering programme outcomes and completion routes to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E01-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: sample original learner design, analysis and experimental work across all admitted completion routes. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E01-R11 — Receiving interface and bounded output

Deliver the bounded output to academic programme authority and learner-record custodian. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E01-R12 — Independent release and continuing validity

Evaluate F04-E01 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: sample original learner design, analysis and experimental work across all admitted completion routes The reviewer records the affected F04-E01 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by academic programme authority and learner-record custodian.

F04-E02 — Engineering technology programmes

Applied engineering-technology programmes at their actual qualification level, focused on implementing, integrating, operating, testing and improving technical systems. Preserve the distinction between the declared award and an engineering degree or occupational authorisation.

Application-specific parameters: Applied discipline; level; practical tasks; implementation/measurement outcomes; industrial interfaces; equipment/software; placements; supervision; assessment; completion routes.

Profile boundary	Detail
Technical emphasis	engineering technology learning and applied integration
Failure / evidence risks	tool familiarity can be mistaken for independent ability to validate an engineering result
Representative witnessing	Observe a representative applied task from instruction and setup to measurement, interpretation, reporting and safe handover; review complete cohort and transfer-route evidence.
Change and requalification triggers	Award level; practical scope; industry partner; laboratory; assessment; delivery location/mode; instructor competence.
Outcome limitation	An applied programme result does not authorise every industrial task or become a professional licence.

F04-E02-R01 – Retained subject control

Define the programme applied-technical purpose and appropriate depth in implementation, measurement, integration and operational judgement.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R02 – Retained subject control

Map learning outcomes to hands-on tasks, laboratory work and direct performance evidence, including technical data interpretation and correct units.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R03 – Retained subject control

Assess ability to operate within approved procedures, recognise limits, diagnose discrepancies and escalate rather than assume unrestricted design authority.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R04 – Retained subject control

Verify actual equipment, software, safety supervision and placement arrangements for each delivery route.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R05 – Retained subject control

Preserve individual practical results, essential steps, failed attempts, fair resits and identity/authorship under valid prospective rubrics.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R06 — Retained subject control

Evaluate attainment and improvement with defined populations and comparable evidence; protect learners when delivery capability changes.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E02-R07 — Mission and environment transfer

For engineering technology programmes, define the qualified or evaluated envelope for engineering technology learning and applied integration. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E02-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: tool familiarity can be mistaken for independent ability to validate an engineering result. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E02-R09 — Configuration and data identity

Bind engineering technology learning and applied integration to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E02-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: observe applied tasks with authentic data, limitations and individual contribution. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E02-R11 — Receiving interface and bounded output

Deliver the bounded output to programme assessment authority and placement supervisor. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E02-R12 — Independent release and continuing validity

Evaluate F04-E02 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: observe applied tasks with authentic data, limitations and individual contribution The reviewer records the affected F04-E02 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by programme assessment authority and placement supervisor.

F04-E03 — Computing and digital programmes

Computing, software, data, AI, digital engineering or related learning programmes within a defined discipline and award level. Assess what learners can actually analyse, implement, verify and explain, not what their tools generate.

Application-specific parameters: Programme/level; coding and model tasks; data provenance; verification outcomes; secure/ethical use; version control; tool access; AI permissions; individual contribution; practical assessment.

Profile boundary	Detail
Technical emphasis	computing and digital educational outcomes
Failure / evidence risks	generated code or model output can conceal that the learner cannot explain or verify it
Representative witnessing	Trace a learner digital artefact through requirements, source/version history, testing, individual explanation and moderated assessment, including a generated-output error.
Change and requalification triggers	Tool/model version; dataset; curriculum; AI-use rules; assessment platform; delivery mode; level; practical task.
Outcome limitation	Tool capability, benchmark scores and attendance are not evidence of learner competence or product certification.

F04-E03-R01 — Retained subject control

Define assessable outcomes for the stated computing discipline and level, including requirements, implementation, verification, data and responsible technical judgement.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R02 — Retained subject control

Map instruction and tasks to direct evidence such as versioned code, tests, models, data interpretation and reasoned limitations.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R03 — Retained subject control

Control AI-assisted work and verify individual authorship, understanding and ability to detect incorrect generated outputs.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R04 — Retained subject control

Assess technical behaviour on relevant normal, boundary, invalid-input and failure cases rather than one successful demonstration.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R05 — Retained subject control

Verify accessible computing resources, lawful data/software use, competent instructors and secure assessment across delivery modes.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R06 — Retained subject control

Preserve weak outcomes, practical failures and follow-up improvements; avoid describing course completion as autonomous operational or certification authority.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E03-R07 — Mission and environment transfer

For computing and digital programmes, define the qualified or evaluated envelope for computing and digital educational outcomes. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E03-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: generated code or model output can conceal that the learner cannot explain or verify it. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E03-R09 — Configuration and data identity

Bind computing and digital educational outcomes to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E03-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: test authorship, independent debugging, data partitioning and source-backed technical interpretation. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E03-R11 — Receiving interface and bounded output

Deliver the bounded output to academic assessment authority and programme-record custodian. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E03-R12 — Independent release and continuing validity

Evaluate F04-E03 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: test authorship, independent debugging, data partitioning and source-backed technical interpretation. The reviewer records the affected F04-E03 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by academic assessment authority and programme-record custodian.

F04-E04 — Applied science programmes

Named applied-science programmes supporting materials, physics, chemistry, measurement, environment or other declared scientific disciplines. Evaluate coherent level-specific reasoning, safe experimentation, data quality and interpretation.

Application-specific parameters: Discipline/level; experimental tasks; methods; uncertainty; practical facilities; safe supervision; data/authorship; curriculum; direct outcomes; cohort/route sample.

Profile boundary	Detail
Technical emphasis	applied-science experimental and analytical outcomes
Failure / evidence risks	a polished report can omit raw evidence, uncertainty and failed experimental observations
Representative witnessing	Follow an experimental learning task from question and method through safe execution, original data, uncertainty and individual conclusions.
Change and requalification triggers	Discipline/level; experiments; laboratory; equipment/software; delivery mode; rubric; partner; instructor.
Outcome limitation	Programme recognition is not laboratory accreditation or permission for unsupervised hazardous scientific work.

F04-E04-R01 — Retained subject control

Define the discipline purpose and completion outcomes in scientific reasoning, observation, experimental design and application-specific interpretation.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R02 — Retained subject control

Map outcomes to direct work demonstrating assumptions, units, evidence quality, uncertainty and the boundary between observation and inference.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R03 — Retained subject control

Verify safe, technically suitable laboratories and competent supervision without treating a written procedure as actual practical capability.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R04 — Retained subject control

Assess the learner contribution to specimen/data preparation, measurement, analysis and reproducible reporting.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R05 — Retained subject control

Preserve raw and adverse results, failed practical steps, fair re-assessment and academic integrity controls across all routes.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R06 — Retained subject control

Use cohort/outcome evidence to improve the programme and maintain learner protection during changed facilities, modes or partnerships.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E04-R07 — Mission and environment transfer

For applied science programmes, define the qualified or evaluated envelope for applied-science experimental and analytical outcomes. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E04-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: a polished report can omit raw evidence, uncertainty and failed experimental observations. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E04-R09 — Configuration and data identity

Bind applied-science experimental and analytical outcomes to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E04-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: reconstruct original experiments and analysis with safe methods and independently moderated interpretation. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E04-R11 — Receiving interface and bounded output

Deliver the bounded output to discipline lead and laboratory teaching authority. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E04-R12 — Independent release and continuing validity

Evaluate F04-E04 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: reconstruct original experiments and analysis with safe methods and independently moderated interpretation. The reviewer records the affected F04-E04 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by discipline lead and laboratory teaching authority.

F04-E05 — Technical and vocational programmes

Vocational and technician pathways for specified practical roles and tasks, including manufacture, maintenance, test support and operational services. Training completion, practical competence and employer task authorisation are separate records.

Application-specific parameters: Job/task profile; level; prerequisites; practical equipment; current instructions; essential safety/quality steps; supervision; knowledge/practical assessment; employer interface; maintained competence.

Profile boundary	Detail
Technical emphasis	technical and vocational task competence
Failure / evidence risks	attendance and a written score can conceal inability to perform an essential safe task
Representative witnessing	Observe a complete practical task including abnormal-condition recognition and handover; examine learner records across ordinary and alternative completion routes.
Change and requalification triggers	Task/level; equipment; workplace partner; technical instruction; assessment; supervisor; delivery mode; essential steps.
Outcome limitation	Attendance and programme completion do not themselves grant maintenance-release, inspection or other restricted task privileges.

F04-E05-R01 — Retained subject control

Define the actual occupational tasks and limits so that the advertised outcome matches the programme practice and assessment.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R02 — Retained subject control

Use current technical instructions, suitable equipment and qualified supervision for authentic or justified representative practical tasks.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R03 — Retained subject control

Assess the learner independently performing essential setup, identity, execution, checking, reporting and escalation within the permitted boundary.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R04 — Retained subject control

Record knowledge and practical outcomes separately, preserve failed essential steps and use evidenced remediation before equivalent reassessment.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R05 — Retained subject control

Verify work placements and employer interfaces without treating an employer endorsement as sufficient direct competence evidence.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R06 — Retained subject control

Provide accurate completion information, learner remedies and transfer/teach-out controls; employer and statutory authorisations remain separately issued.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E05-R07 — Mission and environment transfer

For technical and vocational programmes, define the qualified or evaluated envelope for technical and vocational task competence. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E05-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: attendance and a written score can conceal inability to perform an essential safe task. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E05-R09 — Configuration and data identity

Bind technical and vocational task competence to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E05-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: observe each essential practical operation within authorised training conditions and record assistance. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E05-R11 — Receiving interface and bounded output

Deliver the bounded output to vocational assessment authority and employer-training interface. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E05-R12 — Independent release and continuing validity

Evaluate F04-E05 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: observe each essential practical operation within authorised training conditions and record assistance. The reviewer records the affected F04-E05 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by vocational assessment authority and employer-training interface.

F04-E06 – Professional continuing-development programmes

Continuing professional learning in a defined technical subject, level, audience and intended outcome. Differentiate awareness, knowledge update, assessed skill and maintained role competence.

Application-specific parameters: Target profession; learning need; prior knowledge; learning objectives; duration/workload; assessment versus attendance; practical scope; instructor currency; completion record; feedback and review.

Profile boundary	Detail
Technical emphasis	continuing professional development and bounded learning claims
Failure / evidence risks	a short update course may be advertised as a new unrestricted professional authority
Representative witnessing	Trace a participant learning need through content, direct assessment where claimed and the exact completion statement; compare an attendance-only route.
Change and requalification triggers	Topic; audience/level; delivery platform; instructor; assessment depth; learning objective; use as role-currency evidence.
Outcome limitation	Continuing-development hours contribute evidence only where relevant; they do not automatically renew a role or credential.

F04-E06-R01 – Retained subject control

State the actual learning need, intended participants and the limited knowledge or skill outcome rather than promise generic aerospace expertise.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R02 – Retained subject control

Choose learning and assessment activities capable of demonstrating the advertised outcome, including practical evidence where a skill is claimed.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R03 – Retained subject control

Verify instructor subject currency, appropriate resources and accurate treatment of new technology and its limitations.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R04 – Retained subject control

Distinguish attendance records from assessed completion and from formal role qualification or employer authorisation.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R05 — Retained subject control

Preserve participant identity, assessment criteria, results, essential failures and fair corrections without creating fictional credentials.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R06 — Retained subject control

Review feedback and subsequent evidence for effectiveness, update outdated content and state completion/claim boundaries honestly.

Verification: Trace each independently testable condition to its actual criterion, method, evidence, responsible performer and independent reviewer.

Acceptance / hold: Every mandatory child predicate is satisfied by valid evidence. Unresolved applicability or evidence is HOLD; demonstrated unmet criteria are FAIL.

Basis: Retained operating subject control; latest core 20; 62 and Annex AL.

F04-E06-R07 — Mission and environment transfer

For professional continuing-development programmes, define the qualified or evaluated envelope for continuing professional development and bounded learning claims. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

Verification: Inspect the difference matrix, environmental inputs, owner approvals and requirement-to-method links.

Acceptance / hold: PASS only when every influential difference is either bounded by valid retained evidence or closed by accepted additional demonstration. Missing essential transfer evidence is HOLD.

Basis: New implementation detail aligned with ASTRA 62.1–62.2; 63.2–63.6; 64.1–64.6

F04-E06-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: a short update course may be advertised as a new unrestricted professional authority. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

Verification: Review detection capability, raw observations, model validity and limitations against each claimed property.

Acceptance / hold: A valid observation supports only its demonstrated property and domain. An unobservable essential condition is HOLD, not a favourable default or a proven product defect.

Basis: New implementation detail aligned with ASTRA 62.3–62.5; 77.1–77.6

F04-E06-R09 — Configuration and data identity

Bind continuing professional development and bounded learning claims to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

Verification: Replay one result from original records and verify event-time authority, method version and the evaluated-to-delivered relationship.

Acceptance / hold: PASS requires reproducible identity and valid links for the actual claim. Wrong configuration, stale state, inaccessible evidence or an unverified substituted record is HOLD.

Basis: New implementation detail aligned with ASTRA 33.3–33.4; 56.1–56.5; 62.7; 78.7

F04-E06-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: compare advertised outcomes with actual learning assessment and retained participation evidence. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

Verification: Compare prospective expectations, actual observations, conditions, evidence, defect disposition and relevant regression.

Acceptance / hold: Every essential adverse scenario must have valid accepted evidence. A scripted teaching example is not actual qualification; unavailable required observation remains HOLD.

Basis: New implementation detail aligned with ASTRA 62.6–62.7; 77.5–77.8; Annex AP

F04-E06-R11 — Receiving interface and bounded output

Deliver the bounded output to learning provider and participant-record custodian. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

Verification: Check the sending manifest, actual recipient access, acknowledgement, restrictions and remaining action owners.

Acceptance / hold: Transfer is complete only after the necessary receiving acceptance is authentic. Sending a file, reconciling quantity or generating a certificate does not establish technical eligibility.

Basis: New implementation detail aligned with ASTRA 32.5; 48.4–48.6; 63.6; 80.4

F04-E06-R12 — Independent release and continuing validity

Evaluate F04-E06 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

Verification: Independently replay the final predicate and inspect scope, exclusions, competence, conflict clearance, findings closure and event history.

Acceptance / hold: No positive grant, renewal or extension while any applicable mandatory child is FAIL, HOLD or UNSET. N/A requires independent scope justification; technical concessions remain separate from conformity.

Basis: New implementation detail aligned with ASTRA 15.1–15.5; 16.1–16.6; 62.4–62.7; 80.1–80.6

Qualification dossier and receiving closure

The profile owner assembles the actual scope, local child-condition ledger, approved parameters, method validation, source and output genealogy, representative observations, adverse-case results, competency and independence checks, finding closure, technical release and bounded public claim. The independent reviewer checks original evidence and challenges unsupported inheritance. Keep the accepted dossier version and actual decision time accessible to the receiving custodian.

Worked failure path — synthetic: compare advertised outcomes with actual learning assessment and retained participation evidence. The reviewer records the affected F04-E06 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by learning provider and participant-record custodian.

5 Domain-specific integration dossiers

The following Annex AK tags are selected because the document can support these responsibilities. Applicability is decided for the actual case. Tags do not expand a family, create an operating permission or place a whole mission inside a supplier's limited scope. Resolve domain, phase, mode, environment and retained duty before accepting a claim.

AK01 — Terrestrial engineering and supply

Design offices, manufacturing, material sources, procurement and integration.

Mandatory profile content: Actual site, source, configuration, delegated responsibilities and released technical data.

Source acceptance boundary: Every delivered characteristic and essential supplier interface is traceable to accepted evidence.

Source connection: 32, 33, 41, 48, 62–65

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK02 – Test facilities and technical providers

Environmental, structural, materials, calibration and inspection services, including mobile and remote work.

Mandatory profile content: Method, range, uncertainty, environment, site, signatory and provider relationship.

Source acceptance boundary: Actual method competence and valid result evidence are separately demonstrated.

Source connection: 8, 9, 19, 25, 42, 77

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK15 – Extravehicular and isolated crew work

Individual equipment, user/task, environment, support and rescue dependencies.

Mandatory profile content: Actual equipment configuration, essential skills, consumables, communications and authority.

Source acceptance boundary: Essential individual and integrated protective tasks pass without averaging.

Source connection: 7, 39, 52, 73

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.

Dossier step	Evidence and decision control
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK25 – Human exploration and surface habitats

Crew transport interfaces, habitation, exploration support and emergency protection.

Mandatory profile content: Users, tasks, duration, life support, radiation/environment, health-support and safe-return assumptions.

Source acceptance boundary: Every essential human protection and feasibility predicate is supported by specialists.

Source connection: 39, 54, 71, 73

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK30 – Ground, communication and navigation services

Mission control, RF/optical links, timing, data processing, relays and PNT support.

Mandatory profile content: Deployed configuration, authority, source-to-user integrity, delay, uncertainty and recovery.

Source acceptance boundary: Availability, correctness, authority and completion are separately demonstrated.

Source connection: 10, 23, 51, 56, 66, 67

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK31 – Digital and autonomous space systems

Software, programmable hardware, AI, models, twins and defensive security.

Mandatory profile content: Intended use, domain, source/build/model identity, data, validation, human authority and support.

Source acceptance boundary: All essential behaviours and prohibited transitions are verified for the actual deployment.

Source connection: 44–47, 56, 78

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

6 Qualification and evidence handovers

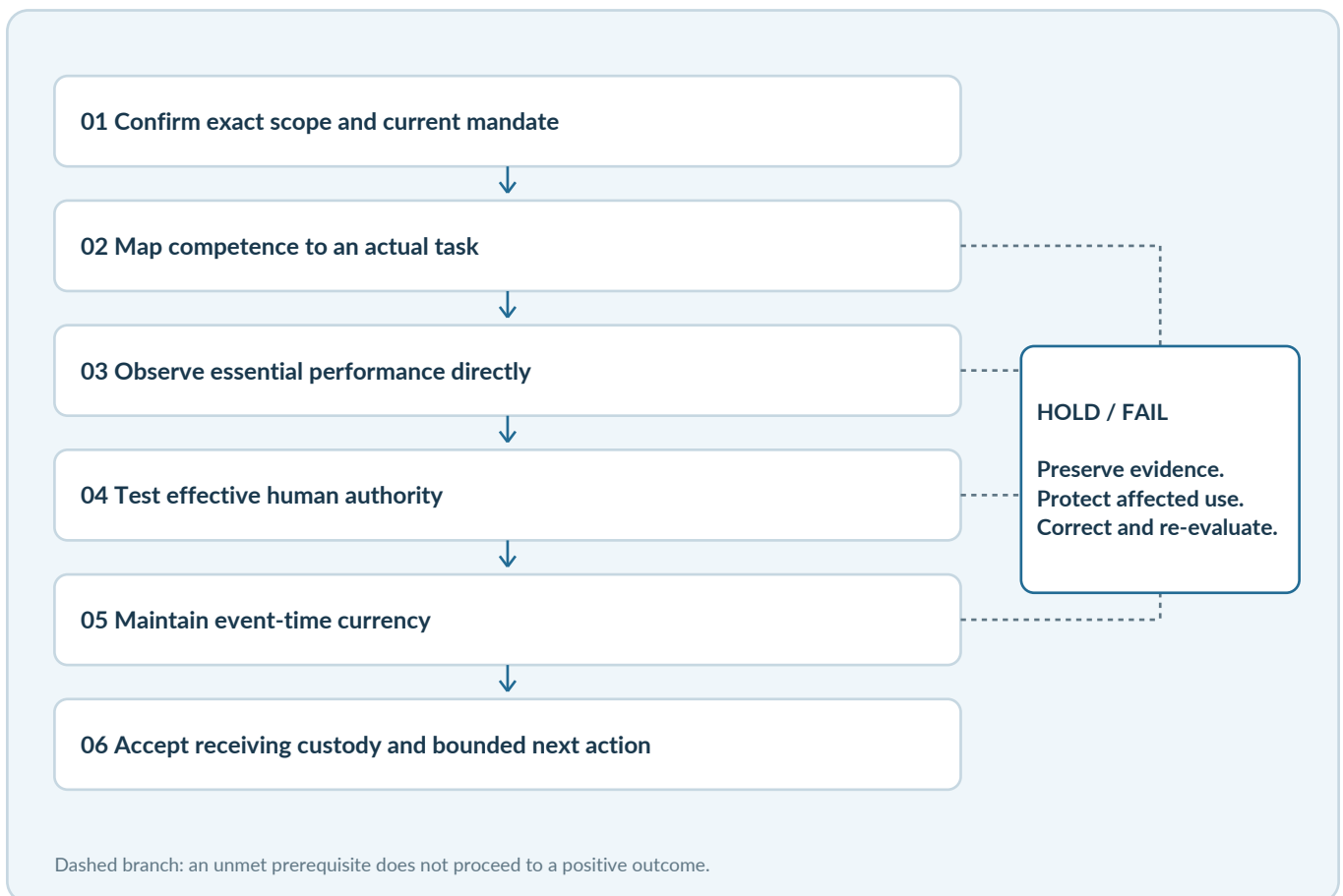
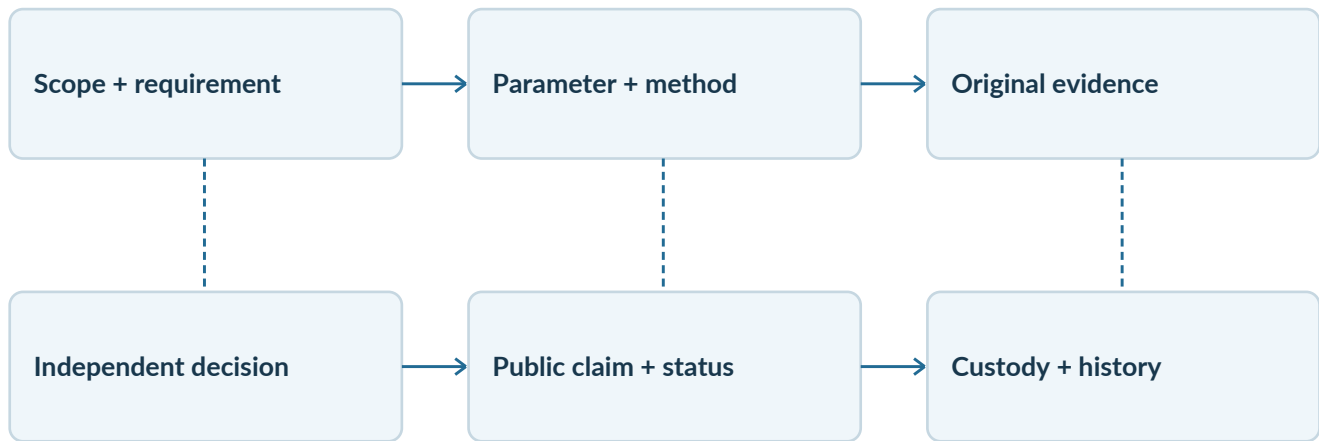


Figure — Implementation sequence for AF-AST-PR-005. Explanatory diagram; the source prerequisites and actual authority remain controlling.



Each relationship carries object identity, controlled version, actual event time and purpose-specific validity.

Figure — Scope-to-custody evidence relationships. A relationship is validated for its decision purpose, not merely because two identifiers exist.

7 Worked calculations and technical charts

The worked calculations below reproduce the supplied standard's Annex AM examples. Charted extensions are newly computed synthetic illustrations of those equations, not measured mission performance or new universal limits. A result is usable only when the actual inputs, model, units, uncertainty and approved application predicate are valid. A successful arithmetic check is not field validation.

AM.Q03 Positive-decision conjunction and essential failure

Source: ASTRA Annex AM, Q03, page 202. All numerical inputs in this example are synthetic.

$$G = S \wedge P \wedge E \wedge F \wedge C \wedge I \wedge A$$

Requirement completion = completed applicable rows / all applicable rows

Variables and units

S=valid scope; P=all predicates passed; E=adequate valid evidence; F=all in-scope findings closed; C=competence; I=independence; A=actual authority.

Example inputs

A synthetic file has 200 applicable rows; 190 are complete. One remaining row concerns an essential protective control. Six other gate groups are true.

Calculation and checks

1. Completion = $190/200 = 0.95 = 95\%$.
2. The unverified essential row makes P false and E false for the requested conclusion.
3. $G = \text{true false false} \dots = \text{false}$.

Decision interpretation: No positive grant. The completion percentage is a planning measure only. A conditional development permission is a separate bounded action, not a conformity certificate.

Validity limits: No averaging, vote or commercial action can change a false mandatory gate. N/A requires independent approval of the absent trigger; it is not a way to remove unfinished work.

ASTRA connections: 15.2; Annex G.1; 62.5; 80

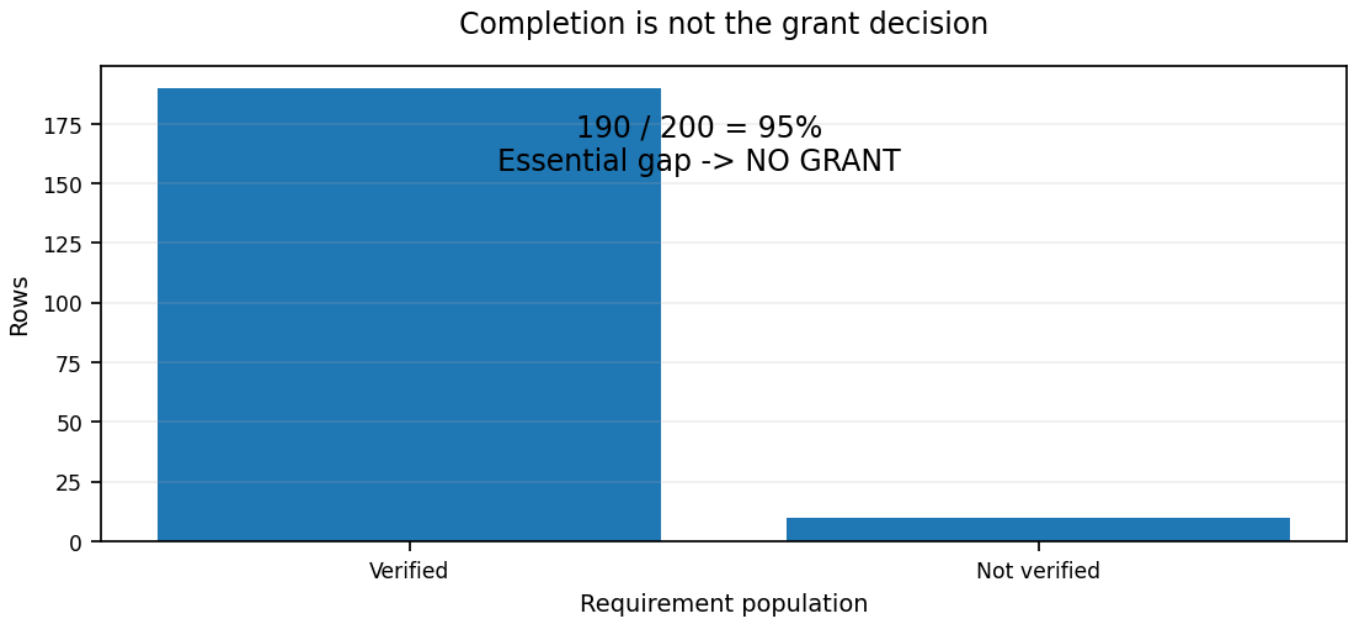


Figure Q03 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

Local replay record: retain the actual input manifest, source versions, calculation version, unit checks, independent recomputation, expected/observed boundary results, limitations and decision authority. Do not overwrite the teaching inputs as though they were operational data.

AM.Q04 Committee arithmetic and accreditation panels

Source: ASTRA Annex AM, Q04, page 203. All numerical inputs in this example are synthetic.

Substantive participation minimum = $\text{ceil}(2N/3)$

Affirmative minimum = $\text{ceil}(2V/3)$

Variables and units

N is the eligible committee population; V is the number of substantive yes/no votes. These equations concern the technical committee, not an applicant panel.

Example inputs

Synthetic committee: N=9, V=6, yes=4, no=2. Separate accreditation panel: three eligible members, two affirmative and one adverse.

Calculation and checks

1. Participation: $\text{ceil}(2 \times 9/3) = 6$; actual V=6 meets it.
2. Affirmative: $\text{ceil}(2 \times 6/3) = 4$; actual yes=4 meets it.
3. Accreditation panel: all three must participate; at least two support and all technical gates must pass.
4. Two participating panel members voting yes do not form a valid three-person panel.

Decision interpretation: The committee arithmetic passes for the stated case. The separate panel can decide positively only if technical gates and eligibility are all established.

Validity limits: Abstentions are not substantive committee yes/no votes. Rounding is upward. A mathematical majority never resolves missing technical evidence or an ineligible member.

ASTRA connections: 3.4; 4.3; 15.3; Annex B

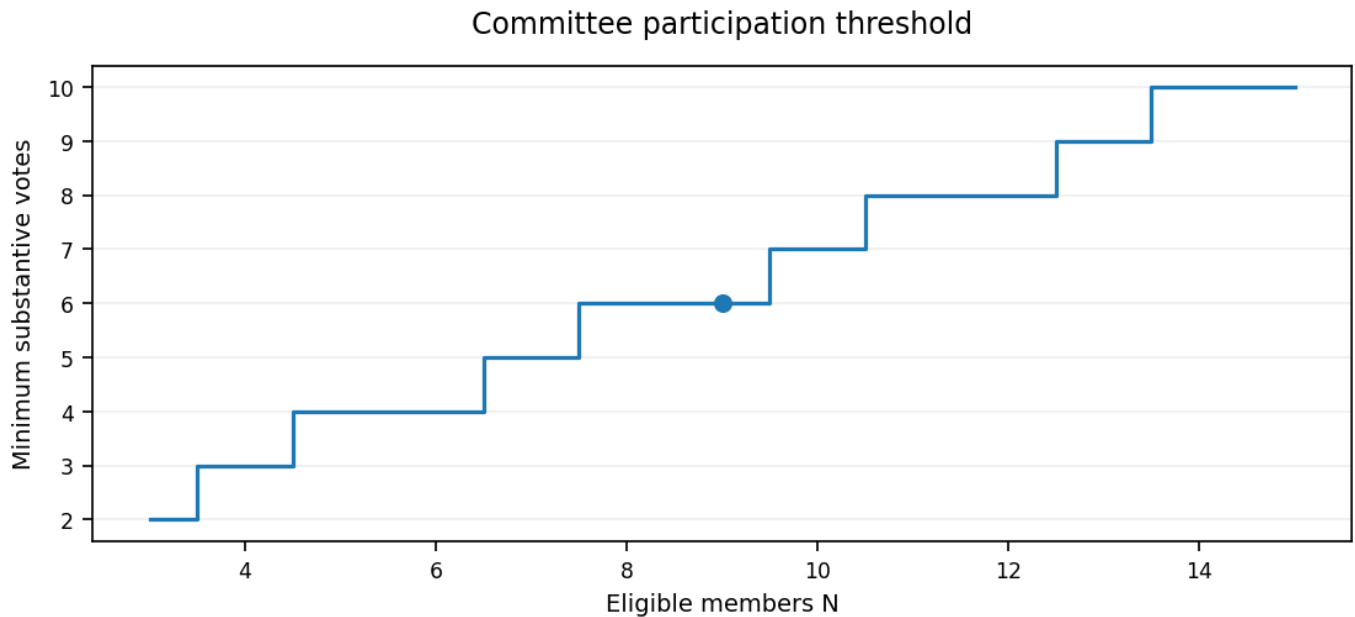


Figure Q04 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

Local replay record: retain the actual input manifest, source versions, calculation version, unit checks, independent recomputation, expected/observed boundary results, limitations and decision authority. Do not overwrite the teaching inputs as though they were operational data.

AM.Q06 Random detection sample size

Source: ASTRA Annex AM, Q06, page 205. All numerical inputs in this example are synthetic.

$$P(\text{at least one detection}) = 1 - (1-p)^n$$

$$n_{\min} = \text{ceil}[\ln(1-C)/\ln(1-p)]$$

Variables and units

p is a fixed issue probability per independent representative observation; C is the selected target detection probability; n is a positive integer.

Example inputs

Synthetic $p=0.10$ and $C=0.95$.

Calculation and checks

- $\ln(0.05)/\ln(0.90) = 28.433158...$; round upward to $n=29$.
- $P(\text{detection at } n=29) = 1 - 0.9^{29} = 0.9528987130$.
- At $n=28$, $P = 0.9476652367$, below the specified target.

Decision interpretation: 29 is the minimum integer sample for the stated independent model; the demonstration does not certify 95% conformity.

Validity limits: This calculation is invalid for unexamined dependence, changing p , biased selection or a judgemental sample represented as random. Detection is also conditional on an effective observation method.

ASTRA connections: 9.3; Annex F.5; 55.3

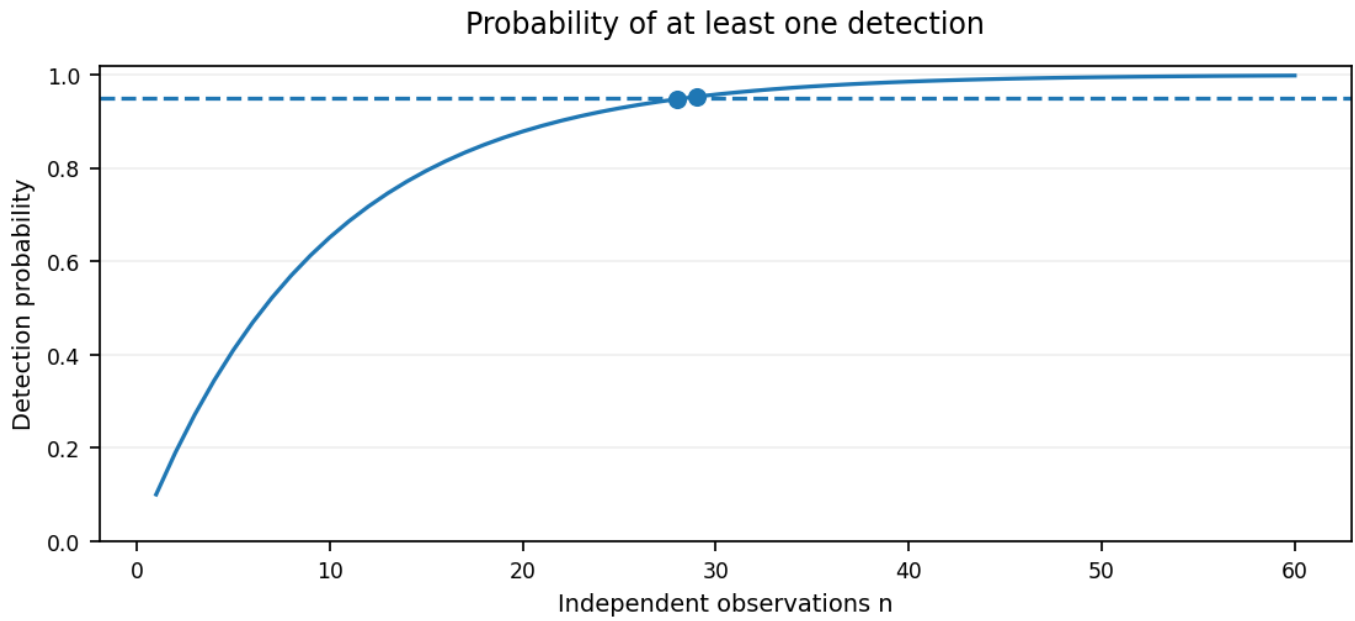


Figure Q06 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

Local replay record: retain the actual input manifest, source versions, calculation version, unit checks, independent recomputation, expected/observed boundary results, limitations and decision authority. Do not overwrite the teaching inputs as though they were operational data.

8 Assessment and adverse-case programme

Challenge	Expected handling	Evidence retained
PR-005: Map competence to an actual task — required basis missing	A general title or training course is not an authorisation for an unfamiliar task.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-005: Maintain event-time currency — handover or review incomplete	Later authorisation cannot validate prior out-of-scope work; assess affected earlier outputs separately.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-006: Screen institutional and personal influence — required basis missing	A declared material conflict requires effective exclusion or replacement, not a signature alone.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-006: Record challenge and reassignment — handover or review incomplete	Only a competent eligible role proceeds; replacement does not automatically validate prior compromised conclusions.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-026: Map every completion route — required basis missing	A favourable cohort mean cannot cover an unrepresented completion pathway.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-026: Protect learners through change and closure — handover or review incomplete	A development-readiness report is not full programme recognition; no fictitious graduates or professional privileges are created.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-028: Map the complete change population — required basis missing	A cosmetic filename or edition-label change cannot hide a changed technical basis.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-028: Close without abandoning terminal duties — handover or review incomplete	Only demonstrably complete obligations are closed; remaining duties stay assigned after programme or provider cessation.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.

Before local reliance, also select every relevant AP01–AP48 challenge in the core. Keep fictional tests isolated from live credentials, commands and recipients. For each test define the requirement, precondition, expected response, execution steps, actual observations, evidence, defect consequence, correction, retest and acceptance. This publication supplies test designs and examples, not completed local validation records.

9 Source requirement crosswalk

The references below use the supplied 248-page FIRST EDITION. Each row retains the original clause identifier and source page. The operating instructions in this document elaborate implementation; they do not replace the full source condition or its applicable annexes. A reference to a whole chapter requires selection of every triggered subclause, not only the examples printed here.

ASTRA ID / page	Source subject	Implementation use
3.2 / 12	Accrediting and delivery entities	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
3.4 / 13	Case separation and decision panels	Requirement, objective evidence and local child predicates
6.1 / 16	Institutional and personal conflicts	Requirement, objective evidence and local child predicates
6.3 / 16	Consultancy, learning and evaluation	Requirement, objective evidence and local child predicates
6.5 / 17	Independent oversight	Requirement, objective evidence and local child predicates
7.1 / 17	Function-specific competence	Requirement, objective evidence and local child predicates
7.2 / 17	Entry evidence and demonstration	Requirement, objective evidence and local child predicates
7.3 / 17	Essential steps and assessment security	Requirement, objective evidence and local child predicates
7.4 / 17	Initial assessor population	Requirement, objective evidence and local child predicates
7.5 / 18	Maintenance and inactivity	Requirement, objective evidence and local child predicates
7.6 / 18	Applicant personnel and task authority	Requirement, objective evidence and local child predicates
20.1 / 33	Programme identity and lawful standing	Requirement, objective evidence and local child predicates
20.2 / 34	Educational purpose and stakeholder need	Requirement, objective evidence and local child predicates
20.3 / 34	Learning outcomes and curriculum alignment	Requirement, objective evidence and local child predicates
20.4 / 34	Admissions, progression and completion	Requirement, objective evidence and local child predicates
20.5 / 34	Assessment validity and academic integrity	Requirement, objective evidence and local child predicates
20.6 / 34	Educators and technical supervision	Requirement, objective evidence and local child predicates
20.7 / 34	Learning resources and safe practical work	Requirement, objective evidence and local child predicates
20.8 / 35	Attainment, improvement and closure of the loop	Requirement, objective evidence and local child predicates
20.9 / 35	Initial operating evidence and readiness only	Requirement, objective evidence and local child predicates
20.10 / 35	Change, teach-out and continuing learner protection	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
30.2 / 48	Controlled transition	Requirement, objective evidence and local child predicates
30.4 / 48	Scope withdrawal and learner/customer protection	Requirement, objective evidence and local child predicates
31.3 / 49	Actual adoption record	Requirement, objective evidence and local child predicates
39.1 / 60	Intended users and representative conditions	Requirement, objective evidence and local child predicates
39.2 / 60	Workload, information and error recovery	Requirement, objective evidence and local child predicates
39.3 / 60	Life-support and habitation responsibilities	Requirement, objective evidence and local child predicates
39.4 / 60	Emergency response and safe-return assumptions	Requirement, objective evidence and local child predicates
39.5 / 60	Maintenance and worker protection	Requirement, objective evidence and local child predicates
39.6 / 60	Human authority in automated systems	Requirement, objective evidence and local child predicates
44.1 / 66	Lifecycle and architectural assurance	Requirement, objective evidence and local child predicates
44.2 / 66	Source, build and loaded configuration	Requirement, objective evidence and local child predicates
44.3 / 67	Verification and target representativeness	Requirement, objective evidence and local child predicates
44.4 / 67	Tool and generated-output reliance	Requirement, objective evidence and local child predicates
44.5 / 67	Release and update integrity	Requirement, objective evidence and local child predicates
44.6 / 67	Long-term support and digital retirement	Requirement, objective evidence and local child predicates
45.1 / 67	Intended use and prohibited use	Requirement, objective evidence and local child predicates
45.2 / 68	Data provenance and evaluation independence	Requirement, objective evidence and local child predicates
45.3 / 68	Performance and uncertainty	Requirement, objective evidence and local child predicates
45.4 / 68	Human oversight and safe fallback	Requirement, objective evidence and local child predicates
45.5 / 68	Release, drift and bounded adaptation	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
45.6 / 68	Assurance decisions remain attributable	Requirement, objective evidence and local child predicates
46.1 / 69	Decision purpose and model authority	Requirement, objective evidence and local child predicates
46.2 / 69	Verification, validation and uncertainty	Requirement, objective evidence and local child predicates
46.3 / 69	Twin synchronisation and stale state	Requirement, objective evidence and local child predicates
46.4 / 69	Replacement or reduction of physical work	Requirement, objective evidence and local child predicates
46.5 / 69	Model-based maintenance and remaining life	Requirement, objective evidence and local child predicates
46.6 / 70	Reproducibility and independent access	Requirement, objective evidence and local child predicates
47.1 / 70	Safety-security dependency analysis	Requirement, objective evidence and local child predicates
47.2 / 70	Identity, access and privileged actions	Requirement, objective evidence and local child predicates
47.3 / 70	Supply-chain and dependency integrity	Requirement, objective evidence and local child predicates
47.4 / 71	Connected production and operational technology	Requirement, objective evidence and local child predicates
47.5 / 71	Update trust and cryptographic transition	Requirement, objective evidence and local child predicates
47.6 / 71	Incident recovery and assured return	Requirement, objective evidence and local child predicates
52.1 / 76	Programme and learner boundaries	Requirement, objective evidence and local child predicates
52.2 / 76	Future skills with demonstrated outcomes	Requirement, objective evidence and local child predicates
52.3 / 76	Practical learning and assessment integrity	Requirement, objective evidence and local child predicates
52.4 / 77	Instructors, placements and technical currency	Requirement, objective evidence and local child predicates
52.5 / 77	Attainment, improvement and learner protection	Requirement, objective evidence and local child predicates
56.5 / 81	Export, migration and meaningful recovery	Requirement, objective evidence and local child predicates
57.1 / 81	Role-specific competence and scope	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
57.2 / 81	Initial cadre and equivalent prior work	Requirement, objective evidence and local child predicates
57.3 / 82	Practical assessment and maintained practice	Requirement, objective evidence and local child predicates
57.4 / 82	Consistency without coerced agreement	Requirement, objective evidence and local child predicates
57.5 / 82	Independent accrediting-operator review	Requirement, objective evidence and local child predicates
61.3 / 86	Dependent documents and compatibility	Explicit verification and acceptance predicate
62.1 / 88	Atomic requirement record	Explicit verification and acceptance predicate
62.2 / 88	Mandatory parameter completion	Explicit verification and acceptance predicate
62.3 / 88	Evidence validity before conformity	Explicit verification and acceptance predicate
62.4 / 88	Four requirement states	Explicit verification and acceptance predicate
62.5 / 89	No compensation or favourable default	Explicit verification and acceptance predicate
62.6 / 89	Exceptions, tailoring and unresolved conflict	Explicit verification and acceptance predicate
62.7 / 89	Decision replay and consistency	Explicit verification and acceptance predicate
63.1 / 90	Domain selection without geographic omission	Explicit verification and acceptance predicate
63.2 / 90	Object and activity rather than a universal label	Explicit verification and acceptance predicate
63.3 / 90	Environment, phase and mode matrix	Explicit verification and acceptance predicate
63.4 / 90	No automatic new programme family	Explicit verification and acceptance predicate
63.5 / 91	Unknown and future environments	Explicit verification and acceptance predicate
63.6 / 91	Interface and lifecycle closure	Explicit verification and acceptance predicate
68.7 / 101	Status and long-term custody	Explicit verification and acceptance predicate
73.1 / 110	Population, mission and human tasks	Explicit verification and acceptance predicate
73.2 / 110	Integrated life support	Explicit verification and acceptance predicate
73.3 / 110	Consumables and survival time	Explicit verification and acceptance predicate
73.4 / 110	Habitat integrity and interfaces	Explicit verification and acceptance predicate
73.5 / 111	Human factors and effective authority	Explicit verification and acceptance predicate
73.6 / 111	Extravehicular activity and individual equipment	Explicit verification and acceptance predicate
73.7 / 111	Medical capability and health-data boundaries	Explicit verification and acceptance predicate
73.8 / 111	Emergency, refuge and safe return	Explicit verification and acceptance predicate
74.7 / 113	Disposition and residual responsibility	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
75.7 / 115	Handover, resource claims and closure	Explicit verification and acceptance predicate
78.1 / 120	Released digital configuration	Explicit verification and acceptance predicate
78.2 / 120	Operational domain and prohibited behaviour	Explicit verification and acceptance predicate
78.3 / 120	Evaluation data and model credibility	Explicit verification and acceptance predicate
78.4 / 120	Human authority and consequential decisions	Explicit verification and acceptance predicate
78.5 / 121	Security and trusted updates	Explicit verification and acceptance predicate
78.6 / 121	Monitoring, drift and adaptation	Explicit verification and acceptance predicate
78.7 / 121	Recovery and semantic portability	Explicit verification and acceptance predicate
79.5 / 122	Terminal evidence and responsible transfer	Explicit verification and acceptance predicate
80.1 / 124	One complete application schedule	Explicit verification and acceptance predicate
80.2 / 124	Domain and verification completeness	Explicit verification and acceptance predicate
80.3 / 124	Competent independent closure	Explicit verification and acceptance predicate
80.4 / 124	Bounded claim and publication	Explicit verification and acceptance predicate
80.5 / 124	Continuing conformity and change	Explicit verification and acceptance predicate
80.6 / 125	Completion boundary	Explicit verification and acceptance predicate

Appendix A – Controlling source requirements

The following text is reproduced from the supplied ASTRA FIRST EDITION. The clause identifier and page refer to that 248-page source. These excerpts and their evidence fields must be read with all triggered normative annexes. Newly authored implementation steps elsewhere in this document do not amend the core standard.

3.2 – Accrediting and delivery entities

Source: AF-AST-STD-001, page 12.

The legal entity making an accreditation decision shall be identified separately from the applicant body and from the entity providing the assessment services being accredited. It shall not accredit itself or its own assessment operation, including through nominal reciprocal arrangements. It shall not also deliver the conformity-assessment services it accredits or applicant-specific consultancy compromising that accreditation. Related training, sector engagement and shared administration shall be assessed for actual influence, finances, access and ownership, with a genuinely independent arrangement where separation is necessary.

Required evidence: Legal delivery model; related-activity analysis; independent oversight and liability arrangements.

3.4 – Case separation and decision panels

Source: AF-AST-STD-001, page 13.

Evaluation, independent review, decision and appeal shall be assigned through explicit role checks. Final accreditation grants, renewals, extensions and contested adverse decisions shall use three independent authorised panel members: all three participate and at least two support the reasoned outcome, with every mandatory technical gate met. A technical reviewer may serve on that panel only when independent of evaluation and separately authorised. Other outcome classes use the independent authority specified in the released profile. A majority vote cannot resolve missing essential technical evidence by preference.

Required evidence: Assignment matrix; independent review; three-person participation and votes; gate record.

6.1 – Institutional and personal conflicts

Source: AF-AST-STD-001, page 16.

The operator shall review financial, ownership, employment, advisory, family, close personal and adversarial relationships at institutional and case levels. Declaration is an input to control, not the control itself. Where a material threat cannot be effectively managed, the individual or entity shall decline or be replaced. For independent third-party evaluation, review and decision, relevant employment or consultancy for the applicant within the preceding 24 months excludes assignment; older relationships remain subject to risk review.

Required evidence: Live conflict register; prior-work screening; independent disposition and assignment restrictions.

6.3 – Consultancy, learning and evaluation

Source: AF-AST-STD-001, page 16.

General explanation of a requirement and non-client-specific education may be offered through controlled arrangements. A person who designs an applicant's system, corrective solution or technical method shall not independently certify that same work. The operator shall distinguish teaching from examination and independent decision. Training attendance shall not be represented as competence, and purchasing a particular course shall not be required where verified equivalent preparation is acceptable under the profile.

Required evidence: Service boundaries; training/evaluation separation; assignment conflict checks.

6.5 – Independent oversight

Source: AF-AST-STD-001, page 17.

The oversight function shall have protected access to unedited results, conflict information, trends and resources needed to challenge programme management. It shall report material unresolved threats to a disinterested constitutional route. Implicated officers shall not select their own investigator or control the evidence made available. Oversight may recommend restrictions, reassessment or governance correction; it shall not replace competent case findings with a preferred commercial result.

Required evidence: Oversight mandate; access and budget; independent reports; resolved or escalated threats.

7.1 – Function-specific competence

Source: AF-AST-STD-001, page 17.

The operator shall define separate competence requirements for application review, audit leadership, specialist evaluation, sampling, laboratory sign-off, independent review, decisions and appeals. Profiles shall state technical fields, methods, criticality, language, professional judgement, evidence interpretation and access permissions. A person may hold several roles only when separately qualified and case independence remains valid. No generic aerospace assessor designation shall imply mastery of all eight families.

Required evidence: Role profiles; technical authorisation matrix; case coverage check.

7.2 – Entry evidence and demonstration

Source: AF-AST-STD-001, page 17.

Minimum assessment-role requirements are set out in Annex D. Verified experience, programme learning, mentored work, knowledge evaluation and observed practical performance shall be assessed together. Numerical minima do not replace demonstrated competence. Specialist non-audit assessors shall demonstrate the actual discipline and assessment task; they are not required to pretend that laboratory or educational evaluation is an organisational audit. Where the work uses AF 9100, its relevant assessor and personnel requirements remain controlling.

Required evidence: Verified history; learning records; mentored cases; observed demonstration and decision.

7.3 – Essential steps and assessment security

Source: AF-AST-STD-001, page 17.

Knowledge and practical criteria shall be fixed before candidate evaluation. Every predesignated essential safety, integrity and independence step shall be passed; component scores shall not be averaged to conceal failure. Equivalent reassessment shall follow evidenced remediation and preserve earlier attempts. Examination questions, scenarios, identity checks and scoring shall be secured and validated. An automated score or AI recommendation shall not be the sole authority for a practical competence decision.

Required evidence: Assessment blueprint; component/essential-step results; secured attempts; independent authorisation.

7.4 – Initial assessor population

Source: AF-AST-STD-001, page 17.

Where no established ASTRA assessor population exists, at least two independent competent professionals shall assess each candidate against the stated role and technical criteria. Their own competence and conflicts shall be documented. Comparable prior work may satisfy specified experience elements only after verification; programme knowledge, witnessed performance and independence shall not be waived. Honorary titles, reciprocal self-approval and attendance at an introductory meeting shall not create assessor authority.

Required evidence: Initial-panel qualifications; equivalence map; witnessed task; remaining scope restrictions.

7.5 – Maintenance and inactivity

Source: AF-AST-STD-001, page 18.

Maintain relevant development, current practice and observed performance at the intervals in Annex D. Review poor reports, inconsistent decisions, complaints, new technologies and changes in methods as well as activity counts. Failure to meet the applicable role minimum shall suspend independent role use until reviewed supervised reactivation. An individual shall notify limitations and request support rather than accept a task outside the authorised scope. Restoration does not erase earlier affected-work concerns.

Required evidence: Practice/development logs; witnessed reviews; suspension and reactivation; prior-work assessment.

7.6 – Applicant personnel and task authority

Source: AF-AST-STD-001, page 18.

Applicants shall demonstrate competence of people whose work affects the claimed capability, including contractors, temporary workers and local station personnel. Employers shall issue actual task authorisations defining scope, equipment, supervision and review conditions. A professional credential, external course or programme recognition is only

part of the evidence; it does not itself authorise aircraft release, restricted testing or every task in a facility. Changes and inactivity shall trigger review before independent work resumes.

Required evidence: Task analysis; verified competence; employer authorisations; changed-task review.

20.1 – Programme identity and lawful standing

Source: AF-AST-STD-001, page 33.

Record the provider, programme and award names, discipline, entry route, qualification level, language, mode, campuses, partner delivery and authority to offer the stated award. The programme name shall match learner records and public information. A recognised programme does not make every programme of the institution recognised and does not licence its graduates. Short courses, vocational pathways, degrees and professional development shall not use the same undisclosed evaluation boundary.

Required evidence: Programme/award identity; delivery map; legal standing; consistent public information.

20.2 – Educational purpose and stakeholder need

Source: AF-AST-STD-001, page 34.

Define the intended professional or further-learning purpose and the capabilities expected at completion, in terms appropriate to the discipline and level. Review relevance with learners, educators, employers, professional practitioners and other affected groups without surrendering academic judgement to a single sponsor. Distinguish longer-term graduate aims from assessable completion outcomes. Keep the rationale and changes traceable to evidence rather than marketing language.

Required evidence: Educational-purpose statement; stakeholder review; outcome rationale; controlled versions .

20.3 – Learning outcomes and curriculum alignment

Source: AF-AST-STD-001, page 34.

Map each required learning outcome to learning activities, prerequisites, assessment opportunities, direct evidence and an accountable academic owner. Annex J provides adaptable evidence dimensions rather than a universal prescribed curriculum. The approved discipline profile shall define the actual knowledge, design, analysis, experimentation, digital, ethical and practical depth and its workload basis. Credits, contact hours or attendance alone shall not establish outcome attainment.

Required evidence: Outcome–curriculum–assessment map; level/workload rationale; direct assessment evidence.

20.4 – Admissions, progression and completion

Source: AF-AST-STD-001, page 34.

Use transparent entry requirements, recognition of prior learning, transfer-credit review, academic advice and progression decisions. Demonstrate that every completion route meets the programme's published outcomes and award requirements, including partner and distance routes. Record exceptions and their academically authorised basis. Sample authentic learner work and completion records across relevant routes; do not infer all graduates' attainment from one showcase project or selected top-performing learner.

Required evidence: Admission/credit decisions; progression; completion checks; representative learner sample.

20.5 – Assessment validity and academic integrity

Source: AF-AST-STD-001, page 34.

Assessment methods shall test the intended knowledge and practical skills at the required level. Set rubrics, essential steps, identity and authenticity checks, moderation and resit rules before use. Preserve failed attempts and due process. AI-assisted and remote assessments shall demonstrate that the learner, rather than an unverified tool or substitute person, possesses the competence. Reasonable adjustments shall preserve the construct being assessed and protect personal information.

Required evidence: Assessment design; moderation; authentic work; essential-step results; integrity/remedy records.

20.6 – Educators and technical supervision

Source: AF-AST-STD-001, page 34.

Demonstrate that academic and practical staff have suitable disciplinary knowledge, teaching and assessment competence, recent professional development and adequate time. Technical tasks require supervision appropriate to consequence and learner experience. Visiting staff and placement supervisors shall have defined responsibility and observed performance. Faculty titles alone do not establish competence in every specialist module. The programme shall maintain continuity when a key instructor or assessor leaves.

Required evidence: Staff competence/workload; supervision; external-teacher controls; continuity plan.

20.7 – Learning resources and safe practical work

Source: AF-AST-STD-001, page 34.

Provide facilities, equipment, software, library/information access and learner support adequate for all delivery locations and modes. Practical activities shall have safe methods, competent supervision and verified apparatus. Simulation or remote laboratories may support learning where educational equivalence is demonstrated, but shall not replace essential hands-on outcomes without a valid profile basis. Learners shall receive accessible guidance, feedback and a fair complaints route.

Required evidence: Resource sufficiency; practical safety; simulation validity; learner support and access.

20.8 – Attainment, improvement and closure of the loop

Source: AF-AST-STD-001, page 35.

Evaluate attainment using relevant direct and indirect evidence, defined populations, rubrics and denominators. Examine weak outcomes, completion barriers, subgroup or delivery-mode differences and feedback. Assign improvement actions, implement them and demonstrate their effect on subsequent representative work. A meeting, survey or action list alone is not a completed improvement loop. Do not average a failed essential practical outcome into an overall pass.

Required evidence: Attainment analysis; improvement decision; implemented action; follow-up evidence.

20.9 – Initial operating evidence and readiness only

Source: AF-AST-STD-001, page 35.

A full programme outcome shall be based on authentic completed delivery and assessment evidence, normally at least one complete cohort for the claimed completion route, sufficient to evaluate all applicable outcomes. Where this evidence does not yet exist, the operator may issue only a clearly bounded developmental readiness report, with no live recognition or accreditation claim. The profile shall define suitable evidence for individualised or very low-volume programmes without inventing graduates or records.

Required evidence: Completed delivery evidence; cohort/route coverage; readiness limitations; honest public status.

20.10 – Change, teach-out and continuing learner protection

Source: AF-AST-STD-001, page 35.

Review changes to curriculum, award level, campuses, online platforms, partners and major staff/resources before extending the recognised scope. Continuing oversight shall address actual outcomes and learners, not only unchanged syllabi. Closure or loss of programme status requires clear communication, record preservation, transfer or teach-out arrangements and accurate historical status. Do not retroactively remove a learner's authentic academic work or imply a professional licence from the programme result.

Required evidence: Change approval; continuing outcome review; teach-out/transfer; historical records.

30.2 – Controlled transition

Source: AF-AST-STD-001, page 48.

For a new profile or substantive version, identify affected holders, evidence gaps, changed methods, competence, system updates, communications and effectivity. Set a technically justified transition that does not waive immediate safety duties. Preserve the basis of previous decisions and state when additional assessment is needed. Neither indefinite grandfathering nor automatic retrospective invalidation is presumed. A future requirement is not applied as though it had governed an earlier decision.

Required evidence: Transition plan; holder impact; competence/tool updates; actual effective versions.

30.4 – Scope withdrawal and learner/customer protection

Source: AF-AST-STD-001, page 48.

Before closing a profile or provider operation, identify active holders, open cases, pending appeals, unresolved findings, learners, records, status, contracts and financial duties. Notify affected parties and arrange lawful transfer or teach-out as relevant. A closure shall not erase adverse evidence or imply continued authority. Preserve access to historical decisions and correction channels. If urgent cessation is required, prioritise protection and accurate communication while completing residual obligations.

Required evidence: Closure plan; affected-party notices; transfer/teach-out; retained records and remedies.

31.3 – Actual adoption record

Source: AF-AST-STD-001, page 49.

Record the authenticated legal operator, technical approval, consultation completion, competent institutional adoption, signatories, effective date, applicable instruments and any necessary compatibility amendments. Keep edition date distinct from legal or operational effectivity. Uncompleted approval fields shall not be filled with assumed names or dates. Programme-wide adoption alone shall not activate every listed technical scope; each profile requires the independent readiness and scope decision in Annex P.

Required evidence: Authentic adoption; completed compatibility conditions; individual scope activation.

39.1 – Intended users and representative conditions

Source: AF-AST-STD-001, page 60.

The organisation shall define the relevant users, tasks, environment, expected duration, physical access, communication and operational constraints. Human-system requirements shall consider capabilities, limitations and reasonably foreseeable behaviour. Validation shall use representative users and conditions where practicable and state the limitations of substitutes or simulation. A single expert operator or ideal-condition demonstration shall not establish usability for all intended users or emergency conditions.

Required evidence: User/task analysis; representative population and scenario rationale; validation results and limitations.

39.2 – Workload, information and error recovery

Source: AF-AST-STD-001, page 60.

Interfaces and procedures shall provide understandable status, priorities, warnings and recovery information appropriate to the task. The organisation shall evaluate workload, fatigue, interruption, handover, language and the ability to recover from foreseeable errors. A warning shall not be the sole mitigation where an essential design or protective control is required. Nominal response time shall be distinguished from the time demonstrated by actual users under representative workload and degraded-information conditions.

Required evidence: Interface requirements; workload and interruption studies; observed recovery; design and protective-control decisions.

39.3 – Life-support and habitation responsibilities

Source: AF-AST-STD-001, page 60.

Where life-support or habitation systems are within scope, responsibilities shall cover the integrated environment, consumables, monitoring, maintenance, degradation and emergency interfaces. The technical basis shall identify the expected occupancy and mission duration and the consequences of loss of a supporting function. The organisation shall obtain competent specialist review appropriate to consequence and actual legal obligations. User acceptance of risk shall not replace required technical controls, independent review or operational permission.

Required evidence: Life-support responsibility matrix; occupancy/duration basis; integrated verification; independent specialist review.

39.4 – Emergency response and safe-return assumptions

Source: AF-AST-STD-001, page 60.

The organisation shall identify emergency scenarios and the interfaces on which rescue, safe return, evacuation or continued protection depend. Agreements shall be supported by evidence of actual availability and compatible communication, equipment and competence. Exercises shall be safe and representative of the response being claimed. A signed cooperation document or an optimistic recovery time shall not establish effective emergency capability where a

critical resource or external service remains unavailable.

Required evidence: Scenario and dependency analysis; resource availability; exercised interfaces; corrective follow-up and limitations.

39.5 – Maintenance and worker protection

Source: AF-AST-STD-001, page 60.

Work design shall address hazards affecting people and conformity, including access, lifting, hazardous energy, exposure, fatigue and restoration after intervention. Contractors and temporary personnel shall receive relevant task controls and supervision. The organisation shall preserve stop-work and escalation rights without retaliation. This standard does not replace a complete workplace safety framework; it requires the actual obligations and competent protective arrangements to be integrated with the claimed aerospace activity.

Required evidence: Work-risk interfaces; task authorisation; contractor controls; interruption and safe-restoration records.

39.6 – Human authority in automated systems

Source: AF-AST-STD-001, page 60.

Automation shall have explicit authority limits and an identified accountable organisation. Human oversight shall be evaluated for actual information, time, skill and ability to intervene, not simply the presence of a person in a process diagram. Training shall cover limitations, misleading outputs and degraded modes. Material changes in automation, tasks or user populations shall trigger reassessment. A favourable aggregate task-completion rate shall not compensate for a failed essential protective response.

Required evidence: Authority allocation; intervention validation; representative training and assessment; change review; essential-step results.

44.1 – Lifecycle and architectural assurance

Source: AF-AST-STD-001, page 66.

The organisation shall define requirements, architecture, implementation, integration, verification, release, maintenance and retirement for software and programmable hardware. Assurance depth and independence shall be matched to consequence and actual obligations. Architecture shall address interfaces, timing, resource limits, partitioning, fault containment and recovery where relevant. The absence of physical wear shall not be used to dismiss systematic defects, configuration errors, data corruption or environmental change. Purchased artefacts shall remain within the same assigned assurance responsibility.

Required evidence: Digital lifecycle plan; allocated requirements; architecture and consequence review; supplier responsibilities.

44.2 – Source, build and loaded configuration

Source: AF-AST-STD-001, page 66.

Source, generated code, logic, configuration, tools, dependencies and build instructions shall have controlled identities and attributable changes. The released artefact shall be linked to the reviewed baseline and the actual loaded target. Reproducibility shall be demonstrated where necessary for the intended assurance claim. Unapproved dependencies and embedded secrets shall be controlled. A software version label alone shall not establish which settings, data, model weights or external services influenced the delivered behaviour.

Required evidence: Source and review records; build/dependency manifest; artefact identity; loaded-configuration verification.

44.3 – Verification and target representativeness

Source: AF-AST-STD-001, page 67.

Verification shall address requirements, interfaces, boundaries, invalid inputs, timing, resource exhaustion, failure handling and regression. Coverage criteria shall be justified by the technical basis rather than an unexplained universal percentage. Differences between host, simulated and deployed execution shall be assessed. Uncovered behaviour, unresolved anomalies and tool limitations shall remain visible. Passing tests shall not establish completeness when the test set omits an essential condition or was not executed on a representative target.

Required evidence: Verification plan; traced test results; coverage and target-difference analysis; anomaly disposition.

44.4 – Tool and generated-output reliance

Source: AF-AST-STD-001, page 67.

Tools whose failure can create or conceal a defect shall be assessed for intended use, consequence and independent detection. Validation shall include known-answer, boundary, missing-input and prohibited-state cases. Generated calculations, code, technical statements and references shall receive competent verification before becoming controlled evidence. The organisation shall prevent unauthorised disclosure to external services. Neither successful tool execution nor a convincing generated explanation establishes the truth of the input, physical model or engineering conclusion.

Required evidence: Tool-risk and validation record; verified generated outputs; access controls; accountable technical approval.

44.5 – Release and update integrity

Source: AF-AST-STD-001, page 67.

A release shall identify approved functionality, configuration, dependencies, unresolved limitations, installation conditions and support obligations. Updates shall verify origin, integrity, compatibility and intended target before use. Interruption, failed installation, rollback and restoration shall be evaluated for the actual architecture. A security fix shall also be assessed for effects on timing, safety and qualification. The organisation shall not assume that changing a version number closes the original defect or retrospectively validates affected earlier outputs.

Required evidence: Release and update manifest; compatibility review; interrupted-update tests; rollback limits; affected-output decisions.

44.6 – Long-term support and digital retirement

Source: AF-AST-STD-001, page 67.

Long-life digital systems shall have a plan to preserve source or equivalent support access, build environments, licences, technical knowledge and records necessary for maintenance. Dependence on a cloud service or supplier shall be assessed before commitment. Migration, replacement or emulation shall preserve required behaviour and evidence meaning. Retirement shall address data custody, residual vulnerabilities, user notification and prevention of unauthorised reuse. Cryptographic signing alone shall not guarantee permanent readability or technical validity.

Required evidence: Support and obsolescence plan; access arrangements; migration tests; retirement and record-custody decisions.

45.1 – Intended use and prohibited use

Source: AF-AST-STD-001, page 67.

Each AI use shall have an accountable owner, intended purpose, operational domain, affected decisions, permitted authority and prohibited applications. The organisation shall examine foreseeable harms, security exposure, human limitations and whether a simpler, more verifiable method can meet the need. Development and experimental uses shall be separated from released operational use. A vendor's capability claim or a benchmark result shall not establish the suitability of the deployed system for a high-consequence application.

Required evidence: AI use-case register; alternatives and consequence review; domain and authority limits; release boundary.

45.2 – Data provenance and evaluation independence

Source: AF-AST-STD-001, page 68.

Datasets shall retain collection sources, rights, versions, labelling methods, relevant populations, operating conditions and known limitations. Training, tuning and evaluation partitions shall prevent leakage or unjustified overlap. The organisation shall preserve difficult, rare and adverse conditions needed for the intended use. Synthetic data shall be identified and its representativeness justified. A large dataset or overall accuracy score shall not establish coverage of a materially different population, environment or critical failure scenario.

Required evidence: Dataset manifest; partition and labelling controls; scenario coverage; synthetic-data limitations; independent evaluation design.

45.3 – Performance and uncertainty

Source: AF-AST-STD-001, page 68.

Acceptance criteria shall be fixed before evaluation and define relevant errors, denominators, exposure, uncertainty and essential protective conditions. Results shall be examined by meaningful operating condition or subgroup rather than only in aggregate. False acceptance, missed detection, unavailable output and indeterminate behaviour shall be distinguishable. A model confidence score is not automatically a calibrated probability of correctness or a probability of safe operation. Material evidence gaps shall prevent the dependent positive conclusion.

Required evidence: Prospective performance criteria; stratified results; uncertainty and calibration review where relevant; essential-failure record.

45.4 – Human oversight and safe fallback

Source: AF-AST-STD-001, page 68.

The organisation shall demonstrate that responsible people have sufficient information, time, competence and technical ability to intervene. Fallback shall be feasible in the actual operating environment and shall not rely on a failed common resource without justification. Invalid, missing, adversarial or out-of-domain inputs shall be considered under the approved threat and hazard model. A nominal manual-override button or requirement to review every result shall not count as an effective control without representative evidence.

Required evidence: Oversight task analysis; intervention and fallback tests; abnormal-input response; validated operating restrictions.

45.5 – Release, drift and bounded adaptation

Source: AF-AST-STD-001, page 68.

Model weights, preprocessing, dependencies, thresholds, sensor configuration and deployment conditions shall form an identifiable released baseline. Monitoring shall define relevant drift, changed exposure, failure indicators and accountable response. Adaptation outside the approved envelope requires renewed impact review and verification before reliance. The organisation shall retain earlier versions and explain the validity of previous conclusions after a change. An autonomous improvement claim shall not remove the need to demonstrate continued fulfilment of essential requirements.

Required evidence: Model release card; drift and response plan; adaptation boundary; change approvals; retained historical baselines.

45.6 – Assurance decisions remain attributable

Source: AF-AST-STD-001, page 68.

AI may support search, document review, classification and anomaly detection within validated limitations. It shall not independently grant, renew, suspend or restore an ASTRA outcome. The authorised decision maker shall have access to verifiable source evidence, understand material limitations and record the reasoned decision. Generated transcripts, images or observations shall not be presented as authentic events. Independent reviewers shall challenge automation bias and the risk of several tools repeating the same unsupported source.

Required evidence: Approved decision-support use; source verification; human review and decision; generated-content identification; independence checks.

46.1 – Decision purpose and model authority

Source: AF-AST-STD-001, page 69.

Every relied-upon model shall identify its owner, decision purpose, physical or operational target, version, inputs, outputs and authorised use boundary. The organisation shall distinguish an illustrative model, an engineering prediction, a synchronised digital twin and an acceptance model. Visual realism or a common data format shall not establish technical credibility. A model validated for one output or range shall not automatically support a different decision, configuration or environment.

Required evidence: Model identity and purpose; authority and use limits; target/configuration association; versioned assumptions.

46.2 – Verification, validation and uncertainty

Source: AF-AST-STD-001, page 69.

The organisation shall verify the implementation and validate the model against relevant observations for the claimed use. It shall evaluate input quality, numerical effects, calibration, sensitivity, dependence and uncertainty as appropriate. Calibration and validation evidence shall be distinguishable. Material discrepancy shall be investigated rather than concealed through repeated tuning to the same evidence. The final conclusion shall state the limits of the demonstrated domain and the consequences of relying on extrapolation.

Required evidence: Verification and validation plan; independent comparison data; sensitivity and uncertainty; discrepancy and extrapolation review.

46.3 – Twin synchronisation and stale state

Source: AF-AST-STD-001, page 69.

A digital twin shall maintain a traceable association with the actual asset and identify the source and age of updates. The system shall detect relevant missing, stale, inconsistent or wrong-configuration information. Maintenance and replacement shall update both physical and model records without erasing prior states. The organisation shall define what decisions remain permissible when synchronisation is lost. A visually current dashboard shall not be treated as proof that the underlying configuration is current.

Required evidence: Asset-twin identity; update and timestamp controls; stale-state response; configuration reconciliation.

46.4 – Replacement or reduction of physical work

Source: AF-AST-STD-001, page 69.

Where modelling replaces or reduces physical testing, inspection or practical observation, the organisation shall provide a prospective equivalence argument. It shall address failure mechanisms, validated domain, uncertainty, independent review and the material properties or behaviours that remain unobserved. The actual technical and legal obligations shall be checked before removal of a required activity. Cost, speed or model convenience alone shall not justify a reduction in necessary evidence.

Required evidence: Test-replacement rationale; validated equivalence; residual physical evidence; approval and restrictions.

46.5 – Model-based maintenance and remaining life

Source: AF-AST-STD-001, page 69.

A predictive or remaining-life output shall identify the asset history, degradation mechanism, observable inputs, model assumptions and uncertainty. The organisation shall validate the output for the intended maintenance decision and retain mandatory inspection or life-limit obligations. Absence of an alert shall not establish integrity where the model cannot detect the relevant mechanism. A new duty, repair, missing history or changed sensor shall trigger reassessment before the model supports an extended use decision.

Required evidence: Asset-history linkage; degradation and model validity; uncertainty; interval/life decision; changed-duty review.

46.6 – Reproducibility and independent access

Source: AF-AST-STD-001, page 70.

The evidence dossier shall retain sufficient model definition, input data, parameter settings, tool version and execution records to reconstruct the conclusion. Proprietary restrictions shall be managed through authorised access without accepting an inaccessible essential model by reputation. Independent review shall address the engineering relevance as well as computational correctness. Export and migration shall preserve units, field meaning, relationships and known limitations. A successful file transfer shall not establish successful model transfer.

Required evidence: Reproducible execution package; lawful independent access; engineering review; semantic migration checks.

47.1 – Safety-security dependency analysis

Source: AF-AST-STD-001, page 70.

The organisation shall identify assets, trust boundaries, suppliers, users and interfaces whose loss of integrity, availability, authenticity or confidentiality can affect assured outcomes. Threat and safety analyses shall be coordinated where protective measures can interfere with emergency or degraded operation. Engineering records, machine programmes, maintenance data and product updates shall be included, not only office systems. Assumptions about shared infrastructure and external services shall have named owners and demonstrable controls.

Required evidence: Asset and trust-boundary inventory; joint hazard/threat review; dependency ownership; approved protective controls.

47.2 – Identity, access and privileged actions

Source: AF-AST-STD-001, page 70.

Access shall follow verified identities, necessary privileges and actual roles. Human, machine and service identities shall be controlled throughout their lifecycle. Privileged release, maintenance and status actions shall have authentication and attribution appropriate to consequence. Emergency access shall be bounded, logged and reviewed. Shared credentials shall not obscure who performed an action. Changes in employment, supplier access or responsibilities shall promptly trigger the relevant permission review and removal.

Required evidence: Access and role matrix; identity lifecycle; privileged approvals; emergency logs; event-time authority checks.

47.3 – Supply-chain and dependency integrity

Source: AF-AST-STD-001, page 70.

The organisation shall maintain a relevant inventory of digital components and dependencies, their provenance, supported versions and channels for vulnerability information. Disposition shall consider actual exposure, exploitability, safety consequences and available protection. An inventory is not proof that every component is secure. Supplier changes, unsupported software and inaccessible update mechanisms shall trigger technical and continuity review. The organisation shall identify the actual party responsible for remediation and for informing affected users.

Required evidence: Dependency inventory; provenance; vulnerability assessment; support commitments; remediation and notification records.

47.4 – Connected production and operational technology

Source: AF-AST-STD-001, page 71.

Connected equipment shall protect authorised machine programmes, process parameters, monitoring data and essential functions. Segmentation, access, backup, monitoring and degraded operation shall be selected according to the actual process risk. Patches and security tools shall be assessed for compatibility with timing, safety and production qualification. When immediate change is inappropriate, a documented compensating-control decision shall have an owner, limits and review. Operational continuity shall not excuse unbounded unsupported risk acceptance.

Required evidence: Operational-technology architecture; authorised configuration; patch review; compensating controls; restoration tests.

47.5 – Update trust and cryptographic transition

Source: AF-AST-STD-001, page 71.

Updates shall verify origin, integrity, authority, compatibility and intended target configuration. The organisation shall control signing and other trust dependencies, key custody, expiry, revocation and migration. A future algorithm transition shall be planned according to product life and actual risk; this standard does not declare a particular algorithm universally suitable. Recovery and rollback shall not silently reintroduce an unacceptable vulnerability. Evidence-preservation needs shall be considered separately from live-system authentication.

Required evidence: Update trust model; key and certificate governance; interruption/rollback tests; migration and archival-validation plan.

47.6 – Incident recovery and assured return

Source: AF-AST-STD-001, page 71.

Incident handling shall preserve evidence, contain affected use, identify impacted products and decisions, notify responsible parties and control restoration. Returning a service to availability shall be separated from verifying its data and configuration integrity. Exercises shall test recovery objectives and the meaning of restored records. Missing original evidence shall remain a gap in the dependent conclusion. An incident closure shall include the actual technical return authority and follow-up actions, not only a completed support ticket.

Required evidence: Incident and affected-output record; integrity checks; recovery exercise; authorised return and continuing actions.

52.1 – Programme and learner boundaries

Source: AF-AST-STD-001, page 76.

The provider shall identify the actual programme, discipline, level, curriculum version, completion routes, delivery modes, campuses and partners. The intended educational or professional purpose shall be coherent with assessed outcomes. A recognised programme shall not imply recognition of every programme in the institution or authority for every graduate to perform restricted work. Short courses, vocational pathways, degree programmes and continuing development shall retain distinct boundaries and appropriate evidence requirements.

Required evidence: Programme profile; lawful award basis; delivery map; completion routes; accurate learner information.

52.2 – Future skills with demonstrated outcomes

Source: AF-AST-STD-001, page 76.

The curriculum shall address the knowledge and practical abilities required for its actual discipline and level, including relevant digital, analytical, systems, ethical and communication responsibilities. Future-technology content shall distinguish awareness from demonstrated practical capability. The provider shall map outcomes to instruction, assessment, direct learner evidence and accountable academic review. A fashionable topic, course title, contact-hour total

or attendance record shall not establish attainment of a defined technical skill.

Required evidence: Outcome-curriculum-assessment map; level and workload rationale; authentic learner work; reviewed future-skill claims.

52.3 – Practical learning and assessment integrity

Source: AF-AST-STD-001, page 76.

Practical work shall use suitable equipment, current methods, safe supervision and representative tasks. Simulation or remote laboratories shall have a justified educational role and shall not replace essential hands-on competence without a valid basis. Assessment shall establish learner identity and authorship, including when AI tools are permitted. Rubrics, essential steps, moderation and resit rules shall be fixed in advance. Failed essential skills shall not be averaged into a completion decision.

Required evidence: Practical-task and safety plan; assessment blueprint; authenticity checks; observed essential steps; preserved attempts.

52.4 – Instructors, placements and technical currency

Source: AF-AST-STD-001, page 77.

Educators, laboratory staff and placement supervisors shall demonstrate relevant knowledge, teaching and assessment competence and current practice appropriate to their task. Workload and replacement arrangements shall sustain delivery. Industry placements shall identify the real supervisor, permitted tasks, safety controls and evidence of the learner's contribution. An employer endorsement or instructor title alone shall not demonstrate either learner attainment or the supervisor's competence in every specialist domain.

Required evidence: Staff role and currency records; placement agreement; supervision; direct learner contribution; continuity plan.

52.5 – Attainment, improvement and learner protection

Source: AF-AST-STD-001, page 77.

Programme conclusions shall rely on authentic delivery and assessment evidence for every claimed completion route. Where sufficient completed evidence is absent, only the permitted developmental readiness result shall be used. Improvement shall connect identified weakness, educational cause, action and subsequent comparable outcomes. Changes, closure or loss of status shall protect learner records, communication and teach-out or transfer. Survey satisfaction and a favourable cohort average shall not replace direct evidence of essential attainment.

Required evidence: Route/cohort attainment; improvement follow-up; readiness limitations; teach-out and historical-record protection.

56.5 – Export, migration and meaningful recovery

Source: AF-AST-STD-001, page 81.

Transfer shall preserve readable evidence, identities, versions, field semantics, units, time zones, approvals, relationships and current and historical status. Reconciliation shall examine meaning as well as counts; equal file totals may conceal substitutions or missing links. Recovery shall distinguish availability from integrity and reconcile events after the selected recovery point. A sent archive is not accepted custody. The receiving function shall demonstrate usable access and acknowledge continuing duties before dependent cutover.

Required evidence: Export manifest; semantic reconciliation; preserved source; recovery integrity; receiving acceptance and custody.

57.1 – Role-specific competence and scope

Source: AF-AST-STD-001, page 81.

The operator shall map actual assessment tasks to verified discipline, method, language, consequence and judgement requirements. Audit leadership, technical evaluation, independent review, decisions and appeals shall remain separate authorisations. Learning attendance and numerical experience minima shall not replace observed ability. A person competent in one method or programme shall not be assigned unrestricted aerospace authority. The case plan shall identify necessary specialists and limits before accepting the work.

Required evidence: Task-to-role and person matrix; verified entry evidence; observed performance; bounded authorisation.

57.2 – Initial cadre and equivalent prior work

Source: AF-AST-STD-001, page 81.

Where an established assessor population is unavailable, the initial-candidate process in Clause 7.4 and Annex D shall apply. At least two independent competent professionals shall evaluate the relevant role and technical demonstration. Prior experience may satisfy specified elements only through an evidenced equivalence review. Programme knowledge, witnessed performance and independence shall not be waived. Founding status, honorary title or reciprocal approval shall not create an assessor credential.

Required evidence: Initial-panel competence/conflicts; criterion-by-criterion equivalence; witnessed task; independent qualification decision.

57.3 – Practical assessment and maintained practice

Source: AF-AST-STD-001, page 82.

Knowledge and practical criteria shall be defined before evaluation. Essential safety, integrity and independence steps shall be separately passed. Mentored work shall identify what the candidate actually performed and what remained supervised. Continuing development, recent practice, observed performance and review feedback shall maintain the authorisation. Unmet minima or loss of currency shall suspend independent role use until the required supervised reactivation. Later renewal shall not validate prior work performed outside authority.

Required evidence: Blueprint and attempts; mentored-work records; continuing practice; suspension/reactivation; historical impact review.

57.4 – Consistency without coerced agreement

Source: AF-AST-STD-001, page 82.

The programme shall use independent first responses to representative anonymised cases, followed by comparison of reasoning, evidence and outcome. Moderation shall distinguish unclear criteria, different facts, missing expertise and legitimate technical disagreement. A majority answer shall not become technical truth by itself. Quantitative agreement measures shall state their design and limitations and shall not be equated with correctness. Lessons affecting requirements shall follow controlled interpretation or version rather than informal instruction to produce uniform results.

Required evidence: Exercise design; independent responses; moderated reasoning; disagreement causes; controlled learning actions.

57.5 – Independent accrediting-operator review

Source: AF-AST-STD-001, page 82.

The independent operator review shall examine actual governance, competence, impartiality, technical methods, resources, case trails, decisions, remedies and registry integrity. Reviewers shall be genuinely independent and have adequate protected evidence access. The interval and pre-launch requirements in Clause 29.3 remain controlling. Review findings shall have verified correction and a bounded report. Completion of this internal programme review shall not be represented as external recognition or universal international acceptance.

Required evidence: Independent mandate and reviewers; actual case sampling; findings/closure; bounded report and continuing actions.

61.3 – Dependent documents and compatibility

Source: AF-AST-STD-001, page 86.

The responsible custodian shall identify every affected profile, manual, procedure, checklist, form and register before use of this text. Existing 108-title architecture and F01–F08 codes shall remain stable. Newly added requirements shall be mapped to the actual dependent documents; a previous checklist shall not be assumed to cover them. Actual constitutional and legal obligations remain separately applicable.

Verification: Reconcile the dependency register against selected requirements and operating versions.

Acceptance / hold rule: Every required operating document is available, consistent and authorised for the intended use. Unresolved conflicts place dependent use on HOLD.

62.1 – Atomic requirement record

Source: AF-AST-STD-001, page 88.

Each assessed requirement shall have a stable identifier, one accountable owner, an applicability trigger, defined object and configuration, required behaviour or characteristic, observable conditions, verification method and acceptance predicate. Compound statements shall be separated into individually testable rows without deleting any condition. Terms such as adequate, suitable, promptly or representative shall be resolved through the explicit records in this clause before they support an acceptance decision.

Verification: Inspect each requirement row and its linked method, boundary and predicate.

Acceptance / hold rule: Every applicable row is evaluable without inventing an object, limit, observation or decision role. Unresolved essential terms result in HOLD.

62.2 – Mandatory parameter completion

Source: AF-AST-STD-001, page 88.

An application-dependent value shall be entered in a controlled parameter schedule before the relevant test or evaluation. Each entry shall state symbol, meaning, unit, inclusive or exclusive bounds, uncertainty treatment, operating modes, technical derivation, source evidence, approver and change trigger. A declared value is not adequate merely because the applicant selected it. The independent reviewer shall challenge whether it bounds the claimed environment and consequence.

Verification: Recalculate derivations and check mission, interface and obligation coverage.

Acceptance / hold rule: The complete parameter set is approved prospectively. A blank, TBD, unsupported factor or undefined threshold blocks the dependent release.

62.3 – Evidence validity before conformity

Source: AF-AST-STD-001, page 88.

The evaluator shall first determine whether evidence belongs to the correct object, configuration, period, method and authorised performer and whether it is usable for the intended inference. Only valid relevant evidence shall enter a conformity predicate. Rejected, corrupted, missing, unobservable or wrong-version evidence shall remain identified. Evidence may be valid and show failure; an invalid test is not a valid pass or a valid proof of product failure.

Verification: Check provenance, configuration, method capability, original data and uncertainty separately from result classification.

Acceptance / hold rule: Validity is established before PASS or FAIL is assigned; otherwise use HOLD with an explicit invalidity or evidence-gap reason.

62.4 – Four requirement states

Source: AF-AST-STD-001, page 88.

A requirement state shall be PASS, FAIL, HOLD or N/A. PASS means the approved predicate is satisfied by valid evidence. FAIL means valid evidence demonstrates that the predicate is not satisfied. HOLD means applicability, method, evidence, uncertainty or authority is not sufficiently resolved. N/A means the trigger and retained responsibility are absent and independent approval of that exclusion is recorded. Missing equipment, budget, access or time shall not justify N/A.

Verification: Execute the truth table in Annex AL using actual scope and evidence.

Acceptance / hold rule: Exactly one current state is assigned with reason and traceable evidence. All earlier states are retained.

62.5 – No compensation or favourable default

Source: AF-AST-STD-001, page 89.

A positive conformity decision shall require PASS for every applicable mandatory requirement, closure of every in-scope nonconformity, valid independent competence and actual authority. N/A rows shall have approved reasons; HOLD and FAIL rows shall not contribute a favourable default. Weighted scores, averages, majority votes, programme membership or good results in another discipline shall not compensate for an unmet condition.

Verification: Reconcile the complete requirement population with the decision dossier; test missing and negative cases.

Acceptance / hold rule: The Boolean conjunction in Annex AL is true. Otherwise no positive grant, renewal or extension is permitted.

62.6 – Exceptions, tailoring and unresolved conflict

Source: AF-AST-STD-001, page 89.

An exception shall identify the affected requirement, technical basis, permissible authority, scope, consequence and independent review. It shall not waive a mandatory ASTRA gate or an applicable binding obligation. Tailoring shall define how a requirement is met in the actual application, not silently remove it. If two applicable requirements cannot both be satisfied, the responsible authorities shall resolve the conflict before dependent work; an assessor shall not choose the easier rule.

Verification: Review each exclusion, alternative method and concession against controlling requirements.

Acceptance / hold rule: No unapproved exception or unresolved conflict affects a positive conclusion; any known departure remains visible in its separate technical disposition.

62.7 – Decision replay and consistency

Source: AF-AST-STD-001, page 89.

A decision shall be reproducible from the same frozen requirements, parameter values, original evidence, calculation version, uncertainty model and role assignments. Two competent reviewers reaching different results shall identify the differing input, predicate, assumption or expertise before closure. Interpretation records may clarify a term but shall not change limits after results are known. Equation inputs shall retain unrounded values.

Verification: Independently replay a selected boundary case and reconcile every difference.

Acceptance / hold rule: The replay produces the same supported state, or the case remains HOLD pending a controlled technical resolution.

63.1 – Domain selection without geographic omission

Source: AF-AST-STD-001, page 90.

The mission owner shall assess every domain in Annex AK and record applicable, not applicable or not yet determined. The scope shall include terrestrial preparation, launch and recovery interfaces as well as the in-space activity. Earth orbit, cislunar and libration-region operations, solar and planetary missions, small bodies, ocean-world exploration and interstellar precursor concepts shall not be excluded solely because they differ from conventional satellite operations.

Verification: Compare the mission concept and responsibility map with all Annex AK domain rows.

Acceptance / hold rule: Every domain has a reasoned disposition. Any unassessed domain that can affect a required outcome remains HOLD.

63.2 – Object and activity rather than a universal label

Source: AF-AST-STD-001, page 90.

The claimed object shall be identified as a system, subsystem, component, material, process, service, facility, software artefact, person, educational programme, assessment provider or statement. Record what is designed, built, tested, operated, maintained or retired, by whom and where. A phrase such as all space, space-qualified or complete mission assurance shall not replace the exact boundaries and limitations of the evaluated object.

Verification: Compare application, technical schedule, evidence and proposed public wording.

Acceptance / hold rule: The object and activities agree throughout the dossier; unsupported sector-wide or geographically unlimited claims are prohibited.

63.3 – Environment, phase and mode matrix

Source: AF-AST-STD-001, page 90.

For each applicable domain, define mission phase, operating mode, intended duration, exposure, interfaces, repairability, accessible evidence and credible degraded states. Include dormant storage, transport, separation, commissioning, routine service, communication outage, servicing, retirement and loss-of-mission conditions when relevant. A qualification for one phase shall not automatically cover another phase with different loads, resources or observability.

Verification: Review the complete phase-by-mode matrix and its verification links.

Acceptance / hold rule: Every safety-, mission- or claim-relevant cell has accepted evidence or an explicit restriction; no essential unexamined cell is passed by analogy.

63.4 – No automatic new programme family

Source: AF-AST-STD-001, page 90.

Space-domain tags organise technical applicability within F01–F08. They shall not be counted as additional accreditation families, new public privileges or independently active programmes. The technical owner shall map each space activity to the existing object route and applicable clauses, then define a dedicated profile where the actual method, environment or competence differs. A portfolio listing is not scope activation.

Verification: Check domain tags against family, module, object and activation records.

Acceptance / hold rule: Every granted space scope has a valid family connection and independently complete profile; no authority is inferred from the catalogue.

63.5 – Unknown and future environments

Source: AF-AST-STD-001, page 91.

For a novel environment or technology, the technical owner shall document known conditions, uncertain mechanisms, missing measurements, model limitations and the evidence needed to resolve them. Restricted research may continue only inside its approved protective boundary. An operational or conformity claim shall not be issued until the essential criteria and evidence are complete. Existing equations shall not be extrapolated beyond their validity without a tested justification.

Verification: Examine novelty analysis, experiment authority and unresolved-condition register.

Acceptance / hold rule: Unknown essential behaviour is not recorded as safe or conforming. Development status and permitted work are explicit.

63.6 – Interface and lifecycle closure

Source: AF-AST-STD-001, page 91.

The scope shall include relevant upstream and downstream duties, including supplied design data, ground services, communications, receiving facilities, environmental custody and long-term records. Transfers shall identify the sender, receiver, evidence and acceptance. A contractor delivering one subsystem shall not be made responsible for unrelated mission duties, but an integrator shall not exclude duties it retains because they are performed by others.

Verification: Trace each interface to an accountable performer and retained owner.

Acceptance / hold rule: No essential responsibility, evidence handover or terminal obligation is orphaned.

68.7 – Status and long-term custody

Source: AF-AST-STD-001, page 101.

Closure shall record whether an asset is operating, restricted, dormant, disposed, lost or unknown using verified evidence and defined meanings. Loss of communication shall not be labelled successful disposal. Assign remaining notices, monitoring and records to an actual custodian. A closed commercial contract does not close an unresolved technical or environmental obligation.

Verification: Trace final-state evidence and accepted transfer of residual duties.

Acceptance / hold rule: Terminal claims match observed or explicitly bounded inferred states, and every continuing duty has a receiving owner.

73.1 – Population, mission and human tasks

Source: AF-AST-STD-001, page 110.

Define intended occupants, roles, mission duration, environmental conditions, physical access, workload, communication and reasonable variation in users. Identify essential tasks and protective actions. Validation shall state participant representativeness, assistance, training and limitations; one expert demonstration shall not establish capability for all users.

Verification: Review the user/task matrix and representative normal and degraded validation.

Acceptance / hold rule: Each essential task is demonstrated under its approved conditions; unsupported populations and tasks are excluded from the claim.

73.2 – Integrated life support

Source: AF-AST-STD-001, page 110.

Life-support requirements shall identify atmospheric, water, waste, temperature, humidity, monitoring, consumable and power interfaces appropriate to the mission. Substance-specific and physiological limits shall be set by the competent actual technical and health authorities before use. Do not infer safe habitat conditions from a single sensor or from nominal supplies. The profile shall identify correlated and common-resource failures.

Verification: Review integrated requirements, monitored quantities, sensor validity and contingency tests.

Acceptance / hold rule: Every required environmental and protective predicate is met; unspecified health limits or unverified essential monitoring block acceptance.

73.3 – Consumables and survival time

Source: AF-AST-STD-001, page 110.

Resource accounting shall separate usable inventory, delivery losses, recovery efficiency, degradation, uncertainty, crew demand, emergency reserves and terminal obligations. A theoretical recycling rate shall not replace demonstrated system recovery and quality. Define the elapsed time to protective intervention and compare it with supported remaining resources. Annex AM provides arithmetic examples, not crew-consumption prescriptions.

Verification: Recompute balances and check source data, quality and concurrent reserve allocations.

Acceptance / hold rule: All approved reserve and survival predicates pass; quantity sufficiency does not compensate for unsuitable water, atmosphere or other supplies.

73.4 – Habitat integrity and interfaces

Source: AF-AST-STD-001, page 110.

Habitat assurance shall address structural and pressure boundaries, penetrations, connections, fire behaviour, contamination, accessibility, maintenance and emergency compartments where applicable. Hidden work shall have acceptance evidence before concealment. Payload and visiting-system interfaces shall not compromise life support or escape assumptions. Structural or habitat acceptance is not a medical clearance.

Verification: Inspect configuration-specific boundary and integrated protective evidence.

Acceptance / hold rule: All essential integrity and interface conditions pass; an unknown boundary or incompatible visiting configuration blocks occupancy-dependent acceptance.

73.5 – Human factors and effective authority

Source: AF-AST-STD-001, page 111.

Displays, alerts and procedures shall identify state, urgency, limitations and required actions without ambiguous mode or priority. Workload, fatigue, interruptions, language, delayed feedback and automation bias shall be evaluated. A manual override is an effective control only when a person has the information, time, training and physical or technical ability to use it.

Verification: Observe representative task and intervention performance, including misleading and degraded information.

Acceptance / hold rule: Every essential response passes independently; aggregate usability scores do not offset a failed protective task.

73.6 – Extravehicular activity and individual equipment

Source: AF-AST-STD-001, page 111.

The profile shall define the equipment configuration, user/task, environment, interfaces, life, inspections, consumables, communications and rescue dependencies for extravehicular or analogous isolated work. Suit, vehicle, habitat and support equipment shall be evaluated as an integrated system. This standard does not prescribe physiological exposure or hazardous operating sequences.

Verification: Review qualified equipment, user fit/task evidence and integrated emergency interfaces.

Acceptance / hold rule: All relevant configuration and protective criteria pass, with actual specialist authority and supported rescue or survival assumptions.

73.7 – Medical capability and health-data boundaries

Source: AF-AST-STD-001, page 111.

The mission shall identify the qualified health functions, equipment and support access required for its actual population and duration. Engineering assurance shall verify availability, integration, power, maintenance, communication and privacy without inventing treatment protocols or clinical certification. Health information shall be restricted to authorised purposes and handled separately from public conformity records.

Verification: Check actual health-support arrangements, equipment integration and protected data access.

Acceptance / hold rule: Required support functions are demonstrably available and usable within the mission limits; undocumented specialist capacity is not credited.

73.8 – Emergency, refuge and safe return

Source: AF-AST-STD-001, page 111.

Emergency planning shall define scenario, detection, decision time, protection, refuge or return assumptions, rescue interfaces and actual resources. A cooperation agreement shall not count as demonstrated response capability without

compatible personnel, access, equipment and timing. Exercises shall distinguish tabletop review from operational demonstration and shall remain safe.

Verification: Assess scenario-specific exercise and resource evidence and independently check timing feasibility.

Acceptance / hold rule: Every required protective pathway is supported; infeasible response or unavailable essential resources block the dependent human-mission claim.

74.7 – Disposition and residual responsibility

Source: AF-AST-STD-001, page 113.

Final disposition shall identify sample, container, residue, facility, record and long-term custody obligations. Transfer shall include receiving acceptance and usable evidence. Mission completion shall not terminate a continuing protection or scientific-record duty. The custodian shall preserve genuine access conditions and correction channels after organisational closure.

Verification: Trace final-state evidence and accepted residual duties.

Acceptance / hold rule: No required custody or protection obligation is abandoned and no unverified disposal is claimed complete.

75.7 – Handover, resource claims and closure

Source: AF-AST-STD-001, page 115.

The final claim shall state actual production, quality, quantity, conditions, uncertainty, exclusions and accepted receiving responsibility. Demonstration of a resource process creates no ownership, extraction right or operating permission. Waste, residues, hazardous inventories and long-term custody shall have accepted disposition.

Verification: Reconcile reported outputs, accepted products, rights/permissions and final-state evidence.

Acceptance / hold rule: The claim is bounded to measured and accepted achievement; undeveloped scale-up and unknown disposition remain separate.

78.1 – Released digital configuration

Source: AF-AST-STD-001, page 120.

Identify requirements, source or logic, generated artefacts, model weights, preprocessing, parameters, tools, dependencies, build environment and loaded target. A version label alone is insufficient to establish the deployed behaviour. Every consequential change shall be attributable and linked to impact, regression and actual release authority.

Verification: Reconstruct the released artefact and compare it with the loaded configuration.

Acceptance / hold rule: The evaluated and deployed digital configurations match, or all differences have accepted verification before use.

78.2 – Operational domain and prohibited behaviour

Source: AF-AST-STD-001, page 120.

Define intended tasks, users, environment, sensor and network assumptions, autonomous authority, prohibited actions and protective states. Experimental uses shall be segregated from live release. Behaviour outside the approved domain shall trigger the defined limitation or protective response rather than an unsupported autonomous expansion.

Verification: Review domain completeness and execute representative in-domain, out-of-domain and prohibited cases.

Acceptance / hold rule: All essential domain and protective conditions pass; unbounded authority or unknown out-of-domain behaviour blocks release.

78.3 – Evaluation data and model credibility

Source: AF-AST-STD-001, page 120.

Evaluation shall retain data provenance, rights, labelling, representative populations, partitions, leakage checks, synthetic contribution and adverse cases. Model verification, calibration and independent validation shall be distinguished. A high aggregate score, large dataset or visual twin is not evidence of every rare or safety-critical condition.

Verification: Inspect data partitions and independently reproduce selected performance and model-validation results.

Acceptance / hold rule: Prospective scenario-specific criteria are met with disclosed uncertainty and limitations; unsupported extrapolation remains HOLD.

78.4 – Human authority and consequential decisions

Source: AF-AST-STD-001, page 120.

Human oversight shall be validated against available information, response time, competence, workload and control access. Automated decision support may organise evidence but shall not independently issue an ASTRA grant, renewal, suspension or restoration. Generated observations and citations shall not be presented as authentic source events.

Verification: Challenge automation bias, false-source and delayed-intervention scenarios.

Acceptance / hold rule: Actual authorised people can perform every required role and source evidence remains verifiable; nominal oversight alone is insufficient.

78.5 – Security and trusted updates

Source: AF-AST-STD-001, page 121.

Protect source, build, machine instructions, operational data, identities and updates according to the actual threat and safety model. Update acceptance shall verify origin, integrity, authority, target, compatibility and interruption behaviour. Reversion to an earlier load shall not reintroduce an unacceptable defect without explicit technical disposition. Security testing requires written safe authorisation.

Verification: Review trust dependencies and execute isolated permitted and prohibited update tests.

Acceptance / hold rule: All required integrity and protective gates pass; a valid signature alone does not establish functional safety or compatibility.

78.6 – Monitoring, drift and adaptation

Source: AF-AST-STD-001, page 121.

Define detectable drift, changed exposure, failure signals, missing-data response, authority and reassessment triggers. Monitor what the method can actually observe, not every property inferred from a live dashboard. Adaptation outside the released envelope shall require renewed assurance before reliance. A monitoring gap shall not be treated as evidence of unchanged performance.

Verification: Review monitoring coverage, alert-to-action records and controlled changes.

Acceptance / hold rule: Essential performance and protection remain supported; otherwise restrict the affected use and assess earlier outputs.

78.7 – Recovery and semantic portability

Source: AF-AST-STD-001, page 121.

Export and recovery shall preserve identities, scope, configuration, evidence states, decisions, history, units, time basis, permissions and relationships. Equal file counts do not establish equal meaning. Reconcile events after the recovery point and obtain receiving acceptance before cutover. Service availability and evidence-integrity acceptance are separate.

Verification: Execute missing-link, wrong-version, interrupted-write, expired-authority and restore tests.

Acceptance / hold rule: All essential records and relationships are usable and correct; unresolved evidence loss keeps dependent decisions on HOLD.

79.5 – Terminal evidence and responsible transfer

Source: AF-AST-STD-001, page 122.

Terminal-state claims shall specify the exact intended condition, permitted inference, observation method, resources and residual duties. Transfer shall preserve custody and receiving acceptance of records, hazardous inventory, notices, monitoring and unresolved remedies. A file sent or contract ended is not accepted closure.

Verification: Reconcile final-state evidence, inventory and recipient acknowledgement.

Acceptance / hold rule: Every required terminal criterion is demonstrated or openly limited, and every remaining duty has an actual receiving owner.

80.1 – One complete application schedule

Source: AF-AST-STD-001, page 124.

The schedule shall join the object tuple, F01–F08 selection, Annex AK domains, phase/mode matrix, required methods, parameter records, competence, evidence, independent decisions and continuing controls. All triggers in Annex AO shall

be resolved. Shared records may be reused after relevance review, but shall not merge distinct objects, outcome classes or actual authority.

Verification: Reconcile the full schedule with Clauses 1, 4, 62 and 63 and Annex C.

Acceptance / hold rule: No essential scope, parameter, responsibility or evidence field remains undefined before a positive decision.

80.2 – Domain and verification completeness

Source: AF-AST-STD-001, page 124.

Map every applicable domain and requirement to valid verification and to an accountable conclusion. Treat domain counts, test counts and completed checklist percentages as planning measures only. Annex T is not exhaustive of all future methods; a newly discovered material mechanism shall create a controlled additional requirement and evidence task before the affected claim proceeds.

Verification: Perform forward and reverse traceability and inspect omitted-domain reasons.

Acceptance / hold rule: Every applicable condition passes or has a justified approved N/A; no HOLD or FAIL is hidden by a coverage percentage.

80.3 – Competent independent closure

Source: AF-AST-STD-001, page 124.

The independent reviewer shall have verified technical coverage, lawful evidence access and no prohibited case relationship. Technical dissent shall be resolved by evidence, corrected scope or further work. Where a three-person panel is required, all three eligible members shall participate and the established vote rule shall apply only after the technical gates are satisfied.

Verification: Check competence, conflict, access, panel and reasoned decision records.

Acceptance / hold rule: Both the technical conjunction and applicable authority/panel rules pass; a vote cannot cure absent evidence.

80.4 – Bounded claim and publication

Source: AF-AST-STD-001, page 124.

The outcome shall identify legal holder, issuer, object, configuration, family/module, domain, site or remote responsibility, criteria, limitations, actual dates and ongoing or instance basis. Public wording shall not imply unrestricted coverage of all space, universal safety, statutory permission or external recognition without evidence. The approved cover and edition label do not change those boundaries.

Verification: Compare the actual decision with credential, registry and all proposed public representations.

Acceptance / hold rule: Published scope and status exactly match the authorised decision and preserve every material restriction.

80.5 – Continuing conformity and change

Source: AF-AST-STD-001, page 124.

Maintain surveillance, technical validity, people, resources, configuration, monitoring and actual state history under the controlling clocks. Mission, environment, population or technology changes shall trigger impact review before expanded reliance. Restoration shall preserve expiry unless a full renewal has occurred and shall not validate the suspended interval.

Verification: Audit actual completion, change and status records rather than scheduled dates alone.

Acceptance / hold rule: The current claim remains fully supported; overdue or invalidated conditions trigger the applicable restriction, suspension or withdrawal.

80.6 – Completion boundary

Source: AF-AST-STD-001, page 125.

The final document is a requirement and evidence framework. Each actual mission and technical profile shall complete its numerical limits, specialist procedures, permissions and validation. Newly authored provisions shall follow the real adoption process before binding live use. No statement in this publication guarantees that every undiscovered physical phenomenon or future technology has already been validated.

Verification: Review the final release dossier and the truthful distinction between prepared text and real implementation.

Acceptance / hold rule: Only the exact demonstrated and authorised scope is released; incomplete domains remain available for controlled development, not presumed conformity.

Appendix B — Local adoption, validation and receiving acceptance

Gate	Required evidence	Outcome when incomplete
Authority and identity	Actual operator, scoped mandate, permissible result class, named owner, independent decision and remedy functions.	No live scope release.
Requirement population	All applicable clauses and annexes mapped to child conditions, with reasons and independent approval for exclusions.	HOLD the affected conclusion.
Parameters and methods	Prospective values/attributes; technical basis; valid methods; representativeness; calibration, uncertainty and approved predicates.	No dependent acceptance.
People and evidence	Current demonstrated competence; conflict clearance; original usable source evidence; actual configuration and event times.	Reassign or obtain sufficient evidence.
Local tools and tests	Actual deployment tested with positive, boundary, missing, invalid and prohibited inputs; original failed cases retested.	No consequential reliance on unaccepted tools.
Independent closure	Every mandatory requirement PASS, approved N/A, all in-scope nonconformities verified closed, panel rules where required.	No grant, renewal or extension.
Claims and continuity	Decision-linked scope/status; source history; genuine custody, receiving access, retention, urgent notices and terminal duties.	Restrict publication or transfer until resolved.

Record authentic approval and activation in AF-AST-FR-001 and AF-AST-SC-004 or an equivalent controlled record. The edition label is not an effective date for a particular case. Preserve historical decisions under their actual controlling basis; a newer document does not retroactively create missing competence or evidence. Source: Clauses 4, 31, 61, 62 and 80; Annexes P and AR.

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