



ASTRA

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OPERATIONS MANUAL

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Purpose and application

Educational programmes, aerodromes, maintenance facilities, technical support and station/service capabilities, with environmental statements evaluated through their separate engagement. Designed for coordinated but independently bounded F04–F08 assessment.

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.

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1 Operating model and responsibility

Educational programmes, aerodromes, maintenance facilities, technical support and station/service capabilities, with environmental statements evaluated through their separate engagement. Designed for coordinated but independently bounded F04-F08 assessment.

Share genuinely common administration only after relevance review. A headquarters or airport result does not automatically include partner campuses, tenants, service stations, MRO training or verifier competence.

Decision and authority boundary

A positive grant, renewal or extension requires valid scope, every applicable criterion fulfilled, sufficient usable evidence, closure of every in-scope nonconformity, current competent independent decision authority and effective required permissions. No score, majority vote, membership status or future corrective promise replaces a missing gate. An operational technical release, a programme outcome and an administrative publication are separate actions.

Function	Responsibility and boundary
Scheme / institutional authority	Maintains actual instruments, resources, permissible outcomes and scoped delegations; does not order favourable case results.
Programme and case owner	Coordinates live-scope review, assignments, evidence, deadlines, handovers and communications.
Technical specialists and evaluators	Determine method validity and scope coverage, observe actual work, retain adverse evidence and state limitations.
Independent review / decision	Review the versioned dossier and apply every mandatory gate independently of the original evaluation.
Registry / custody	Implement only authenticated decisions, maintain scope and history, control access, retention and usable recovery.
Independent remedies and oversight	Review complaints, appeals, conflicts and operator performance through unimplicated competent functions.

2 Case and outcome architecture

Required identity or field	Content and interpretation
Record ID	Unique persistent identifier; do not reuse a withdrawn or superseded identifier for a different record.
Template / schema version	Identify this form version and any controlled continuation or equivalent record mapping.
Case and evaluated object ID	Connect to the actual application, asset, person, programme, method or statement.
Legal entity and actual performer	Distinguish accountable organisation, issuer, applicant and subcontracted performer.
Family / module and outcome class	Use the retained family/module and correct accreditation, recognition, qualification, certification, verification or validation class.
Scope / technical profile ID and version	Identify the exact version; a title alone is insufficient.
Site / station / delivery mode	Record physical, remote, mobile and partner-delivery boundaries that affect this record.
Configuration / method / statement version	Identify the actual technical baseline and conditions evaluated.
Creation date and time basis	Use the actual creation date; state time zone when a clock or sequence depends on time.
Relevant event / awareness / decision dates	Keep distinct dates separate. Use a linked chronology where more than one event exists.
Accountable author and role	Identify who recorded the information and within which task authority.
Reviewer / approver and authority	Identify the responsible review or approval function; blank does not mean approved.
Evidence references and versions	Link accessible original evidence, including adverse, missing or superseded items.
Record status and purpose	Use the relevant allowed states; evidence status and conformity status are separate.
Access / confidentiality class	Record authorised access; do not put protected operational detail in a public field.
Retention basis / custody / hold	Name the controlling retention rule, custodian and any preservation hold.
Correction / supersession history	Link the original, reason, person, actual date and affected downstream records.

Case progression is enquiry/application, admission, evaluation, review and actual decision. Holder status is separately active, restricted, suspended, expired, withdrawn or a historical instance result. Evidence may be received without being accepted for a purpose. A system must not force missing evidence into “conforming” or “not applicable”.

Eight-family routing

Family	Evaluated object / boundary
F01	Management Systems Assurance
F02	Critical Processes and Products
F03	Testing and Inspection
F04	Education Programmes
F05	Airports and Aerodromes
F06	Aircraft Maintenance and Technical Services
F07	Ground Operations and Aviation Support Services
F08	Carbon, Environment and Climate Assurance

3 End-to-end operating pathways

PR-003 – Application, Eligibility and Contract Review

Trigger: An enquiry, formal application, scope extension request or proposed engagement is received.

Receive without granting status

The Secretariat assigns an enquiry/application ID and records the actual receipt. Identify the legal applicant and representative authority. Explain that receipt, an invoice or a completeness check is not accreditation, recognition or permission to use an AF mark.

Check deliverability and independence

Obtain actual assessor, specialist, reviewer and decision-function availability. Screen the entity and candidate personnel for conflicts and prior consultancy. Verify lawful access to essential evidence and safe witnessing. A staffing plan or future appointment does not provide current delivery capability.

Hand over a controlled case

Transfer the accepted scope, terms, reuse map, conflicts, technical profile and access arrangements to the planning function. Preserve the original application and all changes. Reopen admission when a new site, method, task, statement or responsible entity changes the accepted technical boundary.

Hold / escalation: Defer or decline when the essential profile, available competence, independence, lawful access or operating authority cannot be demonstrated. Explain a development route without implying that it is a provisional conformity result.

Record handover: AF-AST-FR-002, AF-AST-FR-003, AF-AST-FR-004, AF-AST-FR-006, AF-AST-FR-018.

PR-004 – Scope Definition, Applicability and Evidence Reuse

Trigger: A scope is first defined, an exclusion is proposed, evidence is reused or the requested boundary changes.

Identify the actual decision object

Distinguish the organisation, process window, product configuration, person, educational programme, service capability, assessment body and environmental statement. Record what the receiving user will be entitled to conclude. A brand-wide label cannot replace that decision definition.

Review exclusions substantively

For each claimed non-applicability, establish which activity and retained responsibility are absent and why the desired result remains valid. Small size, budget, another certificate or lack of evidence is not a sufficient exclusion. Refer material exclusions to a competent technical reviewer.

Carry scope through every record

Check the same tuple in the plan, observations, reports, findings, review, decision, certificate instruction and public record. When the scope changes, preserve the earlier request and assessment history. Do not silently remove a failed activity merely to present the remaining work as an unrestricted success.

Hold / escalation: Unclear outcome class, missing configuration, unsupported exclusion or inaccessible essential reused evidence holds the dependent conclusion until an independently reviewable boundary exists.

Record handover: AF-AST-FR-002, AF-AST-FR-003, AF-AST-FR-004, AF-AST-FR-010.

PR-007 – Assessment Planning, Resources and Site Coverage

Trigger: An admitted case, surveillance, renewal or extension requires an assessment plan or a material plan change.

Build the scope-led work breakdown

The lead assessor decomposes each requested conclusion into requirements, locations, methods, configurations, delivery modes and interfaces. Include prior findings, changes and adverse results. Identify which observations and original records can establish each material condition.

Assign available competence

Match named people to the exact technical tasks, language, consequence and access permissions. Separate evaluation from independent review and decision. Resolve conflicts before assignment. A nominal specialist, trainee or silent second observer is not independent productive technical coverage.

Reconcile actual execution

Record actual participants, productive hours, observations, interruptions and deviations. Add work when essential coverage is missing, or hold/narrow the conclusion through an actual reviewed boundary. Report completed coverage rather than copying the original plan as though every planned action occurred.

Hold / escalation: Missing site evidence, unjustified method grouping, unavailable specialist competence, unsafe access or inadequate time requires additional work, a supported restriction or deferral.

Record handover: AF-AST-FR-007, AF-AST-FR-008, AF-AST-FR-009, AF-AST-FR-010.

PR-008 – Remote and Hybrid Assessment Control

Trigger: Remote evidence access, hybrid assessment, remote witnessing or substitution of physical observation is proposed.

Define what must be established

The lead identifies the exact capability, characteristic or record being evaluated and each essential observation. Explain whether the proposed method can demonstrate preparation, identity, execution, interpretation and reporting, not merely show a finished output.

Establish the live baseline

At opening, confirm actual site, people, task, method version, configuration and instrument status. Distinguish live feeds from prerecorded demonstrations and synthetic cases. Verify that the assessor can choose material evidence rather than view only promotional selections.

Close and protect the records

Retain the session log, permissions, source evidence, interruptions, limitations and additional work. Confirm lawful storage and retention of recordings. Review method validity after changes to equipment, software, location or intended decision use.

Hold / escalation: Missing identity, essential observation, lawful access, adequate fidelity or continuity leaves the dependent requirement not demonstrated and blocks a broader claim.

Record handover: AF-AST-FR-008, AF-AST-FR-009, AF-AST-FR-010, AF-AST-FR-026.

PR-009 – Technical Witnessing and Method-Family Coverage

Trigger: A plan requires observed technical performance or an end-to-end evidence trail.

Select the technical trail

The assessor chooses an actual output and a representative task from the approved population. Include routine, changed, failed and lower-volume work where relevant. Document why the selection represents the requested capability and which limits remain.

Observe essential execution

Witness required preparation, setup, work, monitoring and interpretation. Record actual parameters and deviations within authorised specialist procedures. State assistance, coaching or simulation openly. A curated completed item does not establish independent routine execution of hidden steps.

Hand over for independent review

Provide an attributable witness record with sources, actual observations, findings and precise conclusion. Identify any supplementary work still required. The witness recommendation is evaluation evidence, not the independent final conformity decision.

Hold / escalation: An unobserved essential step, inappropriate method, invalid equipment or unsupported representative grouping requires additional demonstration or an explicitly restricted conclusion.

Record handover: AF-AST-FR-007, AF-AST-FR-009, AF-AST-FR-010, AF-AST-FR-011.

PR-012 – Technical Reporting, Amendments and Report Review

Trigger: A technical report is prepared, a result is released, an error is found or recipients need a corrected conclusion.

Identify the result and audience

The report author states issuer, client, actual object, site, method/version, configuration, relevant dates and intended conclusion. Identify whether the document is a technical result, evaluation recommendation, readiness report, statement conclusion or independent outcome.

Preserve adverse and repeated work

Record failed, invalid and indeterminate tests and approved retest rationale. Identify changed configuration, repaired articles or missing evidence. Do not replace an adverse original with a favourable repeat without preserving the relationship and technical disposition.

Notify and retain usable history

Reach recipients who relied on an incorrect result, provide the corrected bounded conclusion and record acknowledgement where needed. Preserve originals, supersession and current status. An amended PDF must remain linked to raw evidence and any continuing restriction.

Hold / escalation: An unsupported claim, unresolved essential evidence gap, invalid method or absent authorised signatory holds report release; an already issued unsupported conclusion triggers correction and recipient action.

Record handover: AF-AST-FR-009, AF-AST-FR-010, AF-AST-FR-011, AF-AST-FR-012, AF-AST-FR-014.

PR-013 – Nonconformity, Containment and Corrective Action

Trigger: A failed requirement, credible critical concern, nonconforming work or recurring ineffective action is identified.

Form an evidence-based finding

The evaluator records the exact requirement/version, objective evidence, gap, affected object/site/period and classification rationale. Distinguish a demonstrated failure from an optional observation. Several local failures may together establish a systemic major.

Test occurrence and escape causes

Investigate why the failure happened and why the existing system did not prevent or detect it. Retain competing explanations and evidence. A training record or replacement employee is not sufficient when capacity, interface design, method validity or management pressure caused the problem.

Close, reopen and learn

Record actual effectiveness evidence, closure authority and communications. Missed deadlines trigger the applicable status action, not automatic extension. Recurrence reopens cause and extent analysis. Preserve the original dates and earlier failed conclusions during reissue, reassignment and improvement.

Hold / escalation: Uncontrolled critical concern, unverified effectiveness, missed required closure or open in-scope nonconformity blocks the relevant grant and triggers proportionate continuing-status protection.

Record handover: AF-AST-FR-012, AF-AST-FR-016, AF-AST-FR-026, AF-AST-FR-027.

PR-014 – Independent Review and Outcome Decisions

Trigger: Evaluation is complete enough for independent review or a grant, renewal, extension or adverse decision is proposed.

Confirm the decision mandate

Identify the outcome class, actual authorised issuer and decision function. Verify technical competence and permitted roles. Ensure evaluation, independent review and decision combinations satisfy the core and released profile, including the required three-person accreditation panel.

Review evidence validity

Examine method suitability, measurement uncertainty, source authenticity, adverse results, repetitions and limitations of reuse. Confirm that each requirement conclusion matches the actual configuration and period. Reject an unsupported generated explanation or numerical score as a substitute for evidence.

Communicate and instruct publication

Notify the applicant of scope, reasons, duties and remedies. Give the registry custodian the authenticated instruction and exact public wording. Update status within two calendar days, with immediate urgent notices. Preserve the reviewed dossier, votes, dissent and subsequent correction history.

Hold / escalation: Incomplete dossier, an open in-scope finding, inadequate coverage, unresolved essential uncertainty, conflicted decision role or missing required panel participation blocks a positive result.

Record handover: AF-AST-FR-006, AF-AST-FR-012, AF-AST-FR-013, AF-AST-FR-014.

PR-015 – Surveillance, Renewal and Scope Extension

Trigger: An ongoing outcome is granted, a surveillance/renewal point approaches or a holder requests an extension.

Create the authoritative cycle baseline

The programme manager records the actual independent decision, exact scope, profile, consequence, restrictions and expiry/instance boundary. An ongoing ASTRA outcome has a maximum 24-month period, subject to a shorter profile and the separate controlling AF 9100 rules where applicable.

Review changes before an expanded claim

Planned material changes are reviewed early enough and before affected use. Unplanned non-critical material changes are notified within five calendar days after awareness; critical concerns follow the 24-hour rule. A new station, aircraft task, technical method or ownership boundary cannot be added by reprinting a certificate.

Close the cycle record

Reconcile holder notices, exact registry state, public claims, pending appeals and ongoing duties. A pending appeal, payment, transfer or booked visit does not extend validity. Keep current and historical outcomes readable during issuer or system changes.

Hold / escalation: Overdue required surveillance, unsupported material change, expired status or open renewal findings prevents continued or renewed claims within the affected scope.

Record handover: AF-AST-FR-007, AF-AST-FR-012, AF-AST-FR-013, AF-AST-FR-015, AF-AST-FR-016.

PR-016 – Restriction, Suspension, Restoration and Withdrawal

Trigger: A substantiated concern, overdue control, loss of capability, expiry-related issue or verified corrective action requires a status change.

Establish the trigger and source

The independent decision function identifies the concern, affected credential, controlling requirement and actual event/awareness dates. Separate credible protection concerns from unsubstantiated allegations and administrative disputes. Record what evidence substantiates the proposed status action.

Issue a reasoned notice

State the action, exact affected scope, actual decision date, reason, prohibited claims, required correction, remedy route and resolution deadline. A suspension deadline cannot exceed 90 calendar days from the decision. Preserve original expiry and the earlier status record.

Reconcile every representation

Update the public register within two calendar days and urgently notify affected holders/recipients. Preserve former scope, reasons, remedies and current state. Operator change, appeal receipt, payment or file reissue must not revive withdrawn or unsupported authority.

Hold / escalation: Unverified remedy, unresolved systemic extent, missing independent authority or expired underlying status prevents restoration. Preserve protection and decide the permitted restriction or withdrawal.

Record handover: AF-AST-FR-012, AF-AST-FR-013, AF-AST-FR-014, AF-AST-FR-016.

PR-017 – Complaints, Appeals and Independent Remedy

Trigger: A person raises a complaint, requests reconsideration of a decision or submits a concern containing both.

Accept and classify the issue

The intake function records the first receipt and available response channel. Distinguish service dissatisfaction, a specified decision appeal and protected integrity concerns. Link related issues without changing the original receipt. Good-faith safety reporting does not depend on payment, membership or use of a particular form.

Appoint independent competent reviewers

Use the required three-person independent appeal panel. Exclude original evaluation, review, decision and materially implicated selectors. Obtain relevant technical expertise and protected evidence access. The original decision maker may explain the record but does not vote on the appeal.

Follow systemic and non-retaliation effects

Review related reports, methods, personnel and decisions where a concern is substantiated. Verify corrective effectiveness and communicate appropriate public corrections without unnecessary personal disclosure. Monitor for retaliation through fees, assignments, service denial or confidentiality threats.

Hold / escalation: A conflicted panel, inaccessible essential evidence or unresolved urgent risk prevents an unsupported remedy. Maintain protection, disclose justified timing and obtain independent technical resolution.

Record handover: AF-AST-FR-006, AF-AST-FR-012, AF-AST-FR-013, AF-AST-FR-017.

PR-026 – Education Attainment, Cohort Review and Learner Protection

Trigger: An education programme is reviewed, a cohort completes, a delivery route changes or learner protection is threatened.

Freeze the programme boundary

The academic owner records provider, award, discipline, level, curriculum version, language, locations, mode, partners and lawful standing. Separate degree, vocational, short-course and continuing-development routes. Do not infer institution-wide recognition from one programme.

Validate assessments and essential steps

Set rubrics, identity/authorship, moderation, resit and essential practical criteria before use. Control AI-assisted and remote assessment so the learner actual ability is established. Reasonable adjustments preserve the assessed construct. Failed essential skills are not averaged into a pass.

Protect learners through change and closure

Review curriculum, campuses, partners, platforms and key-resource changes before extending scope. Maintain accurate information, retained academic work, transfer or teach-out and accessible remedies. A later programme-status loss does not erase authentic learner records or create a professional licence.

Hold / escalation: Missing completion-route evidence, invalid assessment authenticity, inadequate essential practical resources or absent learner protection prevents a full unqualified programme outcome.

Record handover: AF-AST-FR-005, AF-AST-FR-009, AF-AST-FR-012, AF-AST-FR-021.

PR-027 – Environmental Statement Verification and Validation

Trigger: An environmental capability, historical statement, reduction claim, prospective plan or energy attribute engagement is proposed.

Agree the exact engagement

The environmental lead identifies entity, assets/sites, period, intended users, statement and methodology. Distinguish capability recognition, historical verification and prospective validation. An airport inventory is not automatically the footprint of its tenants or all flights.

Plan substantive and control testing

Assess risks of omission, biased estimation, aggregation, fraud and source dependency. Select material categories, sites and transactions using a reasoned population and sample. Verify original evidence and data transformations, including units and independent recalculation where appropriate.

Issue a bounded conclusion and maintain history

Identify the statement/version, scope, assurance form, period, criteria and limitations. A historical instance statement has no invented continuing certificate duration. Correct later material errors and communicate to recipients. Capability status and verifier accreditation follow separate controls.

Hold / escalation: Missing material evidence, inappropriate factors, incomparable baselines, unresolved double allocation or unsupported forecast wording prevents an unqualified favourable conclusion.

Record handover: AF-AST-FR-004, AF-AST-FR-010, AF-AST-FR-011, AF-AST-FR-012, AF-AST-FR-025.

PR-028 – Change, Transition, Transfer and Programme Closure

Trigger: A programme/profile version, transfer, provider cessation, scope withdrawal or closure affects controlled work.

Identify the actual change and boundary

The programme manager states old/new versions, reasons, entities, profiles, locations, methods, configurations and affected stakeholders. Distinguish document version from technical transfer, operating-authority change and complete closure.

Set prospective implementation conditions

Specify actual effective versions, owners, permitted work, prohibited claims, notices, required additional assessment and verification. Do not waive immediate safety duties. Conditions on development progression do not authorise a conformity certificate with unmet mandatory criteria.

Record completion and residual duties

The actual authorised function decides transition, transfer or closure for an exact scope and date. Keep unresolved notifications, warranties, remedies and custody duties assigned. Closing a project or changing an issuer must not erase failure history or imply continuous authority that never existed.

Hold / escalation: Unresolved essential compatibility, missing receiving capability, abandoned learner/customer duties or an incomplete evidence transfer prevents a supported closure or new-scope release.

Record handover: AF-AST-FR-001, AF-AST-FR-012, AF-AST-FR-015, AF-AST-FR-016, AF-AST-FR-018, AF-AST-FR-028.

4 Scope-specific implementation

F04 — Education Programmes

Use AF-AST-TP-004 for the detailed subject criteria and AF-AST-CL-005 for source-level evaluation. The following boundaries are required when assembling the operating case:

F04-E01 — 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. Programme recognition does not license graduates or recognise every programme offered by the institution.

F04-E02 — 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. An applied programme result does not authorise every industrial task or become a professional licence.

F04-E03 — 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. Tool capability, benchmark scores and attendance are not evidence of learner competence or product certification.

F04-E04 — 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. Programme recognition is not laboratory accreditation or permission for unsupervised hazardous scientific work.

F04-E05 — 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. Attendance and programme completion do not themselves grant maintenance-release, inspection or other restricted task privileges.

F04-E06 — Continuing professional learning in a defined technical subject, level, audience and intended outcome. Differentiate awareness, knowledge update, assessed skill and maintained role competence. Continuing-development hours contribute evidence only where relevant; they do not automatically renew a role or credential.

F05 — Airports and Aerodromes

Use AF-AST-TP-005 for the detailed subject criteria and AF-AST-CL-006 for source-level evaluation. The following boundaries are required when assembling the operating case:

F05-A01 — Named aerodrome operator and site with the actual movement areas, terminals, cargo/general-aviation facilities, utilities, operating characteristics and retained service interfaces. The scope does not automatically include independently operated tenants. Capability recognition is not an aerodrome operating licence, airline approval or universal tenant certificate.

F05-A02 — Named heliport operator/site and the declared helicopter interface, infrastructure, operating environment and support functions. A dedicated technical supplement is required; conventional-airport evidence alone does not establish heliport capability. No universal heliport dimensions, performance thresholds or flight-operating instructions are provided.

F05-A03 — Named vertiport or advanced-mobility infrastructure with the actual aircraft, energy, digital, passenger and emergency interfaces. Prototype site demonstrations and operational capability require separate evidence and permissions. A vertiport capability result does not establish aircraft airworthiness or permission for passenger flight operations.

F05-A04 — Assigned site, launch-support and re-entry/recovery interfaces for a named operator and actual vehicle/payload/service boundary. Scope concerns competence and assurance, not authorisation to launch or control public-risk operations. No launch permission, hazardous parameter, mission trajectory or operational command is created

by ASTRA.

F05-A05 — Shared aerodromes where civil, military or other authorised operators have distinct infrastructure, information, access, safety and service responsibilities. Maintain lawful protected review without merging institutional authority. A shared-site result does not transfer military, public-security, air-navigation or civil operating powers.

F06 — Aircraft Maintenance and Technical Services

Use AF-AST-TP-006 for the detailed subject criteria and AF-AST-CL-007 for source-level evaluation. The following boundaries are required when assembling the operating case:

F06-M01 — Line-maintenance capability for identified aircraft types or technically justified families at named stations, including planned checks, defect assessment, permitted rectification and aircraft-on-ground support. The object is the organisation's demonstrated station/type/task capability, not the aircraft's airworthiness or an individual release. Capability recognition neither authorises flight nor grants all aircraft types, all line stations, a personal maintenance licence or design privileges.

F06-M02 — Base-maintenance capability for named facilities and aircraft/type/task combinations, covering coordinated multi-discipline work, access and structural/cabin/system tasks, inspections, reassembly and controlled customer handover. Subcontracted work remains assigned to its actual performer. A base-maintenance result is not approval to design repairs, certify an internal training centre or accredit every laboratory method used in the package.

F06-M03 — Maintenance, repair, overhaul and technical services for specified engine and auxiliary-power-unit families, configurations, modules and tasks. Scope distinguishes workshop capability, external special processes, controlled test-cell activity and the final authorised service result. No propulsion design settings, hazardous operating recipe, unrestricted engine approval or reset of accumulated service life is supplied by this profile.

F06-M04 — Maintenance of specified mechanical, electrical, electronic, hydraulic, pneumatic or other aerospace components at named facilities and within declared tasks. Repairability, test capability and installation eligibility are separately established. A bench pass does not establish suitability for every installation, restore missing life history or accredit the component laboratory automatically.

F06-M05 — Capability to embody approved structural, cabin, system and modification work within named facilities, aircraft or component families and defined tasks. Engineering design approval and physical embodiment remain separate responsibilities. ASTRA recognition of embodiment capability does not confer repair design authority or establish approval of an unassessed modification.

F06-M06 — Advisory and record-based asset services such as planning, reliability analysis, technical records review, fleet or lease transitions, procurement support and aircraft-on-ground coordination. Direct maintenance and release privileges are not implied by advice. Technical support is not maintenance release, aircraft operating approval, a guarantee of future reliability or authority to extend an asset life limit.

F06-M07 — Storage, preservation, return-to-service preparation, dismantling and responsible disposition of aircraft, engines and components within declared permissions. Technical eligibility and environmental material recovery are independently supported. Neither storage capability nor material recovery certifies an item as airworthy, resets life limits or permits restricted disposal operations.

F07 — Ground Operations and Aviation Support Services

Use AF-AST-TP-007 for the detailed subject criteria and AF-AST-CL-008 for source-level evaluation. The following boundaries are required when assembling the operating case:

F07-G01 — Station-specific passenger, baggage, accessibility, ramp, load-control, aircraft-movement and de-/anti-icing interfaces within declared contractual responsibilities. Include only tasks actually delivered and competently demonstrated. No loading, pushback or de-icing recipe, flight clearance or general airline operating authority is created.

F07-G02 — Acceptance, custody, storage, preparation, transfer and release of declared cargo, mail and specialist shipments at named stations. Dangerous-goods and other restricted tasks require independently verified competence and permissions. Capability recognition does not validate unknown contents, replace transport permissions or establish a

shipment's technical eligibility solely from its paperwork.

F07-G03 — Storage, source verification, quality control, transfer and delivery of named fuels or energy services at identified locations. Conventional fuel, electrical charging and hydrogen-related activities have distinct technical and permission boundaries. No fuel formulation, pressure, hazardous operating procedure or whole-flight zero-emission assertion is supplied by this profile.

F07-G04 — Capability for operational support and maintenance of declared ground support equipment, boarding bridges, baggage systems, charging infrastructure, technical utilities and associated assets. Specify direct maintenance versus contracted coordination. Equipment service capability is not unrestricted aircraft compatibility, statutory plant approval or proof that every connected device is conforming.

F07-G05 — Station-specific catering integrity, cleaning, cabin supplies, water/lavatory and sanitation services within declared tasks. Aircraft compatibility, hygienic handling and specialist local obligations remain explicit. An ASTRA service result is not a substitute for applicable food, water or workplace permissions and does not authorise use of an incompatible aircraft chemical.

F07-G06 — A fixed-base operator's named service package covering declared passenger/crew support, property care, parking and handling coordination, communications and underlying technical services. Directly performed and arranged activities remain separately identified. Coordination capability does not certify every underlying provider, give aircraft release powers or prove services at unassessed network locations.

F07-G07 — Dedicated dispatch or flight-support, communications, navigation, surveillance and meteorological-support activities within named service boundaries. Each technical discipline requires its own method, competency and permission schedule. No public air-navigation authority, airline operating licence, flight clearance or guaranteed operational safety follows from a generic support-service outcome.

F07-G08 — Deployed aviation software and digital services affecting operations, information, coordination or technical evidence. The evaluated object is the defined service configuration and its responsibilities, not every integrated customer or third-party output. A platform outcome is not certification of every generated output, every connected provider or the safety of all customer operations.

F07-G09 — Assessment of authorised specialist security-service provider capability, staff and equipment within declared aviation tasks. Detailed tactical methods and sensitive vulnerabilities remain in protected authorised systems. ASTRA does not transfer public security powers, authorise intrusive activity or supply tactical bypass, offensive or operational attack instructions.

F08 — Carbon, Environment and Climate Assurance

Use AF-AST-TP-008 for the detailed subject criteria and AF-AST-CL-009 for source-level evaluation. The following boundaries are required when assembling the operating case:

F08-C01 — Organisational environmental capability and independently evaluated historical inventories for defined entities, sites, categories, periods and intended users. Separate inventory verification from capability recognition and verifier accreditation. A verified airport or supplier inventory is not the footprint of every flight, tenant or customer and does not establish a reduction without comparable historical evidence.

F08-C02 — Historical reduction statements and prospective transition-plan validation for named boundaries and intended users. Keep measured achievement, forecast, removal, avoided emissions and compensation separately labelled and evaluated. Plan validation neither guarantees future reductions nor proves present reduction. A lower intensity can coexist with higher total emissions and must be reported accurately.

F08-C03 — Energy, water, waste, material efficiency, repair, reuse, remanufacture and recovery capability or statements for a defined system. Environmental performance and technical eligibility of recovered aerospace inputs remain distinct. A recovery percentage is not proof that a critical part is fit for service, that all waste was recycled or that internal recirculation represents new recovered material.

F08-C04 — Local air quality, noise, discharge, spills, biodiversity and other site-specific environmental performance within a declared responsibility. Use separate competent methods and actual obligations for each measured effect. An inventory

or general sustainability label cannot establish compliance with every local environmental duty or guarantee absence of effects at unmeasured receptors.

F08-C05 — Capability and bounded assessments addressing physical climate risks for defined assets, services and dependencies over stated horizons. Scenario analysis supports adaptation decisions but is not proof of survival under all future conditions. Neither a scenario report nor capability recognition guarantees that a facility will withstand every climate event or replaces engineering design and statutory approval.

F08-C06 — Provenance and allocation claims concerning fuels, energy or separated contractual environmental attributes. The profile identifies the claim mechanism and distinguishes physical delivery, book-and-claim style allocation and actual environmental outcomes. An attribute purchase does not necessarily mean physical delivery, verified operational reduction, fuel compatibility or zero emissions for an entire flight or service.

5 Continuing controls and chronology

Control / source	Trigger and interval	Required response
Ongoing outcome Core 16.1	Independent conformity decision Maximum 24 months	Shorter profile permitted; AF 9100 retains its own controlling rules. Instance results have no invented ongoing validity.
Routine surveillance Core 16.2	Decision / last completed surveillance Maximum 12 months	Complete evaluation; booking is not completion.
High-consequence / novel / integrity exposure Core 16.2	Decision / last completed surveillance Maximum 6 months	Use the shortest triggered interval for inseparable mixed scopes.
Corrective-action plan Core 14.4	Original finding notification 30 calendar days	Immediate protection is separate. Do not reset the original clock.
Major finding closure Core 14.4	Original finding notification 60 calendar days	Verify implementation and effectiveness; review continued conformity immediately.
Minor finding closure Core 14.4	Original finding notification 90 calendar days	All in-scope nonconformities closed before grant, renewal or extension.
Critical protection Core 14.2	Recognition of credible concern Immediately	Stop or contain affected work; preserve evidence.
Holder critical notice Core 14.2	Awareness Within 24 hours	Earlier applicable duties remain in force.
Operator critical status action Core 14.2	Substantiated critical concern Within 24 hours	Suspend or independently justified effective restriction.
Registry status update Core 15.5	Actual status decision Within 2 calendar days	Urgent holder communication does not wait for public update.
Suspension resolution Core 16.5	Suspension decision Maximum 90 calendar days	Restore on evidence, restrict independently unaffected scope or withdraw.
Final evaluation report Core 13.5	Evaluation closure Within 14 calendar days	Explain exceptional delay; existing finding clocks stay unchanged.
Unplanned non-critical material change Core 16.3	Awareness Within 5 calendar days	Expanded claim still requires prior evaluation and decision.
Planned material change Core 16.3	Before implementation / expanded claim Early enough for required prior review	No generic grace period for unassessed scope.
Complaint / appeal acknowledgement Core 27.2	First receipt Within 5 calendar days	Where a reply channel exists; immediate urgent triage.
Control / source	Trigger and interval	Required response
Initial substantive complaint response Core 27.4	First receipt Within 30 calendar days	Not a substitute for immediate protection.
Appeal submission Core 27.3	Notice of contested decision Normally within 30 calendar days	Reasoned good-cause late admission remains available.
Complaint / appeal determination Core 27.4	First receipt Normally within 60 calendar days	Necessary extension: reasons, revised target and progress at least every 30 days.

Control / source	Trigger and interval	Required response
Programme internal audit and formal review Core 29.1; 29.2	Active operation At least annually	Performance and risk reviewed quarterly.
Independent accrediting-operator review Core 29.3	Before launch / last review No more than 36 months	Earlier after serious concerns; no reciprocal self-approval.
Rule/profile suitability review Core 4.6	Issue / last suitability review No more than 3 years	Earlier after material evidence; version is distinct from an interpretation.
Substantive public consultation Core 4.3	Published proposed normative text At least 60 calendar days	Actual comments, dispositions and valid technical approval required.
Assessment and decision records Core 10.6	Last relevant decision At least 7 years	Longer where obligations, life or a hold require; reconcile legally required alternative handling.

Use actual awareness, notification, completion, decision, issue and expiry timestamps with a declared time zone. Days are calendar days unless explicitly stated otherwise. Month intervals end on the corresponding date, or month-end where that date does not exist. Earlier applicable duties prevail. Source: Annex H.

Worked cases and challenge questions

Synthetic case – Application, Eligibility and Contract Review

A fictional airport group requests one certificate covering its airport, tenant MRO and contractor laboratory. Admission separates the legal entities and result classes, checks available profiles and records additional local and technical assessments before quoting the work.

Review challenge: identify the exact affected object, requirement, missing or adverse evidence, accountable action, independent decision and historical record. A fictional example is not a real applicant or evidence of a completed pilot.

Synthetic case – Remote and Hybrid Assessment Control

A fictional remote witness loses video during a concealed assembly check. A later photograph shows the finished assembly but cannot prove the hidden step. The required observation is repeated through a safe accepted method; it is not marked complete from the photograph.

Review challenge: identify the exact affected object, requirement, missing or adverse evidence, accountable action, independent decision and historical record. A fictional example is not a real applicant or evidence of a completed pilot.

Synthetic case – Nonconformity, Containment and Corrective Action

A synthetic calibration-control failure affects NDT and maintenance decisions but not an independently evidenced historical carbon statement. The technical scopes are contained and reviewed separately. The carbon result cannot compensate for the technical failure.

Review challenge: identify the exact affected object, requirement, missing or adverse evidence, accountable action, independent decision and historical record. A fictional example is not a real applicant or evidence of a completed pilot.

Synthetic case – Restriction, Suspension, Restoration and Withdrawal

A synthetic holder restores a suspended method after verified correction but without renewal. The restoration uses the real date and retains the original expiry. Reports issued during suspension are not retrospectively made authorised.

Review challenge: identify the exact affected object, requirement, missing or adverse evidence, accountable action, independent decision and historical record. A fictional example is not a real applicant or evidence of a completed pilot.

E1 Explicit acceptance and evidence contract

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.

E2 Source-to-implementation 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
1.1 / 10	Sector and lifecycle coverage	Requirement, objective evidence and local child predicates
1.2 / 10	Eight-family structure	Requirement, objective evidence and local child predicates
1.3 / 10	Object and responsibility tuple	Requirement, objective evidence and local child predicates
1.4 / 10	Group, site and interface limitations	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
1.5 / 11	Activity-based applicability	Requirement, objective evidence and local child predicates
1.6 / 11	Out-of-scope and emerging activities	Requirement, objective evidence and local child predicates
2.1 / 11	Accreditation and competence	Requirement, objective evidence and local child predicates
2.2 / 11	Recognition, qualification and certification	Requirement, objective evidence and local child predicates
2.3 / 11	Verification and validation	Requirement, objective evidence and local child predicates
2.4 / 12	Programme name and public designations	Requirement, objective evidence and local child predicates
2.5 / 12	Evidence, witnessing and technical profile	Requirement, objective evidence and local child predicates
2.6 / 12	Requirement status and uncertainty	Requirement, objective evidence and local child predicates
3.4 / 13	Case separation and decision panels	Requirement, objective evidence and local child predicates
10.5 / 21	Remote access and live evidence	Requirement, objective evidence and local child predicates
11.3 / 22	Existing evidence and reuse	Requirement, objective evidence and local child predicates
12.1 / 23	Planning from scope and consequence	Requirement, objective evidence and local child predicates
12.2 / 23	Sites and stations	Requirement, objective evidence and local child predicates
12.3 / 23	Method-family witnessing	Requirement, objective evidence and local child predicates
12.4 / 24	Time and productive work	Requirement, objective evidence and local child predicates
12.5 / 24	Multifamily coordination	Requirement, objective evidence and local child predicates
12.6 / 24	Plan approval and changes	Requirement, objective evidence and local child predicates
13.3 / 25	Witness control	Requirement, objective evidence and local child predicates
14.1 / 25	Finding formulation and classification	Requirement, objective evidence and local child predicates
14.2 / 25	Immediate protection and notifications	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
14.3 / 26	Occurrence, escape and systemic extent	Requirement, objective evidence and local child predicates
14.4 / 26	Plans, closure and effectiveness	Requirement, objective evidence and local child predicates
14.5 / 26	Existing status and new grants	Requirement, objective evidence and local child predicates
15.1 / 26	Review dossier	Requirement, objective evidence and local child predicates
15.2 / 27	Positive-decision gate	Requirement, objective evidence and local child predicates
15.3 / 27	Panel and dissent	Requirement, objective evidence and local child predicates
16.1 / 27	Duration and basis	Requirement, objective evidence and local child predicates
16.2 / 28	Surveillance frequency and coverage	Requirement, objective evidence and local child predicates
16.3 / 28	Material change and notification	Requirement, objective evidence and local child predicates
16.4 / 28	Renewal and interruption	Requirement, objective evidence and local child predicates
19.12 / 33	Technical witnessing for accreditation	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

ASTRA ID / page	Source subject	Implementation use
20.10 / 35	Change, teach-out and continuing learner protection	Requirement, objective evidence and local child predicates
21.1 / 35	Aerodrome scope and operating basis	Requirement, objective evidence and local child predicates
21.2 / 35	Safety management and change	Requirement, objective evidence and local child predicates
21.3 / 36	Airside condition and operational information	Requirement, objective evidence and local child predicates
21.4 / 36	Emergency readiness and coordinated response	Requirement, objective evidence and local child predicates
21.5 / 36	Passenger, terminal and baggage services	Requirement, objective evidence and local child predicates
21.6 / 36	Security, digital systems and utilities	Requirement, objective evidence and local child predicates
21.7 / 36	Tenants, construction and common interfaces	Requirement, objective evidence and local child predicates
21.8 / 36	Environmental integration and continuing capability	Requirement, objective evidence and local child predicates
22.1 / 37	Capability list and technical boundaries	Requirement, objective evidence and local child predicates
22.2 / 37	Current data and maintenance planning	Requirement, objective evidence and local child predicates
22.3 / 37	People, fatigue and task authorisation	Requirement, objective evidence and local child predicates
22.4 / 37	Tools, parts and life status	Requirement, objective evidence and local child predicates
22.5 / 37	Execution, errors and interrupted work	Requirement, objective evidence and local child predicates
22.6 / 38	Release and customer handover	Requirement, objective evidence and local child predicates
22.7 / 38	Technical asset support and continuity	Requirement, objective evidence and local child predicates
22.8 / 38	Storage, dismantling and end of life	Requirement, objective evidence and local child predicates
23.1 / 38	Provider, station and service definition	Requirement, objective evidence and local child predicates
23.2 / 38	G01 – Handling and turnaround	Requirement, objective evidence and local child predicates
23.3 / 39	G02 – Cargo, mail and specialist logistics	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
23.4 / 39	G03 – Fuel and energy services	Requirement, objective evidence and local child predicates
23.5 / 39	G04 – Ground equipment and technical facilities	Requirement, objective evidence and local child predicates
23.6 / 39	G05 – Catering, cabin and sanitation	Requirement, objective evidence and local child predicates
23.7 / 39	G06 – FBO and business-aviation support	Requirement, objective evidence and local child predicates
23.8 / 39	G07 – Flight and air-navigation support	Requirement, objective evidence and local child predicates
23.9 / 40	G08 – Digital and operational systems	Requirement, objective evidence and local child predicates
23.10 / 40	G09 – Specialist security services	Requirement, objective evidence and local child predicates
23.11 / 40	Local variation and continuing network control	Requirement, objective evidence and local child predicates
24.1 / 40	Engagement and statement boundary	Requirement, objective evidence and local child predicates
24.2 / 40	C01 – Inventory and data	Requirement, objective evidence and local child predicates
24.3 / 41	C02 – Reduction and transition	Requirement, objective evidence and local child predicates
24.4 / 41	C03 – Energy and circular resources	Requirement, objective evidence and local child predicates
24.5 / 41	C04 – Local environment	Requirement, objective evidence and local child predicates
24.6 / 41	C05 – Climate resilience	Requirement, objective evidence and local child predicates
24.7 / 41	C06 – Low-carbon energy and supply claims	Requirement, objective evidence and local child predicates
24.8 / 41	Materiality and assurance planning	Requirement, objective evidence and local child predicates
24.9 / 42	Verification execution and independent conclusion	Requirement, objective evidence and local child predicates
24.10 / 42	Overlap, claims and continuing change	Requirement, objective evidence and local child predicates
26.4 / 44	Remote, space and long-duration operation	Requirement, objective evidence and local child predicates
30.2 / 48	Controlled transition	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
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
41.2 / 62	Integrated route and hidden characteristics	Requirement, objective evidence and local child predicates
49.1 / 72	Exact capability before accepting work	Requirement, objective evidence and local child predicates
49.2 / 73	Work planning from the actual asset	Requirement, objective evidence and local child predicates
49.3 / 73	Execution, interruptions and human factors	Requirement, objective evidence and local child predicates
49.4 / 73	Parts eligibility and life history	Requirement, objective evidence and local child predicates
49.5 / 73	Release, restrictions and receiving information	Requirement, objective evidence and local child predicates
49.6 / 73	Condition monitoring and long-term support	Requirement, objective evidence and local child predicates
50.1 / 74	Site-specific operating baseline	Requirement, objective evidence and local child predicates
50.2 / 74	Infrastructure condition and usable information	Requirement, objective evidence and local child predicates
50.3 / 74	Construction and operational change	Requirement, objective evidence and local child predicates
50.4 / 74	Coordinated emergency and continuity	Requirement, objective evidence and local child predicates
50.5 / 74	Passenger, accessibility and service interfaces	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
50.6 / 75	Integrated but separate outcomes	Requirement, objective evidence and local child predicates
51.1 / 75	Headquarters and actual station delivery	Requirement, objective evidence and local child predicates
51.2 / 75	Turnaround and ground handling	Requirement, objective evidence and local child predicates
51.3 / 75	Cargo, energy and specialist support	Requirement, objective evidence and local child predicates
51.4 / 75	Flight and navigation-support data	Requirement, objective evidence and local child predicates
51.5 / 76	Digital platforms and protected security services	Requirement, objective evidence and local child predicates
51.6 / 76	Shared failure and service restoration	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
53.1 / 77	Declared lifecycle and material effects	Requirement, objective evidence and local child predicates
53.2 / 77	Inventory and comparable reduction	Requirement, objective evidence and local child predicates
53.3 / 77	Energy attributes and circular resources	Requirement, objective evidence and local child predicates
53.4 / 78	Local effects and climate adaptation	Requirement, objective evidence and local child predicates
53.5 / 78	Statements and independent conclusions	Requirement, objective evidence and local child predicates
54.1 / 78	Hazards, assumptions and essential controls	Requirement, objective evidence and local child predicates
54.2 / 78	Stop authority and escalation	Requirement, objective evidence and local child predicates
54.3 / 79	Emergency capability and exercises	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
54.4 / 79	Occurrence, escape and affected population	Requirement, objective evidence and local child predicates
54.5 / 79	Learning and protected reporting	Requirement, objective evidence and local child predicates
56.5 / 81	Export, migration and meaningful recovery	Requirement, objective evidence and local child predicates
58.1 / 82	One scope tuple for each conclusion	Requirement, objective evidence and local child predicates
58.2 / 82	Coverage and productive resources	Requirement, objective evidence and local child predicates
58.3 / 83	Vertical trails and shared failure	Requirement, objective evidence and local child predicates
58.4 / 83	Independent review and non-compensable gates	Requirement, objective evidence and local child predicates
58.5 / 83	Continuing status and real chronology	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
64.1 / 92	Mission environmental baseline	Explicit verification and acceptance predicate
64.2 / 92	Geometry, reference frames and event time	Explicit verification and acceptance predicate
64.3 / 92	Uncertainty, scenarios and design envelope	Explicit verification and acceptance predicate
64.4 / 92	Resource budgets and coupled margins	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
64.5 / 92	Heritage and similarity	Explicit verification and acceptance predicate
64.6 / 93	Baseline maintenance and irreversible decisions	Explicit verification and acceptance predicate
65.1 / 94	Structures, mechanisms and deployment	Explicit verification and acceptance predicate
65.2 / 94	Thermal control and thermal protection	Explicit verification and acceptance predicate
65.3 / 94	Power generation, storage and distribution	Explicit verification and acceptance predicate
65.4 / 94	Avionics, electronics and radiation effects	Explicit verification and acceptance predicate
65.5 / 95	Attitude, pointing, sensing and control interfaces	Explicit verification and acceptance predicate
65.6 / 95	Payload function and scientific or service output	Explicit verification and acceptance predicate
65.7 / 95	Integrated platform acceptance	Explicit verification and acceptance predicate
66.1 / 96	End-to-end service definition	Explicit verification and acceptance predicate
66.2 / 96	Link and performance budgets	Explicit verification and acceptance predicate
66.3 / 96	Delay and feasible intervention	Explicit verification and acceptance predicate
66.4 / 96	Data age and time uncertainty	Explicit verification and acceptance predicate
66.5 / 97	Position and navigation-support integrity	Explicit verification and acceptance predicate
66.6 / 97	Secure command and relay interfaces	Explicit verification and acceptance predicate
66.7 / 97	Outage, recovery and service evidence	Explicit verification and acceptance predicate
67.1 / 98	Configuration and operational baseline	Explicit verification and acceptance predicate
67.2 / 98	Command proposal and preconditions	Explicit verification and acceptance predicate
67.3 / 98	Receipt, execution and completion	Explicit verification and acceptance predicate
67.4 / 98	Planning and conflicts	Explicit verification and acceptance predicate
67.5 / 99	Personnel, handover and remote support	Explicit verification and acceptance predicate
67.6 / 99	Anomaly response and safe restoration	Explicit verification and acceptance predicate
67.7 / 99	Rehearsal and independent readiness	Explicit verification and acceptance predicate
68.1 / 100	Fleet membership and common dependencies	Explicit verification and acceptance predicate
68.2 / 100	Distributed function and degradation	Explicit verification and acceptance predicate
68.3 / 100	Tracking and conjunction-information quality	Explicit verification and acceptance predicate
68.4 / 100	Coordination and consent	Explicit verification and acceptance predicate
68.5 / 101	Debris prevention and released items	Explicit verification and acceptance predicate
68.6 / 101	Mission extension and terminal resources	Explicit verification and acceptance predicate
68.7 / 101	Status and long-term custody	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
69.1 / 102	Consent and exact intervention	Explicit verification and acceptance predicate
69.2 / 102	Interface compatibility	Explicit verification and acceptance predicate
69.3 / 102	Relative-state and completion evidence	Explicit verification and acceptance predicate
69.4 / 102	Interruptions and safe boundaries	Explicit verification and acceptance predicate
69.5 / 103	Transferred material, energy and data	Explicit verification and acceptance predicate
69.6 / 103	Post-intervention configuration and service claim	Explicit verification and acceptance predicate
70.1 / 104	Distinct release objects	Explicit verification and acceptance predicate
70.2 / 104	Integrated environment and interface verification	Explicit verification and acceptance predicate
70.3 / 104	Test and hazardous-work readiness	Explicit verification and acceptance predicate
70.4 / 104	Reuse and cumulative history	Explicit verification and acceptance predicate
70.5 / 105	Return, landing and recovery interfaces	Explicit verification and acceptance predicate
70.6 / 105	Readiness decision and post-event learning	Explicit verification and acceptance predicate
71.1 / 106	Destination-specific conditions	Explicit verification and acceptance predicate
71.2 / 106	Surface mobility and interaction	Explicit verification and acceptance predicate
71.3 / 106	Atmospheric and buoyant exploration	Explicit verification and acceptance predicate
71.4 / 106	Subsurface and ocean-world interfaces	Explicit verification and acceptance predicate
71.5 / 107	Long darkness and resource interruption	Explicit verification and acceptance predicate
71.6 / 107	Construction and surface infrastructure	Explicit verification and acceptance predicate
71.7 / 107	Autonomy and limited intervention	Explicit verification and acceptance predicate
71.8 / 107	Completion, samples and remaining duties	Explicit verification and acceptance predicate
72.1 / 108	Time horizon and recoverability	Explicit verification and acceptance predicate
72.2 / 108	Solar and extreme thermal exposure	Explicit verification and acceptance predicate
72.3 / 108	Low-flux and limited-power missions	Explicit verification and acceptance predicate
72.4 / 108	Autonomy during long communication delay	Explicit verification and acceptance predicate
72.5 / 108	Ageing and long-term digital support	Explicit verification and acceptance predicate
72.6 / 109	Scientific instruments and observation integrity	Explicit verification and acceptance predicate
72.7 / 109	Future-domain feasibility and responsible closure	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

ASTRA ID / page	Source subject	Implementation use
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
74.1 / 112	Mission-specific protection classification	Explicit verification and acceptance predicate
74.2 / 112	Contamination pathways and control allocation	Explicit verification and acceptance predicate
74.3 / 112	Scientific cleanliness and background	Explicit verification and acceptance predicate
74.4 / 112	Sample identity and custody	Explicit verification and acceptance predicate
74.5 / 113	Return-chain containment and receiving readiness	Explicit verification and acceptance predicate
74.6 / 113	Anomalies, unknown state and release of information	Explicit verification and acceptance predicate
74.7 / 113	Disposition and residual responsibility	Explicit verification and acceptance predicate
75.1 / 114	Process purpose and environment	Explicit verification and acceptance predicate
75.2 / 114	Inputs, feedstock and source variability	Explicit verification and acceptance predicate
75.3 / 114	Essential variables and remote monitoring	Explicit verification and acceptance predicate
75.4 / 114	Yield, mass balance and circularity	Explicit verification and acceptance predicate
75.5 / 115	Logistics, storage and compatibility	Explicit verification and acceptance predicate
75.6 / 115	Maintenance, spares and distributed production	Explicit verification and acceptance predicate
75.7 / 115	Handover, resource claims and closure	Explicit verification and acceptance predicate
76.1 / 116	System boundary and conversion chain	Explicit verification and acceptance predicate
76.2 / 116	Beamed and remote energy services	Explicit verification and acceptance predicate
76.3 / 116	Cryogenic, chemical and pressure interfaces	Explicit verification and acceptance predicate
76.4 / 116	Nuclear and radiation-source governance	Explicit verification and acceptance predicate
76.5 / 117	Infrastructure availability and failure propagation	Explicit verification and acceptance predicate
76.6 / 117	Degradation, environmental claims and retirement	Explicit verification and acceptance predicate
77.1 / 118	Requirement-to-method completeness	Explicit verification and acceptance predicate
77.2 / 118	Campaign design and article pedigree	Explicit verification and acceptance predicate
77.3 / 118	Measurement and uncertainty readiness	Explicit verification and acceptance predicate
77.4 / 118	Combined effects and sequence	Explicit verification and acceptance predicate
77.5 / 118	Original data and invalid tests	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
77.6 / 119	Numerical and attribute acceptance	Explicit verification and acceptance predicate
77.7 / 119	Retest and corrective verification	Explicit verification and acceptance predicate
77.8 / 119	Independent campaign 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
79.1 / 122	Protect people and essential assets before mission success	Explicit verification and acceptance predicate
79.2 / 122	Emergency feasibility and resources	Explicit verification and acceptance predicate
79.3 / 122	Loss of contact and uncertain physical state	Explicit verification and acceptance predicate
79.4 / 122	Affected populations and historical decisions	Explicit verification and acceptance predicate
79.5 / 122	Terminal evidence and responsible transfer	Explicit verification and acceptance predicate
79.6 / 123	Learning and sustained accountability	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

E3 Detailed operating extensions

AF-AST-PR-004 – Scope Definition, Applicability and Evidence Reuse

Implementation basis: 1.3 (p. 10); 1.5 (p. 11); 11.3 (p. 22); 62.1 (p. 88); 62.4 (p. 88); 63.1 (p. 90); 63.3 (p. 90); 63.6 (p. 91); 64.5 (p. 92); 80.1 (p. 124); 80.2 (p. 124)

X04.1 Resolve every applicable domain

Compare the mission concept with AK01-AK32 and the actual activity with F01-F08. Record each phase, mode, duration, interface and retained responsibility.

Completion / hold: Unknown applicability is HOLD; absent equipment or budget never establishes N/A.

X04.2 Establish a defensible similarity argument

Compare object identity, design, sources, environment, software, prior exposure and observability. Assign reused evidence to specific unchanged requirements only.

Completion / hold: Every material difference has accepted new evidence or an explicitly limited conclusion.

X04.3 Maintain separate outcome tuples

A combined case may share provenance and visits but keeps separate methods, criteria, sites, instances, reviewers and independent decisions.

Completion / hold: No shared dossier creates a blanket mission, tenant, supplier or fleet approval.

X04.4 Approve exclusion and re-open triggers

An independent technical reviewer checks the absent trigger and retained duty, names the supported excluded boundary and records conditions that would re-open it.

Completion / hold: Only independently justified exclusions receive N/A; an unexamined consequential interface remains HOLD.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-007 – Assessment Planning, Resources and Site Coverage

Implementation basis: 12.1 (p. 23); 12.2 (p. 23); 12.3 (p. 23); 12.4 (p. 24); 58.2 (p. 82); 63.3 (p. 90); 64.4 (p. 92); 77.1 (p. 118); 77.2 (p. 118); 80.2 (p. 124)

X07.1 Build a phase-by-mode coverage matrix

Identify every needed site, method family, operator role, configuration, normal/degraded scenario and remote limitation. Assign a required observation or justified alternative to each cell.

Completion / hold: No uncovered essential cell can be marked complete from another site's headquarters evidence.

X07.2 Allocate productive effort

Estimate necessary person-hours by actual task, shared-work contribution, specialism and concurrency. Separate travel, reporting, translation delay, review and panel effort.

Completion / hold: Shared administrative evidence can be counted once; distinct technical observations and independent work cannot be removed.

X07.3 Schedule dependencies and adverse work

Place prerequisites before dependent evaluation and reserve access to failed, changed, interrupted and difficult cases. A planned activity is distinct from actual execution.

Completion / hold: An infeasible schedule or unavailable specialist requires additional work or a bounded deferred scope.

X07.4 Close actual coverage

Reconcile planned and actual performer, duration, configuration, observation and evidence; document omissions, rework and resulting limitations.

Completion / hold: The independent reviewer accepts the actual coverage, not the original commercial duration or completion percentage.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-008 – Remote and Hybrid Assessment Control

Implementation basis: 10.5 (p. 21); 13.3 (p. 25); 26.4 (p. 44); 63.3 (p. 90); 66.3 (p. 96); 66.4 (p. 96); 67.3 (p. 98); 74.4 (p. 112); 77.5 (p. 118); 78.7 (p. 121)

X08.1 Qualify remote observability

Specify the essential physical or practical steps, identity, camera/sensor coverage, spatial resolution, timing and what cannot be observed. Compare remote evidence with the intended decision.

Completion / hold: Unobservable essential characteristics remain HOLD unless valid supplementary evidence is accepted.

X08.2 Authenticate source and event time

Confirm live versus recorded content, actual performer, configuration, original timestamp, time scale, permissions and chain of custody.

Completion / hold: Recent receipt or an attractive recording does not prove current state or independent routine performance.

X08.3 Control interruption and substitution

Record loss of feed, sensor saturation, camera movement, substituted articles and coaching. Preserve partial observations and define the unobserved interval.

Completion / hold: No uninterrupted witness claim survives a material gap; repeat or supplement the required observation safely.

X08.4 Reconcile remote completion and custody

Separate instruction, receipt, execution, observed completion and receiving acceptance. Verify retrieval and protected record transfer after the session.

Completion / hold: Only the demonstrated bounded task is accepted; command acknowledgement alone is not physical completion.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-009 – Technical Witnessing and Method-Family Coverage

Implementation basis: 12.3 (p. 23); 13.3 (p. 25); 19.12 (p. 33); 41.2 (p. 62); 62.3 (p. 88); 64.5 (p. 92); 75.3 (p. 114); 77.2 (p. 118); 77.3 (p. 118); 77.7 (p. 119)

X09.1 Define the method family technically

Group only common principles, geometry/material ranges, equipment, competence and failure mechanisms. Identify unique or high-consequence boundaries that cannot be inferred.

Completion / hold: No unrelated technique is added because it shares a performer or report template.

X09.2 Observe the complete task

Follow identification, preparation, setup, essential execution, raw data, interpretation, reporting and independent release within safe authorised arrangements.

Completion / hold: A selected favourable demonstration cannot replace missing essential preparation or interpretation evidence.

X09.3 Challenge hidden and remote properties

State what is directly measured, validly inferred or unknown and test relevant difficult boundaries and false-negative mechanisms.

Completion / hold: Process telemetry or nominal equipment output cannot replace an unobservable required product property.

X09.4 Review change and corrective retest

After an interruption, source change or failed witness, preserve originals and define corrective demonstration including the original failed mechanism.

Completion / hold: A fresh favourable run does not validate earlier affected output or automatically extend method scope.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-013 – Nonconformity, Containment and Corrective Action

Implementation basis: 14.1 (p. 25); 14.2 (p. 25); 14.3 (p. 26); 14.4 (p. 26); 14.5 (p. 26); 54.4 (p. 79); 62.3 (p. 88); 62.5 (p. 89); 77.5 (p. 118); 77.7 (p. 119); 79.4 (p. 122)

X13.1 Separate evidence gap, technical failure and finding

Record whether data are valid before declaring a failed property. State the exact requirement, observed gap, affected scope and independent classification.

Completion / hold: HOLD is not proof of product failure, but a demonstrated control failure still needs an appropriate finding.

X13.2 Protect and trace the shared extent

Stop or restrict affected use under actual authority, preserve evidence and trace common source, equipment, software, method and personnel dependencies.

Completion / hold: Protection and existing notification clocks run without waiting for root-cause wording or a replacement report.

X13.3 Test occurrence and escape causes

Use competing explanations, actual history, control design, workload and interface evidence. Define effectiveness criteria and exposure before retest.

Completion / hold: Issuing training, changing an owner or recalibrating equipment alone does not close a systemic cause.

X13.4 Close with prospective evidence

Re-execute the original failure mechanism and necessary regression, reconcile prior outputs and recipients, and independently approve closure.

Completion / hold: No grant, renewal or extension with an open in-scope finding; later correction does not backdate earlier validity.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-014 – Independent Review and Outcome Decisions

Implementation basis: 3.4 (p. 13); 15.1 (p. 26); 15.2 (p. 27); 15.3 (p. 27); 62.4 (p. 88); 62.5 (p. 89); 62.7 (p. 89); 77.8 (p. 119); 80.1 (p. 124); 80.2 (p. 124); 80.3 (p. 124); 80.4 (p. 124)

X14.1 Freeze the independent decision dossier

Reconcile exact scope, requirement population, all triggered parameters, evidence versions, configuration, observations, open issues and accountable roles.

Completion / hold: A missing essential source, unresolved configuration or unsupported exclusion keeps the dependent decision on HOLD.

X14.2 Apply the conjunction before the vote

Require all applicable mandatory rows PASS, approved N/A reasons, verified closure, competent independent authority and required panel participation.

Completion / hold: A numerical majority or high score cannot supply absent evidence or waive a mandatory condition.

X14.3 Replay a difficult or disputed conclusion

Use the same inputs, rule, uncertainty and current role authority to reconstruct the state. Identify the exact differing assumption before accepting agreement.

Completion / hold: Unresolved essential dissent results in more work, a real bounded scope or HOLD, never coerced consensus.

X14.4 Publish only the supported outcome

Record genuine decision, issue and expiry/instance, exact class and limitations. Send authenticated instructions to the registry and relevant recipients.

Completion / hold: Public wording and digital status cannot extend the decision or imply operational permission.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated

FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-015 – Surveillance, Renewal and Scope Extension

Implementation basis: 16.1 (p. 27); 16.2 (p. 28); 16.3 (p. 28); 16.4 (p. 28); 58.5 (p. 83); 62.5 (p. 89); 64.6 (p. 93); 68.6 (p. 101); 78.6 (p. 121); 80.5 (p. 124)

X15.1 Freeze the actual cycle baseline

Record original decision, maximum duration, selected shorter intervals, criticality and last completed surveillance by independent outcome.

Completion / hold: Bookings and payment do not fulfil surveillance or extend validity.

X15.2 Re-evaluate mission and technical change

Compare environment, duration, fleet, suppliers, task/site, model and monitoring changes. Preserve evidence retained, invalidated and newly required.

Completion / hold: New domain or materially changed duty remains outside the claim until evaluated and independently accepted.

X15.3 Plan and complete meaningful surveillance

Sample actual routine/adverse work, current people, qualified methods, hidden dependencies and necessary local delivery rather than unchanged manuals only.

Completion / hold: All required scope coverage and clocks must be satisfied; missing completion triggers the controlling status action.

X15.4 Renew without manufactured continuity

Complete findings closure, independent review and genuine decision. A late renewal preserves the expired interval and original historical basis.

Completion / hold: Restoration or reprinting is not renewal; operational life and specialist permissions remain separate.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-026 – Education Attainment, Cohort Review and Learner Protection

Implementation basis: 20.3 (p. 34); 20.4 (p. 34); 20.5 (p. 34); 20.8 (p. 35); 20.9 (p. 35); 52.3 (p. 76); 52.5 (p. 77); 62.5 (p. 89); 73.1 (p. 110); 78.3 (p. 120); 78.4 (p. 120)

X26.1 Map every completion route

Identify programme, level, mode, campus, partner, prior-learning route and required outcomes. Link each outcome to direct authentic assessment.

Completion / hold: A favourable cohort mean cannot cover an unrepresented completion pathway.

X26.2 Separate learner attainment and programme conformity

Evaluate the individual rubric, essential skills, secure identity and permitted AI assistance; record failures and resits without erasing attempts.

Completion / hold: Every required essential skill passes for the person; institutional process quality is a separate conclusion.

X26.3 Analyse comparable learning evidence

Use explicit populations, denominator, selection and consistent rubric/task difficulty when assessing subgroup or year-to-year differences.

Completion / hold: Attendance or satisfaction alone cannot establish practical attainment or demonstrate causal improvement.

X26.4 Protect learners through change and closure

Verify current instructors/resources, record access, communication and actual teach-out or transfer arrangements.

Completion / hold: A development-readiness report is not full programme recognition; no fictitious graduates or professional privileges are created.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-027 – Environmental Statement Verification and Validation

Implementation basis: 24.1 (p. 40); 24.2 (p. 40); 24.3 (p. 41); 24.7 (p. 41); 24.8 (p. 41); 24.9 (p. 42); 53.2 (p. 77); 62.2 (p. 88); 62.3 (p. 88); 75.4 (p. 114); 76.6 (p. 117); 80.4 (p. 124)

X27.1 Freeze the statement and assurance objective

Distinguish organisational capability, historical verification, prospective validation and verifier competence. Set boundary, period, intended users, materiality and criteria before substantive work.

Completion / hold: A future plan or partial inventory cannot be relabelled as an achieved complete reduction.

X27.2 Reconstruct source-to-total calculations

Check actual activities, factors, units, data quality, allocation, baseline comparability, corrections and covariance. Preserve omitted material categories separately from numeric uncertainty.

Completion / hold: Correct arithmetic cannot compensate for an unsupported factor, wrong boundary or missing mandatory category.

X27.3 Reconcile physical and exclusive claims

Keep physical delivery, ownership, contractual attributes, cancellation and resource quality distinct. Avoid duplicating exclusive quantities or counting recirculation as new output.

Completion / hold: No favourable public conclusion while relevant allocation, eligibility or technical reuse conditions remain unresolved.

X27.4 Review and communicate the bounded conclusion

Independently evaluate identified and residual misstatement, evidence limitations and permitted wording; retain original and corrected statements and notify recipients.

Completion / hold: Do not issue an unqualified favourable conclusion solely to meet a reporting deadline.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

AF-AST-PR-028 – Change, Transition, Transfer and Programme Closure

Implementation basis: 30.2 (p. 48); 30.4 (p. 48); 31.3 (p. 49); 56.5 (p. 81); 61.3 (p. 86); 62.7 (p. 89); 68.7 (p. 101); 74.7 (p. 113); 75.7 (p. 115); 78.7 (p. 121); 79.5 (p. 122); 80.5 (p. 124)

X28.1 Map the complete change population

Identify affected requirements, profiles, objects, configurations, sites, people, calculations, fields, interfaces and public claims.

Completion / hold: A cosmetic filename or edition-label change cannot hide a changed technical basis.

X28.2 Establish retained and additional evidence

Record what remains valid, what is invalidated, required new demonstration, compatible tools and actual competence. Keep mandatory protective duties active during transition.

Completion / hold: No automatic grandfathering, retrospectively applied requirement or unsupported transfer of scope.

X28.3 Accept custody and local implementation

Reconcile semantic records, permissions, actual receiving capability, remaining learners/customers, open cases, notices and independent decisions.

Completion / hold: Sending an archive or signing a commercial handover does not establish accepted technical custody.

X28.4 Close without abandoning terminal duties

Preserve unknown final states, original status gaps, hazardous inventories, unresolved remedies and actual receiving owners.

Completion / hold: Only demonstrably complete obligations are closed; remaining duties stay assigned after programme or provider cessation.

Record contract: the actor records the input baseline, actual work, deviations, result and evidence link; the named receiving function acknowledges access and the permitted next action. A returned or incomplete handover retains the original event history. Use the associated FR modules and RG record links; no document or database field confers actual authority.

E4 Application-specific parameter completion

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.

P02 — Environment and exposure

Quantity, spatial/temporal boundary, distribution or bound, source/model, uncertainty and coupled effects.

Derivation and evidence: Mission environment baseline and qualified specialist rationale.

Completion test: Selected conditions bound each claimed use; unknown critical mechanisms remain HOLD.

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.

P04 — Geometry and reference systems

Frame origin/orientation, epoch, time scale, coordinate units, transformation and covariance.

Derivation and evidence: Validated transformation and independent known-answer checks.

Completion test: Correct frame and time are maintained through every interface.

P05 — Materials and process qualification

Material type/condition, geometry, sources, variables, qualified window, machine/tool state and hidden properties.

Derivation and evidence: Actual representative qualification; lot/build genealogy.

Completion test: All influential variables and required product properties are supported.

P06 — Test article and fixtures

Article pedigree, differences from delivered object, mounting, boundary conditions, operating state and exposure history.

Derivation and evidence: Approved representativeness and cumulative-test analysis.

Completion test: No material difference or prior damage invalidates the intended inference.

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.

P08 — Structure, life and mechanisms

Loads, allowables, factors, life, geometry, material state, mechanisms, detectability and approved reserve.

Derivation and evidence: Qualified structural/life model and representative evidence.

Completion test: Each prospectively defined margin and essential mechanism predicate passes.

P11 — Communication and timing

Distance, frequency/wavelength, gain/loss, noise, rate, margin, latency, event time, age, clock error and outage.

Derivation and evidence: Validated end-to-end budget and adverse service tests.

Completion test: Required quality, delay and integrity conditions all pass.

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.

P13 — Contamination and samples

Relevant substances/particles, pathway, limit, method/detection, custody, cleanliness, containment and receiving.

Derivation and evidence: Mission-specific technical/protection basis.

Completion test: Required integrity and scientific cleanliness are demonstrated for the actual sample/use.

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.

P15 — Security and command authority

Identities, roles, privileges, keys/trust, target, validity window, command sequence, integrity and interruption response.

Derivation and evidence: Written test authorisation and deployed workflow validation.

Completion test: No prohibited authority or unverified command state is accepted.

P16 — Reliability and availability

Population, exposure, failure definition, observation, dependencies, confidence model, downtime and maintenance exclusions.

Derivation and evidence: Prospective statistical design plus engineering mechanism evidence.

Completion test: The actual demonstrated bound meets the approved claim; zero failures is not zero risk.

P17 — Logistics and environmental claims

Identity, amount, units, condition, losses, allocation, lifecycle boundary, factor provenance and exclusive attributes.

Derivation and evidence: Reconciled custody/quantity records and separate suitability/statement evaluation.

Completion test: Quantity and claim integrity pass independently of technical eligibility.

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.

E5 All-space applicability and bounded responsibility

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.

Domain / source page	Coverage	Required boundary
AK01 / 187 Terrestrial engineering and supply	Design offices, manufacturing, material sources, procurement and integration.	Every delivered characteristic and essential supplier interface is traceable to accepted evidence.
AK02 / 187 Test facilities and technical providers	Environmental, structural, materials, calibration and inspection services, including mobile and remote work.	Actual method competence and valid result evidence are separately demonstrated.
AK03 / 187 Launch sites and spaceports	Site infrastructure, handling, ground services, emergency interfaces and actual permissions.	No site outcome is used as vehicle, launch or mission permission.
AK04 / 187 Launch and deployment interfaces	Vehicle/payload integration, handling, ascent environment, separation and commissioning.	Every required integration and protective condition is met before the actual commitment.
AK05 / 188 Reusable launch and return articles	Cumulative exposure, refurbishment, thermal protection, hidden damage and life decisions.	Reuse is based on actual history and accepted condition, never a reset life.
AK06 / 188 Low Earth orbit systems	Satellites, stations and services in the declared near-Earth operating environment.	Environment-specific qualification and end-of-life capability support the bounded mission.
AK07 / 188 Medium, geosynchronous and high Earth orbits	Navigation, communication, relay and other specified orbit-dependent services.	No lower-orbit or nominal-link evidence automatically covers a different environment.
AK08 / 188 Highly elliptical and transfer regions	Missions crossing materially different exposure, geometry and communication regimes.	Every phase and transition has a supported envelope and verification path.
AK09 / 189 Cislunar and libration-region systems	Lunar vicinity, relays, gateways, transportation interfaces and regional services.	The exact operating domain and service dependencies are technically complete.
AK10 / 189 Constellations and formation services	Distributed functions, inter-satellite links, fleet management and shared ground support.	Distributed performance and independent redundancy assumptions are validated.
AK11 / 189 Orbital traffic and tracking support	Tracking, conjunction information, data services and inter-operator coordination.	A metric is accepted only for its validated data/model scope; missing data are not zero risk.
AK12 / 189 Cooperative docking and servicing	Authorised inspection, connection, transfer, repair and service interventions.	All essential interface and completion states are independently supported.
AK13 / 190 On-orbit assembly and manufacture	Assembly, additive or other production, finishing and output verification in space.	Process execution is not substituted for evidence of required output properties.

Domain / source page	Coverage	Required boundary
AK14 / 190 Stations and inhabited orbital platforms	Habitation, payload integration, visiting vehicles, occupants and support.	Integrated human protection and resources are accepted independently of mission success.
AK15 / 190 Extravehicular and isolated crew work	Individual equipment, user/task, environment, support and rescue dependencies.	Essential individual and integrated protective tasks pass without averaging.
AK16 / 190 Lunar surface systems	Landers, rovers, infrastructure, observation and processing on the Moon.	Destination-specific evidence bounds the actual region, phase and operating mode.
AK17 / 191 Planetary landers and surface vehicles	Surface exploration, scientific instruments, mobility and handling.	Terrestrial analogy is justified; unknown critical surface conditions remain restricted.
AK18 / 191 Atmospheric and buoyant exploration	Planetary atmospheric vehicles, balloons, aircraft and relevant instruments.	All relevant environment-specific structural and functional predicates pass.
AK19 / 191 Small-body and comet operations	Observation, cooperative contact, sampling and resource demonstrations.	Uncertain body/interaction properties are not treated as established terrestrial conditions.
AK20 / 191 Subsurface and ocean-world exploration	Subsurface, liquid, ice and extreme-pressure exploration systems and their interfaces.	Specialist boundary and contamination evidence precedes dependent use.
AK21 / 192 Interplanetary cruise and deep-space missions	Spacecraft, relays, science operations and long-delay mission support.	Human and autonomous actions are feasible within actual timing and resource limits.
AK22 / 192 Solar and heliophysics missions	Solar observations and missions with relevant thermal, plasma and radiation extremes.	Protection and data-quality evidence cover the actual mission envelope, not a screening equation alone.
AK23 / 192 Outer-system and distant observatories	Low-flux, long-life, long-delay science and infrastructure applications.	Required lifetime and survival margins are met with credible continuity and data integrity.
AK24 / 192 Interstellar precursor and future distant systems	Bounded research and demonstrable capabilities for very long-range or novel concepts.	Research promise is not an operational grant; unsupported capability stays in development.
AK25 / 193 Human exploration and surface habitats	Crew transport interfaces, habitation, exploration support and emergency protection.	Every essential human protection and feasibility predicate is supported by specialists.
AK26 / 193 Planetary protection and sample return	Forward/backward contamination, scientific cleanliness, samples and receiving chain.	No dependent commitment precedes complete protection and receiving evidence.
AK27 / 193 Resource utilisation and remote processing	Resource characterisation, processing, quality, storage, use and residues.	Resource yield, product eligibility and permission remain distinct.
AK28 / 193 Space logistics and distributed supply	Warehousing, transfer, spares, custody, condition, receiving and service continuity.	Only physically or otherwise validly confirmed accepted usable inventory supports mission budgets.
AK29 / 194 Specialised energy infrastructure	Generation, storage, conversion, remote delivery and controlled high-hazard power interfaces.	Performance never substitutes for safety, source authority or terminal accountability.
AK30 / 194 Ground, communication and navigation services	Mission control, RF/optical links, timing, data processing, relays and PNT support.	Availability, correctness, authority and completion are separately demonstrated.
AK31 / 194 Digital and autonomous space systems	Software, programmable hardware, AI, models, twins and defensive security.	All essential behaviours and prohibited transitions are verified for the actual deployment.

Domain / source page	Coverage	Required boundary
AK32 / 194 Retirement and long-term stewardship	Disposal, passivation governance, loss-of-contact states, records and residual obligations.	Final-state claims are truthful and every unresolved duty has an accepted owner.

E6 Workflow and evidence relationships

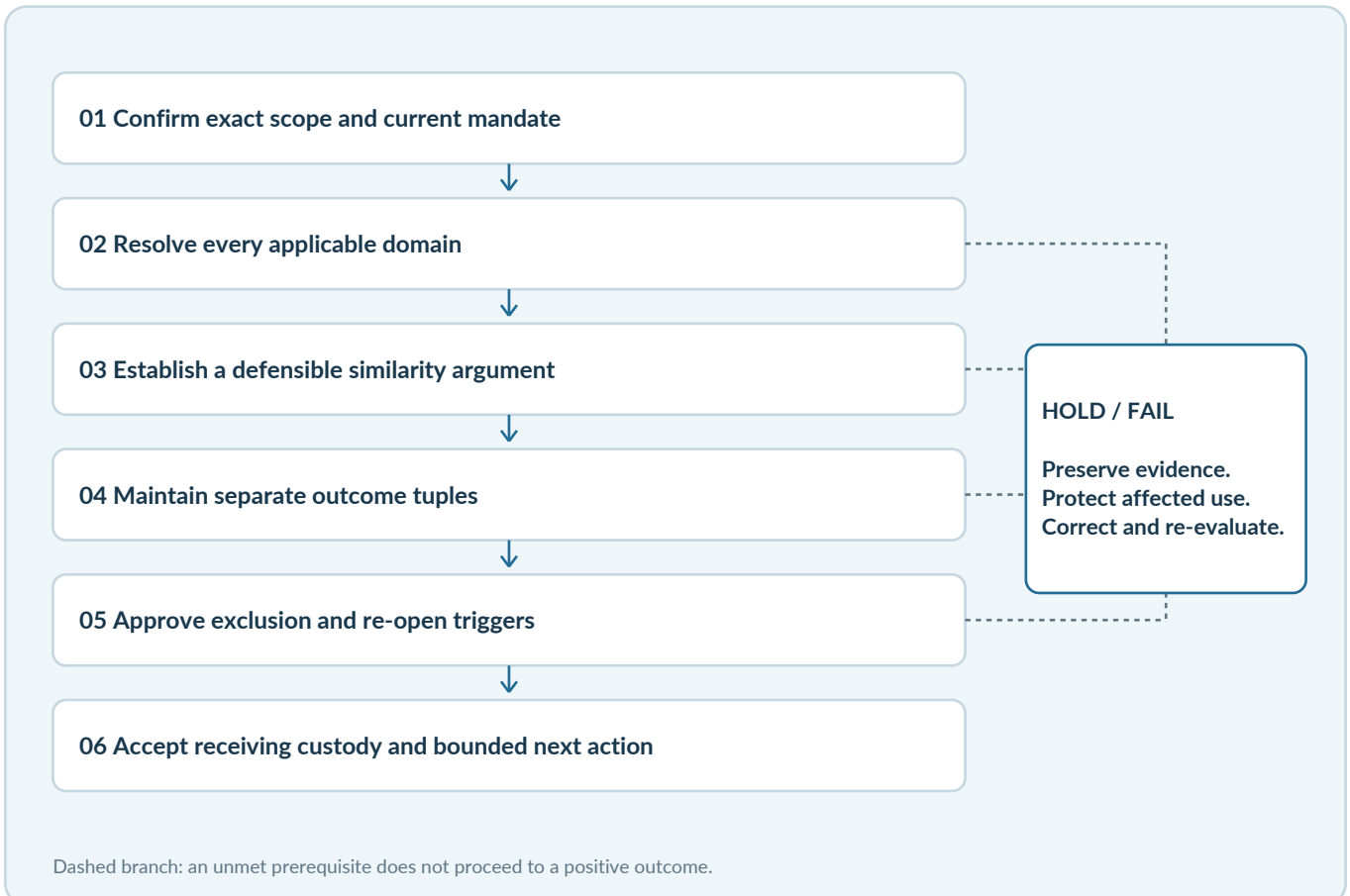
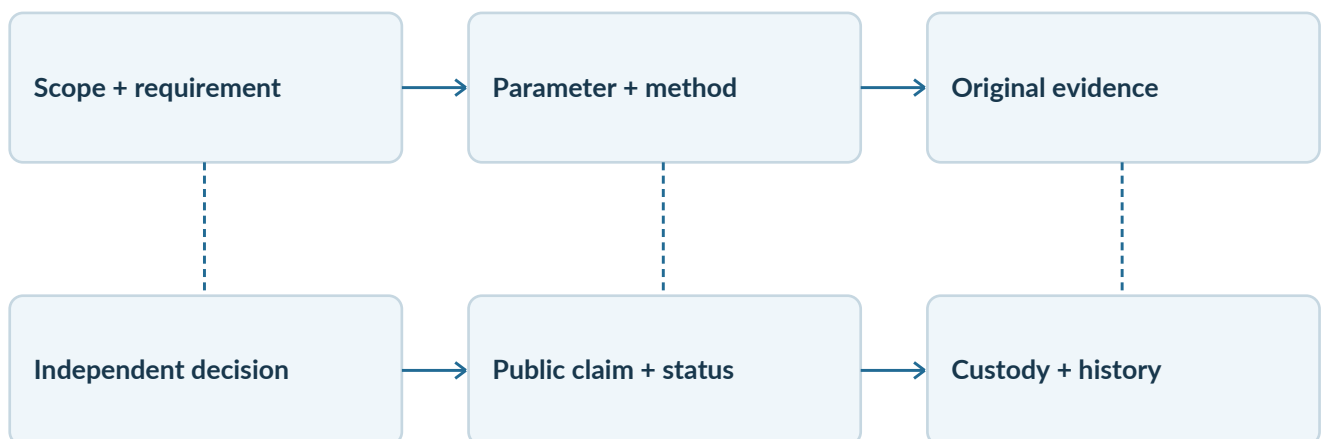


Figure — Implementation sequence for AF-AST-PR-004. Explanatory diagram; the source prerequisites and actual authority remain controlling.



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.

E7 Calculations, assumptions and synthetic 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.Q01 Measurement uncertainty and covariance

Source: ASTRA Annex AM, Q01, page 200. All numerical inputs in this example are synthetic.

$$u_c^2 = \sum (c_i^2 u_i^2) + 2\sum (i < j) (c_i c_j \text{cov}_{ij})$$

$$U = k u_c$$

Variables and units

u_i is a standard uncertainty; c_i is a sensitivity coefficient; cov_{ij} is covariance; k is the justified coverage factor. Variance terms carry squared output units.

Example inputs

Synthetic direct sum: $c_1=c_2=1$; $u_1=0.003$ mm; $u_2=0.004$ mm. First assume independence, then correlation $\rho=0.5$. Illustrative $k=2$.

Calculation and checks

1. Independent variance = $0.003^2 + 0.004^2 = 0.000025$ mm².
2. $u_c = 0.005$ mm; $U = 0.010$ mm for the stated k .
3. Correlated covariance = $0.5 \times 0.003 \times 0.004 = 0.000006$ mm².
4. Correlated variance = $0.000025 + 2 \times 0.000006 = 0.000037$ mm².
5. Correlated $u_c = 0.0060827625303$ mm; $U = 0.0121655250606$ mm.

Decision interpretation: The correlated model produces a larger uncertainty. No PASS/FAIL follows until an approved specification and decision rule are applied.

Validity limits: The linear propagation model requires a valid measurement function and adequate approximation. $k=2$ is not a universal guarantee of 95% coverage. Known bias requires correction or explicitly justified treatment; uncertainty does not conceal missing requirements.

ASTRA connections: 9.4–9.5; Annex G; 62; 77

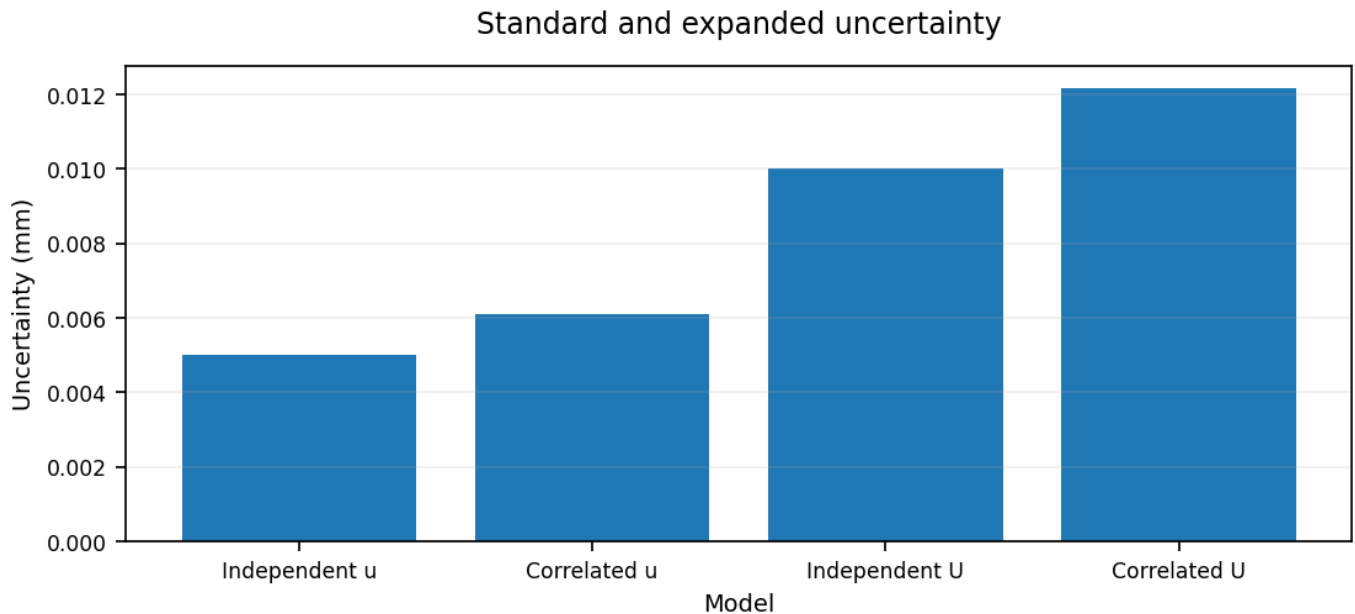


Figure Q01 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q02 Inclusive limits and four distinct measurement outcomes

Source: ASTRA Annex AM, Q02, page 201. All numerical inputs in this example are synthetic.

PASS: $y - U \geq L$ AND $y + U \leq H$

FAIL: $y + U < L$ OR $y - U > H$

Otherwise: HOLD; invalid evidence also results in HOLD

Variables and units

L and H are inclusive specification limits; y is a corrected result; U is a non-negative expanded uncertainty with stated coverage.

Example inputs

Synthetic specification [49.970, 50.030] mm; U=0.004 mm. Results y=50.024, 50.028, 50.036 and 50.026 mm.

Calculation and checks

1. $50.024 \pm 0.004 \rightarrow [50.020, 50.028]$ mm: PASS.
2. $50.028 \pm 0.004 \rightarrow [50.024, 50.032]$ mm: HOLD, interval overlaps the upper limit.
3. $50.036 \pm 0.004 \rightarrow [50.032, 50.040]$ mm: FAIL, interval entirely above the limit.
4. $50.026 \pm 0.004 \rightarrow [50.022, 50.030]$ mm: PASS; equality is inside the inclusive upper bound.

Decision interpretation: Neither the overlapping interval nor an invalid run is rounded into acceptance. N/A is an applicability decision, not a measurement outcome.

Validity limits: Use actual endpoints for asymmetric intervals. For an upper-only limit, PASS requires the upper endpoint at or below the limit and FAIL the lower endpoint above it. A coverage interval is not automatically a probability that this particular item conforms.

ASTRA connections: Annex G; 62.3–62.5; 77.6

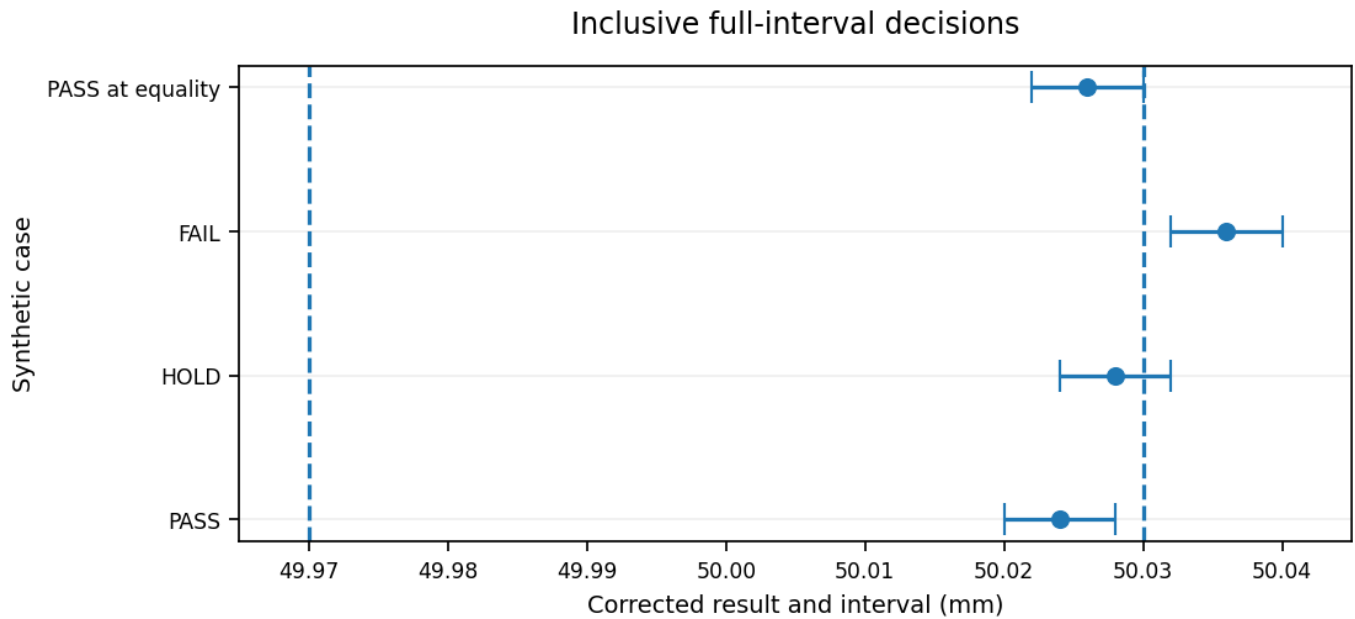


Figure Q02 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.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

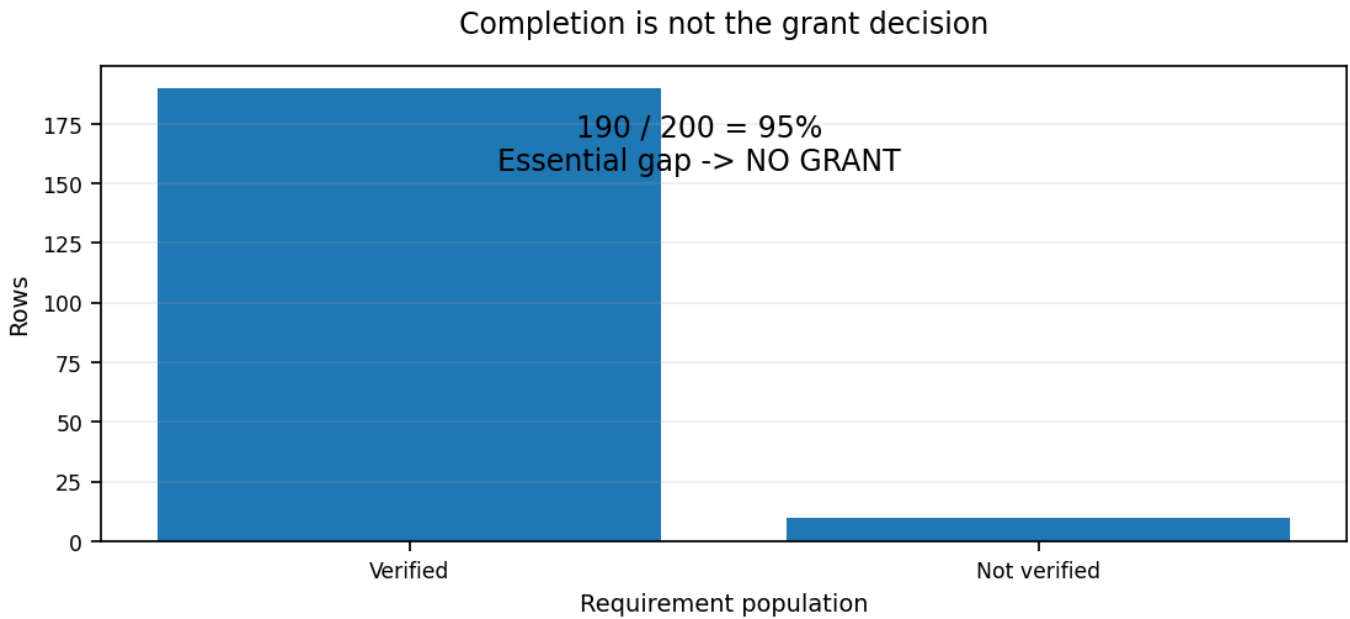


Figure Q03 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

Committee participation threshold

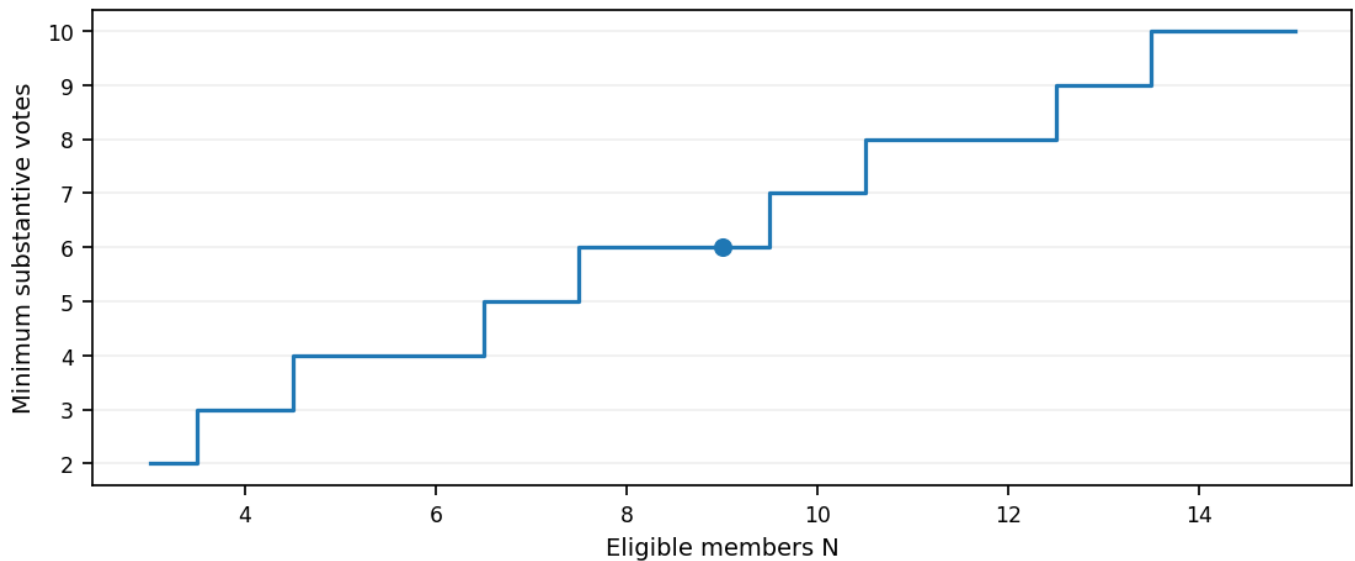


Figure Q04 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q05 Productive evaluation time without double counting

Source: ASTRA Annex AM, Q05, page 204. All numerical inputs in this example are synthetic.

$$T_{eval} = \sum h_i / 8 \text{ evaluator-days}$$

Total resource = evaluation + separate reporting/review/travel resources

Variables and units

h_i are distinct productive technical person-hours. Shared tasks are counted once unless distinct real work is documented.

Example inputs

Synthetic tasks: 12, 12, 12, 8 and 4 productive hours. Report 6 h; independent review 5 h; panel 3 person-hours.

Calculation and checks

1. Evaluation hours = $12+12+12+8+4 = 48$ h.
2. $T_{eval} = 48/8 = 6$ evaluator-days.
3. Separate report/review/panel time = $6+5+3 = 14$ person-hours.
4. Total stated technical resources = 62 person-hours before travel and other separately justified work.

Decision interpretation: Six evaluator-days describes only this synthetic activity breakdown. It is not a universal minimum or quotation.

Validity limits: Do not count a trainee as an independent productive assessor or two passive observers as two completed tasks. Calendar duration, person-hours and evaluator-days are distinct.

ASTRA connections: 12.4; Annex F.1; 58.2

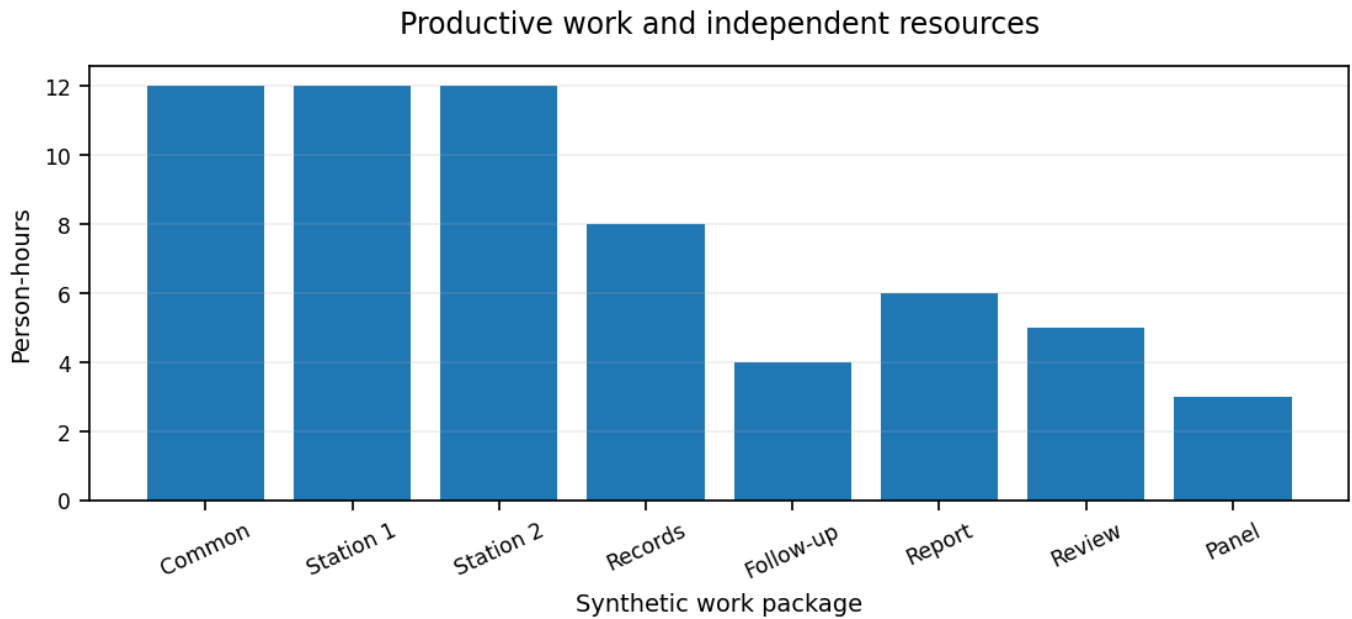


Figure Q05 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

1. $\ln(0.05)/\ln(0.90) = 28.433158...$; round upward to $n=29$.
2. $P(\text{detection at } n=29) = 1 - 0.9^{29} = 0.9528987130$.
3. 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

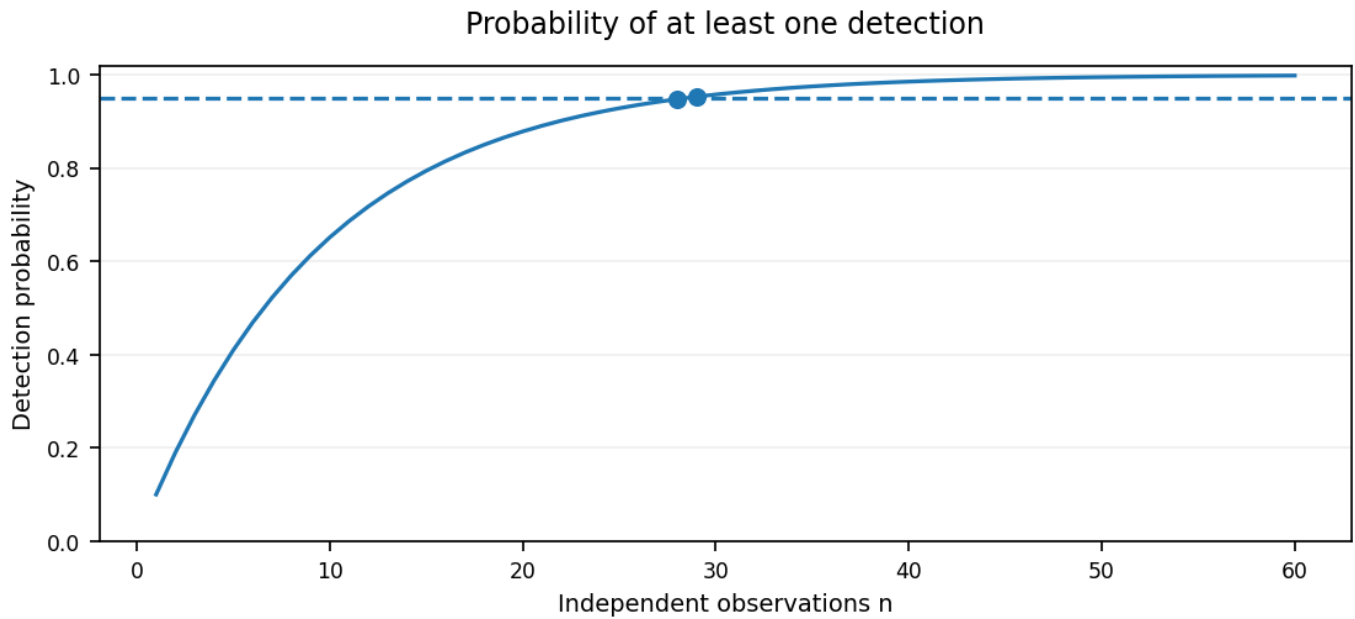


Figure Q06 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.

AM.Q07 Zero observed failures and an exact binomial bound

Source: ASTRA Annex AM, Q07, page 206. All numerical inputs in this example are synthetic.

$$p_{\text{upper}} = 1 - \alpha^{(1/n)}$$

$$n_{\text{min}} = \text{ceil}[\ln(\alpha) / \ln(1 - p_{\text{target}})]$$

Variables and units

α =1-confidence; n is a prospectively fixed number of independent comparable binary trials; all n trials have zero observed failures.

Example inputs

Synthetic one-sided confidence 95%, so $\alpha=0.05$. Examine $n=30$ and a target upper failure probability of 0.01.

Calculation and checks

- For $n=30$: $p_{\text{upper}} = 1 - 0.05^{(1/30)} = 0.095033853 = 9.5033853\%$.
- For $p_{\text{target}}=0.01$: $\text{ceil}[\ln(0.05) / \ln(0.99)] = 299$.
- For $n=299$: $p_{\text{upper}} \approx 0.0099691468$, below 1%.

Decision interpretation: Thirty successful trials do not demonstrate a failure probability below 1%. Under the specified model, 299 all-success trials are needed for that particular bound.

Validity limits: A statistical upper confidence bound is not proof of zero risk or total system safety. Nonrepresentative trials, changing configuration, adaptive stopping or unmodelled common causes invalidate this simple inference.

ASTRA connections: 55.1–55.3; 62; 77

Zero failures: one-sided 95% binomial bound

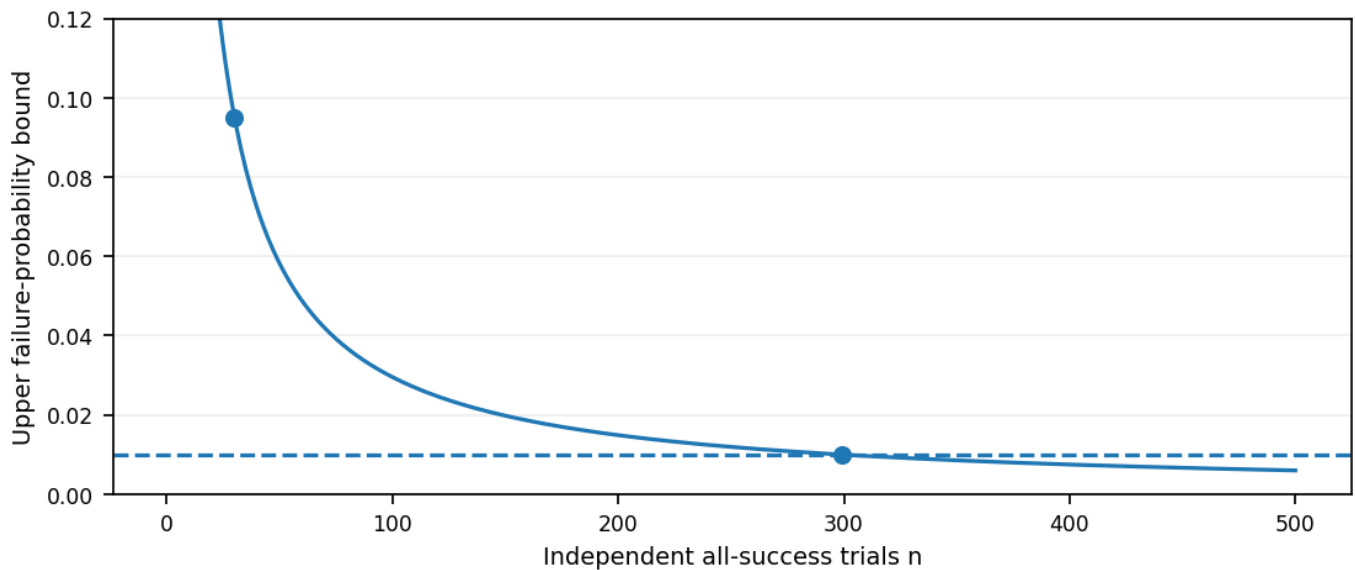


Figure Q07 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q08 No failures during exposure: exponential bound

Source: ASTRA Annex AM, Q08, page 207. All numerical inputs in this example are synthetic.

$$\lambda_{\text{upper}} = -\ln(\alpha)/T$$

$$\text{MTBF}_{\text{lower}} = T/[-\ln(\alpha)]$$

Variables and units

T is total comparable exposure time under a justified constant-rate model; $\alpha=1$ -confidence; no failures occur. λ has reciprocal-time units.

Example inputs

Synthetic T=800 operating hours; one-sided confidence=95%, $\alpha=0.05$.

Calculation and checks

1. $-\ln(0.05) = 2.9957322736$.
2. $\lambda_{\text{upper}} = 2.9957322736/800 = 0.003744665342 \text{ h}^{-1}$.
3. $\text{MTBF}_{\text{lower}} = 800/2.9957322736 = 267.0465606 \text{ h}$.

Decision interpretation: The observed zero-failure record supports only the stated model-based lower bound, not infinite mean life.

Validity limits: Ageing, wear-out, maintenance quality, heterogeneity and common causes may violate the constant-rate assumption. MTBF is not a guaranteed individual life and does not extend a mandatory life limit.

ASTRA connections: 55; 79

Zero failures: constant-rate model bound

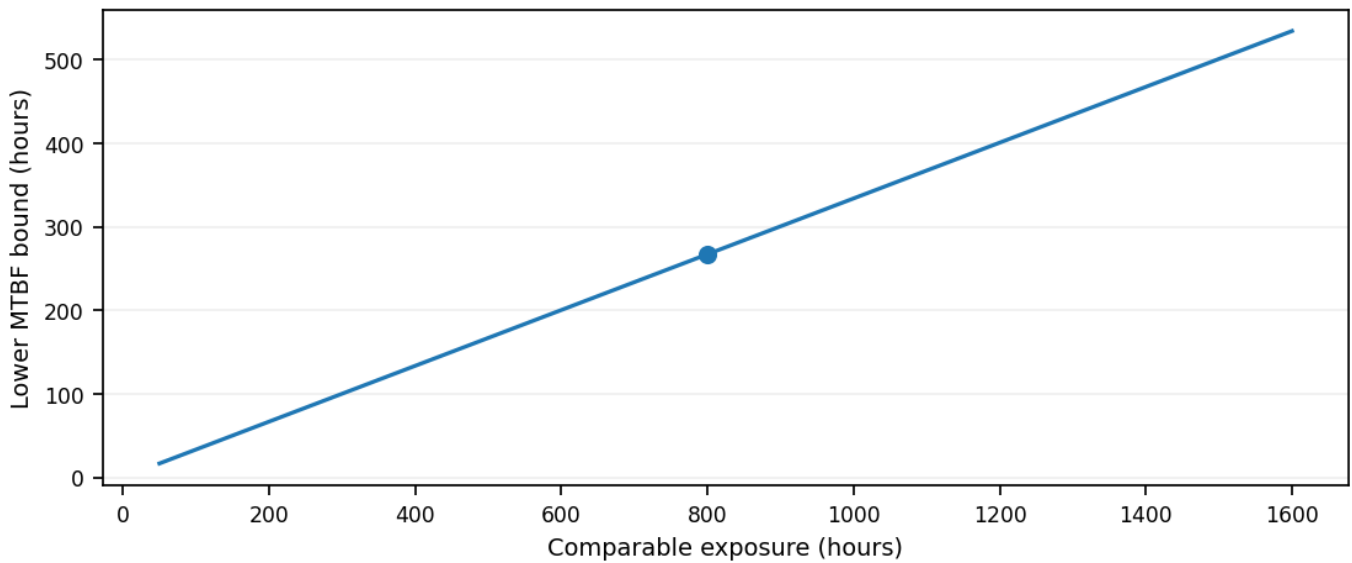


Figure Q08 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q09 Availability is not output correctness

Source: ASTRA Annex AM, Q09, page 208. All numerical inputs in this example are synthetic.

$$A_{\text{observed}} = T_{\text{available}} / T_{\text{window}}$$

$$\text{Correct-service fraction} = T_{\text{available_and_correct}} / T_{\text{window}}$$

Variables and units

All categories shall use the same declared window and explicit downtime and integrity definitions. Missing time is separately recorded.

Example inputs

Synthetic window=1,000 h; available=960 h; unavailable=40 h. Of the available time, 20 h produced unacceptable information.

Calculation and checks

1. Availability = $960 / 1,000 = 96\%$.
2. Available-and-correct time = $960 - 20 = 940$ h.
3. Correct-service fraction = $940 / 1,000 = 94\%$.

Decision interpretation: The 96% availability value does not prove correctness during every available hour. The two measures support different requirements.

Validity limits: The service boundary, outages, correctness test, unknown intervals and planned exclusions must be established in advance. A high uptime percentage cannot close an integrity failure.

ASTRA connections: 51.4; 55.1; 66.7; 78.7

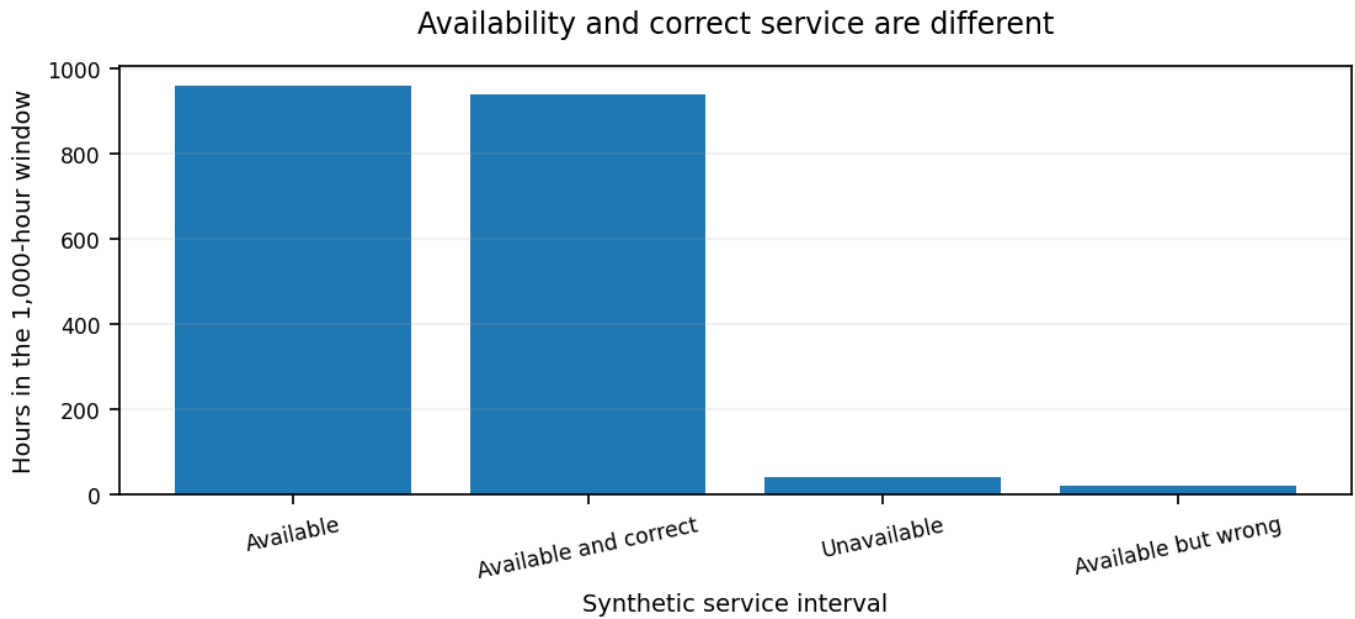


Figure Q09 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q15 Light-time and ground-intervention feasibility

Source: ASTRA Annex AM, Q15, page 214. All numerical inputs in this example are synthetic.

$$t_{\text{oneway}} = R/c$$

$$t_{\text{response}} = 2R/c + t_{\text{ground}} + t_{\text{actuation}}$$

Variables and units

R is a simplified constant path length in m; $c=299,792,458$ m/s. Processing, queueing, geometry change and other delays require additional terms where material.

Example inputs

Synthetic $R=2.25 \times 10^{11}$ m; ground processing=20 s; actuation=10 s; approved illustrative hazard-response window=1,200 s.

Calculation and checks

1. One-way light-time=750.519214196 s.
2. Round-trip propagation=1501.038428392 s.
3. Earliest modelled response=1531.038428392 s.
4. The response exceeds 1,200 s by 331.038428392 s.

Decision interpretation: The proposed ground intervention fails the example feasibility predicate and cannot be credited as the timely protective control.

Validity limits: The actual path and timing model must be used for a real mission. No communication architecture removes propagation delay; onboard protection still needs independent validation and authority.

ASTRA connections: 66.3; 67; 72.4; 73.8

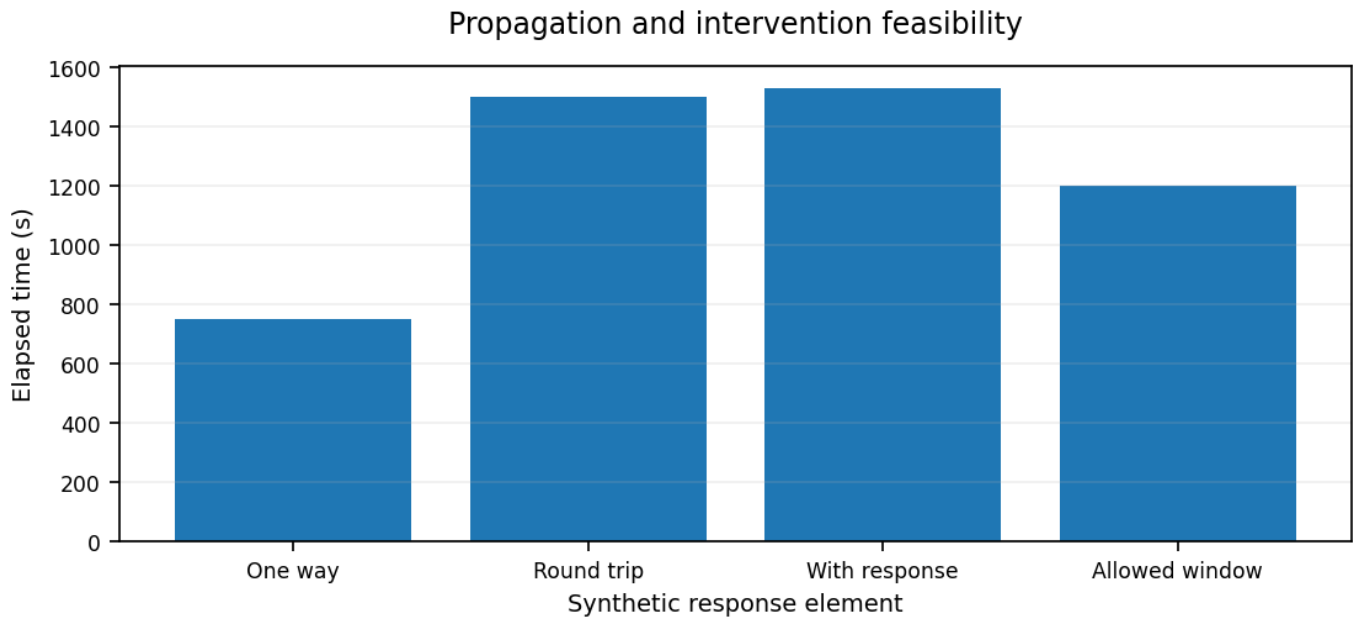


Figure Q15 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q16 Outage data storage with overhead

Source: ASTRA Annex AM, Q16, page 215. All numerical inputs in this example are synthetic.

$$B_{\text{required}} = R_{\text{data}} \times t_{\text{outage}} \times f_{\text{overhead}}$$

$$1 \text{ byte} = 8 \text{ bits}$$

Variables and units

Use a defined payload rate and explicit overhead, reserves and decimal/binary storage conventions. Avoid mixing Mbit/s and MB/s.

Example inputs

Synthetic 2.0×10^6 bit/s, 6 h outage, overhead factor=1.25; usable storage= 64×10^9 bit.

Calculation and checks

1. Outage duration= $6 \times 3,600 = 21,600$ s.
2. Required capacity= $2.0 \times 10^6 \times 21,600 \times 1.25 = 54 \times 10^9$ bit.
3. In decimal bytes this is 6.75×10^9 bytes = 6.75 GB.
4. Headroom= 10×10^9 bit; headroom/required=18.5185185%.

Decision interpretation: The example quantity fits in the stated usable capacity. Data priority, integrity and required extra reserve still need their own criteria.

Validity limits: Do not credit unvalidated compression, unavailable storage blocks or capacity already allocated elsewhere. Tests must include overflow, power interruption, duplicate delivery and recovery.

ASTRA connections: 66.3; 67.4; 78.7

Outage storage including the stated overhead

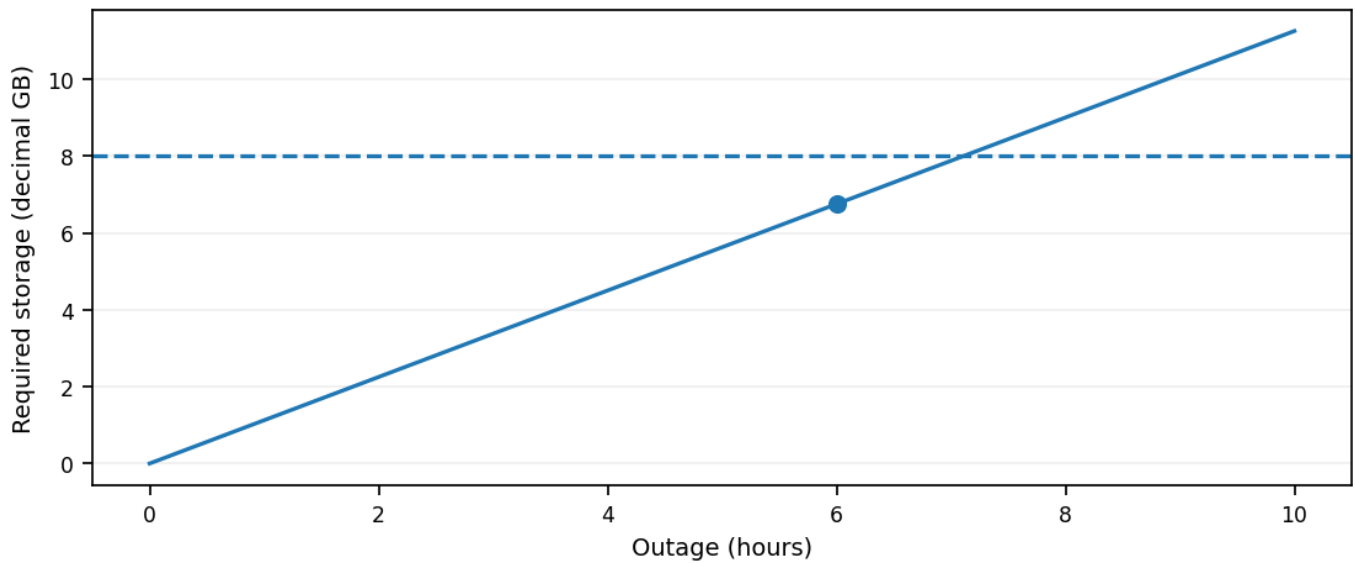


Figure Q16 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q17 Clock uncertainty and maximum data age

Source: ASTRA Annex AM, Q17, page 216. All numerical inputs in this example are synthetic.

$u_t = \sqrt{u_{\text{event}}^2 + u_{\text{sync}}^2}$ for justified independence

$U_t = k u_t$

Upper age endpoint = age_estimate + U_t

Variables and units

Time components refer to the same event and time basis. Correlation and systematic conversion errors require appropriate treatment.

Example inputs

Synthetic standard components 3 ms and 4 ms; illustrative $k=2$; maximum inclusive permitted data age=100 ms.

Calculation and checks

- $u_t = \sqrt{3^2 + 4^2} = 5$ ms; $U_t = 10$ ms.
- At age estimate 95 ms, interval=[85,105] ms: HOLD under the full-interval rule.
- At age estimate 80 ms, interval=[70,90] ms: PASS for this age criterion.

Decision interpretation: A recently received packet can still contain stale event data. The 95 ms estimate is not rounded down into acceptance.

Validity limits: This calculation does not account automatically for unrecorded queueing, an incorrect epoch or an unknown time scale. Such validity defects cause HOLD before the age predicate is evaluated.

ASTRA connections: 66.4; Annex G; 77.6

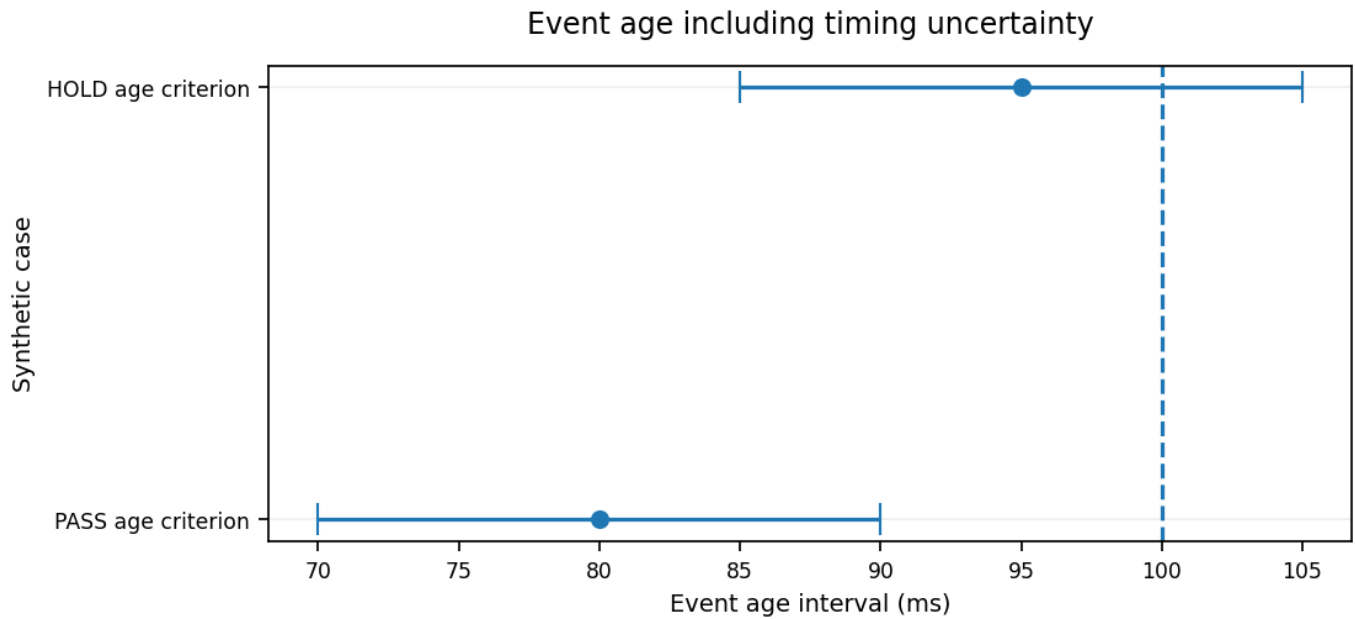


Figure Q17 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q22 Process consumables, recovery and unusable inventory

Source: ASTRA Annex AM, Q22, page 221. All numerical inputs in this example are synthetic.

Gross demand = number_of_units × unit_rate × duration

Usable feed need = gross demand × (1-recovery_fraction)

Stock requirement = feed need + unusable allowance + reserved amount

Variables and units

This is a non-physiological process-resource example. Recovery is credited only when quantity, quality and availability are demonstrated for the same duty.

Example inputs

Synthetic four identical process units; 2 kg/day/unit for 10 days; validated illustrative recovery=60%; unusable allowance=5 kg; reserve=8 kg; stock=50 kg.

Calculation and checks

1. Gross demand=4×2×10=80 kg.
2. Fresh usable feed need=80×(1-0.60)=32 kg.
3. Stock requirement=32+5+8=45 kg.
4. Headroom=50-45=5 kg.

Decision interpretation: The example quantity requirement is met. It supplies no crew-consumption rate or health criterion.

Validity limits: Availability, recovery timing, quality, contamination, storage losses and common-resource failure are separate checks. A calculated recycling benefit cannot substitute for demonstrated usable output.

ASTRA connections: 64.4; 73.3; 75.4–75.5

Usable consumables and retained reserves

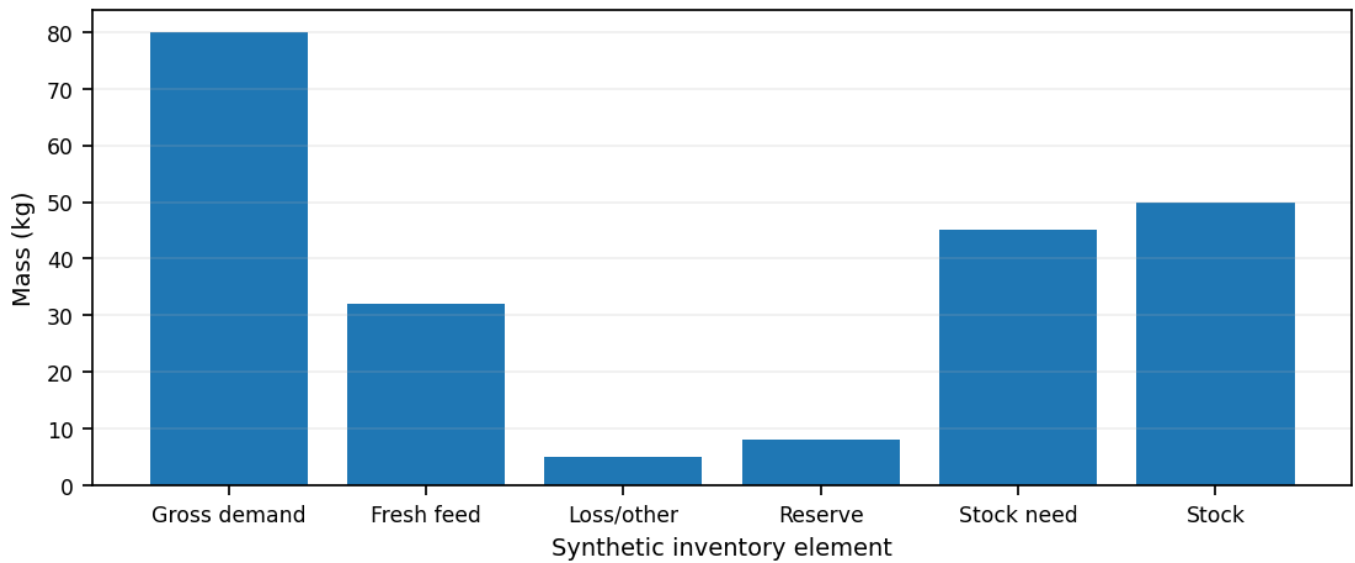


Figure Q22 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q23 Material genealogy, yield and retained work

Source: ASTRA Annex AM, Q23, page 222. All numerical inputs in this example are synthetic.

Input = good + reject + tests + losses + work_in_progress

First-pass yield = accepted_first_pass_output/input

Variables and units

All quantities shall use a consistent lot and period. Recovered material remains linked to its origin and is not counted twice as new production.

Example inputs

Synthetic input=500 units; good first-pass=410; reject=30; destructive tests=10; process losses=20; work in progress=30.

Calculation and checks

1. Reconciliation=410+30+10+20+30=500 units.
2. First-pass yield=410/500=82%.
3. If 20 rejected units are later recovered, the recovery does not increase original input or first-pass output.

Decision interpretation: The quantity balance closes. Technical identity, condition and acceptance evidence still determine whether the 410 outputs are eligible.

Validity limits: A closed balance does not prove authenticity, completeness or material quality. Mixing quantities with different units or unverified scrap/recovery transfers invalidates the reconciliation.

ASTRA connections: 18.4; 48.4; Annex AC; 75.4

Original input reconciliation

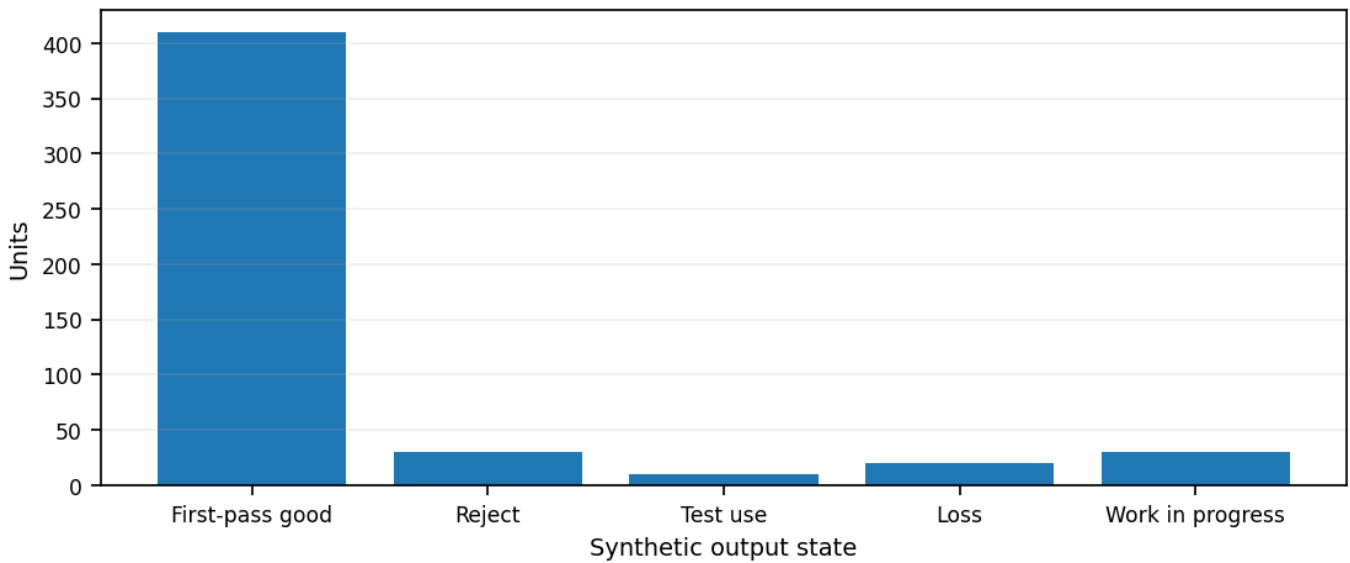


Figure Q23 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q24 Environmental inventory and uncertainty

Source: ASTRA Annex AM, Q24, page 223. All numerical inputs in this example are synthetic.

$$E = \sum(A_i \times EF_i)$$

$$u(E) = \sqrt{\sum u_i^2} \text{ only for independent components}$$

Variables and units

A_i are activities and EF_i compatible factors for the same declared boundary. All factors below are deliberately fictional and shall not be used for actual emissions.

Example inputs

Synthetic 200,000 kWh×0.25 kg CO₂e/kWh; 10,000 L×2.50 kg CO₂e/L; 20,000 tonne-km×0.10 kg CO₂e/tonne-km.
Relative standard uncertainties=5%, 10%, 20%.

Calculation and checks

1. Category totals=50,000; 25,000; 2,000 kg CO₂e. Total=77,000 kg CO₂e.
2. For 10,000 defined service events, intensity=7.7 kg CO₂e/event.
3. Standard components=2,500; 2,500; 400 kg CO₂e.
4. $u(E)=\sqrt{(2,500^2+2,500^2+400^2)}=3,558.089375$ kg CO₂e.

Decision interpretation: The arithmetic is correct for this limited synthetic boundary. No real environmental achievement or full lifecycle footprint is asserted.

Validity limits: Covariance is required where sources are dependent. Quantified uncertainty does not absorb omitted lifecycle stages, unsuitable factors, double allocation or missing mandatory categories.

ASTRA connections: 24; 53; Annex L

Partial environmental inventory with standard uncertainty

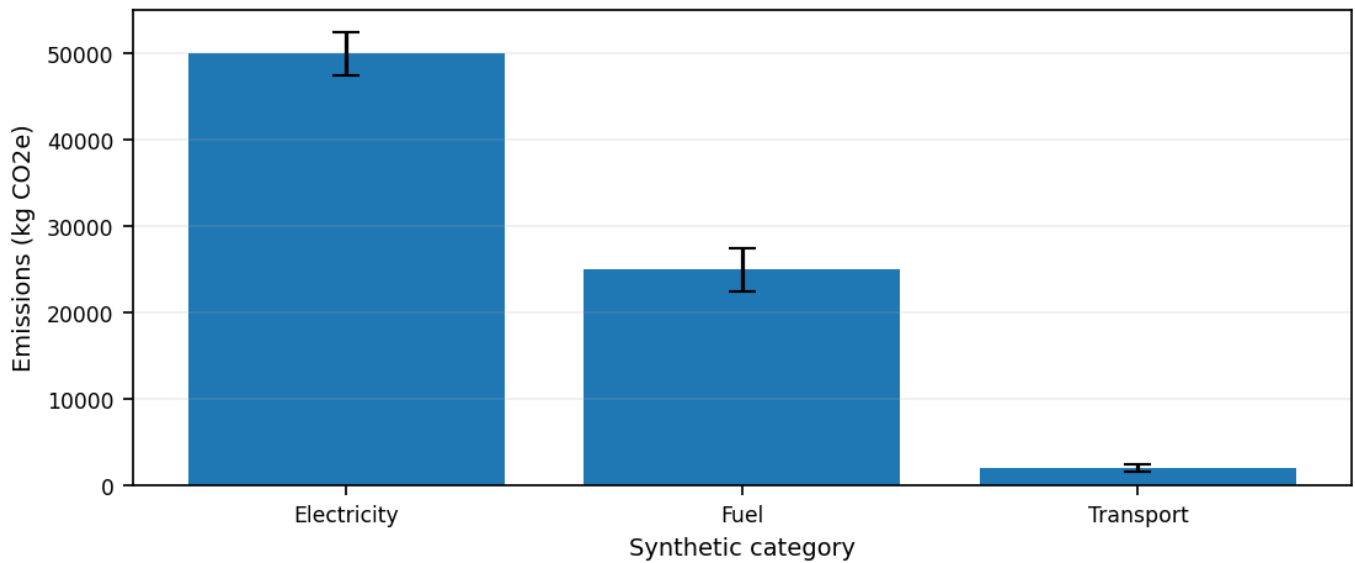


Figure Q24 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q25 Reliability architecture and common-cause sensitivity

Source: ASTRA Annex AM, Q25, page 224. All numerical inputs in this example are synthetic.

$R_{\text{series}} = R_1 R_2$ for independent required elements

$R_{\text{parallel}} = 1 - (1 - R_1)(1 - R_2)$ for independent full-capability alternatives

$R_{\text{with_common_event}} = (1 - q) R_{\text{parallel}}$

Variables and units

R_1 and R_2 refer to the same mission duration and domain. q is an illustrative independent probability of a common event defeating both alternatives. Perfect switching is assumed only for this example.

Example inputs

Synthetic $R_1=0.98$, $R_2=0.99$; illustrative common-event probability $q=0.01$.

Calculation and checks

1. Series result= $0.98 \times 0.99 = 0.9702$.
2. Ideal independent parallel result= $1 - (0.02 \times 0.01) = 0.9998$.
3. With the stated common event: $0.99 \times 0.9998 = 0.989802$.

Decision interpretation: The architecture and common-dependency assumptions materially change the result. Component figures alone cannot establish system reliability.

Validity limits: Unequal functions, imperfect switching, dormant failures, shared software, maintenance or external resources require a different model. The example probabilities are not actual mission data or prescribed targets.

ASTRA connections: 55.2; 68.1–68.2; 76.5

Architecture assumptions determine reliability

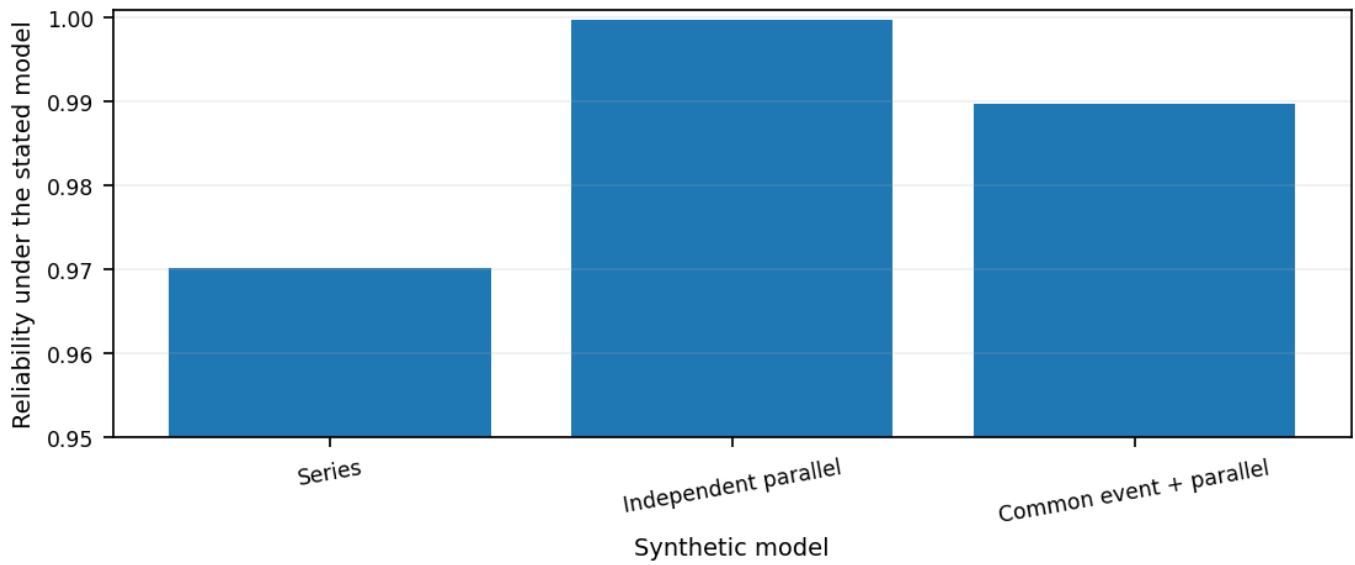


Figure Q25 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.

E8 Adverse cases and independent replay

Challenge	Expected handling	Evidence retained
PR-004: Resolve every applicable domain — required basis missing	Unknown applicability is HOLD; absent equipment or budget never establishes N/A.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-004: Approve exclusion and re-open triggers — handover or review incomplete	Only independently justified exclusions receive N/A; an unexamined consequential interface remains HOLD.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-007: Build a phase-by-mode coverage matrix — required basis missing	No uncovered essential cell can be marked complete from another site's headquarters evidence.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-007: Close actual coverage — handover or review incomplete	The independent reviewer accepts the actual coverage, not the original commercial duration or completion percentage.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-008: Qualify remote observability — required basis missing	Unobservable essential characteristics remain HOLD unless valid supplementary evidence is accepted.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-008: Reconcile remote completion and custody — handover or review incomplete	Only the demonstrated bounded task is accepted; command acknowledgement alone is not physical completion.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-009: Define the method family technically — required basis missing	No unrelated technique is added because it shares a performer or report template.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-009: Review change and corrective retest — handover or review incomplete	A fresh favourable run does not validate earlier affected output or automatically extend method scope.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-013: Separate evidence gap, technical failure and finding — required basis missing	HOLD is not proof of product failure, but a demonstrated control failure still needs an appropriate finding.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-013: Close with prospective evidence — handover or review incomplete	No grant, renewal or extension with an open in-scope finding; later correction does not backdate earlier validity.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-014: Freeze the independent decision dossier — required basis missing	A missing essential source, unresolved configuration or unsupported exclusion keeps the dependent decision on HOLD.	Original input, unresolved value, affected requirement and scope; named action owner.

Challenge	Expected handling	Evidence retained
PR-014: Publish only the supported outcome — handover or review incomplete	Public wording and digital status cannot extend the decision or imply operational permission.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-015: Freeze the actual cycle baseline — required basis missing	Bookings and payment do not fulfil surveillance or extend validity.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-015: Renew without manufactured continuity — handover or review incomplete	Restoration or reprinting is not renewal; operational life and specialist permissions remain separate.	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-027: Freeze the statement and assurance objective — required basis missing	A future plan or partial inventory cannot be relabelled as an achieved complete reduction.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-027: Review and communicate the bounded conclusion — handover or review incomplete	Do not issue an unqualified favourable conclusion solely to meet a reporting deadline.	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.

E9 Complete all-space implementation workstream

The following workstream connects every new technical chapter, 62–80, to actual execution and receiving evidence. It is applied only to the responsible function and exact object. A training provider or component supplier does not inherit the whole mission owner's duties; an integrator does not exclude duties it retains merely because a contractor performs the work.

62 – Requirement specification and deterministic decision logic

Condition / source page	Required execution evidence	Acceptance or hold condition
62.1 / p. 88 Atomic requirement record	Inspect each requirement row and its linked method, boundary and predicate.	Every applicable row is evaluable without inventing an object, limit, observation or decision role. Unresolved essential terms result in HOLD.
62.2 / p. 88 Mandatory parameter completion	Recalculate derivations and check mission, interface and obligation coverage.	The complete parameter set is approved prospectively. A blank, TBD, unsupported factor or undefined threshold blocks the dependent release.
62.3 / p. 88 Evidence validity before conformity	Check provenance, configuration, method capability, original data and uncertainty separately from result classification.	Validity is established before PASS or FAIL is assigned; otherwise use HOLD with an explicit invalidity or evidence-gap reason.
62.4 / p. 88 Four requirement states	Execute the truth table in Annex AL using actual scope and evidence.	Exactly one current state is assigned with reason and traceable evidence. All earlier states are retained.
62.5 / p. 89 No compensation or favourable default	Reconcile the complete requirement population with the decision dossier; test missing and negative cases.	The Boolean conjunction in Annex AL is true. Otherwise no positive grant, renewal or extension is permitted.
62.6 / p. 89 Exceptions, tailoring and unresolved conflict	Review each exclusion, alternative method and concession against controlling requirements.	No unapproved exception or unresolved conflict affects a positive conclusion; any known departure remains visible in its separate technical disposition.
62.7 / p. 89 Decision replay and consistency	Independently replay a selected boundary case and reconcile every difference.	The replay produces the same supported state, or the case remains HOLD pending a controlled technical resolution.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

63 – Complete space-domain applicability and mission boundaries

Condition / source page	Required execution evidence	Acceptance or hold condition
63.1 / p. 90 Domain selection without geographic omission	Compare the mission concept and responsibility map with all Annex AK domain rows.	Every domain has a reasoned disposition. Any unassessed domain that can affect a required outcome remains HOLD.
63.2 / p. 90 Object and activity rather than a universal label	Compare application, technical schedule, evidence and proposed public wording.	The object and activities agree throughout the dossier; unsupported sector-wide or geographically unlimited claims are prohibited.
63.3 / p. 90 Environment, phase and mode matrix	Review the complete phase-by-mode matrix and its verification links.	Every safety-, mission- or claim-relevant cell has accepted evidence or an explicit restriction; no essential unexamined cell is passed by analogy.
63.4 / p. 90 No automatic new programme family	Check domain tags against family, module, object and activation records.	Every granted space scope has a valid family connection and independently complete profile; no authority is inferred from the catalogue.
63.5 / p. 91 Unknown and future environments	Examine novelty analysis, experiment authority and unresolved-condition register.	Unknown essential behaviour is not recorded as safe or conforming. Development status and permitted work are explicit.
63.6 / p. 91 Interface and lifecycle closure	Trace each interface to an accountable performer and retained owner.	No essential responsibility, evidence handover or terminal obligation is orphaned.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

64 – Mission architecture and environmental definition

Condition / source page	Required execution evidence	Acceptance or hold condition
64.1 / p. 92 Mission environmental baseline	Audit environment-to-requirement and environment-to-test traceability.	All material environments and coupled effects are bounded by approved assumptions and evidence; undefined exposure blocks qualification acceptance.
64.2 / p. 92 Geometry, reference frames and event time	Recompute selected transformations and challenge wrong-frame and stale-epoch inputs.	Transformations meet the approved error and time bounds; incompatible or ambiguous metadata produces HOLD.
64.3 / p. 92 Uncertainty, scenarios and design envelope	Review scenario construction, dependencies and sensitivity to uncertain inputs.	The accepted envelope covers the declared decisions; unsupported extrapolation is excluded or held.
64.4 / p. 92 Resource budgets and coupled margins	Reconcile subsystem and system budgets by phase and condition; independently check Annex AM calculations used.	Each required margin meets its prospectively approved value under all selected bounding conditions; no reserve is double allocated.
64.5 / p. 92 Heritage and similarity	Review a difference matrix and trace each retained conclusion to applicable original evidence.	Every material difference has a technical disposition and sufficient evidence before the new claim is accepted.
64.6 / p. 93 Baseline maintenance and irreversible decisions	Compare the frozen readiness dossier with the actually delivered configuration and latest accepted mission assumptions.	Every essential gate is complete and all permitted actions are stated; otherwise the irreversible commitment remains blocked.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement;

and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

65 – Spacecraft platform, payload and subsystem assurance

Condition / source page	Required execution evidence	Acceptance or hold condition
65.1 / p. 94 Structures, mechanisms and deployment	Review configuration-specific load, test, inspection, mechanism and deployment evidence.	Each required function and structural criterion is met in its approved envelope; unknown restraint or deployment state blocks dependent operation.
65.2 / p. 94 Thermal control and thermal protection	Review thermal models, instrumentation, balance correlation and hot/cold/transient test coverage.	All required temperatures and gradients meet approved bounds including uncertainty and model discrepancy; unresolved critical locations remain HOLD.
65.3 / p. 94 Power generation, storage and distribution	Reconcile phase budgets and examine actual storage, conversion and protection evidence.	Power, energy and recovery predicates all pass; adequate average generation does not compensate for an unsupported peak or outage condition.
65.4 / p. 94 Avionics, electronics and radiation effects	Inspect parts genealogy, mission susceptibility analysis, specialist results and integrated recovery tests.	All triggered mechanisms have accepted application-specific evidence; a part label or dose-only result does not close unexamined single-event behaviour.
65.5 / p. 95 Attitude, pointing, sensing and control interfaces	Trace error allocation to integrated measurement and closed-loop verification on representative configuration.	Required performance and protective-state predicates pass; undetected loss of critical observability remains an essential gap.
65.6 / p. 95 Payload function and scientific or service output	Reconstruct selected output products from identified inputs, calibration and processing.	Output criteria are met for the stated domain; unsupported scientific or service claims are not inferred from a functioning instrument.
65.7 / p. 95 Integrated platform acceptance	Conduct independent configuration, interface and evidence closure across the complete integration dossier.	All applicable integration gates pass; each unresolved essential interface blocks the dependent mission or system conclusion.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

66 – Communications, navigation support and time services

Condition / source page	Required execution evidence	Acceptance or hold condition
66.1 / p. 96 End-to-end service definition	Trace representative data from origin to authorised use including relays and third parties.	The claimed service boundary is complete and each essential dependency is supported; a link diagram alone is insufficient.
66.2 / p. 96 Link and performance budgets	Independently recompute the budget and validate assumed performance against representative evidence.	The worst required operating cases meet approved link and quality margins; omitted material losses or unknown receiver performance block acceptance.
66.3 / p. 96 Delay and feasible intervention	Test worst-case delay and outage scenarios using the approved mission geometry and timing model.	Required responses are feasible within the approved window; a nominal human review step does not pass if communication makes it ineffective.
66.4 / p. 96 Data age and time uncertainty	Challenge stale, duplicated, reordered, wrong-time-scale and clock-reset data.	Data outside approved age or uncertainty bounds are marked unusable for the affected decision and trigger the defined protective response.
66.5 / p. 97 Position and navigation-support integrity	Compare independent truth/reference evidence and test wrong-frame, stale-source and service-loss cases.	All performance and integrity predicates pass for the declared use; an unavailable or uncertain essential output is not a valid zero-error estimate.
66.6 / p. 97 Secure command and relay interfaces	Execute safe positive and prohibited command-delivery tests using isolated synthetic fixtures.	Unauthorised, stale or wrong-target commands cannot pass the accepted workflow; commanded action and observed physical completion remain distinct.
66.7 / p. 97 Outage, recovery and service evidence	Review outage timelines, replay/reconciliation logs and receiving acceptance.	All necessary state and data integrity checks are complete before assured use resumes; remaining gaps are carried into the affected claims.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

67 – Ground segment, command lifecycle and mission operations

Condition / source page	Required execution evidence	Acceptance or hold condition
67.1 / p. 98 Configuration and operational baseline	Reconcile installed versions and target mappings with approved release records.	Every live mission interface uses an accepted compatible baseline; training or stale configuration cannot be selected as a live authority.
67.2 / p. 98 Command proposal and preconditions	Review selected command records and challenge stale-state and wrong-target preconditions safely.	All prescribed preconditions are demonstrated and the command remains within approved mission authority; otherwise release is blocked.
67.3 / p. 98 Receipt, execution and completion	Trace a command through its full event and evidence history.	Only evidence satisfying the approved completion predicate supports completed status; missing terminal evidence remains unknown or partial.
67.4 / p. 98 Planning and conflicts	Independently reconcile a representative plan and its actual execution log.	No essential conflict remains unresolved; actual execution and deviations are separately evidenced.
67.5 / p. 99 Personnel, handover and remote support	Observe a representative handover and verify access, competence and acknowledgement.	The receiving team acknowledges the complete active state and responsibilities before assuming authority.
67.6 / p. 99 Anomaly response and safe restoration	Examine adverse rehearsals and actual restoration records where available.	Required state, integrity and protection checks pass before resumed dependent action; unresolved essential uncertainty retains a restriction.
67.7 / p. 99 Rehearsal and independent readiness	Compare the rehearsal matrix, observations, corrections and re-execution evidence.	Every required readiness scenario passes or is excluded through a valid scope limitation; no scripted demonstration is claimed as a completed mission.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

68 – Constellations, traffic interfaces and orbital stewardship

Condition / source page	Required execution evidence	Acceptance or hold condition
68.1 / p. 100 Fleet membership and common dependencies	Reconcile fleet and configuration records with actual membership and service commitments.	All included assets and common-cause dependencies are identified; unsupported members remain outside the granted scope.
68.2 / p. 100 Distributed function and degradation	Test representative distributed-service and common-cause scenarios.	The specified service and protective behaviour meet approved predicates; aggregate uptime does not conceal an essential degraded-state failure.
68.3 / p. 100 Tracking and conjunction-information quality	Review data lineage, uncertainty and method validity; challenge stale and inconsistent source cases.	The data and model support the intended decision. Unsupported collision-probability estimates remain HOLD, not reassuring zero values.
68.4 / p. 100 Coordination and consent	Inspect communication records and representative failed-contact or contradictory-message exercises.	Each required acknowledgement and authority is established; unresolved coordination essential to the claim blocks that claim.
68.5 / p. 101 Debris prevention and released items	Review released-item inventory, risk analysis, protective evidence and closure records.	Every triggered prevention and terminal condition has accepted evidence; no unknown disposition is reported as completed.
68.6 / p. 101 Mission extension and terminal resources	Reconcile updated budgets, remaining-life evidence and terminal feasibility.	Required continued-service and terminal predicates both pass; a commercially useful asset is not automatically eligible for extension.
68.7 / p. 101 Status and long-term custody	Trace final-state evidence and accepted transfer of residual duties.	Terminal claims match observed or explicitly bounded inferred states, and every continuing duty has a receiving owner.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

69 – Servicing, docking, assembly and on-orbit interventions

Condition / source page	Required execution evidence	Acceptance or hold condition
69.1 / p. 102 Consent and exact intervention	Check the consent and authority chain against the declared operation and assets.	All required authorities and compatible scope boundaries are valid before intervention; otherwise the activity remains blocked.
69.2 / p. 102 Interface compatibility	Review interface-control records, difference analysis and representative integrated verification.	Every essential interface criterion passes for both participating configurations; unknown critical interfaces remain HOLD.
69.3 / p. 102 Relative-state and completion evidence	Challenge incomplete and contradictory indications using authorised representative simulations or tests.	Each claimed state has sufficient valid evidence and meets its own predicate; ambiguous state cannot be treated as complete.
69.4 / p. 102 Interruptions and safe boundaries	Review the approved scenario set and evidence for required protective transitions.	All essential interruption and protective-state requirements are demonstrated within the authorised envelope.
69.5 / p. 103 Transferred material, energy and data	Reconcile sending and receiving records and inspect suitability evidence.	Both identity/quantity and technical eligibility checks pass; unexplained differences or contamination keep the transfer result open.
69.6 / p. 103 Post-intervention configuration and service claim	Review post-intervention verification and receiving acknowledgement.	The bounded service predicate is met, affected protections are restored and residual responsibilities are accepted.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

70 – Launch, re-entry, reuse and ground-interface assurance

Condition / source page	Required execution evidence	Acceptance or hold condition
70.1 / p. 104 Distinct release objects	Compare all requested results with their actual evidence and authority paths.	No merged or unbounded approval is issued; each required object-specific gate is independently supported.
70.2 / p. 104 Integrated environment and interface verification	Reconcile interface and environment matrices with qualification, acceptance and delivered configuration.	All required interface criteria are met; undeclared differences or missing essential demonstrations block integrated acceptance.
70.3 / p. 104 Test and hazardous-work readiness	Inspect real readiness records and safe witnessing arrangements.	All prerequisite protections and measurement capabilities exist before testing; missing permissions or protective functions prohibit the activity.
70.4 / p. 104 Reuse and cumulative history	Trace item history to approved reuse criteria and measured condition.	All required life and condition predicates pass; missing critical history or inaccessible required inspection blocks reuse acceptance.
70.5 / p. 105 Return, landing and recovery interfaces	Review the approved return/recovery dossier, communication and custody arrangements.	The stated return or recovery claim has sufficient actual evidence; a planned route or lost signal cannot be reported as successful completion.
70.6 / p. 105 Readiness decision and post-event learning	Independently review the frozen pre-event dossier and subsequent anomaly-to-population analysis.	Every essential gate passes at the actual commitment time; later success does not legitimise an unsupported earlier release.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

71 – Lunar, planetary, small-body and ocean-world systems

Condition / source page	Required execution evidence	Acceptance or hold condition
71.1 / p. 106 Destination-specific conditions	Examine destination/region assumptions, uncertainty and required evidence.	All essential environmental inputs are bounded for the declared mission; missing critical environmental knowledge retains a development or restricted status.
71.2 / p. 106 Surface mobility and interaction	Review integrated mobility and resource tests and the justified analogue-transfer argument.	Required mobility and protective-state predicates pass for the approved envelope; unsupported terrain classes remain excluded.
71.3 / p. 106 Atmospheric and buoyant exploration	Review environment-specific material, structural and functional qualification and data validity.	Every essential environmental and functional condition is supported for the stated domain; unvalidated atmosphere assumptions block broader claims.
71.4 / p. 106 Subsurface and ocean-world interfaces	Review pressure-boundary and environmental evidence through authorised specialist assessment.	All triggered boundary, protection and observation predicates pass; uncertain containment or retrieval capability remains explicitly restricted.
71.5 / p. 107 Long darkness and resource interruption	Recalculate resource and survival budgets and review representative dormant/restart tests.	All required survival and recovery conditions meet approved criteria without double-counted reserves; missing state evidence keeps restart dependent actions held.
71.6 / p. 107 Construction and surface infrastructure	Trace design and material records through construction, commissioning and receiving acceptance.	Every essential structural, utility, environmental and operational interface has valid completion evidence before use.
71.7 / p. 107 Autonomy and limited intervention	Challenge the approved autonomous envelope and required protective transitions.	All essential scenarios pass; out-of-domain behaviour is limited or stopped under the approved protective design.
71.8 / p. 107 Completion, samples and remaining duties	Review final-state evidence, sample manifests and accepted residual-duty assignments.	Each conclusion is limited to its demonstrated object and evidence; no lost contact or incomplete transfer is relabelled as complete closure.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

72 – Deep-space, solar and long-duration exploration

Condition / source page	Required execution evidence	Acceptance or hold condition
72.1 / p. 108 Time horizon and recoverability	Review life and support assumptions against mission phases and credible loss cases.	Essential mission and protective functions remain supported for the declared duration; speculative future services are not favourable defaults.
72.2 / p. 108 Solar and extreme thermal exposure	Review environment-specific models, uncertainty, qualified materials and correlated tests.	Required temperature, gradient, integrity and functional limits are met throughout the approved envelope; unexamined coupled effects remain HOLD.
72.3 / p. 108 Low-flux and limited-power missions	Reconcile resource profiles and perform representative low-resource and recovery verification.	Every essential resource and protection predicate passes; unavailable generation or unsupported recovery is not treated as normal service.
72.4 / p. 108 Autonomy during long communication delay	Evaluate latency arithmetic and scenario-based autonomous response evidence.	Protective authority is executable within the approved response time; otherwise redesign, restriction or additional evidence is required.
72.5 / p. 108 Ageing and long-term digital support	Review long-life evidence and test migration, recovery and independent reconstruction.	Essential historical and current evidence remains usable and required support has accepted continuity arrangements.
72.6 / p. 109 Scientific instruments and observation integrity	Reprocess a representative observation from identified source data and calibration.	The stated technical data-quality criteria are met; disputed scientific interpretation is not declared certain by an ASTRA engineering result.
72.7 / p. 109 Future-domain feasibility and responsible closure	Review demonstration-state claims, technical gaps and actual terminal evidence.	Only the demonstrated bounded capability is recognised; speculative performance and unknown final states remain clearly identified.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

73 – Human flight, habitats and extravehicular systems

Condition / source page	Required execution evidence	Acceptance or hold condition
73.1 / p. 110 Population, mission and human tasks	Review the user/task matrix and representative normal and degraded validation.	Each essential task is demonstrated under its approved conditions; unsupported populations and tasks are excluded from the claim.
73.2 / p. 110 Integrated life support	Review integrated requirements, monitored quantities, sensor validity and contingency tests.	Every required environmental and protective predicate is met; unspecified health limits or unverified essential monitoring block acceptance.
73.3 / p. 110 Consumables and survival time	Recompute balances and check source data, quality and concurrent reserve allocations.	All approved reserve and survival predicates pass; quantity sufficiency does not compensate for unsuitable water, atmosphere or other supplies.
73.4 / p. 110 Habitat integrity and interfaces	Inspect configuration-specific boundary and integrated protective evidence.	All essential integrity and interface conditions pass; an unknown boundary or incompatible visiting configuration blocks occupancy-dependent acceptance.
73.5 / p. 111 Human factors and effective authority	Observe representative task and intervention performance, including misleading and degraded information.	Every essential response passes independently; aggregate usability scores do not offset a failed protective task.
73.6 / p. 111 Extravehicular activity and individual equipment	Review qualified equipment, user fit/task evidence and integrated emergency interfaces.	All relevant configuration and protective criteria pass, with actual specialist authority and supported rescue or survival assumptions.
73.7 / p. 111 Medical capability and health-data boundaries	Check actual health-support arrangements, equipment integration and protected data access.	Required support functions are demonstrably available and usable within the mission limits; undocumented specialist capacity is not credited.
73.8 / p. 111 Emergency, refuge and safe return	Assess scenario-specific exercise and resource evidence and independently check timing feasibility.	Every required protective pathway is supported; infeasible response or unavailable essential resources block the dependent human-mission claim.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

74 – Planetary protection, sample return and scientific integrity

Condition / source page	Required execution evidence	Acceptance or hold condition
74.1 / p. 112 Mission-specific protection classification	Review destination, pathway and consequence analysis with qualified independent specialists.	Every triggered protection duty has an explicit owner, criterion and verification path; an undefined classification remains HOLD.
74.2 / p. 112 Contamination pathways and control allocation	Inspect the pathway map and validated evidence for each relied-upon control.	All essential pathways are controlled to the approved technical basis; inaccessible required evidence prevents a favourable conclusion.
74.3 / p. 112 Scientific cleanliness and background	Review measurement-specific contamination budgets and actual verification results.	Required cleanliness and background predicates pass within method uncertainty; uncharacterised contamination remains a limitation on the affected output.
74.4 / p. 112 Sample identity and custody	Reconcile original collection, custody, receiving and subdivision records.	The sample and its history are unambiguous and usable for the claimed purpose; missing essential links block the dependent sample conclusion.
74.5 / p. 113 Return-chain containment and receiving readiness	Review the complete return-to-receiving chain and authorised representative integrity demonstrations.	Every essential interface and receiving capability is accepted before dependent return commitments; otherwise the chain remains incomplete.
74.6 / p. 113 Anomalies, unknown state and release of information	Examine anomaly decisions, actual observations and bounded reporting.	Only supported technical conclusions are released; uncertainty and unresolved protection duties remain visible.
74.7 / p. 113 Disposition and residual responsibility	Trace final-state evidence and accepted residual duties.	No required custody or protection obligation is abandoned and no unverified disposal is claimed complete.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

75 – In-space manufacture, resource use and logistics

Condition / source page	Required execution evidence	Acceptance or hold condition
75.1 / p. 114 Process purpose and environment	Review environment differences and the process-to-property qualification argument.	All essential output properties and influential conditions have an approved evidence path; unsupported transfer remains HOLD.
75.2 / p. 114 Inputs, feedstock and source variability	Trace input lots and samples to process runs and accepted property evidence.	Input identity and suitability meet approved criteria; uncertain composition or life history is not replaced by a nominal source label.
75.3 / p. 114 Essential variables and remote monitoring	Review representative qualification, sensor/model validation and raw production history.	All required variables and output characteristics are supported; an unobservable essential property requires additional evidence or a restricted outcome.
75.4 / p. 114 Yield, mass balance and circularity	Independently reconcile the material ledger and separately review quality acceptance.	Balances meet the approved uncertainty-based criterion and all claimed good output is technically accepted; unexplained losses or duplicate recovery remain open.
75.5 / p. 115 Logistics, storage and compatibility	Inspect the complete shipment and receiving chain, including excursions and damage.	Only accepted usable inventory enters mission budgets; unknown or restricted items are segregated in both physical and digital records.
75.6 / p. 115 Maintenance, spares and distributed production	Review replacement authorisation, production genealogy and configuration-specific verification.	Every essential replacement predicate passes before use; unsupported functional or life equivalence is prohibited.
75.7 / p. 115 Handover, resource claims and closure	Reconcile reported outputs, accepted products, rights/permissions and final-state evidence.	The claim is bounded to measured and accepted achievement; undeveloped scale-up and unknown disposition remain separate.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

76 – Space energy infrastructure and specialised power oversight

Condition / source page	Required execution evidence	Acceptance or hold condition
76.1 / p. 116 System boundary and conversion chain	Trace energy and thermal balances across the actual architecture and conditions.	Every essential stage and interface meets approved functional and protective requirements.
76.2 / p. 116 Beamed and remote energy services	Review written scope, compatible interfaces, performance evidence and safe protective tests.	Delivery and all triggered protective predicates pass; no hazardous or unauthorised operation is justified by a positive efficiency value.
76.3 / p. 116 Cryogenic, chemical and pressure interfaces	Review authorised technical basis, qualification, inspection and integration evidence.	Every essential containment and protection condition is supported; missing hazardous-work authority blocks the activity.
76.4 / p. 116 Nuclear and radiation-source governance	Verify the existence, scope and authenticity of required specialist approvals and integration evidence.	All relevant permissions and assurance interfaces are complete; a generic aerospace credential cannot substitute for them.
76.5 / p. 117 Infrastructure availability and failure propagation	Review dependency analysis and safe tests of loss, isolation and restoration.	Every essential protective path remains effective under the approved failure set; unsupported independence is not credited.
76.6 / p. 117 Degradation, environmental claims and retirement	Reconcile actual condition, model validity, separate environmental statements and final disposition.	Technical life and terminal conditions are met independently of environmental metrics; unknown inventories remain open obligations.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

77 – Verification campaigns and quantitative closure

Condition / source page	Required execution evidence	Acceptance or hold condition
77.1 / p. 118 Requirement-to-method completeness	Reconcile the requirement population, test matrix and actual evidence using stable identifiers.	Every applicable requirement has a valid completed evidence path; any essential uncovered row remains HOLD.
77.2 / p. 118 Campaign design and article pedigree	Review specimen-to-product and test-to-configuration equivalence records.	All material differences and accumulated effects are evaluated before evidence reuse; unrepresentative essential evidence is not accepted.
77.3 / p. 118 Measurement and uncertainty readiness	Inspect the full measurement chain and execute relevant readiness checks.	All required channels are valid for the intended inference; a missing, saturated or misconfigured critical channel prevents that acceptance.
77.4 / p. 118 Combined effects and sequence	Review the interaction matrix and cumulative exposure ledger.	Every material combined mechanism has adequate evidence; passing isolated tests does not automatically close unexamined combinations.
77.5 / p. 118 Original data and invalid tests	Reconstruct a selected run from raw data and contemporaneous records.	The run is independently interpretable and no failed, invalid or missing evidence is concealed.
77.6 / p. 119 Numerical and attribute acceptance	Replay boundary, negative and missing-input cases using Annex AL and Annex AM.	The correct state follows deterministically from valid unrounded inputs and the approved predicate.
77.7 / p. 119 Retest and corrective verification	Review the retest authorisation, all attempts and failure-to-correction trace.	The original deficiency and affected requirements are demonstrably resolved; otherwise the claim remains failed or held.
77.8 / p. 119 Independent campaign closure	Perform independent requirement-by-requirement closure with actual decision authority.	Every applicable gate for the exact claimed object passes; counts, percentages or programme completion dates alone cannot release the object.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

78 – Digital, AI and autonomous mission assurance

Condition / source page	Required execution evidence	Acceptance or hold condition
78.1 / p. 120 Released digital configuration	Reconstruct the released artefact and compare it with the loaded configuration.	The evaluated and deployed digital configurations match, or all differences have accepted verification before use.
78.2 / p. 120 Operational domain and prohibited behaviour	Review domain completeness and execute representative in-domain, out-of-domain and prohibited cases.	All essential domain and protective conditions pass; unbounded authority or unknown out-of-domain behaviour blocks release.
78.3 / p. 120 Evaluation data and model credibility	Inspect data partitions and independently reproduce selected performance and model-validation results.	Prospective scenario-specific criteria are met with disclosed uncertainty and limitations; unsupported extrapolation remains HOLD.
78.4 / p. 120 Human authority and consequential decisions	Challenge automation bias, false-source and delayed-intervention scenarios.	Actual authorised people can perform every required role and source evidence remains verifiable; nominal oversight alone is insufficient.
78.5 / p. 121 Security and trusted updates	Review trust dependencies and execute isolated permitted and prohibited update tests.	All required integrity and protective gates pass; a valid signature alone does not establish functional safety or compatibility.
78.6 / p. 121 Monitoring, drift and adaptation	Review monitoring coverage, alert-to-action records and controlled changes.	Essential performance and protection remain supported; otherwise restrict the affected use and assess earlier outputs.
78.7 / p. 121 Recovery and semantic portability	Execute missing-link, wrong-version, interrupted-write, expired-authority and restore tests.	All essential records and relationships are usable and correct; unresolved evidence loss keeps dependent decisions on HOLD.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

79 – Contingency survivability and terminal-state stewardship

Condition / source page	Required execution evidence	Acceptance or hold condition
79.1 / p. 122 Protect people and essential assets before mission success	Review hazard-to-control-to-verification traceability for failed-mission scenarios.	Every required protective function has accepted evidence independently of mission performance metrics.
79.2 / p. 122 Emergency feasibility and resources	Reconcile scenario timing, resource budgets and exercised interfaces.	All required protective pathways are feasible within their approved response and survival bounds.
79.3 / p. 122 Loss of contact and uncertain physical state	Review the state-classification record against raw evidence and observability limits.	Only a supported state is assigned; uncertain essential conditions retain UNKNOWN in operational records and HOLD in dependent acceptance.
79.4 / p. 122 Affected populations and historical decisions	Inspect end-to-end dependency and look-back analysis with actual notifications.	All materially dependent outputs are addressed; no valid adverse history is erased by later correction.
79.5 / p. 122 Terminal evidence and responsible transfer	Reconcile final-state evidence, inventory and recipient acknowledgement.	Every required terminal criterion is demonstrated or openly limited, and every remaining duty has an actual receiving owner.
79.6 / p. 123 Learning and sustained accountability	Review corrective effectiveness and test retrieval by a receiving competent reviewer.	The affected controls demonstrably improve and the mission record remains interpretable; publication of a lesson alone is not closure.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

80 – Integrated all-domain profile and final release

Condition / source page	Required execution evidence	Acceptance or hold condition
80.1 / p. 124 One complete application schedule	Reconcile the full schedule with Clauses 1, 4, 62 and 63 and Annex C.	No essential scope, parameter, responsibility or evidence field remains undefined before a positive decision.
80.2 / p. 124 Domain and verification completeness	Perform forward and reverse traceability and inspect omitted-domain reasons.	Every applicable condition passes or has a justified approved N/A; no HOLD or FAIL is hidden by a coverage percentage.
80.3 / p. 124 Competent independent closure	Check competence, conflict, access, panel and reasoned decision records.	Both the technical conjunction and applicable authority/panel rules pass; a vote cannot cure absent evidence.
80.4 / p. 124 Bounded claim and publication	Compare the actual decision with credential, registry and all proposed public representations.	Published scope and status exactly match the authorised decision and preserve every material restriction.
80.5 / p. 124 Continuing conformity and change	Audit actual completion, change and status records rather than scheduled dates alone.	The current claim remains fully supported; overdue or invalidated conditions trigger the applicable restriction, suspension or withdrawal.
80.6 / p. 125 Completion boundary	Review the final release dossier and the truthful distinction between prepared text and real implementation.	Only the exact demonstrated and authorised scope is released; incomplete domains remain available for controlled development, not presumed conformity.

Implementation handover: the assigned technical owner supplies the current application schedule, underlying original evidence and scope-limited conclusion. The receiving independent function checks completeness, configuration and actual authority; records disagreement; and accepts only the supported next action. Unavailable evidence or an incomplete domain remains visibly held.

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.

1.1 – Sector and lifecycle coverage

Source: AF-AST-STD-001, page 10.

The programme may cover civil and military aviation; space systems and operations; land, maritime, air, space and associated defense industry; heavy and advanced industry; and vehicles, equipment and services used for defense, aerospace support or space exploration. It encompasses research, design, manufacture, integration, test, supply, operation, maintenance, modification and retirement where a released profile exists. The sector description is a development remit, not an assertion that AF or any assessor possesses every listed capability. Sensitive and hazardous work shall be limited to authorised specialists and lawful evidence arrangements.

Required evidence: Sector and lifecycle scope; released-profile check; authorised access arrangements.

1.2 – Eight-family structure

Source: AF-AST-STD-001, page 10.

The eight families are F01 Management Systems Assurance; F02 Critical Processes and Products; F03 Testing and Inspection; F04 Education Programmes; F05 Airports and Aerodromes; F06 Aircraft Maintenance and Technical Services; F07 Ground Operations and Aviation Support Services; and F08 Carbon, Environment and Climate Assurance. Annex A defines their boundaries and links. Family labels organise scope selection and do not establish certificate types. Individual methods, disciplines, aircraft types, service stations or environmental modules shall not be counted as additional programme families.

Required evidence: Family catalogue; deduplication record; outcome class for each application.

1.3 – Object and responsibility tuple

Source: AF-AST-STD-001, page 10.

Each application shall identify the responsible legal entity, actual performer, object type, family and module, sites and remote functions, configuration or programme version, lifecycle role, applicable period, criticality, profile and exclusions. Products, services, processes, people, supplier scopes, educational programmes, assessment providers and environmental statements are separate objects. A combined dossier may share evidence but shall provide a separate conclusion and status history for each claimed object. Where a duty is outsourced, the record shall identify both the performer and the organisation retaining accountability.

Required evidence: Complete scope tuple; separate requested outcomes; actual-performer map.

1.4 – Group, site and interface limitations

Source: AF-AST-STD-001, page 10.

Group governance evidence may be reused after its relevance and local implementation are demonstrated. It shall not grant unexamined competence to every subsidiary, airport, station, faculty, workshop or laboratory. Scope schedules shall distinguish a headquarters function from operational delivery. An airport outcome does not include independent tenants by default; an MRO outcome does not include its training centre or all internal test methods automatically. Shared premises, a common owner or one purchasing contract shall not erase those boundaries.

Required evidence: Entity/site hierarchy; interface agreements; scope-specific coverage and decisions.

1.5 – Activity-based applicability

Source: AF-AST-STD-001, page 11.

The applicant shall make a reasoned applicability decision for every common and family requirement. Non-applicability requires the actual activity and retained responsibility to be absent, without undermining a claimed outcome. Small size, another certificate, customer nomination or outsourcing alone does not justify exclusion. A provider that changes from distribution to repair, or from laboratory testing to product certification, shall reassess its scope before making the broader claim. Technical reviewers shall approve material exclusions and record the supporting evidence.

Required evidence: Approved applicability matrix; technical rationale; review triggers and version history.

1.6 – Out-of-scope and emerging activities

Source: AF-AST-STD-001, page 11.

Heliports, vertiports, spaceports, specialist air-navigation activities, novel fuels, human spaceflight and restricted defense applications require dedicated criteria and verified technical coverage before activation. Their inclusion in the portfolio does not permit operation under a conventional airport or generic service profile. A request outside the released catalogue may enter a development or expression-of-interest register, not an implied live accreditation route. Airline flight operations remain outside F07 unless a separate profile and lawful delivery arrangement are expressly released.

Required evidence: Development request; scope exclusion; dedicated supplement and release decision.

2.1 – Accreditation and competence

Source: AF-AST-STD-001, page 11.

Accreditation within the current AF framework is an independently decided attestation that a conformity-assessment body is competent, impartial and consistently operated for specified assessment activities. Competence concerns demonstrated ability to perform a defined task and reach valid conclusions, including recognising limitations. A broad sector title, legal registration, quality manual or equipment list does not demonstrate competence. The accredited scope shall identify activity, object or method family, range or conditions, location, resources and limitations sufficient to prevent a misleading interpretation.

Required evidence: Technical competence scope; witnessed performance; independent accreditation decision.

2.2 – Recognition, qualification and certification

Source: AF-AST-STD-001, page 11.

Recognition records that a specified institutional, educational, operational or service capability meets its approved criteria. Qualification records a demonstrated task, process or supply capability under defined conditions. Certification records conformity of a stated product, service, process, system or person to specified requirements. The relevant record shall name the result actually reached. None of these labels is interchangeable with accreditation of the body producing the result, membership, attendance, an award, a professional licence or a public operating permission.

Required evidence: Outcome classification; exact criterion set; approved statement and limitations.

2.3 – Verification and validation

Source: AF-AST-STD-001, page 11.

Verification of a statement examines whether its historical information and assertions are supported for the declared boundary and period. Validation examines the reasonableness of assumptions, methods and prospective claims for an intended future use; it does not establish that a forecast will occur. Laboratory method validation is a separate technical activity demonstrating method fitness. The engagement shall state which meaning applies. A favourable review of a transition plan shall not be published as an achieved emissions reduction, and an accredited verifier is not automatically the holder of a verified environmental claim.

Required evidence: Engagement objective; statement identity; historical/prospective classification; bounded conclusion.

2.4 – Programme name and public designations

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

AF ASTRA may be described as an accreditation and assurance programme. An individual outcome shall use its precise class from Annex A. Under the present protected AF instruments, educational and operational applicants use the relevant programme or capability recognition route unless an expressly adopted higher-instrument change permits a different qualified designation. The programme name shall not be abbreviated in a way that implies every participant is accredited. No certificate or registry flag shall apply an expanded accreditation title merely because it appeared in an earlier planning heading.

Required evidence: Permitted-claims register; terminology clearance; applicable authorisation for any changed title.

2.5 – Evidence, witnessing and technical profile

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

Evidence is information capable of competent verification and relevant to a stated condition. Witnessing is attributable observation of representative work under known conditions, including necessary setup, execution and conclusion. A technical profile is a controlled definition of the object, intended use, requirements, methods, acceptance rules, limitations and continuing controls. A curated presentation is not equivalent to an end-to-end witness unless its representativeness is justified. Hashes, signatures, video and artificial-intelligence summaries can support integrity or access but do not prove that the original observation is correct.

Required evidence: Profile; evidence-purpose links; witness identity and limitations; provenance records.

2.6 – Requirement status and uncertainty

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

Requirement conclusions shall distinguish conforming, nonconforming, approved non-applicability and not yet demonstrated. Evidence status shall separately distinguish planned, received, reviewed, accepted for a purpose, rejected, superseded and unavailable. An indeterminate measurement or inaccessible essential record shall not be changed to non-applicable merely to close a checklist. Confidence in a model, coverage of an uncertainty interval, probability of detection and percentage of completed checklist rows are different quantities and shall not be reported as interchangeable assurance scores.

Required evidence: Controlled status dictionary; recorded transitions; uncertainty and decision interpretation.

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.

10.5 – Remote access and live evidence

Source: AF-AST-STD-001, page 21.

Before remote assessment, verify identity, connection security, permissions, camera or sensor adequacy, observation continuity and independent selection of evidence. Record interruptions, inaccessible areas and substitutions. Prerecorded material shall be identified and shall not be represented as live observation. Where physical or practical capability cannot be established remotely, arrange on-site or appropriately controlled witnessed work. Remote convenience shall not reduce scope coverage, time, competence or critical observation.

Required evidence: Remote suitability review; consent/access; live-session record; supplementary coverage.

11.3 – Existing evidence and reuse

Source: AF-AST-STD-001, page 22.

Review prior reports, approvals and certificates for authenticity, issuer competence, actual method, site, period, conditions and configuration. Identify precisely which requirement and decision use they support and what remains to be evaluated. Include adverse results and restrictions. Another outcome shall not be declared equivalent solely from a similar title or scope label. Evidence reuse may reduce repeated document requests but cannot remove necessary local implementation, witnessing or independent decision.

Required evidence: Reuse matrix; authenticity/scope checks; residual gaps; controlled access to original evidence.

12.1 – Planning from scope and consequence

Source: AF-AST-STD-001, page 23.

The plan shall begin with the requested object and requirement set, not a fixed commercial duration. Identify legal entities, technical methods, actual performers, sites, shifts, programme delivery modes, configurations, prior findings, changes and critical interfaces. Select representative routine and adverse work and assign specialists for every material domain. Define

what evidence can support each conclusion and where sampling cannot establish the full claim.

Required evidence: Approved scope-led plan; coverage matrix; technical assignments; sample rationale.

12.2 – Sites and stations

Source: AF-AST-STD-001, page 23.

For initial and renewal operational-capability or CAB scopes, establish direct evidence at every included operating site, station or delivery location. Common governance evidence can be shared but local capability shall be demonstrated. Use physical visits where necessary work cannot be validly observed remotely. Surveillance sampling of genuinely homogeneous low-consequence activities requires an approved profile, justified eligibility, rotation and expansion triggers; no generic headquarters sample grants all stations. AF 9100 organisational cases retain the specific site rules of that standard.

Required evidence: Site-by-activity coverage; remote/on-site rationale; rotation and ineligible-site controls.

12.3 – Method-family witnessing

Source: AF-AST-STD-001, page 23.

Group methods only when common principles, equipment, competence, ranges and failure mechanisms justify representativeness. Witness each distinct method or capability family, including material extremes and high-consequence tasks. A single demonstration shall not cover unrelated techniques merely because one employee performs them. Include the whole relevant task from preparation and identity through data interpretation and reporting. Map any unobserved part to valid supplementary evidence or exclude it from the granted scope.

Required evidence: Witnessing plan; family grouping rationale; observed limits; supplementary evidence.

12.4 – Time and productive work

Source: AF-AST-STD-001, page 24.

Use an activity-based work breakdown for non-organisational assessments, with necessary preparation, observation, data review, sites, shifts and rework. One evaluator-day is eight productive evaluation hours. Travel, breaks, sales, report preparation, translation delay and independent review/decision are separate resources. Do not count a trainee as a fully productive assessor or double-count two observers performing the same task without distinct technical work. AF 9100 organisational time remains governed by its Annex AC. Annex F provides a planning method and examples, not universal technical durations.

Required evidence: Task/time matrix; separate resources; actual productive time; approved additions.

12.5 – Multifamily coordination

Source: AF-AST-STD-001, page 24.

Coordinate visits and common evidence requests when the same applicant uses several families. Preserve each profile, specialist, finding impact, review and outcome. Record which shared control was evaluated, for what scope and by whom. Calculate any efficiency from demonstrably shared work rather than an arbitrary bundled discount on necessary technical observation. A finding in a common control shall trigger review of every dependent outcome, with restrictions limited only where unaffected scope is independently established.

Required evidence: Integrated schedule; shared-work allocation; separate conclusions; cross-scope finding impact.

12.6 – Plan approval and changes

Source: AF-AST-STD-001, page 24.

The lead and competent technical reviewer shall accept the plan before execution. Inform the applicant of scope, access, timing, witnesses and safety arrangements without allowing selective favourable evidence. Changes during work shall retain the original plan, reason, impact and approved replacement. Where capability, access or time is inadequate, add work, restrict the request or defer the conclusion. A report shall disclose actual coverage rather than reproduce the planned coverage as though it occurred.

Required evidence: Plan approval; applicant notice; deviations; completed-versus-planned coverage.

13.3 – Witness control

Source: AF-AST-STD-001, page 25.

Record the actual task, date, site, equipment, software, personnel, conditions, method version and acceptance basis. Observe essential steps directly where required and prevent coached performance from being misrepresented as routine independent work. Controlled simulation is acceptable only where the profile justifies its fidelity and restrictions. Live work shall not be made unsafe to create a demonstration. A missing essential observation requires supplementary evidence, reassessment or restricted scope, not a presumed pass.

Required evidence: Witness log; essential steps; simulation validity; unobserved-step disposition.

14.1 – Finding formulation and classification

Source: AF-AST-STD-001, page 25.

A finding shall identify the exact requirement and version, objective evidence, gap, affected object/site/period and classification rationale. Use critical, major, minor and observation categories as defined in Annex G. An observation is not a substitute for a demonstrated failure. Several local failures may together establish systemic breakdown. Determine technical containment separately from administrative grade so that an immediate hazard is not delayed by debate over wording.

Required evidence: Requirement–evidence–gap record; classification; extent and protective decision.

14.2 – Immediate protection and notifications

Source: AF-AST-STD-001, page 25.

Upon a credible critical concern, the responsible organisation shall protect people and affected work immediately, preserve evidence and notify required recipients. A holder shall notify its operator within 24 hours of awareness; earlier applicable duties remain. On a substantiated critical concern, the operator shall suspend the affected status or impose an effective evaluated restriction within 24 hours. An independent duty function with a pre-existing mandate may act urgently, followed by prompt independent review.

Required evidence: Awareness and action times; containment; notification/acknowledgement; status decision.

14.3 – Occurrence, escape and systemic extent

Source: AF-AST-STD-001, page 26.

The organisation shall determine why the problem occurred and why existing controls did not prevent or detect it. Identify affected and potentially affected outputs, sites, learners, reports, suppliers and configurations, including those already delivered. Test causal explanations with evidence. Training, a revised procedure or blaming an operator alone is not sufficient where workflow, capacity, interface, equipment or management conditions contributed. Preserve rejected hypotheses and material uncertainty.

Required evidence: Population trace; tested causes; occurrence/escape controls; systemic review.

14.4 – Plans, closure and effectiveness

Source: AF-AST-STD-001, page 26.

Submit a corrective-action plan within 30 calendar days of finding notification. Verify major closure within 60 days and minor closure within 90 days, while immediate protection remains separate. Define effectiveness criteria and observation exposure before closing. Review changes for unintended effects. A new finding number, changed owner, amended report or rescheduled plan shall not restart the original clock. Missed deadlines trigger the affected status action in Annex H, not an automatic extension.

Required evidence: Accepted plan; original due dates; implementation and effectiveness evidence; verified closure.

14.5 – Existing status and new grants

Source: AF-AST-STD-001, page 26.

Initial grants, renewals and extensions require closure of every in-scope nonconformity. An existing status may continue with a local minor only after adequate protection, reviewed cause and extent, accepted plan and a reasoned independent conclusion that essential controls remain intact. A major compromising ongoing conformity requires suspension, unless an independently demonstrated unaffected scope can be restricted. A future promise of correction is not present

competence.

Required evidence: Independent continuation/restriction rationale; closed findings for grant; current protection.

15.1 – Review dossier

Source: AF-AST-STD-001, page 26.

The independent reviewer shall examine the exact scope and profile, lawful authority, assessor competence, conflicts, coverage, method validity, evidence, uncertainty, findings, corrections, limitations and proposed claim. All essential records shall be accessible through authorised means. Return incomplete or inconsistent files for correction rather than infer missing results. Evidence reuse shall remain traceable to its original scope and limitations. The reviewed dossier shall be versioned so that the decision can later be reconstructed.

Required evidence: Independent review checklist; versioned dossier; unresolved issues and returned files.

15.2 – Positive-decision gate

Source: AF-AST-STD-001, page 27.

A positive grant, renewal or extension requires valid scope, all applicable criteria fulfilled, adequate evidence, closed in-scope nonconformities, sufficient independent competence and actual authority. Required operating and mark permissions shall be effective before the associated claim is used. This is a conjunction of conditions, not a weighted score. A genuinely bounded unaffected scope may be granted only after independent evaluation; it shall not conceal a systemic deficiency or imply success in the refused scope.

Required evidence: Completed gate; exact granted/refused boundary; authority and permission checks.

15.3 – Panel and dissent

Source: AF-AST-STD-001, page 27.

Apply the three-member accreditation panel rule in Clause 3.4. Members shall receive adequate records and competent technical support and shall not delegate votes. Record attendance, conflicts, affirmative/adverse votes, abstentions, reasons and technical dissent. A two-to-one outcome is possible only when every mandatory gate is substantiated; unresolved essential technical uncertainty requires hold or further work. The chair has no casting vote that can replace absent technical evidence or an ineligible member.

Required evidence: Panel record; all-member participation; technical dissent resolution; actual decision.

16.1 – Duration and basis

Source: AF-AST-STD-001, page 27.

Ongoing ASTRA recognition, qualification, certification or CAB accreditation under this common framework shall have a maximum 24-month period from the independent conformity decision, subject to a shorter profile interval and continued fulfilment. AF 9100 cases retain their controlling provisions. An instance result identifies its lot, serial, event, test or historical statement and does not acquire a universal two-year technical validity. Credential duration never extends an equipment life limit, calibration, statutory authorisation or qualified process window.

Required evidence: Ongoing/instance classification; exact dates; linked technical limits.

16.2 – Surveillance frequency and coverage

Source: AF-AST-STD-001, page 28.

Complete ongoing surveillance at intervals no greater than 12 months, reduced to six months for high-consequence, materially novel or significant competence/integrity exposure. Apply the AF 9100 C0–C3 rules when that standard is used. Mixed scopes follow the shortest triggered interval unless genuinely separated. Reassess actual operation, technical witnessing, changes, adverse results and controls; a document check or booked visit alone is not completed surveillance. Missing required completion triggers affected suspension.

Required evidence: Risk-based timetable; completed technical coverage; changed-scope review; overdue action.

16.3 – Material change and notification

Source: AF-AST-STD-001, page 28.

Planned changes shall be notified early enough for required prior review and before using an expanded claim. Unplanned non-critical material changes shall be notified within five calendar days after awareness; critical concerns follow the 24-hour rule. Evaluate ownership, responsible entity, location, methods, key personnel, digital platforms, aircraft/task capability, educational delivery and environmental boundaries. An unchanged commercial name shall not conceal a different technical basis.

Required evidence: Change notification; impact; prior approval; updated scope and evidence.

16.4 – Renewal and interruption

Source: AF-AST-STD-001, page 28.

Plan renewal sufficiently early to complete evaluation, closure, independent review and decision before expiry; initiation at least 90 days beforehand is recommended, not a guarantee. If the renewal decision occurs after expiry, a visible gap remains and the new status starts no earlier than the actual decision. Relevant prior work may inform the review but not substitute for current demonstrated capability. No payment or appeal automatically extends validity.

Required evidence: Renewal plan; current evidence; closed findings; actual dates and disclosed gap.

19.12 – Technical witnessing for accreditation

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

The accrediting team shall witness representative activities for every distinct method family or inspection capability and examine a complete application-to-report trail. Include adverse work, authorised sign-off, uncertainty, outsourced results and subsequent controls. Similar-method grouping requires a written technical rationale. An organisational audit with no relevant technical observation is not a completed laboratory or inspection competence evaluation. The final scope shall match the actual demonstrated capability, locations and limitations.

Required evidence: Witness coverage; complete case trail; independent scope review; accreditation decision.

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.

21.1 – Aerodrome scope and operating basis

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

Record the legal operator, airport or aerodrome, boundaries, runways, terminals, operating characteristics, permissions, shared responsibilities and outsourced services. Establish the actual infrastructure and operational basis with controlled limitations and current information. Group-level governance shall not replace site capability. Heliports, vertiports, spaceports and mixed civil/military interfaces need dedicated supplements and competent authority review before an ASTRA claim includes them.

Required evidence: Aerodrome scope; permissions; infrastructure/operating baseline; separately gated supplements.

21.2 – Safety management and change

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

Identify airport hazards, operational changes, occurrences and interfaces using a functioning safety process with accountable decisions and follow-through. Include construction, new aircraft or equipment, traffic patterns, staff changes, temporary works, contractors and abnormal weather. Assess cumulative and interface effects before use. Staff and providers shall have an accessible reporting and stop/escalation route. Absence of reported incidents shall not be treated as proof that risks are controlled.

Required evidence: Safety/change records; occurrence learning; interface risk; verified mitigations.

21.3 – Airside condition and operational information

Source: AF-AST-STD-001, page 36.

Maintain inspection and defect-management controls for movement areas, pavements, markings, signs, lighting, surface condition, foreign objects, wildlife interfaces and obstacles within responsibility. Link inspection results to timely operational information, restrictions, repair and verified restoration. Day, night and adverse-condition capability shall be evaluated when included in the scope. Technical limits and notification duties belong to the approved airport-specific basis; this core supplies no universal runway dimensions or response thresholds.

Required evidence: Airside inspections; defects/restrictions; notices; restored condition and task coverage.

21.4 – Emergency readiness and coordinated response

Source: AF-AST-STD-001, page 36.

Maintain a coordinated emergency plan with actual responsible services, communications, access, equipment, competence, exercises and corrective follow-up. Evaluate the interfaces for rescue, fire, medical support, disruption, severe weather and continuity within the operator's scope. Safe exercises shall demonstrate coordination and known limitations; a signed agreement alone does not prove availability. An ASTRA assessor shall not direct live tactical response or assume public emergency authority.

Required evidence: Emergency agreements; availability/competence; exercises; deficiencies and verified action.

21.5 – Passenger, terminal and baggage services

Source: AF-AST-STD-001, page 36.

Control passenger information, accessibility assistance, flows, baggage interfaces, service recovery, sanitation, public areas and relevant contractor performance. Define service measures with time windows, populations and exclusions, while preserving safety priorities. Assess delivery during peak and disrupted conditions rather than only quiet periods. A

terminal contractor's failure shall be evaluated against both its responsibility and the airport's retained interface controls.

Required evidence: Service definition; actual performance; accessibility; contractor interface and recovery evidence.

21.6 – Security, digital systems and utilities

Source: AF-AST-STD-001, page 36.

Evaluate authorised access governance, supplier interfaces, sensitive information, operational technology, essential utilities, cyber resilience and recovery. Verify that critical service changes do not create uncontrolled operational dependencies. Protect tactical security information through competent authorised review. A cyber or access-system certificate for another scope shall not prove the airport's actual deployment. Restored digital availability requires integrity and operational acceptance before dependent use.

Required evidence: Access/utility responsibilities; digital baseline; recovery/integrity tests; authorised review.

21.7 – Tenants, construction and common interfaces

Source: AF-AST-STD-001, page 36.

Assign responsibilities with handlers, fuel providers, airlines, maintenance organisations, cargo operators, navigation support and construction contractors. Shared controls shall state ownership, handovers, notification, monitoring and escalation. Track construction handover and temporary restrictions before operational use. Each independently claimed provider capability retains its own assessment and scope. Annex K supports interface records; a common landlord relationship does not merge technical authorisation or liability.

Required evidence: Interface register; handovers; construction acceptance; independently scoped provider evidence.

21.8 – Environmental integration and continuing capability

Source: AF-AST-STD-001, page 36.

Meet applicable local environmental controls within the airport capability scope. Enhanced carbon inventories, reductions, resilience and supply claims shall use the selected F08 module and its own boundary. Maintain surveillance of actual airport functions, material changes, significant incidents and corrective effectiveness. Publish only the named aerodrome, responsible operator, evaluated functions and limitations. No claim shall imply that all flights using the airport share its environmental outcome.

Required evidence: Environmental interface; F08 statement linkage; site surveillance; accurate scope statement.

22.1 – Capability list and technical boundaries

Source: AF-AST-STD-001, page 37.

The scope shall identify legal entity, facility or line station, aircraft/engine/APU/component family, maintenance task, limitations and release interfaces. Distinguish line, base, engine/APU, component, structures/cabin/modification embodiment, technical asset support and storage/end-of-life work. A brand-wide claim shall not replace the actual capability list. New capability requires verified data, people, tooling, facilities, parts and acceptance arrangements before work is accepted within the claimed scope.

Required evidence: Facility/type/task matrix; actual permissions; new-capability readiness and limitations.

22.2 – Current data and maintenance planning

Source: AF-AST-STD-001, page 37.

Use current applicable technical data and actual item configuration, history, life limits and work scope. Work packages shall identify task sequence, hold points, inspection independence, resources, customer inputs, repair approvals and completion evidence. Resolve ambiguous or missing instructions before dependent work. Embodying an approved modification does not confer design approval; engineering advice and continuing-airworthiness support shall be scoped separately from hands-on maintenance.

Required evidence: Current-data verification; work package; design/support interface; resolved instructions.

22.3 – People, fatigue and task authorisation

Source: AF-AST-STD-001, page 37.

Verify competence and actual task authority for certifying staff, technicians, inspectors, planners, contractors and temporary personnel. Assess fatigue, workload, supervision, shift transitions, communication, interruptions and repeated error conditions. Staff shall recognise tasks outside their authorisation and escalate without production pressure. An ASTRA personnel credential is not a statutory maintenance licence or the employer's release authorisation. Independent checks shall be genuinely independent of the relevant performed work.

Required evidence: Role/task authorisations; human-factor controls; handovers; independent checks.

22.4 – Tools, parts and life status

Source: AF-AST-STD-001, page 37.

Control tool availability, calibration, equipment configuration, parts authenticity, eligibility, storage, shelf life and life-limited histories. Reconcile removed and installed components and temporary devices. Missing life history or an unverified certificate shall trigger a technical hold, not a presumed life reset. External test results, NDT and special-process records shall connect to the actual item and task and use the relevant F03/F02 competence evidence.

Required evidence: Tool/part records; life status; remove/install trace; linked technical-method evidence.

22.5 – Execution, errors and interrupted work

Source: AF-AST-STD-001, page 37.

Capture attributable task completion, measurements, inspection results, deviations and authorised dispositions. Mark unfinished work and control handover, access, tool inventory and restoration of protective features. After an error or interruption, determine affected tasks and independent verification needs before continuation. A signature shall not be added later to make an unobserved task appear contemporaneously completed. Rework and repeat tests shall retain the original failure and changed configuration.

Required evidence: Task records; interruption/handover; error disposition; repeat evidence and configuration.

22.6 – Release and customer handover

Source: AF-AST-STD-001, page 38.

Before release, verify completed requirements, approved repairs/deviations, required independent checks, final configuration, restored protections, life status and remaining limitations. The actual authorised person shall issue the appropriate release and customer information within their privileges. ASTRA capability recognition shall not be used as a replacement maintenance release. Receiving parties shall obtain records necessary for safe continued support, with acknowledgement where required.

Required evidence: Final review; actual release authority; maintenance result; handover and restrictions.

22.7 – Technical asset support and continuity

Source: AF-AST-STD-001, page 38.

Planning, reliability analysis, fleet/lease transitions, records review and aircraft-on-ground support shall state advisory responsibility, data quality, turnaround objectives and escalation. Advice affecting safety or configuration shall be technically reviewed and recorded. Remote advice shall verify asset identity, conditions and authority. A restored support portal or commercially expedited part shall not close missing technical eligibility or life evidence. Preserve support records during source or operator changes.

Required evidence: Service profile; reviewed advice; data quality; AOG/transition and continuity records.

22.8 – Storage, dismantling and end of life

Source: AF-AST-STD-001, page 38.

Define preservation, periodic checks, environmental constraints and return-to-service evidence for stored articles. Controlled dismantling shall preserve component identity and determine eligibility from actual history and approved processes, not appearance alone. Prevent scrap and restricted items from re-entering service. Address hazardous inventories, confidential data, records, material recovery and continuing obligations. A successful bench test does not automatically make a removed part serviceable for every installation.

Required evidence: Preservation plan; condition/history; dismantling trace; disposition and record handover.

23.1 – Provider, station and service definition

Source: AF-AST-STD-001, page 38.

The applicant shall identify headquarters, legal entities, stations, service tracks, actual tasks, equipment, contracted responsibilities and subcontractors. Each included station shall demonstrate local implementation, trained staff, usable instructions, equipment suitability and interface competence. Common manuals may be reused only with a verified local-variation record. An FBO or digital-platform package shall not conceal the organisations actually performing underlying services.

Required evidence: Provider/station register; task scope; local variations; actual-performer interfaces.

23.2 – G01 – Handling and turnaround

Source: AF-AST-STD-001, page 38.

For declared passenger, baggage, accessibility, ramp, load-control, aircraft-movement or de-/anti-icing interfaces, define responsibilities, competent roles, equipment compatibility, handovers, hold points and exception reporting. Verify representative work safely and include peak, disrupted and shift-change conditions. Technical operating limits shall come from current applicable data. This programme does not provide pushback, loading or de-icing recipes and does not confer aircrew operational authority.

Required evidence: Turnaround/service plan; training/authorisations; representative records; discrepancies and handovers.

23.3 – G02 – Cargo, mail and specialist logistics

Source: AF-AST-STD-001, page 39.

Control shipment acceptance, identification, security interfaces, custody, storage, build-up/breakdown, special handling, temperature/time constraints and release. Dangerous-goods tasks require verified role competence and actual permissions. Monitor custody and environmental excursions through subcontractors and transfers. A logistics certification shall not validate unknown contents or authorise a prohibited shipment. Corrective action shall identify affected consignments and downstream recipients.

Required evidence: Cargo scope; acceptance/custody; special handling; excursion/recipient trace.

23.4 – G03 – Fuel and energy services

Source: AF-AST-STD-001, page 39.

Define storage, source verification, quality control, transfer, delivery and aircraft/ground interface responsibilities for each declared fuel or energy service. Control contamination, identity, sampling, equipment, staff competence and abnormal conditions through approved technical procedures. Record supplied quantity, source and relevant batch or transaction links. Emerging fuels, electrical architectures or hydrogen-related services require separate capability and safety supplements; conventional fuel scope does not establish competence for them.

Required evidence: Service/product identity; traceable quality controls; equipment/personnel; separate novel-energy approval.

23.5 – G04 – Ground equipment and technical facilities

Source: AF-AST-STD-001, page 39.

Define the maintenance and operational support scope for ground equipment, charging, bridges, baggage systems, technical utilities and related assets. Demonstrate compatibility with supported aircraft and tasks, inspection, planned maintenance, protective functions, isolation governance and competent release. Temporary repairs and bypasses require bounded technical approval and restoration. Digital monitoring shall be validated for the failure mechanism and shall not replace mandatory physical checks without an approved basis.

Required evidence: Asset/task capability; compatibility; maintenance and protection checks; controlled temporary conditions.

23.6 – G05 – Catering, cabin and sanitation

Source: AF-AST-STD-001, page 39.

Control catering integrity, cleaning, water/lavatory services, cabin supplies and hygienic handling within the declared tasks. Establish appropriate contamination prevention, segregation, temperature/time control where relevant, chemical suitability, equipment condition and traceable delivery. Staff shall understand cross-contamination and aircraft compatibility. A general quality system shall not substitute for task-specific food, water or sanitation obligations and

incident response.

Required evidence: Service boundaries; hygiene and compatibility controls; delivery trace; incident and corrective records.

23.7 – G06 – FBO and business-aviation support

Source: AF-AST-STD-001, page 39.

Describe the actual fixed-base service package, including passenger/crew support, parking and handling coordination, property care, communications and dependencies. Underlying G01–G05 activities shall be evaluated for their own scopes where claimed. A coordinator shall verify provider capability and handovers and shall not claim direct performance of services it only arranges. Confidentiality, accessible service, emergency communication and disruptions shall be addressed.

Required evidence: FBO package; direct/arranged distinction; qualified dependencies; handover and recovery.

23.8 – G07 – Flight and air-navigation support

Source: AF-AST-STD-001, page 39.

Dispatch/flight-support, communications, navigation, surveillance and meteorological services shall each have a dedicated competence and permissions profile. Define data origin, timeliness, integrity, operational authority, validation, change control, fallbacks and coordination. Verify exact service boundaries and prevent advice from being presented as a public air-navigation or airline operating approval. Necessary specialist technical criteria shall be completed before the relevant service is admitted.

Required evidence: Specialist profile; data/authority chain; actual permissions; fallback and coordination evidence.

23.9 – G08 – Digital and operational systems

Source: AF-AST-STD-001, page 40.

Define software/services, users, interfaces, configuration, performance, cybersecurity, data ownership, external platforms and operational dependencies. Validate actual delivery and safe fallback when data are wrong, late or absent, not only when the application is available. Control updates, AI-assisted decisions, access, recovery and service termination. A platform result shall not grant competence to all integrated service providers or certify every output generated by the software.

Required evidence: Digital service profile; outcome tests; security/recovery; provider and update boundaries.

23.10 – G09 – Specialist security services

Source: AF-AST-STD-001, page 40.

Evaluate provider identity, authorised activities, staff suitability where lawfully required, competence, training, controlled information, equipment suitability and operational interfaces. Evidence access shall be restricted to authorised reviewers with sufficient technical understanding. Do not publish sensitive tactical methods or transfer public security powers through an ASTRA credential. An inaccessible essential capability shall be excluded or held rather than accepted from an unsupported statement.

Required evidence: Authorised scope; role competence; protected performance evidence; exact claim limits.

23.11 – Local variation and continuing network control

Source: AF-AST-STD-001, page 40.

Station variations shall identify customer data, infrastructure, language, equipment, staffing, climate, operating hours and local obligations affecting service. Monitor incident, delay, damage, complaint and control-performance information with defined denominators. Systemic headquarters failures require review across dependent stations; a local failure requires justified extent analysis, not automatic concealment by deleting that station. Additions and material changes require demonstrated capability before claim extension.

Required evidence: Local-variation file; network indicators; systemic/local extent; new-station decision.

24.1 – Engagement and statement boundary

Source: AF-AST-STD-001, page 40.

Identify the responsible entity, assets/sites, reporting period, intended users, statement, methodology, criteria and required form of assurance. Separate capability evaluation from statement verification and prospective validation.

Approve the boundary, exclusions, materiality approach, data access and reporting conditions before evaluation. An airport operator's inventory is not automatically the inventory of every aircraft, tenant or service provider connected to it.

Required evidence: Engagement record; exact statement; boundary and period; agreed assurance objective.

24.2 – C01 – Inventory and data

Source: AF-AST-STD-001, page 40.

Identify direct emissions, purchased-energy emissions and relevant value-chain categories with consistent CO₂-equivalent treatment where applicable. Retain activity data, factors, units, versions, allocation, estimates, gaps and uncertainty. Explain excluded categories and shared sources. Trace material figures to actual meters, transactions or justified estimation models. A factor supplied for another geography, fuel, year or lifecycle boundary shall not be adopted without a suitability review.

Required evidence: Inventory model; activity/factor evidence; category and boundary rationale; data-quality assessment.

24.3 – C02 – Reduction and transition

Source: AF-AST-STD-001, page 41.

Verify historical reductions against a controlled comparable baseline and disclose structural changes, method changes, output mix and recalculation. Separate absolute and intensity changes and distinguish operational reduction from removal, compensation and avoided emissions. A future transition plan shall state assumptions, milestones, finance/resource dependencies, uncertainties and monitoring. Validation of that plan is not verification of achieved reduction and shall not be labelled as a net-zero achievement.

Required evidence: Baseline/recalculation; comparable actual results; transition assumptions; separate conclusion types.

24.4 – C03 – Energy and circular resources

Source: AF-AST-STD-001, page 41.

Define energy, water, waste, hazardous-material, repair, reuse and recovery indicators with boundaries, denominators and measurement methods. Track material flows and avoid counting internal recirculation repeatedly as new recovered output. Evaluate environmental improvements alongside product eligibility, life history, safety and contamination. A recycled-content or recovery percentage does not establish fitness of a critical part for reuse. Statements shall identify technical and environmental limitations separately.

Required evidence: Resource flow; measurement basis; repair/reuse eligibility; bounded environmental statements.

24.5 – C04 – Local environment

Source: AF-AST-STD-001, page 41.

Evaluate local air, noise, discharges, spills and biodiversity interfaces using appropriate location, baseline, sampling and approved methods. Address seasonal/operational variability, receptors, source attribution and uncertainty where relevant. A reduction in one metric shall not conceal an increased material effect elsewhere. Operational controls and incident response shall remain active irrespective of a favourable inventory. Specialist permissions and technical criteria shall be established for each claimed local-environment conclusion.

Required evidence: Local methods; sampling and receptors; baseline/uncertainty; operational controls and incidents.

24.6 – C05 – Climate resilience

Source: AF-AST-STD-001, page 41.

Assess relevant heat, flood, storm, wildfire, water-stress or other physical-risk scenarios across asset life and service dependencies. Explain scenario choice, time horizon, vulnerabilities, uncertainty and adaptation decisions. Exercise continuity and verify critical protective measures against the stated basis. A scenario study is not proof that an asset will survive every future climate condition. Update assumptions after material evidence or infrastructure change.

Required evidence: Scenario/vulnerability assessment; adaptation decisions; exercises; limits and review triggers.

24.7 – C06 – Low-carbon energy and supply claims

Source: AF-AST-STD-001, page 41.

Trace fuel or energy provenance, chain of custody, transfers, conversion, allocation and contractual attributes. Distinguish physically delivered material from a separated contractual attribute. Check ownership, eligibility, retirement or cancellation where relevant and prevent duplicate allocation of an exclusive claim. A purchased credit or fuel invoice alone does not prove that the complete service is zero-emission. Publish the actual mechanism and limits of the claim.

Required evidence: Custody/attribute ledger; eligibility and allocation; exclusive-claim checks; transparent statement.

24.8 – Materiality and assurance planning

Source: AF-AST-STD-001, page 41.

Set quantitative and qualitative materiality for the intended users, statement and consequences before substantive work. Plan evidence accordingly and consider aggregation, bias, omissions and fraud indicators. There is no universal five-percent materiality or assurance percentage in this standard. Materiality does not authorise knowingly false reporting, omitted mandatory categories or ignoring a significant qualitative issue. Reasonable and limited assurance engagements shall have separately defined work and appropriately worded conclusions.

Required evidence: Materiality rationale; assurance level; strategic and evidence plan; aggregated/qualitative issues.

24.9 – Verification execution and independent conclusion

Source: AF-AST-STD-001, page 42.

Evaluate data controls and substantive evidence, challenge estimates, reconcile interfaces and sample material categories. Preserve identified misstatements and corrections with the original statement. The independent reviewer shall confirm sufficiency for the agreed assurance form. If residual misstatement or missing evidence prevents a supportable conclusion, require correction, qualify the conclusion within permitted rules, or decline it; do not issue an unqualified favourable statement to meet a reporting deadline.

Required evidence: Verification trail; misstatement register; revised statement; independent conclusion and limitations.

24.10 – Overlap, claims and continuing change

Source: AF-AST-STD-001, page 42.

Overlapping direct and value-chain inventories of different entities are not automatically erroneous, but portfolio aggregation and exclusive reduction claims shall avoid inappropriate double counting. Report gross quantities, reductions, removals and compensation separately. Later evidence invalidating a historical statement requires correction and recipient communication; an instance statement does not require an invented continuing validity period. Capability status follows its separate surveillance and change controls.

Required evidence: Overlap/aggregation analysis; separate totals; claim approval; historical correction and capability status.

26.4 – Remote, space and long-duration operation

Source: AF-AST-STD-001, page 44.

For inaccessible, in-space or delayed-communication work, establish evidence acquisition, identity, configuration, time basis, telemetry validity, data loss, permitted remote actions and safe fallback. Explain what is directly observed, inferred or unknown. Independent review shall use appropriately authorised experts and retained records. No space suitability or completed end-of-life action shall be claimed from an unverified signal or terrestrial analogy alone. Mission-specific technical profiles remain prerequisites.

Required evidence: Remote assurance plan; telemetry provenance; inference limits; mission profile and decisions.

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.

41.2 – Integrated route and hidden characteristics

Source: AF-AST-STD-001, page 62.

The production route shall identify every process stage, branch, handover and external performer that can affect a required characteristic. Essential variables shall include relevant preparation and downstream treatment, not only the main machine cycle. Qualification shall cover representative materials, geometry, equipment, software, personnel and environmental conditions. Final inspection shall not be assumed capable of detecting all latent process defects. The route shall preserve failed runs, rework and technical restrictions through product acceptance.

Required evidence: Route and dependency map; qualification matrix; essential variables; hidden-property rationale; original run history.

49.1 – Exact capability before accepting work

Source: AF-AST-STD-001, page 72.

The maintenance organisation shall define the facility or station, aircraft, engine, component or asset family, actual tasks and limitations. New capability shall be demonstrated through current technical data, competent authorised people, suitable tools, parts, facilities, inspection and release arrangements. An organisation-wide result shall not cover an unassessed station or task. Advisory technical support, design work, training and laboratory testing shall retain their separate scope and evidence requirements.

Required evidence: Facility/type/task capability; new-capability dossier; actual permissions; separate service boundaries.

49.2 – Work planning from the actual asset

Source: AF-AST-STD-001, page 73.

Work packages shall be based on verified identity, configuration, history, applicable life limits and current authorised technical data. They shall identify task sequence, inspection independence, required measurements, parts, hold points and completion evidence. Ambiguous instructions or incomplete history shall be resolved or explicitly held before dependent use. A generic maintenance schedule or a commercially urgent request shall not replace an asset-specific technical and release basis.

Required evidence: Asset baseline; current-data check; task and hold-point plan; resolved-history and instruction gaps.

49.3 – Execution, interruptions and human factors

Source: AF-AST-STD-001, page 73.

The organisation shall record contemporaneous task performance, actual observations, deviations, rework and independent checks. Interrupted work and shift handovers shall retain unfinished conditions, removed protections, tools, parts and next actions. Fatigue, workload and communication shall be addressed in the actual work design. A later signature shall not make an unobserved step contemporaneous. Repeated tests shall retain earlier failures and changed configurations so that the final reviewer can reconstruct the actual work.

Required evidence: Attributable task records; interruption and handover log; independent checks; original and repeated evidence.

49.4 – Parts eligibility and life history

Source: AF-AST-STD-001, page 73.

Removed and installed parts shall retain origin, condition, life status, prior repair and configuration links. Missing history shall not be reset or inferred from a successful bench test. Parts recovered from storage or dismantling shall undergo the applicable eligibility process. Unserviceable and scrap items shall be controlled against unauthorised re-entry. External process or NDT evidence shall match the actual item, method, site and period on which the maintenance decision relies.

Required evidence: Removal/installation genealogy; eligibility review; life and repair record; linked process/test evidence; scrap controls.

49.5 – Release, restrictions and receiving information

Source: AF-AST-STD-001, page 73.

Final review shall verify completed requirements, independent inspections, authorised repairs or deviations, restored protective features, final configuration and remaining limitations. The authorised release function shall act within actual privileges. ASTRA recognition shall not replace the maintenance release. The receiving party shall obtain information needed for continued operation and support, including restrictions and unresolved duties. An invoice, service-completion percentage or portal status shall not be treated as the technical release instrument.

Required evidence: Final technical review; release authority; actual release record; receiving handover and limitations.

49.6 – Condition monitoring and long-term support

Source: AF-AST-STD-001, page 73.

Reliability analysis, remote diagnosis and predictive maintenance shall use valid data and models with a stated decision boundary. Changes in duty, missing history or insufficient detection shall trigger review. Mandatory inspections and life limits shall not be removed by a favourable trend without the required technical authority. Fleet, lease and provider transitions shall preserve actual configuration and historical restrictions. Support service restoration shall include evidence integrity, not only renewed portal availability.

Required evidence: Validated monitoring and analysis; interval/life decisions; asset transition records; support continuity and integrity checks.

50.1 – Site-specific operating baseline

Source: AF-AST-STD-001, page 74.

The operator shall define the actual site, infrastructure, permissions, operating characteristics, users, relevant conditions and responsibilities. The baseline shall distinguish conventional aerodromes, heliports, vertiports, spaceport interfaces and shared civil/military use. Each materially different activity needs an appropriate technical supplement and competent evaluation before inclusion. Group governance may be shared, but each site's delivery capability shall be demonstrated. The geographic presence of a tenant shall not place its entire operation inside the airport's ASTRA outcome.

Required evidence: Site and activity baseline; permissions; supplement applicability; operator/tenant boundary.

50.2 – Infrastructure condition and usable information

Source: AF-AST-STD-001, page 74.

Inspection and defect management shall connect actual airside, terminal, utility and technical-facility conditions to operational information, restrictions, repair and verified restoration. Relevant operating periods, adverse weather, peak loads and degraded states shall be considered. Current information shall reach the responsible users through controlled interfaces. A completed inspection checklist shall not prove that an observed defect was communicated, protected or corrected. Necessary site-specific technical thresholds belong to the approved operating basis.

Required evidence: Inspections; defect-to-restriction trace; actual notices; repair and restored-condition evidence.

50.3 – Construction and operational change

Source: AF-AST-STD-001, page 74.

Changes involving infrastructure, aircraft or vehicle interfaces, equipment, digital services, energy or operating patterns shall undergo integrated impact review before use. The review shall address temporary conditions, contractors, cumulative effects and interfaces with ongoing operations. Hidden work and protective functions shall be verified before concealment or handover where required. Commercial completion of construction shall be separated from technical acceptance and operational readiness of the receiving site.

Required evidence: Change and temporary-condition review; contractor interfaces; commissioning; receiving operational acceptance.

50.4 – Coordinated emergency and continuity

Source: AF-AST-STD-001, page 74.

The operator shall establish actual arrangements with relevant emergency and continuity providers, including communication, access, equipment, competence and availability. Safe exercises shall test coordinated performance and weaknesses, not only participation. Dependencies on utilities, digital services and specialist providers shall be examined. The ASTRA assessor shall evaluate the evidence of coordination without assuming command of public emergency functions. Unavailable essential response capacity shall remain a limitation in the affected scope.

Required evidence: Emergency/continuity responsibilities; availability; exercises; corrective closure; declared limitations.

50.5 – Passenger, accessibility and service interfaces

Source: AF-AST-STD-001, page 74.

The service system shall define passenger information, accessibility, baggage, public-area condition, sanitation and disruption-recovery duties within the operator's control. Measures shall use stated populations, time windows and exclusions without overriding safety priorities. Evidence shall include actual delivery under peak and disrupted conditions. Outsourced delivery shall retain the actual performer and the operator's coordination duties. A service rating shall not imply assessment of every independently operated airline or contractor.

Required evidence: Service and accessibility commitments; representative delivery records; contractor controls; incident and recovery evidence.

50.6 – Integrated but separate outcomes

Source: AF-AST-STD-001, page 75.

A combined assessment may share identity, governance, selected data and visits after relevance review. It shall retain separate technical profiles, local evidence, competence and independent outcomes for site capability, maintenance, handling and environmental statements. A common utility or data failure shall trigger review of every dependent scope. A favourable environmental result shall not compensate for an operational deficiency, and an airport inventory shall not be presented as the footprint of all flights using the site.

Required evidence: Cross-family evidence map; separate scope decisions; common-failure review; bounded public claims.

51.1 – Headquarters and actual station delivery

Source: AF-AST-STD-001, page 75.

The provider shall identify headquarters controls, legal entities, stations, service tracks, actual performers and local variations. Each included station shall demonstrate suitable people, instructions, equipment, customer interfaces and permissions. Common manuals shall be translated into verified local implementation. A network name, booking platform or coordination contract shall not establish direct capability at every location. New stations and materially different services shall receive the required assessment before expanded claims are used.

Required evidence: Provider/station/service matrix; local-variation records; actual capability; extension decisions.

51.2 – Turnaround and ground handling

Source: AF-AST-STD-001, page 75.

Declared handling tasks shall have current technical data, competent roles, equipment compatibility, handover rules, hold points and exception reporting. Evidence shall represent relevant peak, disrupted and shift-change conditions. The provider shall preserve discrepancies and actual task completion rather than infer completion from an aircraft's departure.

The standard does not supply loading, pushback or de-icing recipes. These operations remain governed by their applicable authorised technical procedures and operational responsibilities.

Required evidence: Task and interface plan; personnel authority; actual representative records; exception and receiving acknowledgements.

51.3 – Cargo, energy and specialist support

Source: AF-AST-STD-001, page 75.

Cargo, mail, fuel, energy, catering, cabin and sanitation services shall maintain the controls appropriate to their actual task. Identity, custody, contamination, time or temperature, equipment condition and release interfaces shall remain traceable. Hazardous or specialist tasks require relevant competence and permissions. A general quality-system result shall not establish every service capability. Environmental excursions and source defects shall be connected to affected consignments, deliveries or aircraft and communicated to responsible recipients.

Required evidence: Exact service scope; custody and condition; specialist authority; affected-delivery and notification records.

51.4 – Flight and navigation-support data

Source: AF-AST-STD-001, page 75.

Specialist support shall define data origin, transformation, units, reference systems, timestamps, timeliness, integrity and the user's permitted reliance. Wrong, missing, late and superseded information shall be included in validation. The organisation shall distinguish advice, data provision and actual operational authority. Availability alone shall not demonstrate correctness. Necessary dedicated criteria and permissions shall exist before a communications, navigation, surveillance or meteorological-support claim is admitted to the active scope.

Required evidence: Specialist profile; source-to-user data trace; timing and error-handling validation; actual permissions.

51.5 – Digital platforms and protected security services

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

Digital service providers shall identify deployed configurations, dependencies, users, data rights, security, fallback and termination arrangements. Integrated third parties retain separate responsibility for their outputs. Specialist security evaluation shall protect sensitive operational information while enabling sufficient authorised evidence review. Neither platform connectivity nor an ASTRA credential transfers public security powers. An unavailable essential capability shall be held or excluded, not accepted on a broad corporate declaration.

Required evidence: Platform/service boundary; dependency and access controls; validated fallback; protected specialist review; precise claims.

51.6 – Shared failure and service restoration

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

Network monitoring shall use defined incident, delay, damage, complaint and control-performance populations. A headquarters or shared-platform failure shall be traced across dependent stations. Restoration shall verify data and configuration integrity, local readiness, provider interfaces and receiving acknowledgement. Deleting an affected station from a dashboard shall not erase the historical failure or its systemic implications. Service availability and ASTRA status shall remain separately controlled by the relevant technical and independent authorities.

Required evidence: Network indicators; common-cause extent; local restoration checks; truthful history; separate service and status decisions.

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.

53.1 – Declared lifecycle and material effects

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

The organisation shall define the product, asset, service or institutional boundary, functional unit, period and environmental responsibilities. It shall identify material upstream, operational and end-of-life effects relevant to that boundary. Data gaps, allocation, estimates and exclusions shall be transparent. A partial operational inventory shall not be presented as a full lifecycle footprint. Technical safety and quality requirements shall remain active during environmental improvement; an unassessed risk shall not be traded for a favourable metric.

Required evidence: Lifecycle boundary; materiality and category rationale; technical/environmental interface review; disclosed gaps.

53.2 – Inventory and comparable reduction

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

Quantification shall retain actual activity data, suitable factors, units, versions, source quality, corrections and relevant uncertainty. Comparisons shall use a coherent baseline and address structural, methodological and output-mix changes. Absolute and intensity changes shall be reported separately where material. Gross emissions, direct reductions, removals, compensation and avoided emissions shall not be merged into an unexplained net result. Numerical examples in this standard are synthetic and are not real-world factors.

Required evidence: Inventory model; data and factor provenance; baseline/recalculation; separated quantities; uncertainty and claim review.

53.3 – Energy attributes and circular resources

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

The organisation shall distinguish physical material or energy delivery from contractual attributes and identify ownership, eligibility, allocation and cancellation where applicable. Exclusive claims shall not be allocated twice. Material recovery, reuse, repair and circularity measures shall have defined flows and denominators. Internal recirculation shall not be counted repeatedly as new recovered output. Reused safety-critical inputs shall retain identity, life history and technical suitability independently of an environmental benefit.

Required evidence: Custody/attribute ledger; quantity and exclusive-claim checks; material-flow model; technical reuse eligibility.

53.4 – Local effects and climate adaptation

Source: AF-AST-STD-001, page 78.

Local air, noise, water, spills, biodiversity and climate-resilience conclusions shall use relevant locations, periods, scenarios, receptors, methods and uncertainty. Seasonal and operating variation shall be considered. The organisation shall distinguish a scenario assessment from proof of performance under every future condition. Adaptation decisions shall identify resources, protective measures, dependencies and verification. Changes in infrastructure or material evidence shall trigger review rather than reliance on a permanently unchanged resilience label.

Required evidence: Local-environment methods; scenario and vulnerability basis; adaptation actions; protective verification; review triggers.

53.5 – Statements and independent conclusions

Source: AF-AST-STD-001, page 78.

Capability recognition, historical verification, prospective validation and verifier accreditation shall remain distinct. Each engagement shall define the statement, criteria, intended users, assurance form, materiality and reporting boundary before substantive work. Errors, omissions, bias and residual uncertainty shall be evaluated independently. A favourable transition-plan review is not an achieved reduction. Later evidence invalidating a historical statement shall lead to appropriate correction and recipient communication without rewriting the original decision history.

Required evidence: Engagement terms; statement versions; misstatement and limitation record; independent conclusion; correction and notices.

54.1 – Hazards, assumptions and essential controls

Source: AF-AST-STD-001, page 78.

Hazard analysis shall identify credible consequences, relevant exposure, uncertainty, common causes and human or organisational dependencies. The organisation shall select methods appropriate to the system and maintain the analysis as the configuration and context evolve. Essential protective controls shall be identifiable and verified. Multiplying ordinal severity and likelihood categories shall not be presented as a physical probability or used to hide an unassessed severe consequence.

Required evidence: Hazard log; analysis basis; essential-control map; uncertainty and independent technical challenge.

54.2 – Stop authority and escalation

Source: AF-AST-STD-001, page 78.

Responsible personnel shall be able to stop or restrict affected work when an essential protective condition is absent or credible serious concern arises. The organisation shall define who can authorise temporary protection, technical restart and independent status decisions. Those roles shall not be confused. Urgent action shall preserve evidence and comply with the existing notification clocks in Clause 14 and Annex H. Debate about finding classification shall not delay necessary protection.

Required evidence: Stop and duty mandates; actual concern/action times; protection; separate restart and status records.

54.3 – Emergency capability and exercises

Source: AF-AST-STD-001, page 79.

Emergency arrangements shall identify actual people, communication, equipment, access, external interfaces and limitations. Exercises shall be authorised, safe and representative of the capability being claimed. The organisation shall distinguish discussion-based review from demonstrated operational coordination. Findings shall have accountable

correction and follow-up. A planned exercise or signed service agreement shall not count as completed evidence of capability where essential resources were not available or could not perform their assigned role.

Required evidence: Emergency plan; resource availability; exercise design and actual observations; verified corrective action.

54.4 – Occurrence, escape and affected population

Source: AF-AST-STD-001, page 79.

Investigation shall examine both why an event occurred and why existing controls failed to prevent or detect it. The organisation shall preserve original evidence, competing explanations and uncertainty. Population tracing shall include already delivered products, services, reports and decisions that share relevant causes. Replacing a person or issuing training shall not alone close a systemic weakness in work design, resources, interfaces or measurement. Later correction shall not be backdated to legitimise earlier unsupported work.

Required evidence: Occurrence/escape analysis; population and dependency trace; tested causes; historical impact and recipient action.

54.5 – Learning and protected reporting

Source: AF-AST-STD-001, page 79.

Reporting routes shall protect good-faith concerns and preserve fair response to allegations. The organisation shall evaluate weak signals, near misses, repeated local failures and suppressive incentives without equating allegation with established misconduct. Lessons shall be translated into verified changes in methods, interfaces, training or assurance criteria through the appropriate controlled process. A declining report count shall not be assumed to demonstrate improvement where reporting access or culture has deteriorated.

Required evidence: Protected intake; impartial investigation; reporting-quality review; implemented and verified lessons.

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.

58.1 – One scope tuple for each conclusion

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

Before assessment, record the legal entity, actual performer, object, family/module, site, method or task, configuration, period, consequence, profile version and exclusions. Every requested conclusion shall have its own tuple and outcome class. Common evidence may be shared only after relevance review. An integrated proposal shall not become one unrestricted certificate. Unknown essential scope parameters shall be resolved before the programme accepts an evaluable live application.

Required evidence: Scope tuples; independent requested outcomes; profile completeness; justified evidence-reuse map.

58.2 – Coverage and productive resources

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

The plan shall provide competent coverage of necessary sites, methods, shifts, delivery modes, configurations and adverse cases. Resources shall follow actual work, not a commercial target. The eight-hour evaluator-day and separate reporting/review resources remain governed by Clause 12.4; AF 9100 organisational rules apply only to their route. A trainee or second passive observer shall not be counted as additional productive technical coverage. Necessary omitted observations shall require more work or a restricted conclusion.

Required evidence: Work breakdown; person/task coverage; site/method witnesses; actual productive time and changes.

58.3 – Vertical trails and shared failure

Source: AF-AST-STD-001, page 83.

Evaluation shall connect actual outputs backward to requirements, authority, sources, people, methods and configuration, and forward to release, support and feedback. Failed and interrupted work shall be represented. Findings in a shared calibration system, source, procedure or digital platform shall be traced to dependent scopes. Restriction to an unaffected subset requires independent evidence that the boundary is real. Removing a difficult item from the sample shall not resolve a systemic deficiency.

Required evidence: End-to-end trails; adverse-case sample; common-control dependency map; justified scope restrictions.

58.4 – Independent review and non-compensable gates

Source: AF-AST-STD-001, page 83.

The decision dossier shall reconcile scope, authority, competence, independence, coverage, method validity, evidence, uncertainty, findings and claims. Positive grant, renewal or extension requires every applicable gate, including closure of all in-scope nonconformities. A favourable total score, environmental achievement or majority vote shall not supply missing technical evidence. Evaluation and final decision shall remain appropriately separated. The actual decision date shall not be replaced by a ceremony, invoice or file-generation date.

Required evidence: Versioned independent-review dossier; gate conjunction; panel participation; actual reasoned decision and claim.

58.5 – Continuing status and real chronology

Source: AF-AST-STD-001, page 83.

Surveillance, change, renewal, suspension, restoration and withdrawal shall preserve the controlling clocks in Clause 16 and Annex H. Booking an assessment is not its completion. Restoration does not extend original expiry without the required renewal or validate a suspended interval. Historical instance results shall retain their object and period rather than acquire a fictitious ongoing validity. Public status, urgent notices and protected case history shall remain consistent after every material event.

Required evidence: Authoritative cycle baseline; actual completions; status events; preserved gaps; notifications and public reconciliation.

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.

64.1 – Mission environmental baseline

Source: AF-AST-STD-001, page 92.

The baseline shall define relevant mechanical, thermal, pressure, radiation, plasma, charging, electromagnetic, contamination, micrometeoroid, dust, gravitational and atmospheric conditions by phase and location. Each selected model or data source shall have identity, applicable domain, uncertainty and update responsibility. The omission of a mechanism shall be justified technically, not by lack of a test facility.

Verification: Audit environment-to-requirement and environment-to-test traceability.

Acceptance / hold rule: All material environments and coupled effects are bounded by approved assumptions and evidence; undefined exposure blocks qualification acceptance.

64.2 – Geometry, reference frames and event time

Source: AF-AST-STD-001, page 92.

Trajectory- and geometry-dependent information shall identify frame origin, orientation, epoch, time scale, units, state covariance and transformation version. An exchanged position or orientation shall not be accepted without enough metadata to transform it consistently. Surface-relative, body-fixed, inertial and local engineering coordinates shall remain distinct. Event time, receipt time and ground processing time shall not be merged.

Verification: Recompute selected transformations and challenge wrong-frame and stale-epoch inputs.

Acceptance / hold rule: Transformations meet the approved error and time bounds; incompatible or ambiguous metadata produces HOLD.

64.3 – Uncertainty, scenarios and design envelope

Source: AF-AST-STD-001, page 92.

Define nominal, bounding, dispersed and degraded scenarios and how they support design, test and operational limits. Record whether uncertainty is statistical, epistemic, model discrepancy or an unbounded knowledge gap. Extreme values shall not be combined as independent random variables without justification. A confidence level shall name its variable, population and model rather than describe the whole mission.

Verification: Review scenario construction, dependencies and sensitivity to uncertain inputs.

Acceptance / hold rule: The accepted envelope covers the declared decisions; unsupported extrapolation is excluded or held.

64.4 – Resource budgets and coupled margins

Source: AF-AST-STD-001, page 92.

Mass, power, energy, thermal rejection, timing, data, attitude-control resources and consumables shall have explicit allocation and reserve ownership. Account for concurrent loads, common reserves, environmental degradation, ageing, unavailable recharge and terminal obligations. The same reserve shall not be credited to two simultaneous needs. Positive scalar totals shall not replace transient, local or coupled analysis.

Verification: Reconcile subsystem and system budgets by phase and condition; independently check Annex AM calculations used.

Acceptance / hold rule: Each required margin meets its prospectively approved value under all selected bounding conditions; no reserve is double allocated.

64.5 – Heritage and similarity

Source: AF-AST-STD-001, page 92.

A heritage argument shall compare actual design, materials, manufacturing source, mission exposure, software, interfaces and life history. Identify unchanged evidence, invalidated evidence and new demonstration. Successful service of a related design shall be accepted only for characteristics and mechanisms it actually supports. Lack of a recorded failure shall not prove performance of an unmonitored critical characteristic.

Verification: Review a difference matrix and trace each retained conclusion to applicable original evidence.

Acceptance / hold rule: Every material difference has a technical disposition and sufficient evidence before the new claim is accepted.

64.6 – Baseline maintenance and irreversible decisions

Source: AF-AST-STD-001, page 93.

Changes to mission duration, geometry, environment, operating mode, supplier or external service shall trigger a documented impact review. Before an irreversible commitment, the decision maker shall reconcile the current environmental baseline, actual configuration, evidence, reserves, unresolved issues and protective options. Commercial schedules shall not be used as substitute evidence.

Verification: Compare the frozen readiness dossier with the actually delivered configuration and latest accepted mission assumptions.

Acceptance / hold rule: Every essential gate is complete and all permitted actions are stated; otherwise the irreversible commitment remains blocked.

65.1 – Structures, mechanisms and deployment

Source: AF-AST-STD-001, page 94.

The organisation shall define structural and mechanism functions, materials, interfaces, loads, thermal distortion, life, release states and deployment observability. Qualification shall address relevant manufacturing variability, lubrication or surface condition, storage ageing, constraints and incomplete deployment. Final configuration and any mechanical lock or restraint state shall be independently verified where it affects an essential function.

Verification: Review configuration-specific load, test, inspection, mechanism and deployment evidence.

Acceptance / hold rule: Each required function and structural criterion is met in its approved envelope; unknown restraint or deployment state blocks dependent operation.

65.2 – Thermal control and thermal protection

Source: AF-AST-STD-001, page 94.

Thermal assurance shall account for heat generation, solar and planetary inputs, conduction, radiation, thermal storage, contact conductance, coatings, degradation and operating modes. Distinguish steady-state screening equations from transient qualification. Temperature limits shall identify the actual item, location, mode and measurement uncertainty. A single temperature sensor shall not represent all critical locations without a validated relationship.

Verification: Review thermal models, instrumentation, balance correlation and hot/cold/transient test coverage.

Acceptance / hold rule: All required temperatures and gradients meet approved bounds including uncertainty and model discrepancy; unresolved critical locations remain HOLD.

65.3 – Power generation, storage and distribution

Source: AF-AST-STD-001, page 94.

Power assurance shall identify end-of-life generation, eclipses or outages, duty cycle, distribution losses, peak demand, storage state, switching, grounding and protective isolation. Both available power and stored energy shall satisfy their distinct requirements. Protective tests shall use separately authorised safe procedures. A nominal capacity statement shall not demonstrate usable capacity under ageing and mission temperature.

Verification: Reconcile phase budgets and examine actual storage, conversion and protection evidence.

Acceptance / hold rule: Power, energy and recovery predicates all pass; adequate average generation does not compensate for an unsupported peak or outage condition.

65.4 – Avionics, electronics and radiation effects

Source: AF-AST-STD-001, page 94.

The device and board assurance record shall retain manufacturer, lot, configuration, screening, operating state and environment-specific suitability. Total-dose degradation, displacement effects and single-event behaviour shall be assessed separately when triggered. System response, error containment, recovery and residual data integrity shall be demonstrated. Radiation values shall state material, location, quantity and model; incompatible dose quantities shall not be combined.

Verification: Inspect parts genealogy, mission susceptibility analysis, specialist results and integrated recovery tests.

Acceptance / hold rule: All triggered mechanisms have accepted application-specific evidence; a part label or dose-only result does not close unexamined single-event behaviour.

65.5 – Attitude, pointing, sensing and control interfaces

Source: AF-AST-STD-001, page 95.

The assurance case shall define pointing, knowledge, stability, alignment, jitter, timing, observability, actuator limits and degraded modes for the actual payload and mission. Coordinate frames and error budgets shall be explicit. Verification shall include sensor loss, stale data, actuator saturation and misleading measurements within a safe test arrangement. This clause does not specify guidance or manoeuvre commands.

Verification: Trace error allocation to integrated measurement and closed-loop verification on representative configuration.

Acceptance / hold rule: Required performance and protective-state predicates pass; undetected loss of critical observability remains an essential gap.

65.6 – Payload function and scientific or service output

Source: AF-AST-STD-001, page 95.

Payload requirements shall identify intended outputs, calibration, dynamic range, contamination sensitivity, pointing or timing needs, processing and delivered data quality. Instrument performance, system suitability and scientific interpretation are separate conclusions. Changes in compression, processing or calibration shall retain raw or reconstructable data and algorithm identity. Marketing resolution or accuracy figures shall state the tested conditions and limitations.

Verification: Reconstruct selected output products from identified inputs, calibration and processing.

Acceptance / hold rule: Output criteria are met for the stated domain; unsupported scientific or service claims are not inferred from a functioning instrument.

65.7 – Integrated platform acceptance

Source: AF-AST-STD-001, page 95.

The integrator shall reconcile all subsystem configurations, resource allocations, interfaces, anomalies, software loads, protective controls and operating restrictions. Individually accepted subsystems shall be examined for common-cause failures and conflicting assumptions. Verify the delivered system rather than a earlier demonstration model. Remaining development actions shall not be presented as completed flight acceptance.

Verification: Conduct independent configuration, interface and evidence closure across the complete integration dossier.

Acceptance / hold rule: All applicable integration gates pass; each unresolved essential interface blocks the dependent mission or system conclusion.

66.1 – End-to-end service definition

Source: AF-AST-STD-001, page 96.

Define source, destination, relay, ground station, user, supported modes, data class, service availability, permitted latency, correctness and authority. Separate service connectivity from integrity and from the right to use a frequency or external network. All external dependencies shall have actual service scope, ownership, availability and failure responsibility.

Verification: Trace representative data from origin to authorised use including relays and third parties.

Acceptance / hold rule: The claimed service boundary is complete and each essential dependency is supported; a link diagram alone is insufficient.

66.2 – Link and performance budgets

Source: AF-AST-STD-001, page 96.

Link calculations shall state distance, frequency or wavelength, antenna or optical characteristics, pointing, losses, noise, coding, data rate and required performance. Free-space attenuation shall not be treated as the complete link model. Atmospheric, weather, acquisition, polarisation, interference and implementation effects shall be included when material. Units and logarithmic reference quantities shall be consistent.

Verification: Independently recompute the budget and validate assumed performance against representative evidence.

Acceptance / hold rule: The worst required operating cases meet approved link and quality margins; omitted material losses or unknown receiver performance block acceptance.

66.3 – Delay and feasible intervention

Source: AF-AST-STD-001, page 96.

The service shall distinguish one-way propagation, round-trip exchange, queueing, processing, retransmission, human response and actuation delays. A ground intervention shall count as a protective control only when information and action can arrive within the validated hazard-response window. Store-and-forward or disruption-tolerant operation shall define expiration, duplicate handling, priority and stale-command rejection.

Verification: Test worst-case delay and outage scenarios using the approved mission geometry and timing model.

Acceptance / hold rule: Required responses are feasible within the approved window; a nominal human review step does not pass if communication makes it ineffective.

66.4 – Data age and time uncertainty

Source: AF-AST-STD-001, page 96.

Every consequential data item shall retain event time, time scale, receipt time, sequence, quality flags and relevant uncertainty. Clock drift, conversion error, leap or reset handling and synchronisation loss shall be bounded. Maximum data age and timing uncertainty shall be defined before use. A recent packet receipt shall not make its old event data current.

Verification: Challenge stale, duplicated, reordered, wrong-time-scale and clock-reset data.

Acceptance / hold rule: Data outside approved age or uncertainty bounds are marked unusable for the affected decision and trigger the defined protective response.

66.5 – Position and navigation-support integrity

Source: AF-AST-STD-001, page 97.

The service shall define position, velocity, orientation or time outputs, reference frame, validity interval, uncertainty, integrity indication and user reliance. The validation shall distinguish nominal error from misleading information and unavailable service. Transformations and combined sources shall preserve correlations. The provider shall not imply that a navigation-support result grants authority to conduct the receiving operation.

Verification: Compare independent truth/reference evidence and test wrong-frame, stale-source and service-loss cases.

Acceptance / hold rule: All performance and integrity predicates pass for the declared use; an unavailable or uncertain essential output is not a valid zero-error estimate.

66.6 – Secure command and relay interfaces

Source: AF-AST-STD-001, page 97.

Command-bearing links shall verify origin, authority, target, sequence, integrity, timing and permitted operation. Relays shall not enlarge the original authority. Replays, duplicates, interrupted delivery, expired credentials and compromised dependencies shall be handled through validated controls. Security tests shall remain inside written safe authorisation and shall not interfere with live assets.

Verification: Execute safe positive and prohibited command-delivery tests using isolated synthetic fixtures.

Acceptance / hold rule: Unauthorised, stale or wrong-target commands cannot pass the accepted workflow; commanded action and observed physical completion remain distinct.

66.7 – Outage, recovery and service evidence

Source: AF-AST-STD-001, page 97.

The operator shall reconcile lost data, delayed messages, incomplete transfers and state changes after an outage. Recovery shall restore meaning, configuration, authority and history as well as network availability. Report actual service

measures with time windows, excluded outages and missing data. A service restoration shall not retrospectively validate dependent decisions made with unavailable or corrupted information.

Verification: Review outage timelines, replay/reconciliation logs and receiving acceptance.

Acceptance / hold rule: All necessary state and data integrity checks are complete before assured use resumes; remaining gaps are carried into the affected claims.

67.1 – Configuration and operational baseline

Source: AF-AST-STD-001, page 98.

The ground baseline shall identify deployed hardware, software, databases, operational procedures, configuration dictionaries, simulation models, keys, operators and external services. The controlled baseline shall be linked to each supported flight configuration. A simulator or training installation shall be segregated from live commanding.

Verification: Reconcile installed versions and target mappings with approved release records.

Acceptance / hold rule: Every live mission interface uses an accepted compatible baseline; training or stale configuration cannot be selected as a live authority.

67.2 – Command proposal and preconditions

Source: AF-AST-STD-001, page 98.

Each consequential command or command sequence shall identify authorised intent, target, version, validity interval, preconditions, expected state change, irreversible effects and required review. Before release, verify actual authority, configuration compatibility and sufficiently current state evidence. Success of a syntax check shall not establish physical suitability.

Verification: Review selected command records and challenge stale-state and wrong-target preconditions safely.

Acceptance / hold rule: All prescribed preconditions are demonstrated and the command remains within approved mission authority; otherwise release is blocked.

67.3 – Receipt, execution and completion

Source: AF-AST-STD-001, page 98.

The record shall distinguish command prepared, approved, transmitted, received, accepted, started, completed, failed and unknown. A transmission log or acknowledgement shall not be treated as verified physical completion. Completion criteria shall identify telemetry or other evidence, timing, confidence limits and independent checks needed for the actual action.

Verification: Trace a command through its full event and evidence history.

Acceptance / hold rule: Only evidence satisfying the approved completion predicate supports completed status; missing terminal evidence remains unknown or partial.

67.4 – Planning and conflicts

Source: AF-AST-STD-001, page 98.

Mission plans shall allocate communication, power, thermal, pointing, staffing, observation and maintenance resources and identify prohibited overlaps. Concurrent activities shall be reviewed for coupled effects and common reserves. Planning tools shall be validated against known-answer, conflict, capacity and missing-input scenarios. A scheduled activity shall not be marked executed merely because its time slot elapsed.

Verification: Independently reconcile a representative plan and its actual execution log.

Acceptance / hold rule: No essential conflict remains unresolved; actual execution and deviations are separately evidenced.

67.5 – Personnel, handover and remote support

Source: AF-AST-STD-001, page 99.

Shift and provider handovers shall state current asset condition, unresolved anomalies, active constraints, commands in progress, planned irreversible actions, evidence gaps and actual authority. Duty personnel shall have competence for their assigned mission and available specialist support. A named on-call role without demonstrated availability shall not count as response capability.

Verification: Observe a representative handover and verify access, competence and acknowledgement.

Acceptance / hold rule: The receiving team acknowledges the complete active state and responsibilities before assuming authority.

67.6 – Anomaly response and safe restoration

Source: AF-AST-STD-001, page 99.

The operations team shall classify anomalies, preserve raw evidence, control affected commands and follow authorised mission-specific protective procedures. Restoration shall establish current physical and digital state, cause disposition, remaining restrictions and separate technical return authority. A restarted computer or renewed communication link does not prove that the spacecraft or remote process is safe to resume.

Verification: Examine adverse rehearsals and actual restoration records where available.

Acceptance / hold rule: Required state, integrity and protection checks pass before resumed dependent action; unresolved essential uncertainty retains a restriction.

67.7 – Rehearsal and independent readiness

Source: AF-AST-STD-001, page 99.

Mission readiness shall include representative end-to-end rehearsal across flight configuration, ground systems, people, networks, delays, external support and abnormal conditions. Synthetic data shall be labelled. Failures shall be retained, corrected and retested with the original failing cases. Independent readiness shall state the exact demonstrated configuration and remaining limits.

Verification: Compare the rehearsal matrix, observations, corrections and re-execution evidence.

Acceptance / hold rule: Every required readiness scenario passes or is excluded through a valid scope limitation; no scripted demonstration is claimed as a completed mission.

68.1 – Fleet membership and common dependencies

Source: AF-AST-STD-001, page 100.

Maintain the identity, configuration, ownership, status and responsible control function for each fleet member. Identify shared software, ground infrastructure, suppliers, communication paths, operational procedures and resource constraints. A result for one satellite shall not be copied to an entire constellation without a demonstrated similarity and coverage argument.

Verification: Reconcile fleet and configuration records with actual membership and service commitments.

Acceptance / hold rule: All included assets and common-cause dependencies are identified; unsupported members remain outside the granted scope.

68.2 – Distributed function and degradation

Source: AF-AST-STD-001, page 100.

Define the collective service, required contribution of each element, acceptable degradation, reconfiguration authority and conditions for withdrawal. Verification shall address loss, stale state, conflicting leadership, corrupted shared data and simultaneous failure of common services. A large number of assets shall not be interpreted as independent redundancy without evidence.

Verification: Test representative distributed-service and common-cause scenarios.

Acceptance / hold rule: The specified service and protective behaviour meet approved predicates; aggregate uptime does not conceal an essential degraded-state failure.

68.3 – Tracking and conjunction-information quality

Source: AF-AST-STD-001, page 100.

Tracking and conjunction-support data shall retain source, age, frame, epoch, covariance, hard-body assumptions where used, quality indicators and domain of validity. The responsible function shall assess data sufficiency before relying on a probability or miss-distance result. Screening volume, alert threshold and operational decision thresholds shall remain distinct and prospectively defined.

Verification: Review data lineage, uncertainty and method validity; challenge stale and inconsistent source cases.

Acceptance / hold rule: The data and model support the intended decision. Unsupported collision-probability estimates remain HOLD, not reassuring zero values.

68.4 – Coordination and consent

Source: AF-AST-STD-001, page 100.

Coordination procedures shall identify counterparties, contact reliability, authority, message meaning, acknowledgement and conflicting assumptions. Receipt of a coordination message shall not be treated as consent to an operation or proof that the other party will act. Any change to a shared interface shall preserve actual responsibility and required permissions.

Verification: Inspect communication records and representative failed-contact or contradictory-message exercises.

Acceptance / hold rule: Each required acknowledgement and authority is established; unresolved coordination essential to the claim blocks that claim.

68.5 – Debris prevention and released items

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

The lifecycle plan shall identify intentional and potential released objects, retained energy, fragmentation risks, degradation and terminal-state responsibilities. The organisation shall define a lawful technical basis for prevention and end-of-life measures and verify their implementation for the actual configuration. A nominal mission plan shall not establish successful debris prevention or disposition.

Verification: Review released-item inventory, risk analysis, protective evidence and closure records.

Acceptance / hold rule: Every triggered prevention and terminal condition has accepted evidence; no unknown disposition is reported as completed.

68.6 – Mission extension and terminal resources

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

Before extending service, reassess remaining energy, support, communications, attitude capability, life, uncertainty, monitoring and resources required for terminal duties. The extension shall not consume a reserve already committed to a required protective or end-of-life function without authorised technical resolution. The decision shall preserve original life history.

Verification: Reconcile updated budgets, remaining-life evidence and terminal feasibility.

Acceptance / hold rule: Required continued-service and terminal predicates both pass; a commercially useful asset is not automatically eligible for extension.

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.

69.1 – Consent and exact intervention

Source: AF-AST-STD-001, page 102.

Record participating assets, owners, consent, service objective, configuration, permitted interventions and prohibited actions. Design assurance, service-provider competence and permission for a specific operation shall remain separate. An assumed common ownership or commercial order shall not replace the actual technical authority and access rights needed for the intervention.

Verification: Check the consent and authority chain against the declared operation and assets.

Acceptance / hold rule: All required authorities and compatible scope boundaries are valid before intervention; otherwise the activity remains blocked.

69.2 – Interface compatibility

Source: AF-AST-STD-001, page 102.

Define and verify relevant mechanical, structural, electrical, fluid, thermal, communications, software, timing and contamination interfaces. The evidence shall identify as-operated rather than merely as-designed configurations. Damage, ageing, unknown modifications and inspection accessibility shall be considered. Individually qualified assets shall not be assumed jointly compatible.

Verification: Review interface-control records, difference analysis and representative integrated verification.

Acceptance / hold rule: Every essential interface criterion passes for both participating configurations; unknown critical interfaces remain HOLD.

69.3 – Relative-state and completion evidence

Source: AF-AST-STD-001, page 102.

The service plan shall define which relative states, contact conditions, connection states and completed tasks must be observed or inferred. Sensor limitations, occlusion, stale telemetry, model uncertainty and ambiguous indications shall have explicit handling. A single contact indication shall not by itself prove secure structural, electrical or fluid connection when those are separate requirements.

Verification: Challenge incomplete and contradictory indications using authorised representative simulations or tests.

Acceptance / hold rule: Each claimed state has sufficient valid evidence and meets its own predicate; ambiguous state cannot be treated as complete.

69.4 – Interruptions and safe boundaries

Source: AF-AST-STD-001, page 102.

The assurance case shall identify safe interruption states, autonomy limits, human intervention feasibility, shared failures and irreversible actions. Recovery and abort assumptions shall be validated for the actual environment and available resources. This standard does not authorise an assessor to command an intervention or select hazardous operational parameters.

Verification: Review the approved scenario set and evidence for required protective transitions.

Acceptance / hold rule: All essential interruption and protective-state requirements are demonstrated within the authorised envelope.

69.5 – Transferred material, energy and data

Source: AF-AST-STD-001, page 103.

Transfers shall preserve identity, quantity, units, condition, custody and eligibility of materials, consumables, energy attributes or digital products. Metering, losses, residuals and cross-contamination shall be addressed. Quantity reconciliation shall not be used as proof of chemical, mechanical or functional suitability. Receiving acceptance shall be explicit.

Verification: Reconcile sending and receiving records and inspect suitability evidence.

Acceptance / hold rule: Both identity/quantity and technical eligibility checks pass; unexplained differences or contamination keep the transfer result open.

69.6 – Post-intervention configuration and service claim

Source: AF-AST-STD-001, page 103.

The final dossier shall state actual work, replacement items, software, repairs, observations, limitations, failed attempts, configuration and receiving authority. Verify affected functions and update maintenance, life and operating information. Partial completion shall remain partial. Service completion shall not imply recertification of the whole receiving asset or extension of its life without separate evidence.

Verification: Review post-intervention verification and receiving acknowledgement.

Acceptance / hold rule: The bounded service predicate is met, affected protections are restored and residual responsibilities are accepted.

70.1 – Distinct release objects

Source: AF-AST-STD-001, page 104.

The profile shall distinguish vehicle design, payload integration, site capability, mission readiness, individual operating permission and recovery capability. Each object shall identify responsible entity, configuration, environment, evidence and decision authority. A spaceport capability result shall not release a vehicle or a specific launch.

Verification: Compare all requested results with their actual evidence and authority paths.

Acceptance / hold rule: No merged or unbounded approval is issued; each required object-specific gate is independently supported.

70.2 – Integrated environment and interface verification

Source: AF-AST-STD-001, page 104.

Integration shall address actual handling, transport, mounting, loading, acoustic, dynamic, thermal, electrical, data, separation and contamination interfaces. Verification shall use approved mission-specific conditions and representative fixtures and configurations. Previously accepted payloads shall be reassessed when interface conditions or launch-service assumptions change.

Verification: Reconcile interface and environment matrices with qualification, acceptance and delivered configuration.

Acceptance / hold rule: All required interface criteria are met; undeclared differences or missing essential demonstrations block integrated acceptance.

70.3 – Test and hazardous-work readiness

Source: AF-AST-STD-001, page 104.

Before consequential tests, verify competent authorised performers, approved procedures, protected facilities, instrumentation, exclusion boundaries, independent checks and stop authority. Technical acceptance limits and protective shutdown limits shall be separate. No universal energetic, pressure or thermal operating values are supplied by this standard.

Verification: Inspect real readiness records and safe witnessing arrangements.

Acceptance / hold rule: All prerequisite protections and measurement capabilities exist before testing; missing permissions or protective functions prohibit the activity.

70.4 – Reuse and cumulative history

Source: AF-AST-STD-001, page 104.

Reusable structures, mechanisms, thermal protection, tanks, energy systems and electronics shall retain actual use, exposure, storage, damage, repairs, refurbishment and replacement history. Eligibility shall rely on validated inspection and degradation models for the particular item. A successful prior flight or a cosmetically restored surface shall not reset life or close hidden damage uncertainty.

Verification: Trace item history to approved reuse criteria and measured condition.

Acceptance / hold rule: All required life and condition predicates pass; missing critical history or inaccessible required inspection blocks reuse acceptance.

70.5 – Return, landing and recovery interfaces

Source: AF-AST-STD-001, page 105.

The return assurance case shall identify entry, descent, landing, retrieval, containment, transport and receiving duties within the declared responsibility. Define expected observations and evidence of completion, including unreachable, partial and uncertain outcomes. Public safety, environmental and controlled-material permissions shall be separately confirmed.

Verification: Review the approved return/recovery dossier, communication and custody arrangements.

Acceptance / hold rule: The stated return or recovery claim has sufficient actual evidence; a planned route or lost signal cannot be reported as successful completion.

70.6 – Readiness decision and post-event learning

Source: AF-AST-STD-001, page 105.

Before commitment, reconcile configuration, qualification, ground readiness, people, support, open anomalies and required terminal resources. After the event, preserve original observations, failures and near misses and assess consequences for subsequent vehicles and payloads. Schedule pressure shall not downgrade a blocking finding.

Verification: Independently review the frozen pre-event dossier and subsequent anomaly-to-population analysis.

Acceptance / hold rule: Every essential gate passes at the actual commitment time; later success does not legitimise an unsupported earlier release.

71.1 – Destination-specific conditions

Source: AF-AST-STD-001, page 106.

Define the actual body or environment, region, season or illumination assumptions, terrain, atmosphere, pressure, temperature, radiation, dust, electrostatic effects, gravity and access limitations. The profile shall separate measured conditions from inferred and unknown conditions. A terrestrial, lunar or planetary analogy shall not establish a universal environment specification.

Verification: Examine destination/region assumptions, uncertainty and required evidence.

Acceptance / hold rule: All essential environmental inputs are bounded for the declared mission; missing critical environmental knowledge retains a development or restricted status.

71.2 – Surface mobility and interaction

Source: AF-AST-STD-001, page 106.

Mobility assurance shall define load, terrain interaction, traction or anchoring, stability, dust effects, sensing, energy, thermal behaviour and recoverability relevant to the actual vehicle. Representative tests shall identify differences in gravity, soil or surface material, pressure and scale. A laboratory traverse shall not be equated with full mission access or survivability.

Verification: Review integrated mobility and resource tests and the justified analogue-transfer argument.

Acceptance / hold rule: Required mobility and protective-state predicates pass for the approved envelope; unsupported terrain classes remain excluded.

71.3 – Atmospheric and buoyant exploration

Source: AF-AST-STD-001, page 106.

Atmospheric vehicles shall have defined environmental profiles, materials, structural, buoyancy or flight functions, energy, communication and terminal responsibilities. Pressure, composition, corrosion, turbulence and inaccessible maintenance shall be considered when triggered. Airworthiness or site results from a different planetary or terrestrial context shall not be inherited without technical justification.

Verification: Review environment-specific material, structural and functional qualification and data validity.

Acceptance / hold rule: Every essential environmental and functional condition is supported for the stated domain; unvalidated atmosphere assumptions block broader claims.

71.4 – Subsurface and ocean-world interfaces

Source: AF-AST-STD-001, page 106.

Subsurface or liquid-environment exploration shall identify pressure, thermal, chemical, access, communication, containment and biological/scientific contamination concerns. Verify boundary integrity, sensor observability, retrieval assumptions and evidence custody without providing hazardous access procedures. A surface-system qualification shall not establish suitability for submerged or subsurface duty.

Verification: Review pressure-boundary and environmental evidence through authorised specialist assessment.

Acceptance / hold rule: All triggered boundary, protection and observation predicates pass; uncertain containment or retrieval capability remains explicitly restricted.

71.5 – Long darkness and resource interruption

Source: AF-AST-STD-001, page 107.

Mission planning shall identify darkness, unavailable recharge, thermal survival, communications gaps and delayed resupply. Energy and consumable reserves shall include degradation, uncertainty, interruptions and terminal duties. Restart after dormancy shall verify state and protection, not only a successful boot.

Verification: Recalculate resource and survival budgets and review representative dormant/restart tests.

Acceptance / hold rule: All required survival and recovery conditions meet approved criteria without double-counted reserves; missing state evidence keeps restart dependent actions held.

71.6 – Construction and surface infrastructure

Source: AF-AST-STD-001, page 107.

Habitats, pads, utilities, handling systems, civil works and resource facilities shall have a defined design and environment basis, material provenance, site assumptions, inspection strategy and acceptance authority. Hidden work and critical interfaces shall be verified before concealment. Demonstrating a manufacturing technique shall not establish readiness of an integrated surface installation.

Verification: Trace design and material records through construction, commissioning and receiving acceptance.

Acceptance / hold rule: Every essential structural, utility, environmental and operational interface has valid completion evidence before use.

71.7 – Autonomy and limited intervention

Source: AF-AST-STD-001, page 107.

Autonomous surface work shall define sensing coverage, permitted domain, adaptation limits, command authority, safe cessation and human intervention feasibility. Validation shall include occlusion, unfamiliar conditions, delayed information, partial execution and loss of a shared resource. Human oversight shall not be credited when delay or observability prevents meaningful intervention.

Verification: Challenge the approved autonomous envelope and required protective transitions.

Acceptance / hold rule: All essential scenarios pass; out-of-domain behaviour is limited or stopped under the approved protective design.

71.8 – Completion, samples and remaining duties

Source: AF-AST-STD-001, page 107.

The mission dossier shall distinguish science acquisition, engineering demonstration, collected sample custody, completed construction, final asset state and environmental closure. Unreachable assets shall retain a stated confidence basis and unknowns. Responsibilities for contamination, residues, hazardous inventories and interpreting long-term records shall survive mission and supplier closure.

Verification: Review final-state evidence, sample manifests and accepted residual-duty assignments.

Acceptance / hold rule: Each conclusion is limited to its demonstrated object and evidence; no lost contact or incomplete transfer is relabelled as complete closure.

72.1 – Time horizon and recoverability

Source: AF-AST-STD-001, page 108.

The mission basis shall define duration, distance-dependent communication, resource evolution, repairability, replacement feasibility and the period over which responsibility and evidence must remain usable. A planned future repair, relay or supplier service shall not be credited as available without supported commitments and a demonstrated capability basis.

Verification: Review life and support assumptions against mission phases and credible loss cases.

Acceptance / hold rule: Essential mission and protective functions remain supported for the declared duration; speculative future services are not favourable defaults.

72.2 – Solar and extreme thermal exposure

Source: AF-AST-STD-001, page 108.

Solar, close-body and thermal-extreme missions shall define time-varying flux, geometry, shadowing, surface properties, degradation and transient response. Protection shall be qualified at the relevant material, assembly and system levels. Inverse-square screening and steady-state radiation equations are only applicable within their stated assumptions and do not close transient or coupled behaviour.

Verification: Review environment-specific models, uncertainty, qualified materials and correlated tests.

Acceptance / hold rule: Required temperature, gradient, integrity and functional limits are met throughout the approved envelope; unexamined coupled effects remain HOLD.

72.3 – Low-flux and limited-power missions

Source: AF-AST-STD-001, page 108.

Distant missions shall evaluate end-of-life generation, storage, conversion, thermal support, communication and command survival concurrently. Prioritised load shedding and dormant modes shall have validated authority and state-recovery rules. Average energy sufficiency shall not hide a time-local peak or thermal survival failure.

Verification: Reconcile resource profiles and perform representative low-resource and recovery verification.

Acceptance / hold rule: Every essential resource and protection predicate passes; unavailable generation or unsupported recovery is not treated as normal service.

72.4 – Autonomy during long communication delay

Source: AF-AST-STD-001, page 108.

The mission shall identify decisions that cannot wait for ground response and bound the authority assigned to onboard functions. Validation shall account for delayed or unavailable external information, model mismatch, finite stored procedures and safe terminal behaviour. Ground approval received after the hazardous event would occur is not an effective preventive control.

Verification: Evaluate latency arithmetic and scenario-based autonomous response evidence.

Acceptance / hold rule: Protective authority is executable within the approved response time; otherwise redesign, restriction or additional evidence is required.

72.5 – Ageing and long-term digital support

Source: AF-AST-STD-001, page 108.

The assurance plan shall address materials ageing, accumulated environment, clock stability, memory integrity, software dependencies, obsolete tools, lost expertise and cryptographic migration. Preserve executable or reconstructable models and interpretable data dictionaries. Availability of a signed file does not establish its future readability or the continued correctness of its engineering meaning.

Verification: Review long-life evidence and test migration, recovery and independent reconstruction.

Acceptance / hold rule: Essential historical and current evidence remains usable and required support has accepted continuity arrangements.

72.6 – Scientific instruments and observation integrity

Source: AF-AST-STD-001, page 109.

Observation claims shall identify instrument calibration, alignment, background effects, processing, timing, uncertainty and data-loss conditions. Engineering acceptance of an instrument shall be separated from a scientific inference from its output. Changes in reduction software shall retain earlier processing and the reason for differences.

Verification: Reprocess a representative observation from identified source data and calibration.

Acceptance / hold rule: The stated technical data-quality criteria are met; disputed scientific interpretation is not declared certain by an ASTRA engineering result.

72.7 – Future-domain feasibility and responsible closure

Source: AF-AST-STD-001, page 109.

Very long-range or novel propulsion and infrastructure concepts shall identify what has actually been demonstrated and what remains theoretical or unvalidated. Requirements may define a future scope, but no operational capability shall be granted from aspiration alone. The final record shall preserve terminal-state uncertainty, remaining obligations and custody after active support ends.

Verification: Review demonstration-state claims, technical gaps and actual terminal evidence.

Acceptance / hold rule: Only the demonstrated bounded capability is recognised; speculative performance and unknown final states remain clearly identified.

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.

74.1 – Mission-specific protection classification

Source: AF-AST-STD-001, page 112.

The responsible function shall identify destinations, return paths, scientific objectives, exposed materials, biological payloads and applicable protection duties. Forward contamination, backward contamination and scientific interference shall be assessed separately. The selected obligations and technical criteria shall be documented before mission or facility design decisions that depend on them.

Verification: Review destination, pathway and consequence analysis with qualified independent specialists.

Acceptance / hold rule: Every triggered protection duty has an explicit owner, criterion and verification path; an undefined classification remains HOLD.

74.2 – Contamination pathways and control allocation

Source: AF-AST-STD-001, page 112.

Map contamination sources, transport pathways, contact interfaces, releases and receiving environments across manufacture, test, integration, operation, collection, return and disposition. Allocate controls to actual performers and preserve interface assumptions. A cleaning or containment declaration shall not establish effectiveness without method-specific evidence for the relevant material and pathway.

Verification: Inspect the pathway map and validated evidence for each relied-upon control.

Acceptance / hold rule: All essential pathways are controlled to the approved technical basis; inaccessible required evidence prevents a favourable conclusion.

74.3 – Scientific cleanliness and background

Source: AF-AST-STD-001, page 112.

Define species, particulates, molecular residues or other backgrounds capable of affecting the specific measurement. Reference samples, witness materials, blanks, calibration and contamination history shall have traceable identity and handling. A broad cleanliness classification shall not establish suitability for an instrument with a different detection limit or scientific objective.

Verification: Review measurement-specific contamination budgets and actual verification results.

Acceptance / hold rule: Required cleanliness and background predicates pass within method uncertainty; uncharacterised contamination remains a limitation on the affected output.

74.4 – Sample identity and custody

Source: AF-AST-STD-001, page 112.

Each sample shall retain origin description, collection event, container, seal or interface identity, mass or quantity where known, conditions, contamination history, transfers, subdivisions and authorised access. Unknown provenance shall remain unknown. Splitting or pooling shall preserve parent-child links and shall not create duplicate inventories.

Verification: Reconcile original collection, custody, receiving and subdivision records.

Acceptance / hold rule: The sample and its history are unambiguous and usable for the claimed purpose; missing essential links block the dependent sample conclusion.

74.5 – Return-chain containment and receiving readiness

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

Where containment or restricted receiving applies, verify compatible transport, return vehicle, retrieval, custody, receiving facility, authorised personnel and contingency arrangements. The profile shall define the evidence needed to establish boundary integrity and safe transfer without specifying hazardous treatment methods. A ready spacecraft does not establish readiness of an absent receiving facility.

Verification: Review the complete return-to-receiving chain and authorised representative integrity demonstrations.

Acceptance / hold rule: Every essential interface and receiving capability is accepted before dependent return commitments; otherwise the chain remains incomplete.

74.6 – Anomalies, unknown state and release of information

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

Loss of containment indication, unverified seal condition, missing samples or unexplained contamination shall trigger preservation, restriction and qualified review. Do not equate absent alarms with demonstrated integrity. Technical data and scientific interpretations shall retain limitations; public statements shall not imply a sample is harmless or pristine solely because its custody form is complete.

Verification: Examine anomaly decisions, actual observations and bounded reporting.

Acceptance / hold rule: Only supported technical conclusions are released; uncertainty and unresolved protection duties remain visible.

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.

75.1 – Process purpose and environment

Source: AF-AST-STD-001, page 114.

Define intended output, material properties, environment, equipment, software, tooling, personnel or autonomous role, inspection access and downstream use. Distinguish research yield, qualified process capability and product acceptance. A terrestrial qualification shall not automatically transfer to a different gravity, vacuum, thermal, contamination or radiation environment.

Verification: Review environment differences and the process-to-property qualification argument.

Acceptance / hold rule: All essential output properties and influential conditions have an approved evidence path; unsupported transfer remains HOLD.

75.2 – Inputs, feedstock and source variability

Source: AF-AST-STD-001, page 114.

Retain origin, composition or material type, condition, contamination, storage, reuse, mixing and representative property evidence for feedstock. Local or recovered resources shall have a characterised variability and sampling basis. A claimed resource abundance shall not establish usable quantity or technical eligibility. Source substitution shall be assessed before use.

Verification: Trace input lots and samples to process runs and accepted property evidence.

Acceptance / hold rule: Input identity and suitability meet approved criteria; uncertain composition or life history is not replaced by a nominal source label.

75.3 – Essential variables and remote monitoring

Source: AF-AST-STD-001, page 114.

The qualified envelope shall identify influential variables, combinations, tolerances, monitoring performance and reaction rules. Retain actual variable histories, interruptions and sensor gaps by output identity. Remote telemetry shall support acceptance only for properties and mechanisms demonstrated to be observable or validly inferred. A successful process command does not prove the intended material transformation occurred.

Verification: Review representative qualification, sensor/model validation and raw production history.

Acceptance / hold rule: All required variables and output characteristics are supported; an unobservable essential property requires additional evidence or a restricted outcome.

75.4 – Yield, mass balance and circularity

Source: AF-AST-STD-001, page 114.

Material accounting shall separate input, good output, reject, sample consumption, process loss, recovered material, work in progress and unknown difference. Internal recirculation shall not be counted repeatedly as new resource production. Mass closure and yield are different measures; neither proves safety or material performance. Units and measurement uncertainty shall be explicit.

Verification: Independently reconcile the material ledger and separately review quality acceptance.

Acceptance / hold rule: Balances meet the approved uncertainty-based criterion and all claimed good output is technically accepted; unexplained losses or duplicate recovery remain open.

75.5 – Logistics, storage and compatibility

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

Logistics shall preserve item identity, custody, configuration, life, condition and applicable environmental exposure through packaging, handling, transport, transfer and storage. Receiving systems shall confirm mechanical, fluid, electrical, data and contamination compatibility where relevant. Planned delivery shall not be counted as physically received usable inventory.

Verification: Inspect the complete shipment and receiving chain, including excursions and damage.

Acceptance / hold rule: Only accepted usable inventory enters mission budgets; unknown or restricted items are segregated in both physical and digital records.

75.6 – Maintenance, spares and distributed production

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

On-demand or remote production of replacement parts shall satisfy the same applicable design, material, process and acceptance requirements as other sources. Digital files, authorised build configuration, inspection capability and life history shall be controlled. A successfully printed shape shall not establish structural, electrical or environmental suitability. Missing original supply does not waive qualification.

Verification: Review replacement authorisation, production genealogy and configuration-specific verification.

Acceptance / hold rule: Every essential replacement predicate passes before use; unsupported functional or life equivalence is prohibited.

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.

76.1 – System boundary and conversion chain

Source: AF-AST-STD-001, page 116.

Define energy source, conversion, storage, distribution, loads, interfaces, heat rejection and terminal duties. Identify normal and degraded states, common dependencies, exposure and maintenance accessibility. Component efficiency or nameplate power shall not be represented as available end-to-end service capability.

Verification: Trace energy and thermal balances across the actual architecture and conditions.

Acceptance / hold rule: Every essential stage and interface meets approved functional and protective requirements.

76.2 – Beamed and remote energy services

Source: AF-AST-STD-001, page 116.

A remote energy-service profile shall identify transmitter, receiver, conversion, alignment, intervening environment, control authority and protection of unintended recipients. The assurance case shall address wrong-target, lost-tracking, interrupted-service and emergency shutdown conditions through authorised safe demonstrations. A received-power measurement alone shall not close protection or permission requirements.

Verification: Review written scope, compatible interfaces, performance evidence and safe protective tests.

Acceptance / hold rule: Delivery and all triggered protective predicates pass; no hazardous or unauthorised operation is justified by a positive efficiency value.

76.3 – Cryogenic, chemical and pressure interfaces

Source: AF-AST-STD-001, page 116.

Specialised energy storage and transfer shall define relevant material compatibility, containment, thermal behaviour, quality, monitoring, protective isolation and emergency interfaces. Actual pressure, composition, exposure and handling limits shall be approved by competent specialists for the specific system. This publication shall not be used as an operating procedure.

Verification: Review authorised technical basis, qualification, inspection and integration evidence.

Acceptance / hold rule: Every essential containment and protection condition is supported; missing hazardous-work authority blocks the activity.

76.4 – Nuclear and radiation-source governance

Source: AF-AST-STD-001, page 116.

Where a mission uses a nuclear or other controlled radiation source, the organisation shall identify the actual competent authorities, permissions, safety case, transport, launch/operation interfaces, security, emergency responsibilities and end-of-life duties. Independent specialist access shall be sufficient for the bounded evaluation. ASTRA shall not grant source-handling, reactor-design or public-safety permission.

Verification: Verify the existence, scope and authenticity of required specialist approvals and integration evidence.

Acceptance / hold rule: All relevant permissions and assurance interfaces are complete; a generic aerospace credential cannot substitute for them.

76.5 – Infrastructure availability and failure propagation

Source: AF-AST-STD-001, page 117.

Utilities, storage, conversion and networks shall be evaluated for common failures, load prioritisation, restoration, fire or containment interfaces and dependence on external support. Protection of people and essential assets shall be distinguished from mission-service continuity. A shared resource cannot be credited as independent backup to itself.

Verification: Review dependency analysis and safe tests of loss, isolation and restoration.

Acceptance / hold rule: Every essential protective path remains effective under the approved failure set; unsupported independence is not credited.

76.6 – Degradation, environmental claims and retirement

Source: AF-AST-STD-001, page 117.

Capacity, conversion and loss models shall reflect ageing and relevant exposure. Environmental claims shall use a separately defined lifecycle boundary and shall not imply technical interchangeability or complete safety. Retirement shall preserve hazardous inventory, terminal protection, custody and monitoring duties.

Verification: Reconcile actual condition, model validity, separate environmental statements and final disposition.

Acceptance / hold rule: Technical life and terminal conditions are met independently of environmental metrics; unknown inventories remain open obligations.

77.1 – Requirement-to-method completeness

Source: AF-AST-STD-001, page 118.

The verification matrix shall include every applicable requirement, object/configuration, method, test or analysis purpose, criterion, uncertainty, evidence and authorised conclusion. Inspection, analysis, demonstration and testing shall be selected for the actual failure mechanism. Annex T domains guide coverage but are not ready-made methods. A complete test list shall not replace requirement-level closure.

Verification: Reconcile the requirement population, test matrix and actual evidence using stable identifiers.

Acceptance / hold rule: Every applicable requirement has a valid completed evidence path; any essential uncovered row remains HOLD.

77.2 – Campaign design and article pedigree

Source: AF-AST-STD-001, page 118.

Define qualification articles, flight or service articles, specimens, representative differences, prior exposure, fixtures, operating modes and cumulative test sequence. Identify which conclusions may be transferred between articles and why. Failed tests, repairs and substitutions shall remain in the same historical chain.

Verification: Review specimen-to-product and test-to-configuration equivalence records.

Acceptance / hold rule: All material differences and accumulated effects are evaluated before evidence reuse; unrepresentative essential evidence is not accepted.

77.3 – Measurement and uncertainty readiness

Source: AF-AST-STD-001, page 118.

Before execution, verify instrument identity, calibration, range, bandwidth, synchronisation, environment, software, raw-data retention and uncertainty suitability. Sensor placement and spatial coverage shall represent the characteristic being accepted. Protect the article and personnel through separately specified stop conditions.

Verification: Inspect the full measurement chain and execute relevant readiness checks.

Acceptance / hold rule: All required channels are valid for the intended inference; a missing, saturated or misconfigured critical channel prevents that acceptance.

77.4 – Combined effects and sequence

Source: AF-AST-STD-001, page 118.

The technical plan shall evaluate whether individual tests adequately address coupled environments and order-dependent damage. Thermal, radiation, mechanical, electrical, contamination and software conditions shall be combined or supported by a justified integrated analysis where necessary. Over-test and under-test shall be assessed against the actual evidence purpose.

Verification: Review the interaction matrix and cumulative exposure ledger.

Acceptance / hold rule: Every material combined mechanism has adequate evidence; passing isolated tests does not automatically close unexamined combinations.

77.5 – Original data and invalid tests

Source: AF-AST-STD-001, page 118.

Retain actual setup, input and response histories, environmental conditions, interruptions, alarms, raw files, corrections, uncertainty and validity classification. An invalid run shall state what evidence remains usable and which requirement is not demonstrated. A repaired or changed article shall not silently replace the originally failed configuration.

Verification: Reconstruct a selected run from raw data and contemporaneous records.

Acceptance / hold rule: The run is independently interpretable and no failed, invalid or missing evidence is concealed.

77.6 – Numerical and attribute acceptance

Source: AF-AST-STD-001, page 119.

Quantitative decisions shall use the prospectively selected predicate and uncertainty rule. Attribute decisions shall name observable states and essential steps rather than unstructured judgement. Equality at an inclusive limit is handled as specified; empty acceptance regions, invalid units and non-finite values produce HOLD. Rounding shall not change an outcome.

Verification: Replay boundary, negative and missing-input cases using Annex AL and Annex AM.

Acceptance / hold rule: The correct state follows deterministically from valid unrounded inputs and the approved predicate.

77.7 – Retest and corrective verification

Source: AF-AST-STD-001, page 119.

Retest shall follow an approved rationale, defined scope and representative configuration. It shall preserve the original failure and address causal, exposure and selection effects. Repeated trials until a pass occurs are not an acceptance strategy. Corrective verification shall include the original failure mode and relevant regression, not merely a new favourable measurement.

Verification: Review the retest authorisation, all attempts and failure-to-correction trace.

Acceptance / hold rule: The original deficiency and affected requirements are demonstrably resolved; otherwise the claim remains failed or held.

77.8 – Independent campaign closure

Source: AF-AST-STD-001, page 119.

The final dossier shall reconcile configuration, criteria, valid results, adverse evidence, untested characteristics, uncertainty, concessions and open duties. Qualification, article acceptance, laboratory competence and ASTRA conformity shall retain separate decisions. A technical concession shall not be relabelled as fulfilment of the original criterion.

Verification: Perform independent requirement-by-requirement closure with actual decision authority.

Acceptance / hold rule: Every applicable gate for the exact claimed object passes; counts, percentages or programme completion dates alone cannot release the object.

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.

79.1 – Protect people and essential assets before mission success

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

The assurance case shall separate mission-success conditions from required protection when the mission objective cannot be achieved. Define credible severe consequences, essential controls, detection, escalation and authorised stop or restriction. Commercial benefit and a favourable aggregate risk score shall not override a missing essential protective condition.

Verification: Review hazard-to-control-to-verification traceability for failed-mission scenarios.

Acceptance / hold rule: Every required protective function has accepted evidence independently of mission performance metrics.

79.2 – Emergency feasibility and resources

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

Protective and recovery plans shall identify actual people, communication, access, equipment, energy, consumables, time and external assistance. An assumed response shall be credited only within demonstrated capability and mission constraints. A rescue agreement, proposed future service or unallocated reserve shall not be counted as assured availability.

Verification: Reconcile scenario timing, resource budgets and exercised interfaces.

Acceptance / hold rule: All required protective pathways are feasible within their approved response and survival bounds.

79.3 – Loss of contact and uncertain physical state

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

The operator shall define the distinction between missing data, confirmed failure, safe dormant state, lost asset and completed disposition. Preserve last valid observations, their age and uncertainty. The absence of an alarm or signal shall not establish safe state. An inference shall identify its model and limits and shall not be presented as direct observation.

Verification: Review the state-classification record against raw evidence and observability limits.

Acceptance / hold rule: Only a supported state is assigned; uncertain essential conditions retain UNKNOWN in operational records and HOLD in dependent acceptance.

79.4 – Affected populations and historical decisions

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

An event shall be traced to affected configurations, fleet members, materials, methods, software, personnel, reports and prior decisions. Determine both occurrence and escape causes and test competing explanations. Changing a supplier, restarting a service or training one person shall not by itself close a shared systemic cause.

Verification: Inspect end-to-end dependency and look-back analysis with actual notifications.

Acceptance / hold rule: All materially dependent outputs are addressed; no valid adverse history is erased by later correction.

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.

79.6 – Learning and sustained accountability

Source: AF-AST-STD-001, page 123.

Lessons shall be translated into controlled requirements, methods, training, resources or interfaces and verified under representative conditions. Protect good-faith reporting and distinguish allegation from substantiated misconduct. Long-term archives shall retain technical meaning, access conditions and correction responsibility after staff, tools or institutions change.

Verification: Review corrective effectiveness and test retrieval by a receiving competent reviewer.

Acceptance / hold rule: The affected controls demonstrably improve and the mission record remains interpretable; publication of a lesson alone is not closure.

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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