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Purpose and application

Ground Operations and Aviation Support Services for 9 retained scope subjects. This book specifies evaluable implementation controls, scope boundaries and the complete application-specific parameter and evidence architecture. Actual engineering values, local permissions and release decisions must be separately established.

Source requirements and added implementation detail

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

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

Acceptance boundary

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

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1 Family boundary, outcome and retained subjects

Ground Operations and Aviation Support Services for 9 retained scope subjects. This book specifies evaluable implementation controls, scope boundaries and the complete application-specific parameter and evidence architecture. Actual engineering values, local permissions and release decisions must be separately established.

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

Retained subject	Exact title	Result boundary
F07-G01	Ground handling and turnaround	No loading, pushback or de-icing recipe, flight clearance or general airline operating authority is created.
F07-G02	Cargo, mail and specialist logistics	Capability recognition does not validate unknown contents, replace transport permissions or establish a shipment's technical eligibility solely from its paperwork.
F07-G03	Fuel and energy services	No fuel formulation, pressure, hazardous operating procedure or whole-flight zero-emission assertion is supplied by this profile.
F07-G04	Ground equipment and technical facilities	Equipment service capability is not unrestricted aircraft compatibility, statutory plant approval or proof that every connected device is conforming.
F07-G05	Catering, cabin and sanitation services	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	FBO and business-aviation support	Coordination capability does not certify every underlying provider, give aircraft release powers or prove services at unassessed network locations.
F07-G07	Flight and air-navigation support	No public air-navigation authority, airline operating licence, flight clearance or guaranteed operational safety follows from a generic support-service outcome.
F07-G08	Aviation digital and operational systems	A platform outcome is not certification of every generated output, every connected provider or the safety of all customer operations.
F07-G09	Specialist aviation security services	ASTRA does not transfer public security powers, authorise intrusive activity or supply tactical bypass, offensive or operational attack instructions.

2 Requirement and decision architecture

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

State	Sufficient basis	Required next action
PASS	Applicable; current approved predicate met by valid, purpose-specific evidence.	Retain the original evidence and bounded inference. Other mandatory gates still apply.

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

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

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

Positive-decision conjunction

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

3 Prospective parameter schedule

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

P01 — Mission and scope

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

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

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

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.

P09 – Power and energy

End-of-life generation, peak load, usable storage, efficiency, outage/eclipses, mode durations and terminal reserve.

Derivation and evidence: Configuration-specific phase budget and protection tests.

Completion test: Power and energy limits both pass without duplicate reserve credit.

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.

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.

4 Detailed subject profiles

F07-G01 – Ground handling and turnaround

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.

Application-specific parameters: Provider/station; service tasks; aircraft/customer data; operating conditions; equipment compatibility; local variations; personnel authorisations; handover and hold points; abnormal-event reporting; contracted boundaries.

Profile boundary	Detail
Technical emphasis	station-specific handling and turnaround interfaces
Failure / evidence risks	departure on schedule can conceal an unverified task or unresolved load/handover discrepancy
Representative witnessing	Follow a turnaround service trail from current aircraft/customer instructions through staff/equipment readiness, handovers, a recorded exception and actual service completion; do not direct live operations.
Change and requalification triggers	Station; aircraft/customer; service track; equipment; local instruction; staffing; operating environment; subcontractor; shared data system.
Outcome limitation	No loading, pushback or de-icing recipe, flight clearance or general airline operating authority is created.

F07-G01-R01 – Retained subject control

Translate the headquarters manual into current station instructions reflecting actual infrastructure, customer data, languages, staffing, climate and operating hours.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R02 – Retained subject control

Verify task-specific competence, equipment compatibility, current operational information and permissions; a network membership does not establish local delivery capability.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R03 – Retained subject control

Define handovers, checks and stop points between passenger, baggage, ramp, loading, movement and specialist tasks without merging their actual authorities.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R04 – Retained subject control

Observe representative routine and disrupted work safely, including peak loads and shift changes; departure of the aircraft is not evidence that every service step was correct.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R05 – Retained subject control

Retain discrepancies, damage, delays, interrupted tasks and recovery actions with actual aircraft/service identity and notification recipients.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R06 – Retained subject control

Assess station additions and changed customer, equipment or service conditions before expanding the claim; shared failures trigger review of all dependent stations.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G01-R07 – Mission and environment transfer

For ground handling and turnaround, define the qualified or evaluated envelope for station-specific handling and turnaround interfaces. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G01-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: departure on schedule can conceal an unverified task or unresolved load/handover discrepancy. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G01-R09 – Configuration and data identity

Bind station-specific handling and turnaround interfaces to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

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

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

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

F07-G01-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: trace task-level completion, equipment compatibility, shift change and exception acknowledgement. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G01-R11 – Receiving interface and bounded output

Deliver the bounded output to handling supervisor and authorised receiving operational role. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G01-R12 – Independent release and continuing validity

Evaluate F07-G01 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: trace task-level completion, equipment compatibility, shift change and exception acknowledgement. The reviewer records the affected F07-G01 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by handling supervisor and authorised receiving operational role.

F07-G02 – Cargo, mail and specialist logistics

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.

Application-specific parameters: Shipment classes; stations; task boundaries; custody parties; contents declarations; security interfaces; storage and temperature/time limits; equipment; segregation; permits; release recipients; excursion and recall rules.

Profile boundary	Detail
Technical emphasis	cargo/mail custody and specialist logistics
Failure / evidence risks	quantity reconciliation can conceal wrong identity or an environmental excursion in transit
Representative witnessing	Trace a consignment through multiple custody points and a separate excursion or rejected-acceptance case; examine the link between environmental readings, item identity and recipient notification.
Change and requalification triggers	Shipment class; station; packaging or route; storage limit; monitoring system; subcontractor; specialist permissions; customer instruction.
Outcome limitation	Capability recognition does not validate unknown contents, replace transport permissions or establish a shipment's technical eligibility solely from its paperwork.

F07-G02-R01 – Retained subject control

Establish the actual shipment and service boundaries, customer instructions and necessary specialist permissions before acceptance; a general logistics scope cannot authorise prohibited goods.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R02 – Retained subject control

Preserve identification, quantities, seals or other relevant custody evidence during acceptance, build-up, breakdown, storage and subcontracted transfers.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R03 – Retained subject control

Verify storage, handling equipment, staff competence and environmental monitoring for the declared contents and conditions; validate alarms and missing-data response.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R04 – Retained subject control

Identify customer-supplied declarations as such and resolve unsuitable packaging, ambiguous identity or conflicting instructions before a dependent release.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R05 — Retained subject control

Trace contamination, damage, temperature or custody excursions to affected consignments and downstream recipients, retaining original evidence and authorised disposition.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R06 — Retained subject control

Evaluate actual transfers and receiving acknowledgements, including adverse or disrupted work; review new shipment classes, stations and contractors before widening the claim.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G02-R07 — Mission and environment transfer

For cargo, mail and specialist logistics, define the qualified or evaluated envelope for cargo/mail custody and specialist logistics. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G02-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: quantity reconciliation can conceal wrong identity or an environmental excursion in transit. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G02-R09 — Configuration and data identity

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

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

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

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

F07-G02-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: follow actual consignment identity, storage conditions, subcontractor custody and receiving release. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G02-R11 – Receiving interface and bounded output

Deliver the bounded output to logistics custodian and authorised consignment recipient. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G02-R12 – Independent release and continuing validity

Evaluate F07-G02 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: follow actual consignment identity, storage conditions, subcontractor custody and receiving release The reviewer records the affected F07-G02 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by logistics custodian and authorised consignment recipient.

F07-G03 – Fuel and energy services

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.

Application-specific parameters: Fuel/energy identity; source and custody; storage/distribution architecture; sampling; compatibility; contamination controls; equipment; personnel; limits; supplied quantities; protective functions; emergency interfaces.

Profile boundary	Detail
Technical emphasis	fuel or energy source-to-delivery service
Failure / evidence risks	an environmental attribute or invoice can be mistaken for actual quality-compatible delivered energy
Representative witnessing	Follow a source-to-aircraft or asset delivery record with quality checks, equipment status, quantity reconciliation and handover; challenge an identity mismatch and an interrupted delivery using safe evidence.

Profile boundary	Detail
Change and requalification triggers	Fuel or energy type; source; storage or transfer equipment; aircraft interface; sampling method; protective system; station; permission; attribute mechanism.
Outcome limitation	No fuel formulation, pressure, hazardous operating procedure or whole-flight zero-emission assertion is supplied by this profile.

F07-G03-R01 – Retained subject control

Define each actual service and its infrastructure, customer interfaces, competent performers and permissions; do not infer novel-energy capability from conventional fuel experience.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R02 – Retained subject control

Preserve source, batch or transaction identity, quality evidence and quantity relationships through storage, transfer and delivery.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R03 – Retained subject control

Implement approved contamination and quality-control methods using suitable sampling, measurement and equipment; record adverse or indeterminate results before release.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R04 – Retained subject control

Demonstrate compatibility between the delivered energy architecture, ground equipment and supported aircraft or asset; an environmental attribute is not technical interchangeability.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R05 – Retained subject control

Verify protective functions, interruption response, authorised maintenance and safe emergency coordination under specialist procedures without introducing generic hazardous settings.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R06 – Retained subject control

Retain delivery records, excursions, affected recipients, correction and actual resumption authority; separately control environmental supply claims under F08-C06.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G03-R07 – Mission and environment transfer

For fuel and energy services, define the qualified or evaluated envelope for fuel or energy source-to-delivery service. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G03-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: an environmental attribute or invoice can be mistaken for actual quality-compatible delivered energy. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G03-R09 – Configuration and data identity

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

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

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

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

F07-G03-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: separate physical source, sampling/quality, metering, aircraft interface and exclusive claim records. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G03-R11 – Receiving interface and bounded output

Deliver the bounded output to energy-service technical authority and accepting aircraft/ground user. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G03-R12 – Independent release and continuing validity

Evaluate F07-G03 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: separate physical source, sampling/quality, metering, aircraft interface and exclusive claim records The reviewer records the affected F07-G03 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by energy-service technical authority and accepting aircraft/ground user.

F07-G04 – Ground equipment and technical facilities

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.

Application-specific parameters: Asset types and serials; supported aircraft/tasks; operating limits; maintenance data; inspection and protective functions; personnel; calibration; temporary repairs; digital configuration; release and restoration authority.

Profile boundary	Detail
Technical emphasis	ground equipment and technical facility support
Failure / evidence risks	equipment availability can conceal an ineffective protective function or unapproved temporary bypass
Representative witnessing	Observe a representative equipment inspection and trace a defect from detection through restriction, maintenance, protective-function verification and return; examine one temporary-condition record.
Change and requalification triggers	Asset family; aircraft interface; software or controls; maintenance method; temporary repair; protective device; infrastructure or energy change; support provider.
Outcome limitation	Equipment service capability is not unrestricted aircraft compatibility, statutory plant approval or proof that every connected device is conforming.

F07-G04-R01 – Retained subject control

Maintain an asset/task capability register connecting each included equipment class to compatible aircraft or services and actual responsible technical functions.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R02 – Retained subject control

Verify current maintenance and inspection instructions, competent people, tools, protective systems and required permissions before accepting the supported activity.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R03 – Retained subject control

Trace condition checks, defects and restrictions to specific assets and prevent unavailable or unserviceable equipment from being presented as ready.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R04 – Retained subject control

Control isolation, bypasses, overrides and temporary repairs through bounded specialist authority, expiry conditions and verified restoration; commercial demand is not a technical waiver.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R05 – Retained subject control

Validate digital monitoring and condition-based decisions for the relevant mechanisms, configuration and detection limits without silently removing required physical checks.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R06 – Retained subject control

After repair or system recovery, establish physical function, data/configuration integrity and actual return authority before service use; review prior affected outputs when protection failed.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G04-R07 – Mission and environment transfer

For ground equipment and technical facilities, define the qualified or evaluated envelope for ground equipment and technical facility support. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G04-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: equipment availability can conceal an ineffective protective function or unapproved temporary bypass. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G04-R09 – Configuration and data identity

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

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

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

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

F07-G04-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: trace asset configuration, compatibility, maintenance, protection and verified return authority. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G04-R11 – Receiving interface and bounded output

Deliver the bounded output to equipment owner and operational service recipient. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G04-R12 – Independent release and continuing validity

Evaluate F07-G04 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: trace asset configuration, compatibility, maintenance, protection and verified return authority The reviewer records the affected F07-G04 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by equipment owner and operational service recipient.

F07-G05 – Catering, cabin and sanitation services

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.

Application-specific parameters: Service and station; aircraft/customer requirements; product and chemical suitability; contamination barriers; time/temperature where applicable; storage; equipment; staff training; delivery trace; incident and withdrawal duties.

Profile boundary	Detail
Technical emphasis	catering/cabin/sanitation task integrity
Failure / evidence risks	a completed delivery record can conceal contamination or time/temperature loss at an interface
Representative witnessing	Trace one delivery from source/storage to aircraft handover and one rejected or disrupted service; examine segregation, product compatibility and recipient traceability without inventing clinical or food-safety limits.
Change and requalification triggers	Product or chemical; supplier; station; aircraft/customer instruction; equipment; storage/transport; time-temperature basis; subcontractor.
Outcome limitation	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-G05-R01 – Retained subject control

Define the actual catering, cleaning, water, lavatory or cabin-supply tasks and distinguish the accountable provider from subcontractors and coordinators.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R02 — Retained subject control

Verify suitable products, chemicals, equipment, storage and personnel for both hygienic performance and the applicable aircraft/customer compatibility requirements.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R03 — Retained subject control

Control segregation, contamination-sensitive interfaces, relevant time/temperature and custody across preparation, storage, transport and delivery.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R04 — Retained subject control

Demonstrate task completion and checks under representative conditions, including shift changes and disrupted delivery; generic training attendance is not sufficient.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R05 — Retained subject control

Trace an adverse hygiene, contamination or compatibility event to actual deliveries, aircraft and customers and implement competent protection, withdrawal or correction.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R06 — Retained subject control

Review product, chemical, supplier, station and method changes prospectively and retain actual service evidence, notifications and restored capability.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G05-R07 — Mission and environment transfer

For catering, cabin and sanitation services, define the qualified or evaluated envelope for catering/cabin/sanitation task integrity. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G05-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: a completed delivery record can conceal contamination or time/temperature loss at an interface. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G05-R09 – Configuration and data identity

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

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

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

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

F07-G05-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: trace relevant custody, segregation, compatibility, excursions and affected-delivery notices. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G05-R11 – Receiving interface and bounded output

Deliver the bounded output to service supervisor and authorised aircraft-service recipient. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G05-R12 – Independent release and continuing validity

Evaluate F07-G05 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: trace relevant custody, segregation, compatibility, excursions and affected-delivery notices The reviewer records the affected F07-G05 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by service supervisor and authorised aircraft-service recipient.

F07-G06 — FBO and business-aviation support

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.

Application-specific parameters: Location; direct services; arranged services; providers; customer interfaces; confidentiality; accessibility; permissions; equipment; emergency communications; disruption arrangements; service measures; actual handovers.

Profile boundary	Detail
Technical emphasis	direct and coordinated fixed-base services
Failure / evidence risks	a coordination contract can be misrepresented as direct specialist delivery capability
Representative witnessing	Follow a coordinated arrival/departure support case across actual external providers and a disrupted service; compare the marketed package to direct evidence and responsibility boundaries.
Change and requalification triggers	Package; location; supplier; aircraft/customer; direct-versus-coordinated role; data platform; operating hours; emergency support.
Outcome limitation	Coordination capability does not certify every underlying provider, give aircraft release powers or prove services at unassessed network locations.

F07-G06-R01 — Retained subject control

Describe the actual package and accountable entity for each service, distinguishing coordination from direct performance in contracts and public wording.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R02 — Retained subject control

Apply relevant G01–G05 or specialist controls to underlying activities; the FBO package label does not waive their task-specific evidence.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R03 — Retained subject control

Verify provider capability, current permissions, availability, local instructions and receiving interfaces before promising a delivered service.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R04 — Retained subject control

Protect passenger, crew and business information through purpose-bound access, while maintaining sufficient records to establish service responsibility and actual completion.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R05 — Retained subject control

Demonstrate accessible service, emergency communication, disrupted-provider handling and truthful customer information under representative local conditions.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R06 — Retained subject control

Monitor subcontractors and package changes with separate technical review of new tasks, preserving historical complaints, corrections and actual provider identities.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G06-R07 — Mission and environment transfer

For fbo and business-aviation support, define the qualified or evaluated envelope for direct and coordinated fixed-base services. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G06-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: a coordination contract can be misrepresented as direct specialist delivery capability. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G06-R09 – Configuration and data identity

Bind direct and coordinated fixed-base services to actual configuration, controlled technical data, source/lot or record identity, equipment and software state, authorised performer and actual event time. Preserve failed runs, changed objects and prior evidence through any digital transfer.

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

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

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

F07-G06-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: verify actual performers, local task scopes, acceptance and exception handover across the package. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G06-R11 – Receiving interface and bounded output

Deliver the bounded output to FBO coordination owner and underlying service providers. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G06-R12 – Independent release and continuing validity

Evaluate F07-G06 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: verify actual performers, local task scopes, acceptance and exception handover across the package The reviewer records the affected F07-G06 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original

mechanism and receiving acceptance by FBO coordination owner and underlying service providers.

F07-G07 – Flight and air-navigation support

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.

Application-specific parameters: Service track; responsible originator/provider/user; geography; systems and configurations; data rights; coordinate/reference basis; accuracy and timeliness criteria; timestamps; fallback; permissions; operational decision owner.

Profile boundary	Detail
Technical emphasis	flight/navigation-support data and authority
Failure / evidence risks	fresh receipt time can conceal stale or wrong-frame source information
Representative witnessing	Trace a source-to-user information trail and a stale or incorrect-data event, recording acquisition, receipt, processing, publication and use times with their declared conventions.
Change and requalification triggers	Discipline or geography; source data; reference system; software; performance criterion; operator mandate; fallback or communications dependency.
Outcome limitation	No public air-navigation authority, airline operating licence, flight clearance or guaranteed operational safety follows from a generic support-service outcome.

F07-G07-R01 – Retained subject control

Distinguish data provision, advice and actual operational authority and confirm required specialist permissions for the precise service and region.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R02 – Retained subject control

Trace source data, transformations, reference systems, units, versions and time definitions through the delivered output to the intended user.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R03 – Retained subject control

Validate accuracy, timeliness, completeness and relevant integrity conditions separately; high availability cannot compensate for wrong or stale operational information.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R04 – Retained subject control

Challenge wrong, missing, late, superseded or inconsistent inputs and verify alerts, fallback, communication and authorised restoration using safe representative cases.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R05 – Retained subject control

Assign discipline-specific competent personnel and independent review to technical conclusions, preserving source entitlement and controlled access to sensitive evidence.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R06 – Retained subject control

Assess changes in source, coverage, software, criteria or responsibility before expanding scope and notify recipients when earlier outputs become unsupported.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G07-R07 – Mission and environment transfer

For flight and air-navigation support, define the qualified or evaluated envelope for flight/navigation-support data and authority. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G07-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: fresh receipt time can conceal stale or wrong-frame source information. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G07-R09 – Configuration and data identity

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

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

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

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

F07-G07-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: trace origin, transformations, units, event age, uncertainty and adverse/fallback response. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G07-R11 — Receiving interface and bounded output

Deliver the bounded output to specialist data-service authority and actual operational user. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G07-R12 — Independent release and continuing validity

Evaluate F07-G07 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: trace origin, transformations, units, event age, uncertainty and adverse/fallback response The reviewer records the affected F07-G07 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by specialist data-service authority and actual operational user.

F07-G08 — Aviation digital and operational systems

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.

Application-specific parameters: System/version; intended users and actions; source-of-record; interfaces; performance and integrity requirements; data rights; AI use; hosting/dependencies; access; update; fallback; recovery; termination and custody.

Profile boundary	Detail
Technical emphasis	deployed aviation digital and operational services
Failure / evidence risks	high uptime can conceal wrong outputs, incompatible configuration or ineffective fallback
Representative witnessing	Trace a critical output through source, transformation, release and user reliance and execute safe prohibited/missing-data scenarios in the actual accepted environment; verify meaningful restoration.
Change and requalification triggers	Intended use; schema; source; algorithm/model; hosting; permissions; integration; interface; configuration; provider exit or migration.
Outcome limitation	A platform outcome is not certification of every generated output, every connected provider or the safety of all customer operations.

F07-G08-R01 – Retained subject control

Define intended use, data ownership, authority and critical dependencies for the actual deployment, including decisions that remain with customers or other providers.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R02 – Retained subject control

Control source, build, configuration, interfaces and loaded artefacts; validate the deployed target rather than rely solely on a vendor demonstration.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R03 – Retained subject control

Test wrong, late, missing and conflicting data, prohibited actions and degraded operation as well as ordinary availability; keep expected outcomes independent of observed software behaviour.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R04 – Retained subject control

Govern human and machine access, privileged changes, supplier connections and updates with attributable authority and safety-security compatibility review.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R05 — Retained subject control

Bound any AI or model support by validated purpose, provenance, performance and human oversight; automated outputs cannot independently create ASTRA status or operational authority.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R06 — Retained subject control

Demonstrate rollback or recovery, semantic export and receiving custody; retain defects and affected historical outputs through provider or system replacement.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G08-R07 — Mission and environment transfer

For aviation digital and operational systems, define the qualified or evaluated envelope for deployed aviation digital and operational services. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G08-R08 — Essential properties and observability

Identify the failure and evidence risks specific to this subject: high uptime can conceal wrong outputs, incompatible configuration or ineffective fallback. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G08-R09 — Configuration and data identity

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

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

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

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

F07-G08-R10 — Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: replay missing, stale, wrong-version and interrupted-update cases on the accepted local deployment. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G08-R11 — Receiving interface and bounded output

Deliver the bounded output to digital-service authority and affected operational recipients. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G08-R12 — Independent release and continuing validity

Evaluate F07-G08 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: replay missing, stale, wrong-version and interrupted-update cases on the accepted local deployment. The reviewer records the affected F07-G08 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by digital-service authority and affected operational recipients.

F07-G09 — Specialist aviation security services

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.

Application-specific parameters: Legal provider; authorised activities; sites; scope of public/customer authority; staff competence and lawful suitability checks; equipment; protected data; service interfaces; performance criteria; oversight and incident handling.

Profile boundary	Detail
Technical emphasis	authorised specialist security service evidence

Profile boundary	Detail
Failure / evidence risks	a corporate credential can be mistaken for unrestricted public security powers
Representative witnessing	Follow an authorised service and equipment-validity trail using appropriately protected evidence and a safe exception-management case; document inaccessible essential areas as holds or scope limits.
Change and requalification triggers	Legal mandate; task; site; equipment; protected method; key personnel; access arrangements; subcontractor; incident or revoked permission.
Outcome limitation	ASTRA does not transfer public security powers, authorise intrusive activity or supply tactical bypass, offensive or operational attack instructions.

F07-G09-R01 – Retained subject control

Confirm the provider's actual legal identity, task permissions and responsibility boundary before requesting or examining sensitive evidence.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R02 – Retained subject control

Demonstrate task-specific staff competence, training, equipment suitability and applicable suitability checks through lawful records rather than a general security credential.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R03 – Retained subject control

Establish independent competent reviewers with sufficient protected access; a secrecy restriction cannot be treated as positive evidence of capability.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R04 – Retained subject control

Evaluate authorised performance, handovers, equipment checks and exception management within safe pre-agreed boundaries, without publishing operational vulnerabilities or directing security activity.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R05 – Retained subject control

Preserve incident, complaint and corrective-action evidence with fair investigation, restricted personal data and proportionate recipient communication.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R06 – Retained subject control

Limit public claims to the actually reviewed service/site and permissions; review changes in mandate, technology, staff or provider interfaces before extending the outcome.

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

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

Basis: Retained operating subject control; latest core 23; 62 and Annex AL.

F07-G09-R07 – Mission and environment transfer

For specialist aviation security services, define the qualified or evaluated envelope for authorised specialist security service evidence. Compare the intended mission, material, site, configuration and phase/mode with the actual evidence. Identify material differences and allocate new demonstration before relying on heritage or terrestrial qualification.

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

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

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

F07-G09-R08 – Essential properties and observability

Identify the failure and evidence risks specific to this subject: a corporate credential can be mistaken for unrestricted public security powers. State which critical properties are directly observed, measured, inferred using a validated model or unknown. Allocate separate child predicates for each hidden property and each essential protective function.

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

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

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

F07-G09-R09 – Configuration and data identity

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

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

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

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

F07-G09-R10 – Subject-specific adverse demonstration

Challenge the following mechanism through a safe authorised test, independent record review or controlled simulation appropriate to this subject: review legitimate scope, specialist competence and sufficient protected evidence without disclosing tactical methods. Define the expected outcome before execution, retain original failures and repeat the failed case after correction.

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

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

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

F07-G09-R11 – Receiving interface and bounded output

Deliver the bounded output to authorised security service owner and competent oversight recipient. Reconcile identity, configuration, conditions, unresolved limitations, technical eligibility, remaining duties and readable evidence. Identify the actual performer and the organisation retaining acceptance responsibility.

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

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

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

F07-G09-R12 – Independent release and continuing validity

Evaluate F07-G09 independently within its declared object and outcome class. Reconcile the original R01–R06 controls with R07–R11, applicable source requirements, prospective parameters, findings and actual authority. Monitor the subject-specific changes stated in this profile and reopen affected conclusions when the evidence changes.

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

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

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

Qualification dossier and receiving closure

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

Worked failure path — synthetic: review legitimate scope, specialist competence and sufficient protected evidence without disclosing tactical methods. The reviewer records the affected F07-G09 child condition, contains the dependent use, retains earlier evidence and requests the missing or corrected demonstration. A later favourable run does not erase the first result. Final closure requires evidence addressing the original mechanism and receiving acceptance by authorised security service owner and competent oversight recipient.

5 Domain-specific integration dossiers

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

AK03 – Launch sites and spaceports

Site infrastructure, handling, ground services, emergency interfaces and actual permissions.

Mandatory profile content: Named site/operator, vehicle and payload classes, utilities, restrictions and receiving parties.

Source acceptance boundary: No site outcome is used as vehicle, launch or mission permission.

Source connection: 21, 36, 50, 70

Dossier step	Evidence and decision control
Define the exact application	Record the responsible entity and actual performer; claimed object; location/domain; intended phase and mode; configuration; duration; upstream and receiving interfaces.
Resolve environmental transfer	Compare the selected domain with the environment represented by prior qualification. Identify retained evidence, invalidated evidence, unobserved mechanisms and required new demonstration.

Dossier step	Evidence and decision control
Challenge the claim	Use an adverse case in which the domain is correct but the configuration, event time, remote observability or receiving authority is wrong. The dependent predicate shall not PASS from a correct domain label alone.
Close and maintain	Record accepted requirements and restrictions. Preserve unknown operational states separately from requirement HOLD. A later mission or provider change reopens affected assumptions before expanded reliance.

AK04 – Launch and deployment interfaces

Vehicle/payload integration, handling, ascent environment, separation and commissioning.

Mandatory profile content: Article pedigree, qualification envelope, interfaces and distinct readiness/permission decisions.

Source acceptance boundary: Every required integration and protective condition is met before the actual commitment.

Source connection: 35, 36, 64, 65, 70

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

AK28 – Space logistics and distributed supply

Warehousing, transfer, spares, custody, condition, receiving and service continuity.

Mandatory profile content: Actual items, life, environment, compatible interfaces and arrival/acceptance states.

Source acceptance boundary: Only physically or otherwise validly confirmed accepted usable inventory supports mission budgets.

Source connection: 48, 49, 69, 75

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

AK29 – Specialised energy infrastructure

Generation, storage, conversion, remote delivery and controlled high-hazard power interfaces.

Mandatory profile content: Architecture, margins, protection, specialist permissions, heat rejection and terminal inventory.

Source acceptance boundary: Performance never substitutes for safety, source authority or terminal accountability.

Source connection: 43, 53, 65, 76

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

AK30 – Ground, communication and navigation services

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

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

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

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

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

AK31 – Digital and autonomous space systems

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

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

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

Source connection: 44–47, 56, 78

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

AK32 – Retirement and long-term stewardship

Disposal, passivation governance, loss-of-contact states, records and residual obligations.

Mandatory profile content: Terminal criteria, actual evidence, unknowns, remaining inventories, notifications and custody.

Source acceptance boundary: Final-state claims are truthful and every unresolved duty has an accepted owner.

Source connection: 30, 36, 37, 53–55, 68, 79

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

6 Qualification and evidence handovers

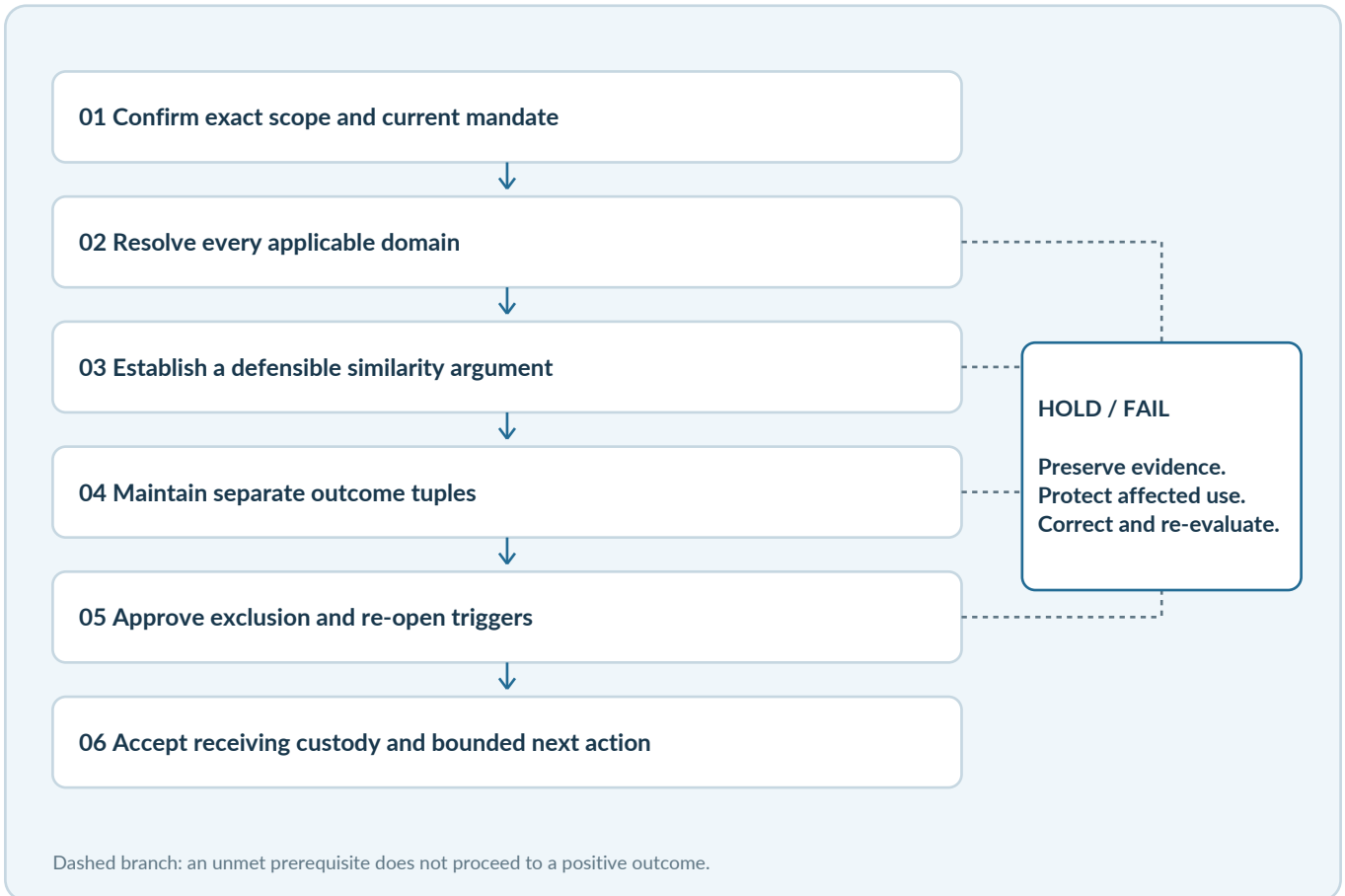
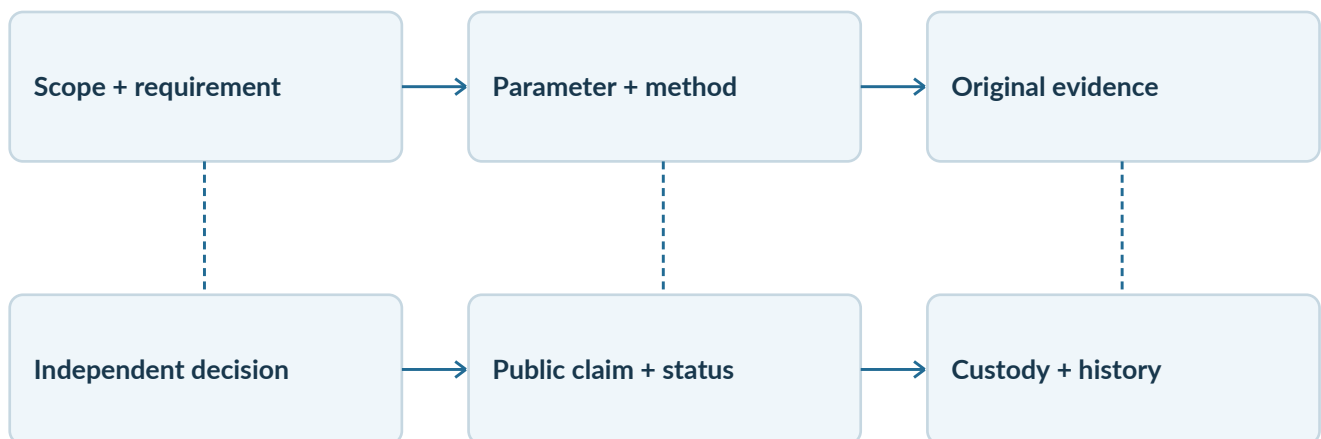


Figure — Implementation sequence for AF-AST-PR-004. Explanatory diagram; the source prerequisites and actual authority remain controlling.



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.

7 Worked calculations and technical charts

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

AM.Q03 Positive-decision conjunction and essential failure

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

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

Requirement completion = completed applicable rows / all applicable rows

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

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

Completion is not the grant decision

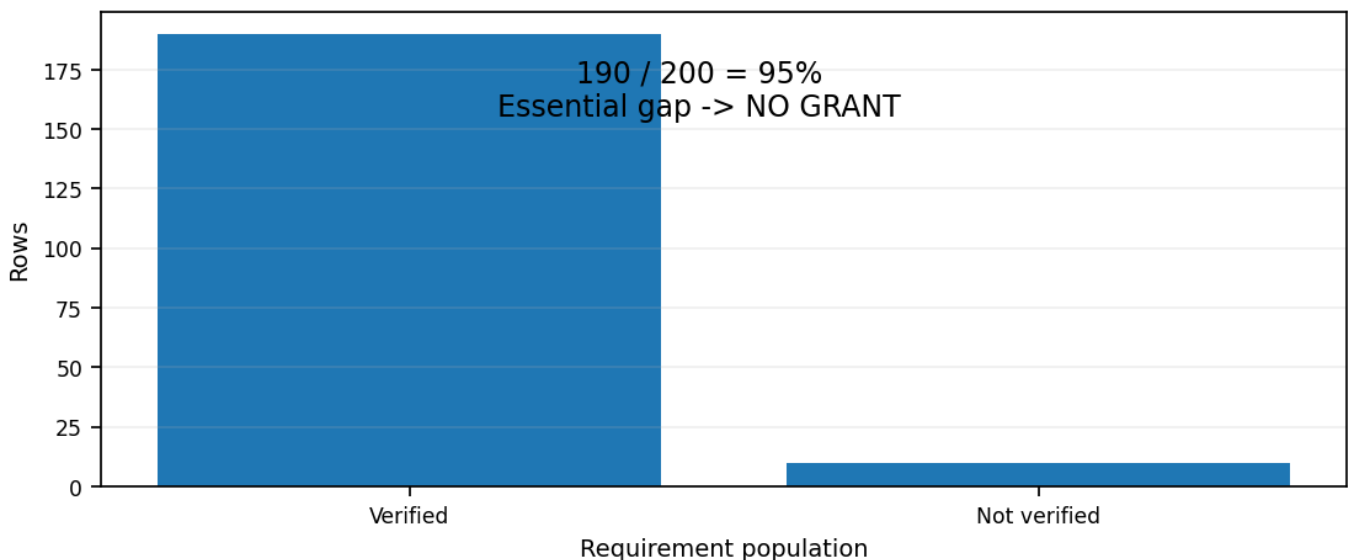


Figure Q03 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q05 Productive evaluation time without double counting

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

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

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

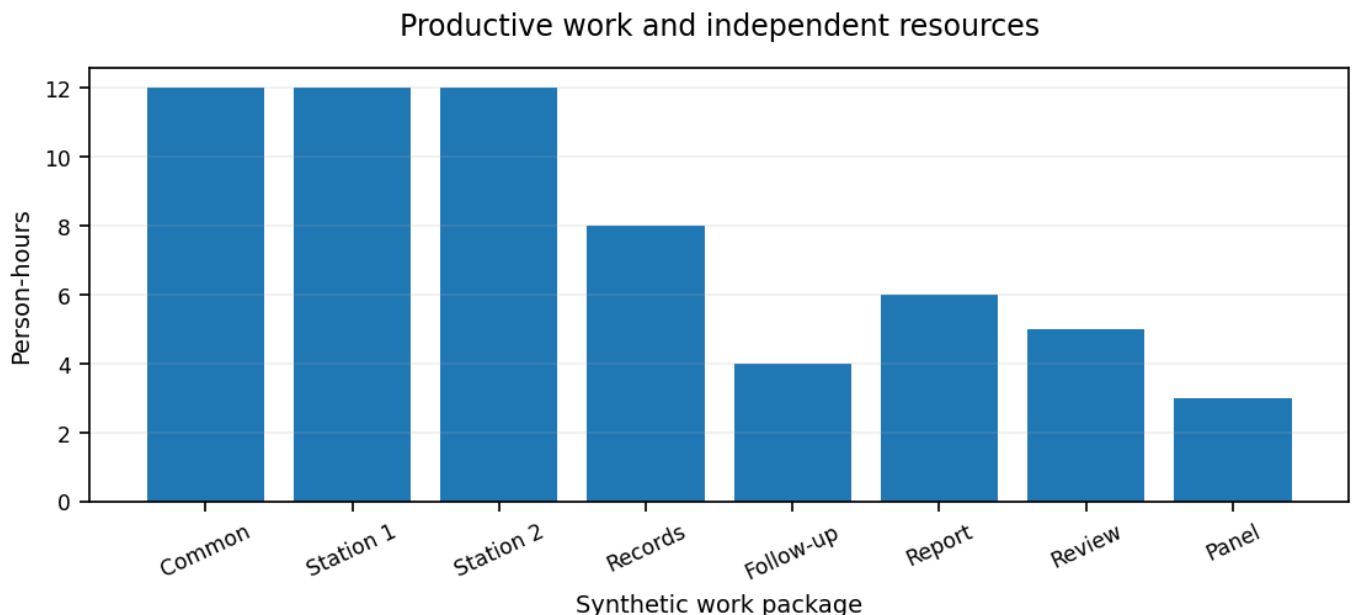


Figure Q05 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q09 Availability is not output correctness

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

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

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

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

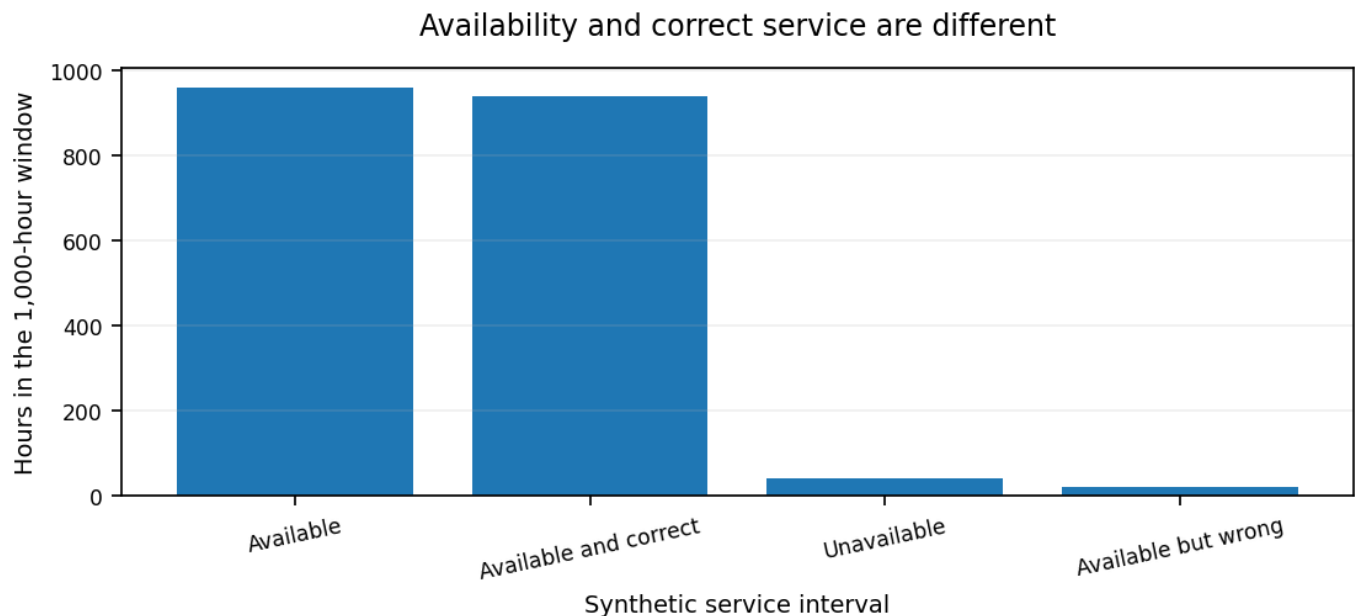


Figure Q09 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q10 Usable storage energy and outage reserve

Source: ASTRA Annex AM, Q10, page 209. All numerical inputs in this example are synthetic.

$$E_{\text{need}} = \sum(P_i t_i)$$

$$E_{\text{usable}} = E_{\text{nameplate}} \times f_{\text{EOL}} \times \text{DoD} \times \eta$$

$$m = (E_{\text{usable}} - E_{\text{need}}) / E_{\text{need}}$$

Variables and units

P is power in W and t in h; resulting energy is Wh. f_{EOL} , allowable depth of discharge DoD and efficiency η are dimensionless and application-validated.

Example inputs

Synthetic outage load=300 W for 2 h. Storage=1,200 Wh; f_{EOL} =0.80; DoD=0.75; η =0.90. Illustrative required margin=5%.

Calculation and checks

1. $E_{\text{need}} = 300 \times 2 = 600 \text{ Wh}$.
2. $E_{\text{usable}} = 1,200 \times 0.80 \times 0.75 \times 0.90 = 648 \text{ Wh}$.
3. Reserve = 48 Wh; $m = 48/600 = 8\%$.
4. If load becomes 330 W, need=660 Wh and $\text{margin} = (648 - 660)/660 = -1.81818\%$.

Decision interpretation: The first synthetic energy-margin predicate passes the example 5% requirement; the changed load fails it. Other thermal, power and protection criteria remain separate.

Validity limits: These factors and the 5% value are not universal design limits. Do not count thermal-support or terminal reserves twice, assume efficiency is constant outside its evidence domain, or treat energy adequacy as peak-power capability.

ASTRA connections: 33.5; 43; 64.4; 65.3

Storage energy margin under changing load

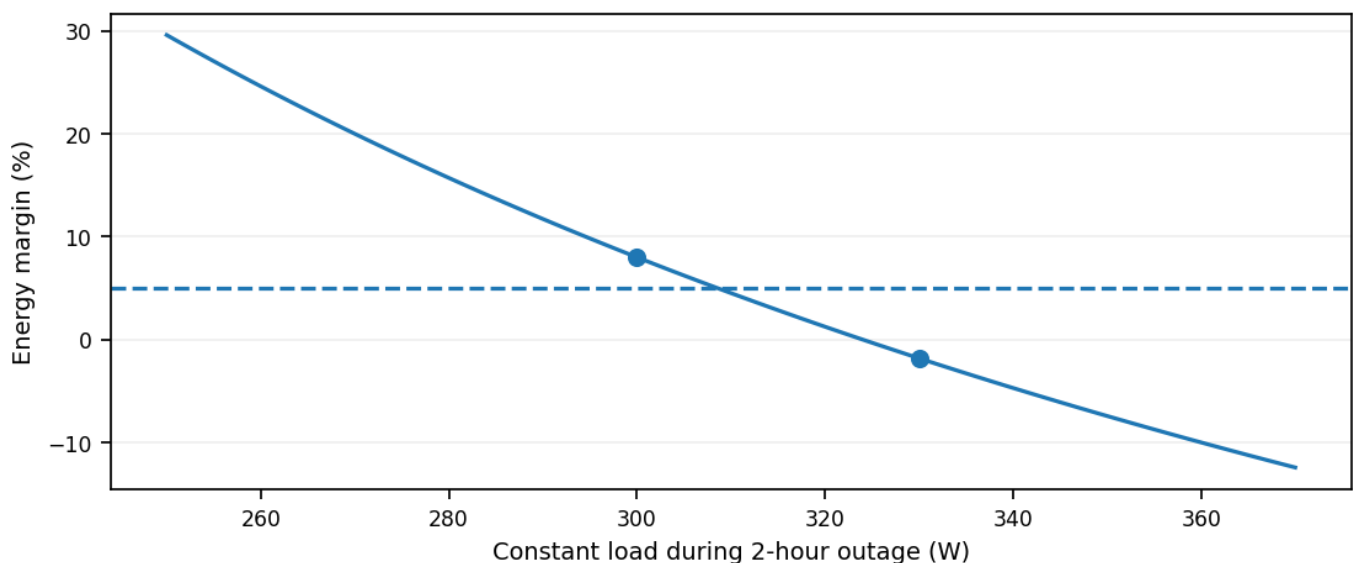


Figure Q10 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q11 End-of-life power and peak demand

Source: ASTRA Annex AM, Q11, page 210. All numerical inputs in this example are synthetic.

$$P_{\text{EOL}} = P_{\text{BOL}} \times f_{\text{degradation}} \times \eta_{\text{distribution}}$$

$$m_P = (P_{\text{EOL}} - P_{\text{required}}) / P_{\text{required}}$$

Variables and units

All power quantities are evaluated for the same declared condition; degradation and conversion factors need valid evidence.

Example inputs

Synthetic $P_{\text{BOL}} = 2,000 \text{ W}$; degradation factor=0.85; distribution factor=0.92; load=1,400 W. Example minimum margin=10%.

Calculation and checks

1. $P_{\text{EOL}} = 2,000 \times 0.85 \times 0.92 = 1,564 \text{ W}$.
2. Headroom=164 W; $\text{margin} = 164/1,400 = 11.7142857\%$.

3. An extra concurrent 120 W changes load to 1,520 W; margin= $44/1,520=2.8947368\%$.

Decision interpretation: The base case passes the example margin. The concurrent extra load does not; positive headroom alone is insufficient when the accepted criterion requires a larger reserve.

Validity limits: Evaluate transients, temperature, geometry, outages and fault conditions separately. EOL generation is not a stored-energy reserve, and nameplate ratings are not a validated mission budget.

ASTRA connections: 33.5; 65.3; 72.3

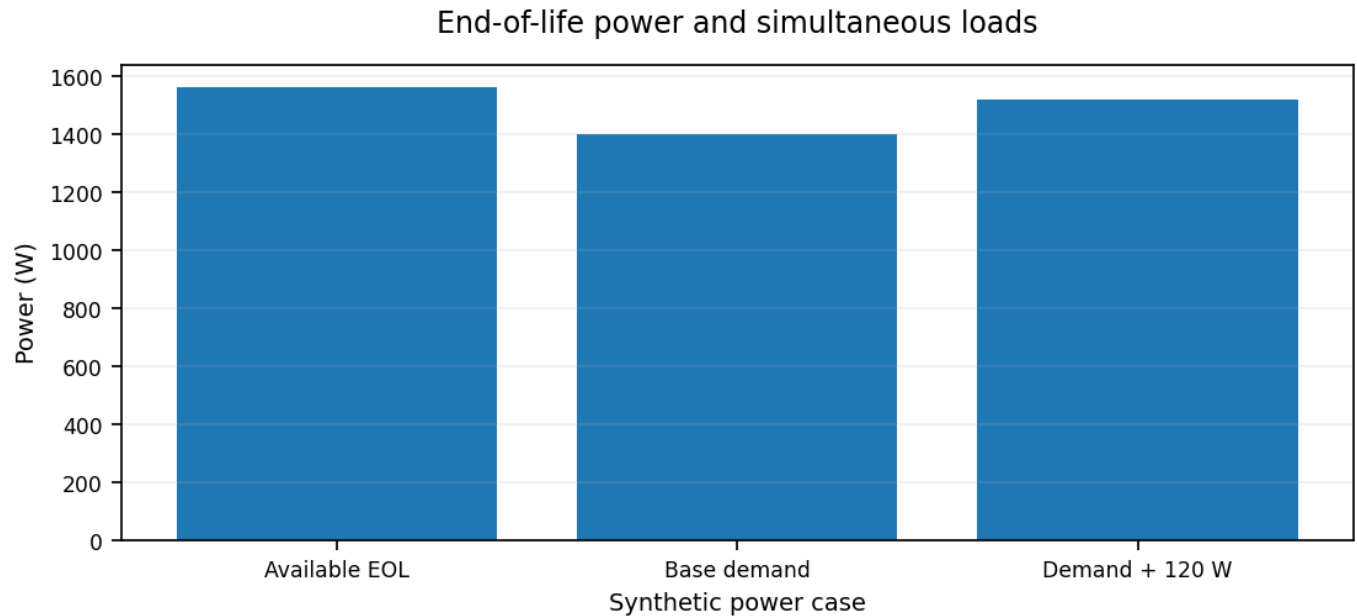


Figure Q11 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.Q14 Free-space loss and link margin

Source: ASTRA Annex AM, Q14, page 213. All numerical inputs in this example are synthetic.

$$L_{fs} = 20 \log_{10}(4\pi R f/c) \text{ dB}$$

$$P_r = P_t + G_t + G_r - L_{fs} - L_{other}$$

$$M_{link} = P_r - P_{threshold}$$

Variables and units

R is path length in metres; f is frequency in Hz; $c=299,792,458$ m/s. P_t , P_r and threshold use dBW; antenna gains and losses use compatible dB references.

Example inputs

Synthetic $R=4.0 \times 10^8$ m, $f=8.4 \times 10^9$ Hz; $P_t=10$ dBW, $G_t=50$ dBi, $G_r=60$ dBi, other losses=4 dB; receiver threshold=-110 dBW. Example required margin=3 dB.

Calculation and checks

1. $L_{fs} \approx 222.974568770$ dB.
2. $P_r = 10+50+60-L_{fs}-4 \approx -106.974568770$ dBW.
3. $M_{link} \approx 3.025431230$ dB.
4. Adding 0.5 dB of actual loss reduces that margin by 0.5 dB.

Decision interpretation: The 3.025431230 dB margin passes the stated 3 dB example predicate. With the additional 0.5 dB loss, the margin is 2.525431230 dB and fails. All real losses and required receiver performance must first be supported.

Validity limits: This is far-field free-space screening, not a complete RF/optical or interference model. Do not add dB values with incompatible reference quantities. Weather, pointing, acquisition, noise and coding may govern the actual result.

ASTRA connections: 66.2

Additional loss changes the link decision

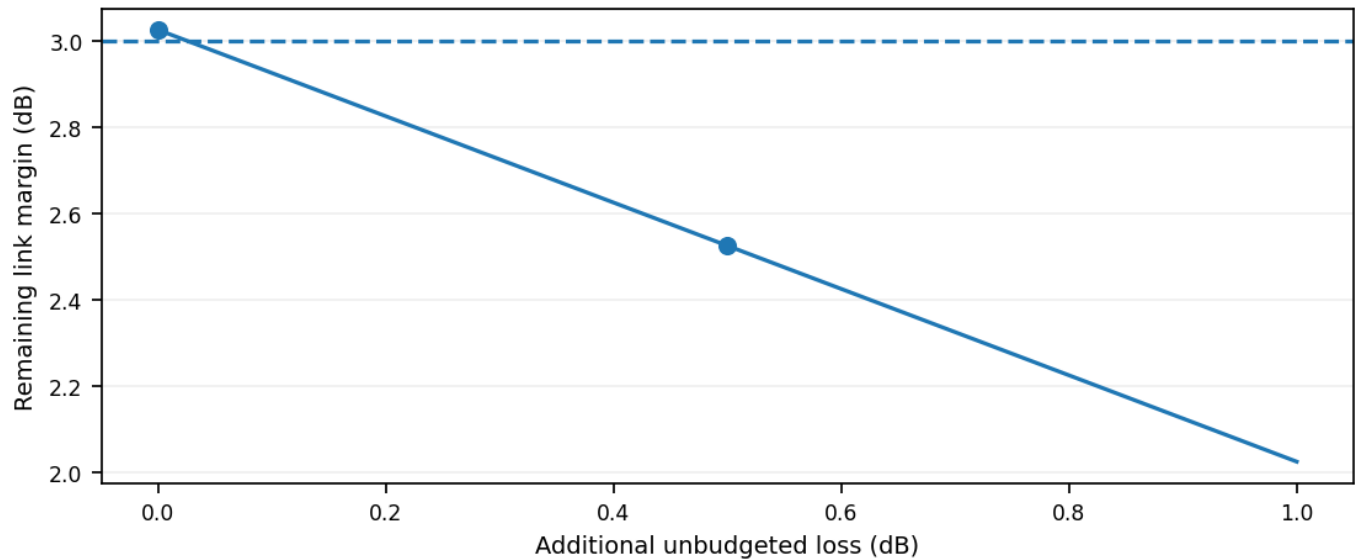


Figure Q14 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

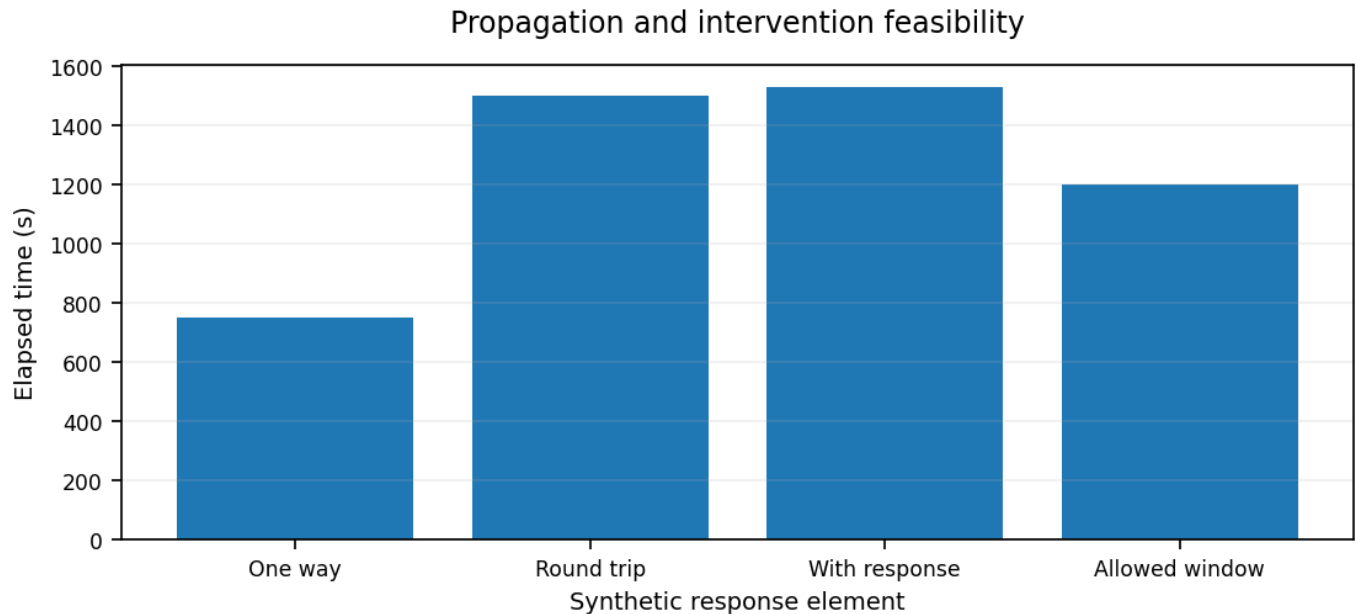


Figure Q15 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

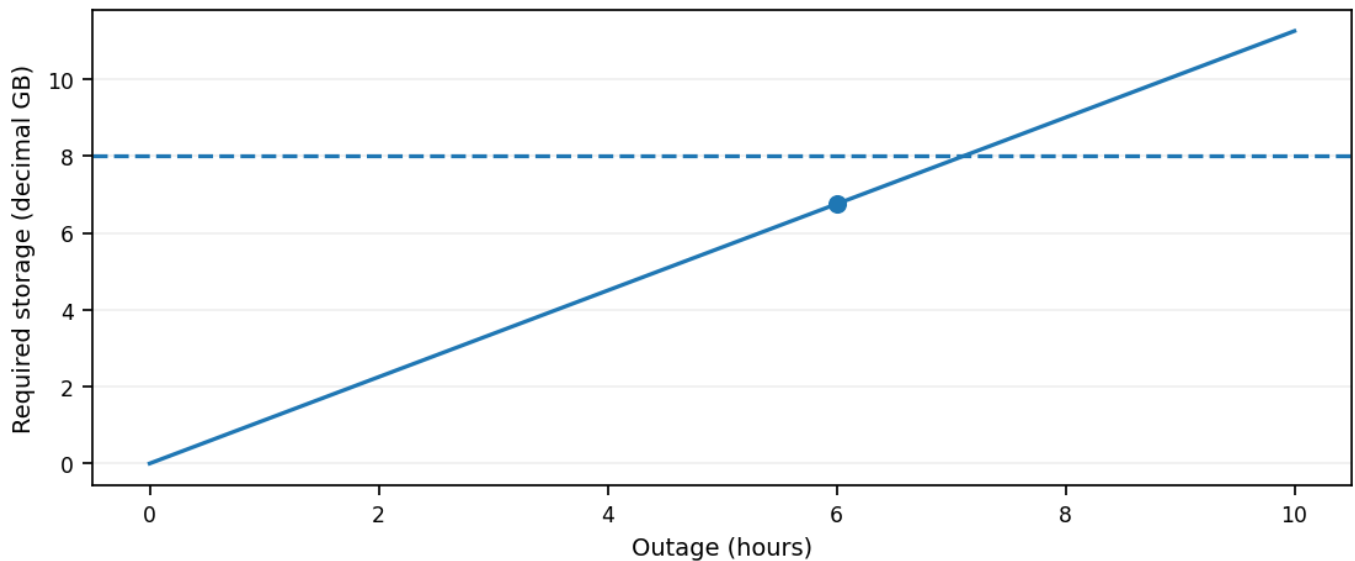


Figure Q16 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

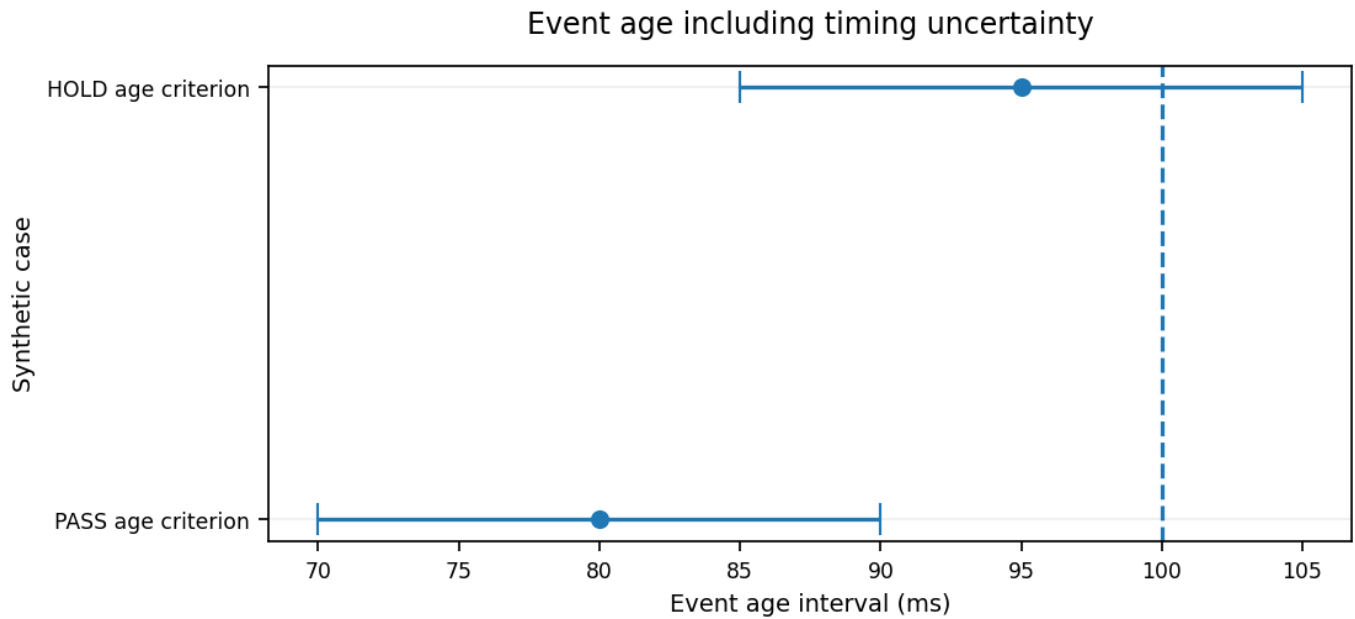


Figure Q17 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.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

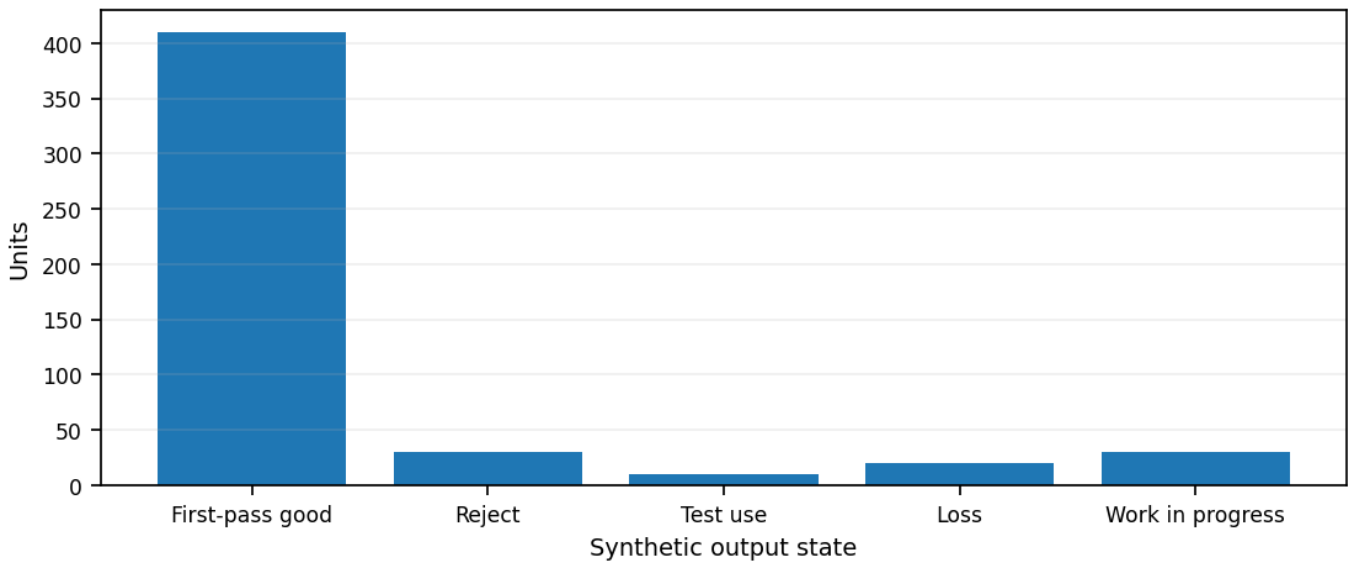


Figure Q23 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.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

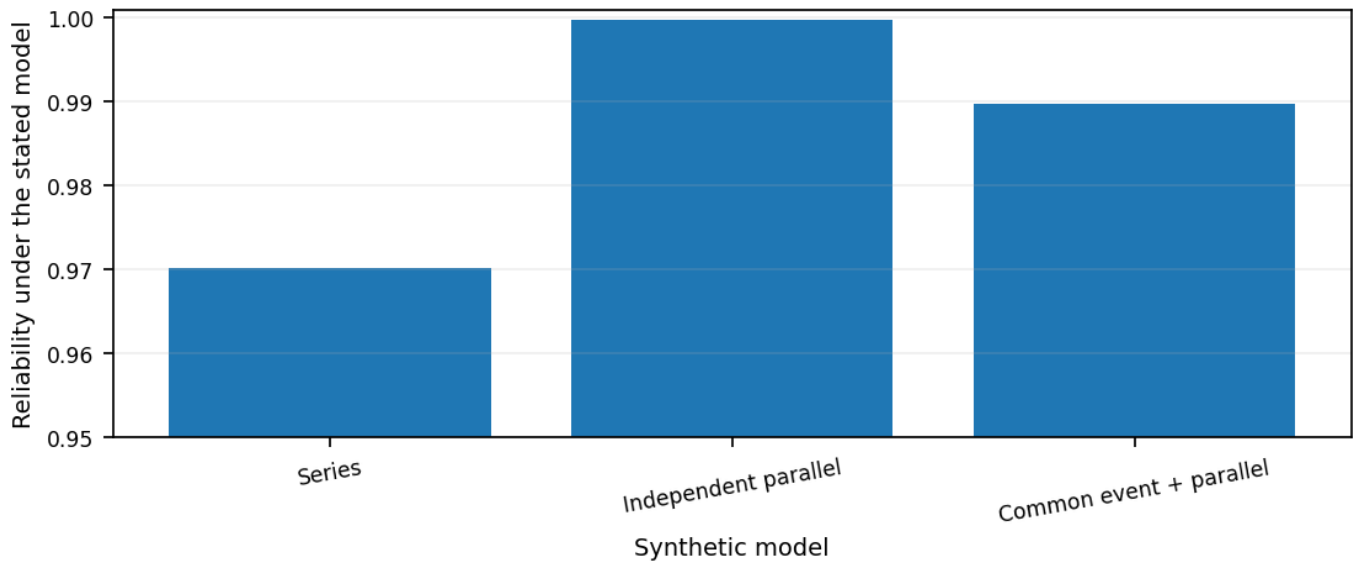


Figure Q25 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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.

8 Assessment and adverse-case programme

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-020: Contain the actual evidence dependency — required basis missing	Service availability alone does not establish trustworthy operation or exclude impact.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-020: Authorise return and remaining restrictions — handover or review incomplete	No retrospective validation of outputs issued while essential integrity was unknown.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-028: Map the complete change population — required basis missing	A cosmetic filename or edition-label change cannot hide a changed technical basis.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-028: Close without abandoning terminal duties — handover or review incomplete	Only demonstrably complete obligations are closed; remaining duties stay assigned after programme or provider cessation.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.

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

9 Source requirement crosswalk

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

ASTRA ID / page	Source subject	Implementation use
1.3 / 10	Object and responsibility tuple	Requirement, objective evidence and local child predicates
1.5 / 11	Activity-based applicability	Requirement, objective evidence and local child predicates
10.5 / 21	Remote access and live evidence	Requirement, objective evidence and local child predicates
10.6 / 22	Recovery, retention and closure	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
13.3 / 25	Witness control	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
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

ASTRA ID / page	Source subject	Implementation use
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
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
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
33.1 / 51	Requirement quality and allocation	Requirement, objective evidence and local child predicates
33.2 / 51	Multidisciplinary interfaces	Requirement, objective evidence and local child predicates
33.3 / 52	Configuration states and genealogy	Requirement, objective evidence and local child predicates
33.4 / 52	Change impact and independence	Requirement, objective evidence and local child predicates
33.5 / 52	Engineering budgets and margins	Requirement, objective evidence and local child predicates
33.6 / 52	Verification closure and model limitations	Requirement, objective evidence and local child predicates
34.1 / 53	Approval and operational responsibility	Requirement, objective evidence and local child predicates
34.2 / 53	Installation and integrated compatibility	Requirement, objective evidence and local child predicates
34.3 / 53	Complete unmanned-system boundary	Requirement, objective evidence and local child predicates
34.4 / 53	Advanced mobility and ground interfaces	Requirement, objective evidence and local child predicates
34.5 / 53	Electric, hybrid and alternative-energy systems	Requirement, objective evidence and local child predicates
34.6 / 54	Continued operation and configuration feedback	Requirement, objective evidence and local child predicates
36.1 / 55	Precise activity and authority	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
36.2 / 56	Site, vehicle and payload compatibility	Requirement, objective evidence and local child predicates
36.3 / 56	Readiness and hazardous-work separation	Requirement, objective evidence and local child predicates
36.4 / 56	Reuse and accumulated exposure	Requirement, objective evidence and local child predicates
36.5 / 56	Recovery, re-entry and end-of-operation interfaces	Requirement, objective evidence and local child predicates
36.6 / 56	Learning without automatic scope expansion	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
43.1 / 65	Integrated energy boundary	Requirement, objective evidence and local child predicates
43.2 / 65	Batteries and electrical storage	Requirement, objective evidence and local child predicates
43.3 / 65	Hydrogen, fuels and chemical energy	Requirement, objective evidence and local child predicates
43.4 / 65	Propulsion and rotating equipment	Requirement, objective evidence and local child predicates
43.5 / 66	Ground support and emergency interfaces	Requirement, objective evidence and local child predicates
43.6 / 66	Qualification, change and release	Requirement, objective evidence and local child predicates
44.1 / 66	Lifecycle and architectural assurance	Requirement, objective evidence and local child predicates
44.2 / 66	Source, build and loaded configuration	Requirement, objective evidence and local child predicates
44.3 / 67	Verification and target representativeness	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
44.4 / 67	Tool and generated-output reliance	Requirement, objective evidence and local child predicates
44.5 / 67	Release and update integrity	Requirement, objective evidence and local child predicates
44.6 / 67	Long-term support and digital retirement	Requirement, objective evidence and local child predicates
45.1 / 67	Intended use and prohibited use	Requirement, objective evidence and local child predicates
45.2 / 68	Data provenance and evaluation independence	Requirement, objective evidence and local child predicates
45.3 / 68	Performance and uncertainty	Requirement, objective evidence and local child predicates
45.4 / 68	Human oversight and safe fallback	Requirement, objective evidence and local child predicates
45.5 / 68	Release, drift and bounded adaptation	Requirement, objective evidence and local child predicates
45.6 / 68	Assurance decisions remain attributable	Requirement, objective evidence and local child predicates
46.1 / 69	Decision purpose and model authority	Requirement, objective evidence and local child predicates
46.2 / 69	Verification, validation and uncertainty	Requirement, objective evidence and local child predicates
46.3 / 69	Twin synchronisation and stale state	Requirement, objective evidence and local child predicates
46.4 / 69	Replacement or reduction of physical work	Requirement, objective evidence and local child predicates
46.5 / 69	Model-based maintenance and remaining life	Requirement, objective evidence and local child predicates
46.6 / 70	Reproducibility and independent access	Requirement, objective evidence and local child predicates
47.1 / 70	Safety-security dependency analysis	Requirement, objective evidence and local child predicates
47.2 / 70	Identity, access and privileged actions	Requirement, objective evidence and local child predicates
47.3 / 70	Supply-chain and dependency integrity	Requirement, objective evidence and local child predicates
47.4 / 71	Connected production and operational technology	Requirement, objective evidence and local child predicates
47.5 / 71	Update trust and cryptographic transition	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
47.6 / 71	Incident recovery and assured return	Requirement, objective evidence and local child predicates
48.1 / 71	Critical suppliers and actual performers	Requirement, objective evidence and local child predicates
48.2 / 71	Flow-down and acknowledgement	Requirement, objective evidence and local child predicates
48.3 / 72	Provenance and counterfeit prevention	Requirement, objective evidence and local child predicates
48.4 / 72	Split, merge, logistics and storage	Requirement, objective evidence and local child predicates
48.5 / 72	Diminishing sources and replacement evidence	Requirement, objective evidence and local child predicates
48.6 / 72	Performance, transfer and exit	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
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
54.1 / 78	Hazards, assumptions and essential controls	Requirement, objective evidence and local child predicates

ASTRA ID / page	Source subject	Implementation use
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
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
55.1 / 79	Define the claim before the calculation	Requirement, objective evidence and local child predicates
55.2 / 79	Failure mechanisms and dependencies	Requirement, objective evidence and local child predicates
55.3 / 80	Demonstration and inference limitations	Requirement, objective evidence and local child predicates
55.4 / 80	Maintainability and support conditions	Requirement, objective evidence and local child predicates
55.5 / 80	Life decisions and uncertainty	Requirement, objective evidence and local child predicates
56.1 / 80	Distinct entities and authoritative records	Requirement, objective evidence and local child predicates
56.2 / 80	Evidence states and requirement conclusions	Requirement, objective evidence and local child predicates
56.3 / 81	Decision and publication safeguards	Requirement, objective evidence and local child predicates
56.4 / 81	Validation and prohibited cases	Requirement, objective evidence and local child predicates
56.5 / 81	Export, migration and meaningful recovery	Requirement, objective evidence and local child predicates
58.2 / 82	Coverage and productive resources	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

ASTRA ID / page	Source subject	Implementation use
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
64.4 / 92	Resource budgets and coupled margins	Explicit verification and acceptance predicate
64.5 / 92	Heritage and similarity	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
68.7 / 101	Status and long-term custody	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
74.4 / 112	Sample identity and custody	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
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
77.5 / 118	Original data and invalid tests	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

ASTRA ID / page	Source subject	Implementation use
80.1 / 124	One complete application schedule	Explicit verification and acceptance predicate
80.2 / 124	Domain and verification completeness	Explicit verification and acceptance predicate
80.3 / 124	Competent independent closure	Explicit verification and acceptance predicate
80.4 / 124	Bounded claim and publication	Explicit verification and acceptance predicate
80.5 / 124	Continuing conformity and change	Explicit verification and acceptance predicate
80.6 / 125	Completion boundary	Explicit verification and acceptance predicate

Appendix A — Controlling source requirements

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

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.

1.5 — 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.

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.

10.6 — Recovery, retention and closure

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

Maintain protected backups and test restoration of data, identity, configuration links and current status. Meeting recovery-time objectives does not establish restored evidence integrity. Retain assessment and decision evidence for at least seven years after the last relevant decision, or longer when justified by applicable obligations, service life or a hold; reconcile any legally required alternative handling without concealing the decision basis. Separate unnecessary personal copies and dispose of them under approved controls.

Required evidence: Restore/integrity tests; retention basis; legal holds; secure disposal and closure transfer.

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.

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.

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.

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.

33.1 – Requirement quality and allocation

Source: AF-AST-STD-001, page 51.

Requirements shall be identifiable, verifiable, internally consistent and assigned to an accountable implementation and acceptance function. The organisation shall record the technical basis, intended use, units, tolerances where relevant, environment and consequence of failure. Derived requirements shall retain their relationship to parent needs and constraints. Ambiguous terms such as future-ready or aerospace-grade shall be translated into evaluable conditions before they are used for acceptance. Requirements that are not yet technically defined shall remain open and shall prevent the dependent positive conclusion.

Required evidence: Requirement baseline; allocation and rationale; verification method; unresolved-definition register.

33.2 – Multidisciplinary interfaces

Source: AF-AST-STD-001, page 51.

Interface definitions shall address relevant mechanical, structural, electrical, thermal, fluid, data, timing, human and organisational characteristics. They shall identify the provider and receiver, valid configurations, ownership, assumptions, error handling and change-notification duties. Integration reviews shall examine incompatible assumptions between individually acceptable subsystems. Units, coordinate frames, reference times and version conventions shall be explicit. Interface acceptance shall include abnormal inputs and loss of a supporting service where material to the intended use.

Required evidence: Interface-control baseline; owner acknowledgements; compatibility review; integrated verification and anomalies.

33.3 – Configuration states and genealogy

Source: AF-AST-STD-001, page 52.

The configuration system shall distinguish intended, designed, built, tested, delivered, installed and currently operated states. Each technical result shall identify the state actually evaluated, including relevant software, parameters, materials and modifications. Serial, batch, assembly and parent-child relationships shall survive splitting, replacement and repair.

Configuration identity shall not be inferred from a commercial product name alone. Where a legacy baseline is incomplete, the organisation shall establish the uncertainty and necessary verification before extending the assurance claim.

Required evidence: Configuration register; as-built and as-operated records; genealogy; test-to-configuration links; legacy gap review.

33.4 – Change impact and independence

Source: AF-AST-STD-001, page 52.

A proposed change shall identify affected requirements, interfaces, hazards, qualification evidence, manufacturing controls, maintenance data, training and public claims. The review shall state which prior evidence remains valid and why, what becomes invalid and what new demonstration is required. The design or technical authority shall approve the technical disposition, while the independent conformity function separately determines any effect on ASTRA status. A document version, new software version or relocated process shall not automatically inherit its predecessor's evidence.

Required evidence: Before-and-after baseline; impact map; retained-evidence argument; new tests; separate technical and status decisions.

33.5 – Engineering budgets and margins

Source: AF-AST-STD-001, page 52.

Relevant mass, power, energy, thermal, structural, timing, memory, communication and consumable budgets shall have a baseline, owner, allocation, uncertainty treatment and review trigger. Margin definitions shall be consistent across subsystem and system levels so that the same reserve is not counted more than once. Cumulative changes and degraded conditions shall be reviewed. A positive arithmetic balance shall not establish physical adequacy where the underlying model, environmental assumption or failure scenario is unsupported.

Required evidence: Budget register; allocation and margin definitions; uncertainty; cumulative-change review; approved technical basis.

33.6 – Verification closure and model limitations

Source: AF-AST-STD-001, page 52.

The verification matrix shall link each requirement to an approved method, representative configuration, evidence and acceptance decision. Unverified interfaces and waived observations shall remain visible. A model shall be credible for the particular decision and conditions in which it is used; a visual match or successful numerical execution is insufficient. Extrapolation beyond validated conditions requires explicit justification and independent review. Verification closure shall not be declared by counting completed tests when a required function or failure condition remains unexamined.

Required evidence: Verification matrix; coverage and configuration review; model limitations; requirement-specific closure.

34.1 – Approval and operational responsibility

Source: AF-AST-STD-001, page 53.

The organisation shall identify the applicable design, production, maintenance and operational approval interfaces and the holders of those responsibilities. The technical profile shall define aircraft or equipment configuration, intended operation, environment, limitations and supporting obligations. ASTRA conformity shall not be described as an airworthiness certificate, flight clearance or operating licence. A change of operator, configuration or intended use shall trigger review of whether the existing evidence and permissions remain relevant.

Required evidence: Responsibility and permission matrix; aircraft/equipment profile; operating boundary; change review.

34.2 – Installation and integrated compatibility

Source: AF-AST-STD-001, page 53.

Equipment integration shall address mounting and loads, power quality, electromagnetic effects, thermal management, software and data interfaces, timing, access and human interaction as applicable. The organisation shall evaluate failure propagation and common resources, including assumptions about other installed systems. Component qualification shall be distinguished from installed-system demonstration. Modifications shall update affected maintenance data, spares, training and configuration records. Unassessed installation effects shall remain a limitation even where the component carries a valid separate conformity result.

Required evidence: Installation assessment; integrated test matrix; interface results; affected-support update records.

34.3 – Complete unmanned-system boundary

Source: AF-AST-STD-001, page 53.

An unmanned-system assurance case shall include the aircraft, control station, command links, navigation sources, remote personnel, software, external services and operating environment. It shall define the operational domain and the response to wrong, late, unavailable or unauthorised information. Safe responses to communication loss and degraded navigation shall be demonstrated under the approved technical basis. A remote pilot, geofence or automated protective function shall not be presumed effective without evidence for its relevant failure conditions.

Required evidence: System boundary; domain and dependency map; contingency validation; human-authority and link-loss evidence.

34.4 – Advanced mobility and ground interfaces

Source: AF-AST-STD-001, page 53.

Programmes using novel aircraft architectures shall demonstrate compatibility with the actual landing site, supporting infrastructure, energy service, passenger movement and emergency arrangements. The profile shall distinguish prototype demonstration from routine service capability. Ground operations, training and maintenance shall reflect the delivered architecture rather than assume conventional-aircraft equivalence. Evidence shall include representative disruptions and degraded support conditions. A vertiport or charging capability result shall not independently establish aircraft suitability or permission to conduct a passenger operation.

Required evidence: Aircraft-site interface dossier; support readiness; representative service validation; separate operational permissions.

34.5 – Electric, hybrid and alternative-energy systems

Source: AF-AST-STD-001, page 53.

The organisation shall examine coupled electrical, thermal, mechanical, chemical and control-system hazards for the actual energy architecture and duty cycle. It shall define supported operating and storage limits, degradation treatment, protection, isolation and emergency interfaces through competent technical work. Maintenance, ground support and responders shall receive controlled information relevant to their role. Environmental benefit and technical interchangeability are separate claims; a low-carbon supply statement shall not establish that a fuel or energy system is compatible with the aircraft.

Required evidence: Integrated energy-hazard case; qualified limits; support instructions; compatibility and claim separation.

34.6 – Continued operation and configuration feedback

Source: AF-AST-STD-001, page 54.

Continuing assurance shall connect operational anomalies, maintenance findings, updates, equipment substitutions and changes in the operating environment to affected aircraft configurations. The organisation shall preserve life and condition information and communicate restrictions through the actual responsible approval holders. Data-driven monitoring may support this process only within its validated detection boundary. A fleet-wide statistical improvement shall not justify continued use of a specific configuration with an unresolved essential control or unsupported maintenance release.

Required evidence: Fleet/configuration trace; occurrence and maintenance feedback; update approvals; actual release and restriction records.

36.1 – Precise activity and authority

Source: AF-AST-STD-001, page 55.

The profile shall identify the responsible legal entities, launch or re-entry service, site, vehicle or article, configuration, support equipment and relevant approval interfaces. The organisation shall distinguish vehicle design assurance, site capability, mission readiness and an individual operational permission. Contracts shall identify retained responsibilities across customers and subcontractors. No conventional-airport, generic laboratory or broad aerospace-system result shall automatically confer competence for launch or re-entry activities.

Required evidence: Exact activity/site profile; permissions; responsibility and interface agreements; distinct outcome boundaries.

36.2 – Site, vehicle and payload compatibility

Source: AF-AST-STD-001, page 56.

The organisation shall verify compatibility of the actual vehicle, payload, ground support, utilities, data exchange and handling interfaces. It shall examine the consequences of a changed payload, supporting system or operating condition on earlier evidence. The applicable technical authorities shall resolve inconsistent interface assumptions before dependent use. Acceptance shall be based on the actual configuration; the presence of an interface drawing or a previous successful operation shall not establish compatibility of a materially changed arrangement.

Required evidence: Configuration-specific interface matrix; reviewed changes; integration checks; unresolved-interface controls.

36.3 – Readiness and hazardous-work separation

Source: AF-AST-STD-001, page 56.

Operational readiness shall verify necessary people, equipment, approved technical data, protective functions, communication, emergency interfaces and stop authorities. Technical acceptance criteria and protective stop conditions shall be distinguished. The ASTRA assessment shall examine whether competent authorised organisations implement their controls, not direct a launch, set hazardous operating parameters or substitute for public safety decisions. Inaccessible essential evidence shall result in an appropriate scope restriction or hold rather than a presumption of safe capability.

Required evidence: Readiness review; current specialist procedures; protective-function evidence; lawful witnessing and approval boundaries.

36.4 – Reuse and accumulated exposure

Source: AF-AST-STD-001, page 56.

Reusable articles shall retain identity, configuration, prior flights or uses, maintenance, refurbishment, repairs and accumulated relevant exposure. The organisation shall define how the reuse decision is supported by inspection capability, life assessment and qualified repair or replacement. A successful prior mission shall not reset life or conceal damage. Unknown history shall remain a controlled uncertainty. New materials, repair methods or changed duties shall undergo technical review before previous qualification is relied upon.

Required evidence: Article history; exposure and condition record; inspection and repair evidence; configuration-specific reuse decision.

36.5 – Recovery, re-entry and end-of-operation interfaces

Source: AF-AST-STD-001, page 56.

The assurance plan shall identify the responsible parties for recovery, containment of residual hazards, custody, transport, environmental obligations and subsequent examination. Expected behaviour and evidence limitations shall be explicit where direct access is not possible. Disposal or recovery shall not be claimed complete from an unverified signal or an unchanged plan. The organisation shall retain actual completion evidence and communicate unsuccessful, partial or uncertain outcomes accurately to the relevant authorities and recipients.

Required evidence: Recovery/disposition responsibilities; actual status evidence; custody record; limitations and recipient communication.

36.6 – Learning without automatic scope expansion

Source: AF-AST-STD-001, page 56.

After each relevant operation or development event, review anomalies, interface deviations, protective actions and changes in the technical basis. Separate lessons about a particular configuration from claims about an entire vehicle or site family. A new payload class, service mode, site or re-entry concept shall require an assessed extension before an expanded ASTRA claim is used. Operational experience may support an equivalence argument, but shall not replace evidence for a new failure mechanism.

Required evidence: Post-event review; bounded experience argument; extension assessment; updated profile and readiness basis.

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.

43.1 – Integrated energy boundary

Source: AF-AST-STD-001, page 65.

The organisation shall define the complete energy-system boundary and the interactions among mechanical, electrical, thermal, chemical and control functions. Requirements shall cover transport, storage, charging or fuelling, operation, maintenance and end of life as applicable. Common dependencies and abnormal states shall be considered. Separate component results shall not establish integrated protection where failure can propagate across interfaces. Every critical

limit and protective function shall have an approved technical basis and a method of verification.

Required evidence: Energy architecture; lifecycle hazard analysis; requirement and protection map; integrated verification.

43.2 – Batteries and electrical storage

Source: AF-AST-STD-001, page 65.

Battery assurance shall retain cell and module provenance, configuration, manufacturing consistency, protective controls, thermal management and actual operating history. Qualification shall address relevant degradation and credible abnormal conditions under the approved application basis. State estimates and health-monitoring outputs shall identify their model and uncertainty. Reuse or second-life use shall require a new suitability assessment without erasing prior history. An acceptable nominal capacity or successful functional check shall not establish complete safety or fitness for another duty cycle.

Required evidence: Storage-system baseline; provenance and life history; qualification; monitoring validation; reuse decision.

43.3 – Hydrogen, fuels and chemical energy

Source: AF-AST-STD-001, page 65.

The assurance case shall identify material compatibility, containment, supply quality, contamination, detection, protective isolation and emergency interfaces appropriate to the actual architecture. Supply-chain and ground-service responsibilities shall be explicit. Technical interchangeability shall be separately demonstrated from a sustainability or provenance claim. The organisation shall maintain current specialist procedures for hazardous work and verify the competence and permissions of actual performers. This standard does not prescribe fuel formulations, operating pressures or hazardous handling instructions.

Required evidence: Compatibility and containment basis; supply-quality evidence; competent authorised procedures; separate environmental claims.

43.4 – Propulsion and rotating equipment

Source: AF-AST-STD-001, page 65.

Propulsion and rotating machinery shall have controlled requirements for operating envelope, duty, life, materials, balance, lubrication, thermal behaviour and protection as relevant. Critical parts and process histories shall remain traceable. Changes to speed, load, controls, materials or installation shall be reviewed against qualification and life evidence. The organisation shall distinguish a development performance result from acceptance of a delivered configuration. This clause sets evidence and responsibility requirements rather than design parameters or performance optimisation instructions.

Required evidence: Duty and envelope basis; critical-part genealogy; qualification and acceptance; change and life-management records.

43.5 – Ground support and emergency interfaces

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

Ground energy delivery, charging or fuelling equipment shall be compatible with the supported system and maintained in the verified configuration. Handover shall include relevant limitations, protective actions and incident information. The organisation shall evaluate common utilities, communication dependencies and restoration after interruption. Emergency arrangements shall be exercised safely with the actual responsible parties. Availability of energy or a connected interface alone shall not establish suitability for a particular aircraft, vehicle or space system.

Required evidence: Ground-system compatibility; service capability; protective-function checks; emergency and restoration evidence.

43.6 – Qualification, change and release

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

The qualification dossier shall reconcile system requirements, component evidence, integrated behaviour, material histories, test limitations and support capability. Essential unresolved hazards or invalid evidence shall block the dependent positive decision. After a protective event, anomaly or material change, the organisation shall review affected articles and earlier conclusions. Resumption requires actual technical acceptance. An ASTRA status or a completed commercial delivery shall not substitute for the authorised release required for the specific energy system or operation.

Required evidence: Complete qualification dossier; independent review; anomaly impact; resumption and release authority.

44.1 – Lifecycle and architectural assurance

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

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

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

44.2 – Source, build and loaded configuration

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

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

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

44.3 – Verification and target representativeness

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

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

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

44.4 – Tool and generated-output reliance

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

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

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

44.5 – Release and update integrity

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

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

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

44.6 – Long-term support and digital retirement

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

Long-life digital systems shall have a plan to preserve source or equivalent support access, build environments, licences, technical knowledge and records necessary for maintenance. Dependence on a cloud service or supplier shall be assessed before commitment. Migration, replacement or emulation shall preserve required behaviour and evidence meaning.

Retirement shall address data custody, residual vulnerabilities, user notification and prevention of unauthorised reuse. Cryptographic signing alone shall not guarantee permanent readability or technical validity.

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

45.1 – Intended use and prohibited use

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

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

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

45.2 – Data provenance and evaluation independence

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

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

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

45.3 – Performance and uncertainty

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

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

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

45.4 – Human oversight and safe fallback

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

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

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

45.5 – Release, drift and bounded adaptation

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

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

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

45.6 – Assurance decisions remain attributable

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

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

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

46.1 – Decision purpose and model authority

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

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

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

46.2 – Verification, validation and uncertainty

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

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

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

46.3 – Twin synchronisation and stale state

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

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

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

46.4 – Replacement or reduction of physical work

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

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

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

46.5 – Model-based maintenance and remaining life

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

A predictive or remaining-life output shall identify the asset history, degradation mechanism, observable inputs, model assumptions and uncertainty. The organisation shall validate the output for the intended maintenance decision and retain

mandatory inspection or life-limit obligations. Absence of an alert shall not establish integrity where the model cannot detect the relevant mechanism. A new duty, repair, missing history or changed sensor shall trigger reassessment before the model supports an extended use decision.

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

46.6 – Reproducibility and independent access

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

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

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

47.1 – Safety-security dependency analysis

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

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

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

47.2 – Identity, access and privileged actions

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

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

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

47.3 – Supply-chain and dependency integrity

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

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

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

47.4 – Connected production and operational technology

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

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

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

47.5 – Update trust and cryptographic transition

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

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

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

47.6 – Incident recovery and assured return

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

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

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

48.1 – Critical suppliers and actual performers

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

The organisation shall identify suppliers and sub-tier performers according to the technical consequence of their outputs. The scope shall record what each party actually performs, where it operates, its competent personnel, process or method capability and necessary evidence access. A trading or coordinating organisation shall not claim direct performance of outsourced work. Shared ownership, customer nomination or another certificate shall not remove the commissioning organisation's retained acceptance and oversight responsibilities.

Required evidence: Supplier/performance map; criticality; exact capability checks; retained-responsibility and access records.

48.2 – Flow-down and acknowledgement

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

Purchasing and subcontract terms shall transmit relevant specifications, configuration, quality and safety conditions, changes, inspection, evidence, notification and retention duties to the actual level of performance. The organisation shall verify acknowledgement and implementation, not only that standard terms were attached to a purchase order. Conflicting instructions shall be resolved before dependent work. Onward delegation and substitution shall be controlled, with technical acceptance distinct from commercial approval.

Required evidence: Requirement flow-down matrix; sub-tier acknowledgement; actual implementation checks; controlled substitution.

48.3 – Provenance and counterfeit prevention

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

Inputs shall retain verifiable source, lot or serial identity, condition, life status and relevant conformity evidence. Suspect, altered or counterfeit items shall be segregated and traced through potentially affected outputs. Investigation shall preserve originals and avoid treating suspicion as a final misconduct finding before sufficient review. A visually convincing certificate, searchable identifier or supplier logo shall not establish authenticity. Source changes and exceptional procurement shall receive risk-based technical review.

Required evidence: Provenance and receipt records; authenticity checks; suspect-item containment; affected-output and investigation history.

48.4 – Split, merge, logistics and storage

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

Material and part identity shall survive split lots, repackaging, kitting, pooling, return and transport. Quantities, units, ownership or custody and relevant environmental conditions shall reconcile. A quantity balance does not by itself prove correct identity or suitability. Shelf life, out-time, damage and transport excursions shall remain attached to the actual items. Customer-selected or supplied material shall be clearly identified, with limitations on the organisation's

independent source claims.

Required evidence: Movement and genealogy record; quantity reconciliation; storage/transport conditions; excursion and eligibility decisions.

48.5 – Diminishing sources and replacement evidence

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

The organisation shall plan for unavailable suppliers, obsolete parts, unsupported software and loss of technical knowledge. Replacement shall examine function, interfaces, materials, process differences, qualification and life evidence. A physically interchangeable part shall not automatically be technically equivalent. The review shall define retained evidence and additional demonstration before release. Support contracts and access arrangements shall be assessed for actual continuity, including the possibility of provider cessation or inaccessible digital tools.

Required evidence: Obsolescence register; substitution/equivalence argument; additional qualification; support and access plan.

48.6 – Performance, transfer and exit

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

Supplier monitoring shall include adverse results, changes, delivery and technical performance using defined populations and denominators. A systemic failure shall trigger review of dependent sources and products, not merely reassignment to a new supplier. Transfers shall verify receiving capability and preserve open findings, technical restrictions and historical records. Exit shall identify remaining warranties, notifications, record custody and unresolved obligations. Changing a supplier or issuer shall not make unsupported evidence valid.

Required evidence: Supplier performance review; systemic extent; transfer acceptance; open-duty and custody records.

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.

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.

55.1 – Define the claim before the calculation

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

Every quantitative reliability or availability claim shall identify the population, configuration, operating domain, exposure, duration, failure definition and observation boundary. The organisation shall distinguish predictions, simulations, demonstrations and field observations. Availability shall state which downtime categories are included. A percentage without its denominator, conditions and exclusions shall not be used as acceptance evidence. A changed mission duration or duty shall trigger review of the claim and supporting assumptions.

Required evidence: Metric dictionary; configuration/population; exposure and failure definitions; actual model or observation basis.

55.2 – Failure mechanisms and dependencies

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

The analysis shall consider applicable degradation, common causes, dormant failures, maintenance-induced defects, shared software and external-service dependencies. Independence assumptions shall be justified rather than selected for convenient arithmetic. The organisation shall identify mechanisms not represented by a chosen statistical model and provide complementary engineering evidence. Demonstrating each component independently shall not establish system reliability when common resources or interfaces can defeat several functions simultaneously.

Required evidence: Mechanism and dependency analysis; model assumptions; complementary verification; common-cause review.

55.3 – Demonstration and inference limitations

Source: AF-AST-STD-001, page 80.

Demonstration plans shall establish prospective acceptance rules, representativeness, sample selection, confidence and treatment of incomplete or failed trials. Rare-event claims shall not be inferred from insufficient routine testing without a defensible statistical and engineering basis. Repeated or dependent observations shall not be counted as independent opportunities without justification. Changes to the article or test conditions shall remain visible. Annex AG illustrates calculation logic using labelled synthetic data only.

Required evidence: Demonstration plan; actual exposure and failures; confidence and dependence basis; qualified inference.

55.4 – Maintainability and support conditions

Source: AF-AST-STD-001, page 80.

Maintainability shall consider diagnostic capability, access, tools, spares, skills, human error, restoration checks and relevant logistics. Timing results shall identify start and stop definitions and whether administrative or waiting time is excluded. A rapid repair under laboratory conditions shall not be presented as operational support performance without a justified comparison. The organisation shall demonstrate that protective features and the released configuration are restored after maintenance, not merely that the equipment starts again.

Required evidence: Support and repair task analysis; representative time observations; restoration checks; stated exclusions.

55.5 – Life decisions and uncertainty

Source: AF-AST-STD-001, page 80.

Life-limited and condition-dependent assets shall retain actual service, storage, repair and relevant exposure histories. Remaining-life conclusions shall identify the technical model, inspection capability, uncertainty and responsible authority. Missing history shall not be reset to zero, and a passed functional test shall not erase an unresolved degradation mechanism. Changes in duty, repair or material shall trigger review. ASTRA duration and surveillance dates do not extend the technical life of an item.

Required evidence: Life/exposure record; valid condition evidence; model and uncertainty; actual life decision and restrictions.

56.1 – Distinct entities and authoritative records

Source: AF-AST-STD-001, page 80.

The information model shall distinguish organisations, people, profiles, applications, assignments, evidence, findings, decisions, credentials, permissions, appeals and status events. Each record shall have a unique identity, version, accountable origin, scope and relevant time basis. A case may support several outcomes, but the conclusion and history of each outcome shall remain separate. Copies and public projections shall identify their relationship to the authoritative source rather than become competing unexplained masters.

Required evidence: Entity dictionary; source-of-record map; relationships; scope and time conventions; controlled projections.

56.2 – Evidence states and requirement conclusions

Source: AF-AST-STD-001, page 80.

Evidence receipt, review, purpose-specific acceptance, rejection, supersession and unavailability shall remain distinct from conformity conclusions. A missing essential source shall not become non-applicable because a database field requires a value. Accepted evidence shall state the requirement and configuration it supports and its limitations. An imported identifier shall not be presumed to refer to the correct object or version. Contradictory evidence shall remain visible through the independent review process.

Required evidence: Evidence-purpose links; controlled state dictionary; missing/wrong-version checks; reasoned requirement conclusions.

56.3 – Decision and publication safeguards

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

The workflow shall test valid scope, complete evidence, fulfilled criteria, closed findings, current competence, case independence and actual authority before publishing a positive outcome. Where a three-person panel is required, all eligible participation and votes shall be recorded. An automated check may flag or block a proposed instruction but shall not create the independent technical decision. Public information shall match the authorised decision and preserve restrictions, expiry and historical gaps.

Required evidence: Decision preflight; authentic decision instrument; panel record where required; public/private reconciliation.

56.4 – Validation and prohibited cases

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

Local validation shall cover normal, boundary, missing, invalid and prohibited inputs in the actual deployment. Tests shall include open findings, expired authority, wrong profiles, broken evidence links, suspended status, duplicate imports and interrupted changes. Expected outcomes shall be defined from the controlling requirements before execution. Synthetic fixtures shall be isolated from live claims. Correction shall be followed by repetition of the original failed test and relevant regression, not merely an assurance that the code was changed.

Required evidence: Local validation baseline; expected/observed cases; defect and retest history; actual acceptance and limitations.

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.

58.2 – 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.

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.

64.4 – 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.

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.

68.7 – 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.

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.

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.

74.7 – 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.

77.5 – 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.

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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