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Purpose and application

PDF record architecture, field dictionary, manual review rules and blank capture sheets for Evidence, Findings and Corrective Action Register. This replaces only the planned delivery format for this issue: it is not an executable spreadsheet, access-control system, database or automatic decision engine.

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 Purpose, ownership and state separation

Every failed condition remains connected to its finding. A closed checklist field does not close a nonconformity. Retain original notification and due dates after reassignment, report amendment or reopened analysis.

Evidence: planned, received, reviewed, accepted for a purpose, rejected, superseded, unavailable. Requirement: conforming, nonconforming, approved non-applicability, not yet demonstrated. Finding status has its own progression.

The named custodian allocates persistent IDs and administers records under actual permission. Technical acceptance, independent decisions and public publication have separate authorities. All tables inherit the common record payload from Annex M. A printed row, a formula specification or a linked identifier alone does not demonstrate an underlying event.

2 Relational field dictionary

Evidence

Field	Meaning and control
evidence_id	Persistent unique identifier for this entity or record. Resolve every parent link to the correct actual object; do not reuse or infer a missing identity.
source_version	Exact controlled version or technical state supporting this record. Retain before/after history and verify match to the actual evaluated configuration.
case_object	Precisely bounded activity, location, method, object or subject. Include relevant conditions and exclusions and retain separate responsibility for every claimed outcome.
configuration	Exact controlled version or technical state supporting this record. Retain before/after history and verify match to the actual evaluated configuration.
provenance	Record the actual provenance for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
custody	Record the actual custody for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
access	Record the actual access for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
state	Dataset-specific permitted state with the actual transition reason, authority and date. Do not conflate evidence receipt, case progress, conformity or current holder authority.
accepted_purpose	Record the actual accepted purpose for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.

Requirement conclusions

Field	Meaning and control
requirement_id_revision	Exact controlled version or technical state supporting this record. Retain before/after history and verify match to the actual evaluated configuration.
case_scope	Precisely bounded activity, location, method, object or subject. Include relevant conditions and exclusions and retain separate responsibility for every claimed outcome.
evidence_links	Usable original source reference and version, responsible origin, permitted access and relevance to the named purpose. A reference existing in the register is not proof of validity.
applicability	Record the actual applicability for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
conclusion	Record the actual conclusion for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
reason	Record the actual reason for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
reviewer	Attributable action of a competent authorised function, including independence and conflicts where required. Link the authentic instrument; no prefilled approval is implied.
actual_date	Actual event or controlled period with a declared time basis. Keep creation, occurrence, review, decision and expiry distinct; preserve original deadlines and historical gaps.

Findings

Field	Meaning and control
finding_id	Persistent unique identifier for this entity or record. Resolve every parent link to the correct actual object; do not reuse or infer a missing identity.
requirement	Record the actual requirement for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
evidence	Usable original source reference and version, responsible origin, permitted access and relevance to the named purpose. A reference existing in the register is not proof of validity.
gap	Record the actual gap for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
classification	Record the actual classification for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
affected_population	Defined numerical or categorical value with units, denominator/population, source, assumptions and applicable validation. Unknown, zero and not-applicable are not interchangeable.
notice_time	Actual event or controlled period with a declared time basis. Keep creation, occurrence, review, decision and expiry distinct; preserve original deadlines and historical gaps.
original_due_dates	Actual event or controlled period with a declared time basis. Keep creation, occurrence, review, decision and expiry distinct; preserve original deadlines and historical gaps.
protection	Record the actual protection for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
state	Dataset-specific permitted state with the actual transition reason, authority and date. Do not conflate evidence receipt, case progress, conformity or current holder authority.

Corrective actions

Field	Meaning and control
action_id	Persistent unique identifier for this entity or record. Resolve every parent link to the correct actual object; do not reuse or infer a missing identity.
finding_id	Persistent unique identifier for this entity or record. Resolve every parent link to the correct actual object; do not reuse or infer a missing identity.
occurrence_cause	Record the actual occurrence cause for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
escape_cause	Record the actual escape cause for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
extent	Record the actual extent for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
implementation	Record the actual implementation for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
effectiveness_criterion	Record the actual effectiveness criterion for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
actual_verification	Record the actual actual verification for this dataset, with scope, source and limitations. Use the controlling procedure and field relationships; retain corrections and reviewer accountability.
closure_authority	Attributable action of a competent authorised function, including independence and conflicts where required. Link the authentic instrument; no prefilled approval is implied.
closure_date	Actual event or controlled period with a declared time basis. Keep creation, occurrence, review, decision and expiry distinct; preserve original deadlines and historical gaps.

3 Common fields and integrity checks

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

Before accepting a record, verify unique identity, valid parent relationships, exact profile and configuration, actual time sequence and authorised origin. Check for duplicate keys, missing essential values, rejected evidence, unresolved findings, expired roles and unsupported public status. A successful key lookup is not proof that the linked source is true or relevant.

4 Manual operation, calculations and test cases

Create

Establish the actual triggering event and correct dataset. Allocate a unique ID, complete common and specific payload, retain the source and record unfilled essential fields as gaps rather than favourable defaults.

Review

A competent reviewer examines meaning, scope, evidence and event chronology. Where an independent decision is needed, route the versioned dossier to the separately authorised function instead of letting the custodian decide.

Update

Append changes with previous value, new value, reason, actual actor/date and decision reference. Retain superseded sources and historical state. Never reset a clock by copying the row into a new sheet.

Reconcile

Compare the expected population to actual records by identity, relationships, field semantics and permissible state. Confirm all exceptions, omissions and duplicates are accounted for before export or cutover.

Retain and recover

Use controlled access, retention, backups and actual recovery tests in the operational repository. This PDF provides the recording design only; test the deployed system and receiving custody independently.

Safe test	Expected result
Duplicate record ID	Detect collision and retain the original; do not silently overwrite or merge unrelated records.
Missing source / wrong configuration	Mark the dependency unavailable or mismatched and hold any affected positive conclusion.
Open finding / expired role	No unsupported grant, renewal, extension or unauthorised action. Preserve event-time assessment.
Old backup / missing later events	Reconcile post-backup history and current status before return to assured use.
Equal counts but substituted records	Fail semantic reconciliation; identify the actual missing and substituted identities.
Synthetic data in a public export	Exclude test records from live recipients and claims.

Manual calculations: count distinct record IDs, not duplicate appearances. Outstanding count = required population minus independently verified completed population only when both sets use the same definition and membership. A percentage is undefined if the denominator is absent or zero; do not display a favourable default. Calendar/month calculations follow Annex H. Any implemented formula requires separate known-answer, boundary and invalid-input tests.

1 Completion workflow and validation contract

PDF record architecture, field dictionary, manual review rules and blank capture sheets for Evidence, Findings and Corrective Action Register. This replaces only the planned delivery format for this issue: it is not an executable spreadsheet, access-control system, database or automatic decision engine.

Open a working copy, retain its code and existing field names, and enter record identity before technical details. Complete common identity, the original module fields, all triggered assurance extensions, independent review and receiving handover. An expression of interest, prepared application, test design or unsigned record is not a live positive outcome. Record blank, missing, invalid and disputed information explicitly rather than replacing it with favourable text.

Input group	Validation before reliance	Invalid / incomplete response
Identity and configuration	Stable IDs; actual object and performer; correct profile, method and loaded configuration.	HOLD dependent use; resolve wrong-object or wrong-version evidence.
Numbers and units	Finite real values; compatible units; ordered limits; non-negative uncertainty; unrounded source retained.	Reject malformed inputs. Blank, NaN or infinity is not zero.
States and evidence	Received/reviewed/accepted evidence states separate from PASS/FAIL/HOLD/N/A.	UNSET is not a fifth favourable state; preserve the gap.
People and time	Current competence, conflict clearance and authority at actual event time; declared time convention.	Later renewal cannot validate an earlier unauthorised action.

Input group	Validation before reliance	Invalid / incomplete response
Approval and custody	Authentic approval instrument, exact permitted action and actual receiving acceptance.	No approval inferred from a typed name, file presence or sending a message.

The PDF stores entered text but does not enforce access rights, numerical logic, identity verification, automatic deadlines or live registry states. A competent authorised person applies the checks. Local digital systems require their own validation. Printing may omit text that exceeds a visible field: complete the continuation record and reference it from the parent field.

2 Acceptance and original record preservation

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

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

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

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

Positive-decision conjunction

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

3 Source and record relationship 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
2.6 / 12	Requirement status and uncertainty	Requirement, objective evidence and local child predicates
9.3 / 20	Sampling and specimen integrity	Requirement, objective evidence and local child predicates
9.7 / 20	Technical reporting and amendments	Requirement, objective evidence and local child predicates
10.1 / 21	Records and provenance	Requirement, objective evidence and local child predicates
12.3 / 23	Method-family witnessing	Requirement, objective evidence and local child predicates
13.2 / 24	Implementation and vertical trails	Requirement, objective evidence and local child predicates
13.3 / 25	Witness control	Requirement, objective evidence and local child predicates
13.4 / 25	Technical judgement and conflicting evidence	Requirement, objective evidence and local child predicates
13.5 / 25	Closing and report	Requirement, objective evidence and local child predicates
14.1 / 25	Finding formulation and classification	Requirement, objective evidence and local child predicates
14.2 / 25	Immediate protection and notifications	Requirement, objective evidence and local child predicates
14.3 / 26	Occurrence, escape and systemic extent	Requirement, objective evidence and local child predicates
14.4 / 26	Plans, closure and effectiveness	Requirement, objective evidence and local child predicates
14.5 / 26	Existing status and new grants	Requirement, objective evidence and local child predicates
19.12 / 33	Technical witnessing for accreditation	Requirement, objective evidence and local child predicates
28.1 / 45	Mandatory scope content	Requirement, objective evidence and local child predicates
41.2 / 62	Integrated route and hidden characteristics	Requirement, objective evidence and local child predicates
54.4 / 79	Occurrence, escape and affected population	Requirement, objective evidence and local child predicates
56.2 / 80	Evidence states and requirement conclusions	Requirement, objective evidence and local child predicates
62.3 / 88	Evidence validity before conformity	Explicit verification and acceptance predicate
62.4 / 88	Four requirement states	Explicit verification and acceptance predicate

ASTRA ID / page	Source subject	Implementation use
62.5 / 89	No compensation or favourable default	Explicit verification and acceptance predicate
64.5 / 92	Heritage and similarity	Explicit verification and acceptance predicate
65.6 / 95	Payload function and scientific or service output	Explicit verification and acceptance predicate
67.3 / 98	Receipt, execution and completion	Explicit verification and acceptance predicate
74.6 / 113	Anomalies, unknown state and release of information	Explicit verification and acceptance predicate
75.3 / 114	Essential variables and remote monitoring	Explicit verification and acceptance predicate
77.2 / 118	Campaign design and article pedigree	Explicit verification and acceptance predicate
77.3 / 118	Measurement and uncertainty readiness	Explicit verification and acceptance predicate
77.5 / 118	Original data and invalid tests	Explicit verification and acceptance predicate
77.7 / 119	Retest and corrective verification	Explicit verification and acceptance predicate
77.8 / 119	Independent campaign closure	Explicit verification and acceptance predicate
79.4 / 122	Affected populations and historical decisions	Explicit verification and acceptance predicate
80.4 / 124	Bounded claim and publication	Explicit verification and acceptance predicate

4 Detailed module implementation

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

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

X09.1 Define the method family technically

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

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

X09.2 Observe the complete task

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

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

X09.3 Challenge hidden and remote properties

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

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

X09.4 Review change and corrective retest

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

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

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

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

AF-AST-PR-012 – Technical Reporting, Amendments and Report Review

Implementation basis: 9.7 (p. 20); 13.5 (p. 25); 28.1 (p. 45); 62.3 (p. 88); 62.4 (p. 88); 65.6 (p. 95); 67.3 (p. 98); 74.6 (p. 113); 77.5 (p. 118); 77.8 (p. 119); 80.4 (p. 124)

X12.1 Reconcile output identity and basis

Confirm actual item, configuration, method, site, period, performer, conditions, raw evidence, corrections and authorised signatory.

Completion / hold: A report title or customer description cannot substitute for verified identity and scope.

X12.2 Separate observed result from interpretation

Label measured, model-derived, declared and unknown information; state uncertainty, detection/access limits and the justified population.

Completion / hold: Qualification, provider competence, scientific inference and operational permission are not interchangeable report conclusions.

X12.3 Control adverse and amended reports

Keep earlier issued versions, exact correction reason, affected characteristics, original failures and recipients who may have relied on them.

Completion / hold: A replacement favourable report cannot erase a valid adverse result or make a missing observation contemporaneous.

X12.4 Review publication against authority

Compare report, scope schedule, registry and public claim with the actual independent decision. Use the printed edition date only as publication identity.

Completion / hold: Every communicated result retains its actual event history and no unsupported broader scope.

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

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

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

X13.1 Separate evidence gap, technical failure and finding

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

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

X13.2 Protect and trace the shared extent

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

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

X13.3 Test occurrence and escape causes

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

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

X13.4 Close with prospective evidence

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

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

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

5 Workflow and relationship diagram

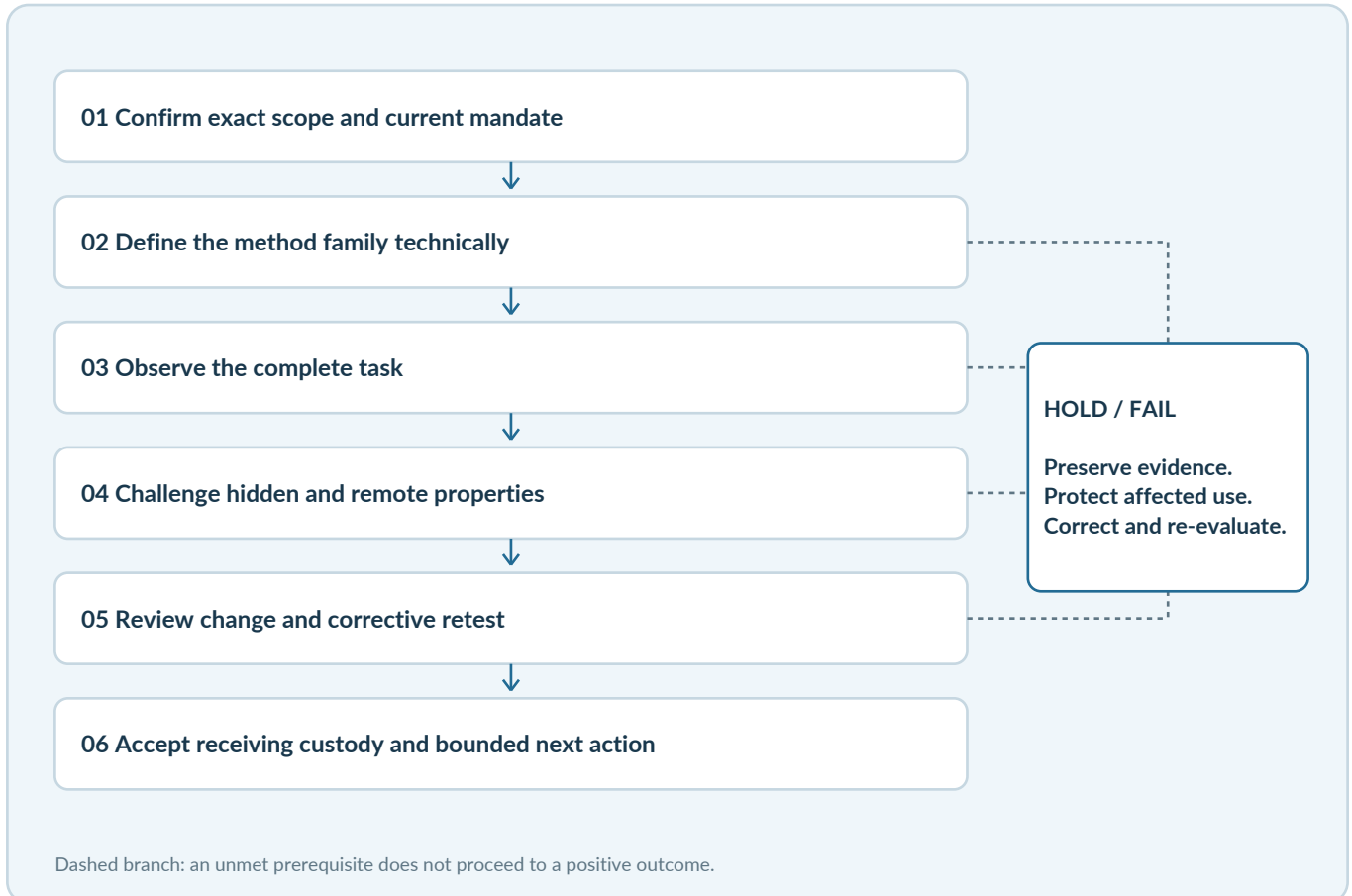
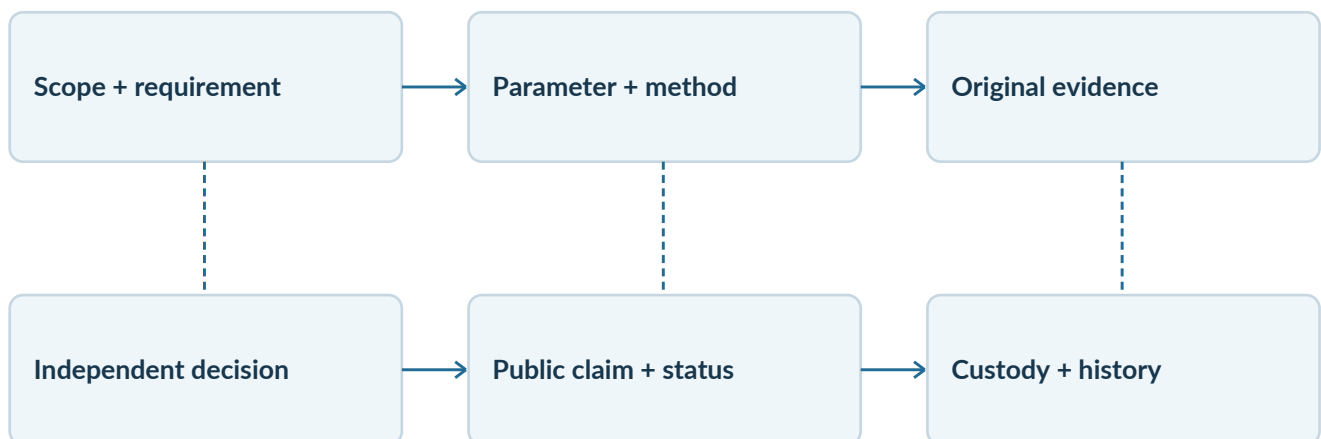


Figure — Implementation sequence for AF-AST-PR-009. Explanatory diagram; the source prerequisites and actual authority remain controlling.



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.

6 Worked recording and calculation examples

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

AM.Q01 Measurement uncertainty and covariance

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

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

$$U = k u_c$$

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

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

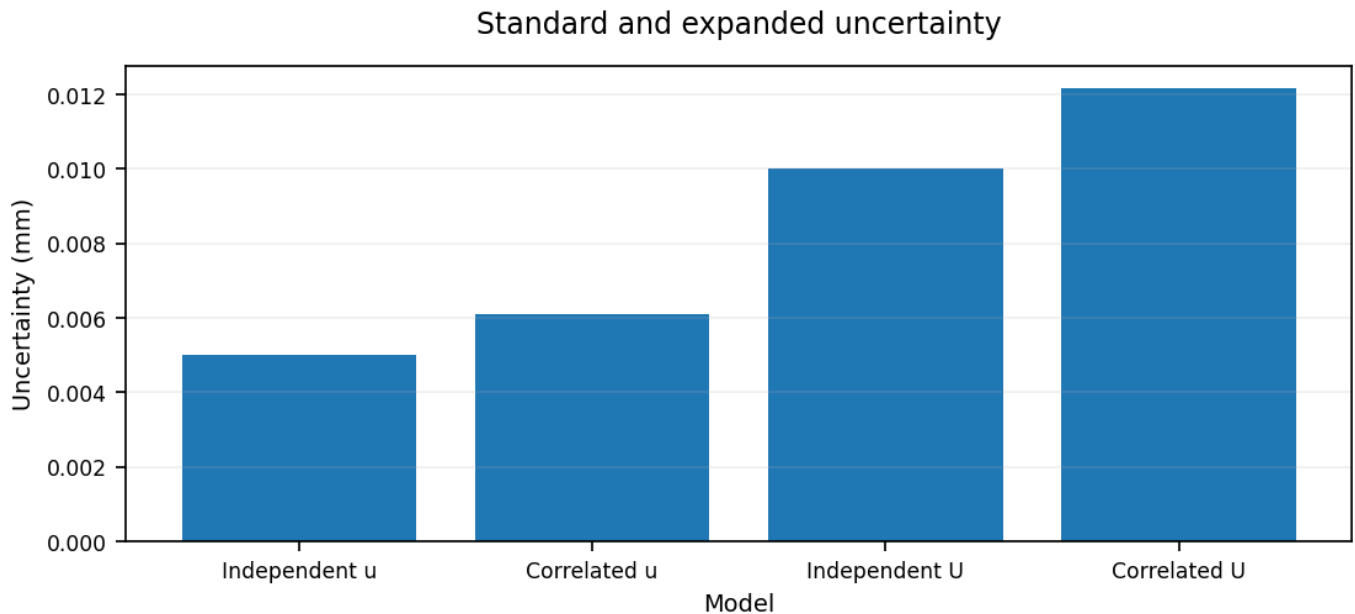


Figure Q01 — Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

AM.Q02 Inclusive limits and four distinct measurement outcomes

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

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

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

Otherwise: HOLD; invalid evidence also results in HOLD

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

ASTRA connections: Annex G; 62.3–62.5; 77.6

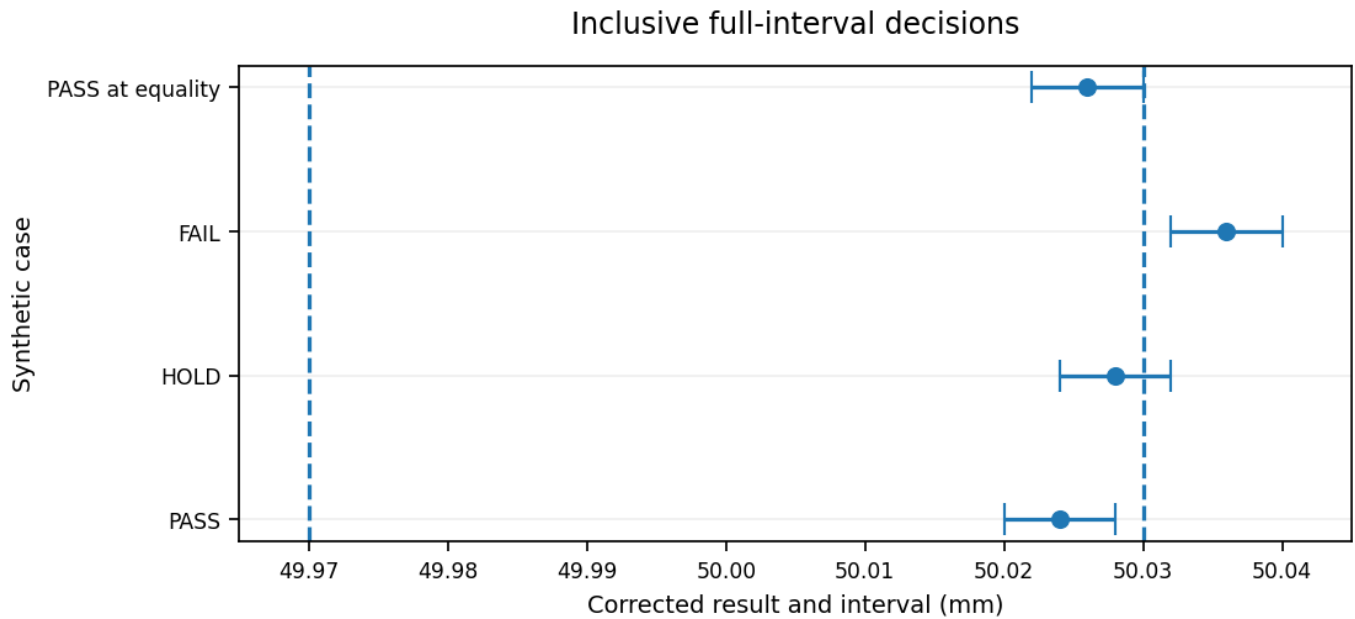


Figure Q02 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

AM.Q03 Positive-decision conjunction and essential failure

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

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

Requirement completion = completed applicable rows / all applicable rows

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

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

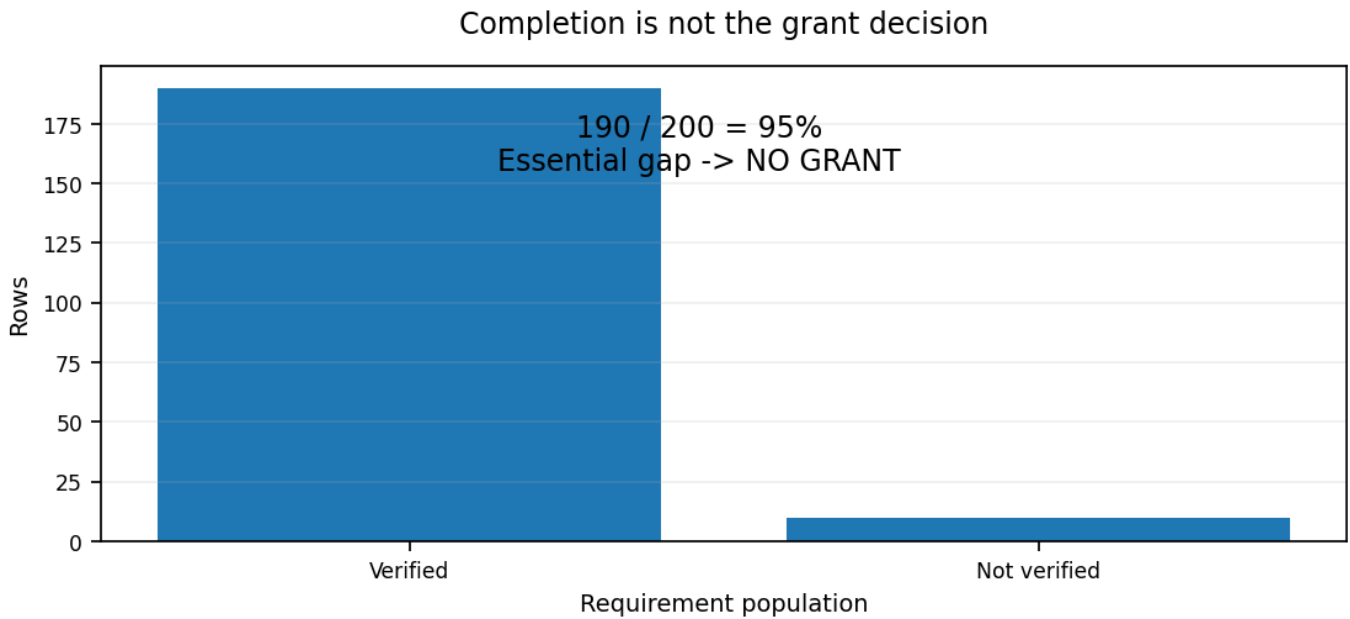


Figure Q03 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

AM.Q06 Random detection sample size

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

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

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

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

ASTRA connections: 9.3; Annex F.5; 55.3

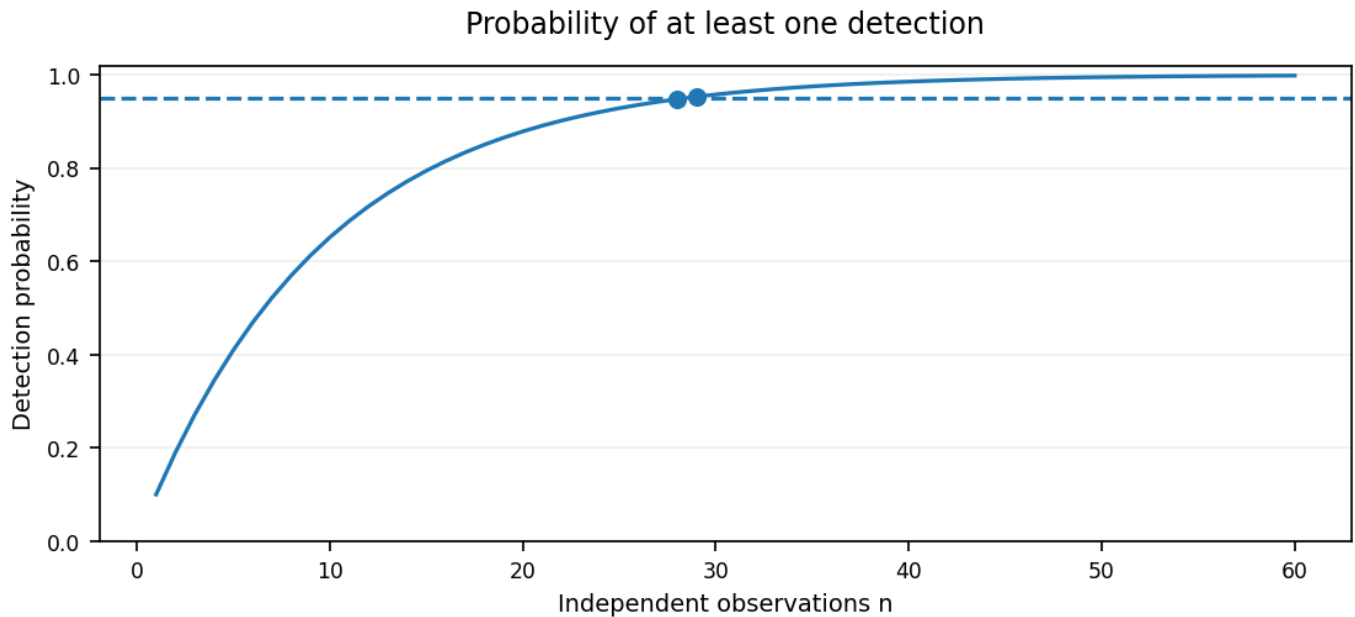


Figure Q06 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

AM.Q07 Zero observed failures and an exact binomial bound

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

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

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

Variables and units

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

Example inputs

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

Calculation and checks

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

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

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

ASTRA connections: 55.1–55.3; 62; 77

Zero failures: one-sided 95% binomial bound

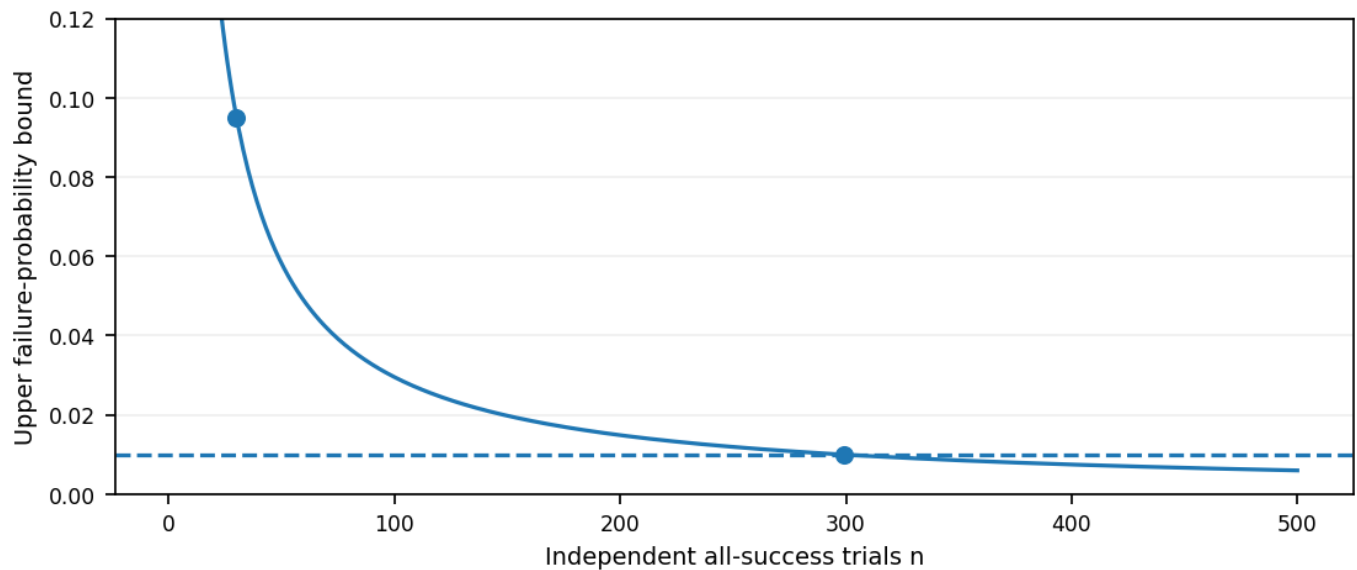


Figure Q07 – Synthetic visualisation. The axes and stated scenario define the quantity; no graph is an accreditation score, approved operating envelope or evidence of a real mission.

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

7 Missing, invalid and prohibited input cases

Challenge	Expected handling	Evidence retained
PR-009: Define the method family technically – required basis missing	No unrelated technique is added because it shares a performer or report template.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-009: Review change and corrective retest – handover or review incomplete	A fresh favourable run does not validate earlier affected output or automatically extend method scope.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-012: Reconcile output identity and basis – required basis missing	A report title or customer description cannot substitute for verified identity and scope.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-012: Review publication against authority – handover or review incomplete	Every communicated result retains its actual event history and no unsupported broader scope.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.
PR-013: Separate evidence gap, technical failure and finding – required basis missing	HOLD is not proof of product failure, but a demonstrated control failure still needs an appropriate finding.	Original input, unresolved value, affected requirement and scope; named action owner.
PR-013: Close with prospective evidence – handover or review incomplete	No grant, renewal or extension with an open in-scope finding; later correction does not backdate earlier validity.	Expected and observed state; independent replay; correction/retest; receiving acknowledgement.

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.

F1 Retained record fields

Existing field identifiers and meanings are retained for continuity with the earlier PDF forms and register payloads. The larger response areas below are blank. Enter authentic information, link original evidence and use controlled continuations when the visible area is insufficient. Do not use the edition date as an actual case, observation or decision date.

Retained fields 1 onward

Dataset / entry ID / parent case or object

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Profile / configuration / site and outcome boundary

Record the precise as-designed, built, tested, loaded, delivered or operated state relevant to the decision. Link versioned hardware, software, parameters, material history and interfaces; list differences and retained/new evidence explicitly.

Field name(s), actual value(s), units and source version

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Original evidence references and purpose-specific state

Identify contemporaneous raw records, actual performer, object and configuration, conditions, timestamps, transformations and available originals. Distinguish observation, model inference, operator statement and synthetic material; preserve failed and invalid attempts.

Relevant actual event dates and declared time basis

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Required relationship checks and unresolved exceptions

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Reviewer / authority / actual acceptance reference

Identify the frozen dossier, current scope and source basis, reviewer competence and conflicts, all mandatory child states, finding closure and actual decision authority. Record reasons, dissent, exact limitations and genuine event time; a vote does not create evidence.

Correction history / affected recipients / custody

Retain the measurement function, raw and corrected values, units, uncertainty sources, sensitivity and dependence, coverage interpretation and unrounded computation. Independently check the applicable model and boundary predicate; invalid inputs or overlap remain HOLD where required.

Retained fields 9 onward**Entry ID, parent links and actual event for Evidence**

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Actual field values — Evidence

additional controlled sheets for repeated entries. Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Review, limitations, correction and custody — Evidence

Retain the measurement function, raw and corrected values, units, uncertainty sources, sensitivity and dependence, coverage interpretation and unrounded computation. Independently check the applicable model and boundary predicate; invalid inputs or overlap remain HOLD where required.

Entry ID, parent links and actual event for Requirement conclusions

Entry ID, parent links and actual event for Requirement conclusions Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Actual field values — Requirement conclusions

additional controlled sheets for repeated entries. Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Review, limitations, correction and custody — Requirement conclusions

Retain the measurement function, raw and corrected values, units, uncertainty sources, sensitivity and dependence, coverage interpretation and unrounded computation. Independently check the applicable model and boundary predicate; invalid inputs or overlap remain HOLD where required.

Retained fields 15 onward

Entry ID, parent links and actual event for Findings

Entry ID, parent links and actual event for Findings Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Actual field values — Findings

protection, state. Use additional controlled sheets for repeated entries. Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Review, limitations, correction and custody — Findings

Retain the measurement function, raw and corrected values, units, uncertainty sources, sensitivity and dependence, coverage interpretation and unrounded computation. Independently check the applicable model and boundary predicate; invalid inputs or overlap remain HOLD where required.

Entry ID, parent links and actual event for Corrective actions

Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Actual field values — Corrective actions

actual_verification, closure_authority, closure_date. Use additional controlled sheets for repeated entries. Identify the actual source records and responsible reviewer for each element named in this field. Keep unknowns, rejected evidence and incomplete receiving actions visible; a completed narrative is not proof of underlying work.

Review, limitations, correction and custody — Corrective actions

Retain the measurement function, raw and corrected values, units, uncertainty sources, sensitivity and dependence, coverage interpretation and unrounded computation. Independently check the applicable model and boundary predicate; invalid inputs or overlap remain HOLD where required.

F2 All-domain assurance extensions

Complete each triggered extension, or link an independently approved non-applicability record. These fields are added to support Clauses 62–80 and Annexes AK–AR. A field may reference an equivalent controlled dossier; sensitive technical information need not be copied into every form.

Mission/domain applicability

Annex AK domain ID(s), activity and retained duty; record absent triggers with independent exclusion approval. Unknown applicability is HOLD.

Phase and operating-mode matrix

Identify normal, degraded, dormant, transport, test, service, emergency and terminal states relevant to the exact object. Link each required cell to evidence.

Complete atomic requirement population

Source clause and child IDs; all separately testable conditions; accountable owner; source version and exact intended conclusion.

Prospective technical parameters

Annex AO groups; actual values or defined attributes; units, bounds and inclusivity; conditions; derivation and genuine approval before evaluation.

Evidence validity and purpose

Original source IDs, configuration, method, performer authority at event time, accessible originals, uncertainty and limits. Received does not mean accepted.

Accepted predicate and uncertainty rule

Approved numerical or attribute predicate; unrounded inputs; uncertainty/dependence; validity domain; prospective alternative-rule authorisation where used.

Current child states and unresolved conditions

PASS / FAIL / HOLD / independently approved N/A by child. Blank is unrecorded. Identify every open finding, missing parameter and unresolved limitation.

Configuration and environment difference matrix

As-designed/built/tested/delivered/operated states; source or software changes; retained and invalidated evidence; required new demonstration.

Resource and shared-dependency review

Concurrent power/energy/data/time/consumables or staff duties, common causes, reserve ownership and support availability; do not count one reserve twice.

Command, remote evidence or service completion

Actual target, actor, event and receipt times, authority, transmission/receipt/execution/completion distinction, observability and unknown physical state.

Adverse-case and boundary-test record

Relevant AP case IDs plus local challenges; preconditions, expected and observed response, raw evidence, defect, correction, retest and genuine acceptance.

Independent calculation and decision replay

Frozen inputs and versions, independent recalculation, boundary result, differences found, disposition and reviewer's actual authority.

Claim and state projection

Exact object, outcome class, family/module/domain, permitted wording, restrictions, actual dates and public/protected information boundary.

Receiving acceptance and remaining duties

Actual recipient, usable evidence access, accepted custody, incomplete tasks, terminal-state obligations, notifications and continuing owner.

Original-versus-current source distinction

Identify retained original records, transparent corrections, changed assumptions and effect on earlier outputs; do not backdate later good evidence.

Authentic approval instrument

Reference actual signed or authenticated approval and scoped authority. A typed name, PDF timestamp or blank form is not approval.

F3 Process-specific extension entries

PR-009 X1 — Define the method family technically

Group only common principles, geometry/material ranges, equipment, competence and failure mechanisms. Identify unique or high-consequence boundaries that cannot be inferred. Completion: No unrelated technique is added because it shares a performer or report template.

PR-009 X2 — Observe the complete task

Follow identification, preparation, setup, essential execution, raw data, interpretation, reporting and independent release within safe authorised arrangements. Completion: A selected favourable demonstration cannot replace missing essential preparation or interpretation evidence.

PR-009 X3 — Challenge hidden and remote properties

State what is directly measured, validly inferred or unknown and test relevant difficult boundaries and false-negative mechanisms. Completion: Process telemetry or nominal equipment output cannot replace an unobservable required product property.

PR-009 X4 — Review change and corrective retest

After an interruption, source change or failed witness, preserve originals and define corrective demonstration including the original failed mechanism. Completion: A fresh favourable run does not validate earlier affected output or automatically extend method scope.

PR-012 X1 – Reconcile output identity and basis

Confirm actual item, configuration, method, site, period, performer, conditions, raw evidence, corrections and authorised signatory. Completion: A report title or customer description cannot substitute for verified identity and scope.

PR-012 X2 – Separate observed result from interpretation

Label measured, model-derived, declared and unknown information; state uncertainty, detection/access limits and the justified population. Completion: Qualification, provider competence, scientific inference and operational permission are not interchangeable report conclusions.

PR-012 X3 – Control adverse and amended reports

Keep earlier issued versions, exact correction reason, affected characteristics, original failures and recipients who may have relied on them. Completion: A replacement favourable report cannot erase a valid adverse result or make a missing observation contemporaneous.

PR-012 X4 – Review publication against authority

Compare report, scope schedule, registry and public claim with the actual independent decision. Use the printed edition date only as publication identity. Completion: Every communicated result retains its actual event history and no unsupported broader scope.

PR-013 X1 – Separate evidence gap, technical failure and finding

Record whether data are valid before declaring a failed property. State the exact requirement, observed gap, affected scope and independent classification. Completion: HOLD is not proof of product failure, but a demonstrated control failure still needs an appropriate finding.

PR-013 X2 – Protect and trace the shared extent

Stop or restrict affected use under actual authority, preserve evidence and trace common source, equipment, software, method and personnel dependencies. Completion: Protection and existing notification clocks run without waiting for root-cause wording or a replacement report.

PR-013 X3 – Test occurrence and escape causes

Use competing explanations, actual history, control design, workload and interface evidence. Define effectiveness criteria and exposure before retest. Completion: Issuing training, changing an owner or recalibrating equipment alone does not close a systemic cause.

PR-013 X4 — Close with prospective evidence

Re-execute the original failure mechanism and necessary regression, reconcile prior outputs and recipients, and independently approve closure. Completion: No grant, renewal or extension with an open in-scope finding; later correction does not backdate earlier validity.

F4 Controlled continuation and receiving record

Continuation identity and parent link

Unique continuation ID, parent form and field names; actual author, time, version and access class.

Complete visible narrative / data dictionary

Include all text needed to interpret the result. Attach clearly identified tables or source data when a visible field is too small.

Independent response and limitations

Record reviewer, actual findings, disposition, scope limits and open conditions; maintain protected dissent.

Receiving acknowledgement

Actual recipient, accepted responsibilities, evidence access check, approval reference and time.

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.

2.6 — Requirement status and uncertainty

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

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

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

9.3 — Sampling and specimen integrity

Source: AF-AST-STD-001, page 20.

When sampling is within scope, establish the population, selection method, sample size, locations, conditions, randomisation where relevant, transport and preparation. Address sampling contributions to uncertainty and limitations of inference. A result from a client-selected item shall identify that boundary. Sample identity and chain of custody shall survive splitting, pooling, consumption and subcontracting. Reject or condition work on unsuitable specimens before interpreting the result as representative.

Required evidence: Sampling plan; population and selection; custody; deviations and restricted inference.

9.7 — Technical reporting and amendments

Source: AF-AST-STD-001, page 20.

Reports shall identify issuer, client, actual item, scope, method/version, conditions, dates, results, units, uncertainty where needed, deviations, decision rule, conclusion, limitations and authorised signatory. Identify subcontracted results and opinions separately. A report shall not imply that untested characteristics or future production were examined. Amendments shall preserve the original, state the reason and affected conclusion, and reach recipients who relied on an incorrect result.

Required evidence: Attributable report; raw-data linkage; subcontracted-result identity; amendment and recipient log.

10.1 — Records and provenance

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

Records shall connect each requirement to actual work, configuration, performer, method, data, review and decision. Maintain unique identifiers, units, time basis, versions, status and change history. Corrections shall preserve the earlier information and reasons. Evidence shall remain distinguishable from forecasts, simulations and generated text. An imported record shall be checked for completeness and semantic mapping; a readable file without its essential relationships is not a complete transferred dossier.

Required evidence: Evidence index; version/provenance; change audit trail; migration checks.

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.

13.2 – Implementation and vertical trails

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

Combine document review, interviews, observation and actual results. Trace selected outputs backward through requirements, authorisation, resources, performer, method, materials and configuration, then forward through release, change and feedback. Include failed tests, rework, interruptions, complaints and previous adverse decisions where relevant. Sampling shall be expanded when inconsistencies suggest systemic issues. A signed checklist or assurance statement alone is not evidence that the underlying activity occurred.

Required evidence: End-to-end trails; selected populations; adverse cases; sample expansion and findings.

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.

13.4 – Technical judgement and conflicting evidence

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

Evaluate whether the evidence supports the specific conclusion under the known assumptions and limitations. Record contradictory results and alternative explanations. Resolve technical disagreement through competent independent review, not by seniority or majority preference outside expertise. An expert shall identify the boundary of advice and data reviewed. Inaccessible essential information, an invalid model or an uncontrolled configuration prevents the dependent positive conclusion even if other performance is strong.

Required evidence: Reasoned technical evaluation; counter-evidence; independent challenge; limitations and holds.

13.5 – Closing and report

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

Communicate evidence-based findings, affected scope, immediate protection and the distinction between team recommendation and final decision. Acknowledge factual corrections without erasing valid adverse evidence. Issue the final evaluation report within 14 calendar days of evaluation closure; exceptional delay shall be explained without moving an already notified finding clock. The report shall state actual time, methods, samples, sites, witnesses, criteria, limitations, findings and recommendation.

Required evidence: Closing record; findings and original notification dates; final actual-coverage report.

14.1 – Finding formulation and classification

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

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

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

14.2 – Immediate protection and notifications

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

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

urgently, followed by prompt independent review.

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

14.3 – Occurrence, escape and systemic extent

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

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

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

14.4 – Plans, closure and effectiveness

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

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

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

14.5 – Existing status and new grants

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

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

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

19.12 – Technical witnessing for accreditation

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

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

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

28.1 – Mandatory scope content

Source: AF-AST-STD-001, page 45.

Each outcome shall state holder and responsible issuer, unique identifier, exact class, family/module, criteria and version, evaluated object, site, technical activity, conditions/ranges, configuration or delivery version, period, decision/issue dates, status and restrictions. Identify ongoing expiry or instance boundary appropriately. The scope schedule forms part of the outcome and shall be available for verification without disclosing protected technical detail. Annex I supplies the minimum schema.

Required evidence: Decision-linked scope schedule; claim class; criteria/version; public/private split.

41.2 – Integrated route and hidden characteristics

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

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

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

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.

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.

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.

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.

65.6 – Payload function and scientific or service output

Source: AF-AST-STD-001, page 95.

Payload requirements shall identify intended outputs, calibration, dynamic range, contamination sensitivity, pointing or timing needs, processing and delivered data quality. Instrument performance, system suitability and scientific interpretation are separate conclusions. Changes in compression, processing or calibration shall retain raw or reconstructable data and algorithm identity. Marketing resolution or accuracy figures shall state the tested conditions and limitations.

Verification: Reconstruct selected output products from identified inputs, calibration and processing.

Acceptance / hold rule: Output criteria are met for the stated domain; unsupported scientific or service claims are not inferred from a functioning instrument.

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.

74.6 – Anomalies, unknown state and release of information

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

Loss of containment indication, unverified seal condition, missing samples or unexplained contamination shall trigger preservation, restriction and qualified review. Do not equate absent alarms with demonstrated integrity. Technical data and scientific interpretations shall retain limitations; public statements shall not imply a sample is harmless or pristine solely because its custody form is complete.

Verification: Examine anomaly decisions, actual observations and bounded reporting.

Acceptance / hold rule: Only supported technical conclusions are released; uncertainty and unresolved protection duties remain visible.

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.

77.2 – Campaign design and article pedigree

Source: AF-AST-STD-001, page 118.

Define qualification articles, flight or service articles, specimens, representative differences, prior exposure, fixtures, operating modes and cumulative test sequence. Identify which conclusions may be transferred between articles and why. Failed tests, repairs and substitutions shall remain in the same historical chain.

Verification: Review specimen-to-product and test-to-configuration equivalence records.

Acceptance / hold rule: All material differences and accumulated effects are evaluated before evidence reuse; unrepresentative essential evidence is not accepted.

77.3 – Measurement and uncertainty readiness

Source: AF-AST-STD-001, page 118.

Before execution, verify instrument identity, calibration, range, bandwidth, synchronisation, environment, software, raw-data retention and uncertainty suitability. Sensor placement and spatial coverage shall represent the characteristic being accepted. Protect the article and personnel through separately specified stop conditions.

Verification: Inspect the full measurement chain and execute relevant readiness checks.

Acceptance / hold rule: All required channels are valid for the intended inference; a missing, saturated or misconfigured critical channel prevents that acceptance.

77.5 – Original data and invalid tests

Source: AF-AST-STD-001, page 118.

Retain actual setup, input and response histories, environmental conditions, interruptions, alarms, raw files, corrections, uncertainty and validity classification. An invalid run shall state what evidence remains usable and which requirement is not demonstrated. A repaired or changed article shall not silently replace the originally failed configuration.

Verification: Reconstruct a selected run from raw data and contemporaneous records.

Acceptance / hold rule: The run is independently interpretable and no failed, invalid or missing evidence is concealed.

77.7 – Retest and corrective verification

Source: AF-AST-STD-001, page 119.

Retest shall follow an approved rationale, defined scope and representative configuration. It shall preserve the original failure and address causal, exposure and selection effects. Repeated trials until a pass occurs are not an acceptance strategy. Corrective verification shall include the original failure mode and relevant regression, not merely a new favourable measurement.

Verification: Review the retest authorisation, all attempts and failure-to-correction trace.

Acceptance / hold rule: The original deficiency and affected requirements are demonstrably resolved; otherwise the claim remains failed or held.

77.8 – Independent campaign closure

Source: AF-AST-STD-001, page 119.

The final dossier shall reconcile configuration, criteria, valid results, adverse evidence, untested characteristics, uncertainty, concessions and open duties. Qualification, article acceptance, laboratory competence and ASTRA conformity shall retain separate decisions. A technical concession shall not be relabelled as fulfilment of the original criterion.

Verification: Perform independent requirement-by-requirement closure with actual decision authority.

Acceptance / hold rule: Every applicable gate for the exact claimed object passes; counts, percentages or programme completion dates alone cannot release the object.

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.

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.

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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