



AF 9100:2026

Aerospace Quality Management System

FORM

Sample, Verification Campaign and Technical Report

AF-FR-9100-023

FIRST EDITION

30 September 2026 | English master text

Publication identity and application

Control	Publication value
Title	Sample, Verification Campaign and Technical Report
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Delivery status	Prepared implementation companion. Actual approval, adoption, effectivity and operational decisions are recorded separately.

Use and document-control boundary

This companion implements the supplied AF 9100 requirement basis without changing the original standard. Its process allocation, examples, checklists and record design are authored implementation material. Actual mission or product limits, specialist procedures, permissions and genuine observations must be completed before consequential use. Applicable source minima and independent decision conditions cannot be reduced by this companion.

The printed edition date identifies the companion series; it is not evidence that later preparation, review or operational decisions occurred on that date. New support codes in this set are proposed allocations for controlled registration. Established AF-IG-9100-001, AF-FAQ-9100-001 and AF-TR-9100-001 identities are retained; earlier files, the corporate master list and ASTRA codes are not overwritten.

Equivalent combined or digital records are permitted when all required fields, relationships, authority and history remain intact. A completed PDF field or typed name is not evidence of an authenticated approval. Blank records in this delivery contain no invented applicant, signature, event or result.

Interactive fields are blank by default. Save a working copy, use continuation records where necessary and preserve raw supporting evidence outside the PDF through controlled references. Separate issued PDFs are the authoritative interactive copies; the combined reading edition is flattened.

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Select actual scope → complete application criteria → use the applicable procedure and technical book → capture authentic evidence → evaluate every applicable condition → obtain the required independent decision. Document availability does not establish implementation or conformity.

1 Purpose, source identity and completion rules

This additional implementation form organizes the detailed record needs of the identified AF 9100 provisions. It supplements the twelve source form modules without renumbering them or creating a new assessment route.

Complete the applicable fields with authentic information. Record unknown, unavailable and not-yet-demonstrated conditions explicitly. An exclusion needs an approved applicability rationale. Use linked continuation records for multiple items, sources, tests, people or decisions. Keep source attachments under controlled custody; do not rely on this PDF alone where raw evidence is required.

2 Common identity and record control

Record ID and continuation link

Template/code and controlled version

Case/applicant/asset identity

Route, scope and application profile

Object configuration and relevant period

Actual creation/event time and time zone

Author and role

Reviewer and approval responsibility

Current state and original history

Original evidence and source location

Access classification and permitted recipients

Retention basis, duration and preservation hold**Correction: original value, reason, author and approval****Authenticated approval/workflow reference (typed name is not a signature)**

3 Form-specific evidence and decisions

Requirement/test/report identity

Article parent/sample identity

Qualification/acceptance/research purpose

Configuration and article differences

Environment/profile and basis

Fixture/operating modes

Calibration/bandwidth/timing

Uncertainty and decision rule

Protective stop and authorized safety

Actual run/raw data

Deviations/interruption/prior exposure

Validity and result classification

Retest and regression

Actual subcontracted performer**Independent conclusion and limits****Source custody and report amendment**

4 Detailed continuation record

Use this section for each additional independently testable condition or actual event. A form-level summary cannot remove a required field, earlier failed result or unresolved item.

Parent form and continuation/item ID

Exact object / configuration / performer / event time

Source requirement / approved profile / condition

Numeric criterion with units or observable attribute

Method / validity / uncertainty / essential step

Original evidence and actual result

Conclusion and limitations / rejected or contrary evidence

Required protection / action / responsible owner / actual due event

Reviewer / approval reference / receiving acknowledgement

5 Completeness and receiving review

Check	Required review
Identity and scope	Every record belongs to the actual object, evaluated configuration and relevant period.
Evidence and validity	Required original data, method, actual results and limitations are traceable.
Decision separation	Technical disposition, independent attestation, employer task authority and public permission are not merged.
History and time	Earlier failed states and original notification clocks are preserved; no manufactured observations.
Approval and custody	Actual competent authority and receiving responsibility are established; typed names are not authenticated signatures.

Actual reviewer / conclusion / unresolved items

Authenticated approval instrument or workflow reference

Receiving custodian / access / retention / accepted residual duties

Appendix A — Source requirements and complete field payload

Source: AF 9100:2026, Aerospace Quality Management System, FIRST EDITION, 29 September 2026; supplied 131-page PDF. Source page references below locate the original publication. These excerpts are read with the complete applicable standard; local implementation sequences do not replace it.

8.3.4 Design review, verification and validation

SOURCE p. 22 | Normative when applicable

8.3.4(a) Reviews shall evaluate whether the design can fulfill requirements and whether evidence and unresolved issues justify progression. Verification shall demonstrate that outputs satisfy specified inputs; validation shall demonstrate suitability for intended use in a representative context. These activities shall not be treated as interchangeable.

8.3.4(b) Test plans shall identify the test item and configuration, objectives, methods, environment, equipment, uncertainty, data to retain, acceptance criteria and anomaly handling. Test readiness shall be approved before execution. Deviations from the plan shall be recorded and evaluated for their effect on validity.

8.3.4(c) Analysis and simulation used as evidence shall have a justified model, validated range, input provenance, sensitivity analysis and uncertainty treatment. Completion of design shall require evidence covering identified operating conditions and interfaces; untested or unanalyzed conditions shall be explicitly bounded or resolved.

Required evidence: Review records; requirements-to-evidence matrix; approved test plans; raw data; model credibility; anomaly dispositions.

11.6 Verification strategy and model credibility

SOURCE p. 28 | Normative when applicable

11.6(a) The organization shall select inspection, analysis, demonstration and testing methods capable of establishing each requirement. The selected method shall address representativeness, observability, uncertainty, test-article differences and required confidence.

11.6(b) For models and simulations, credibility shall be established for the stated decision use. Verification of implementation, validation against relevant observations, input quality, sensitivity and uncertainty shall be addressed. Extrapolation beyond the demonstrated domain shall be identified and approved with compensating evidence.

Required evidence: Verification matrix; method-selection rationale; model-credibility dossier; approved extrapolations.

M.1 Verification-method and acceptance planning

SOURCE p. 73 | Normative when applicable

M.1(a) The organization shall identify the requirement, method, configuration, conditions, equipment, data, uncertainty, acceptance rule and responsible reviewer for each verification activity. Acceptance and abort criteria shall be defined before execution.

M.1(b) The test basis shall justify environmental profiles and margins using the actual duty, applicable technical requirements and limitations of the test article. This standard does not prescribe a single vibration, shock, fire, thermal-vacuum, EMC or load profile for every product.

M.2 Anomalies, retest and evidence exclusion

SOURCE p. 73 | Normative when applicable

M.2(a) Test anomalies shall be recorded with actual conditions and potential effects on validity. The decision to repeat, modify or exclude a result shall be technically justified and approved. All original results shall remain traceable.

M.2(b) Retesting after a repair or software change shall identify the changed configuration and the extent of regression needed. Repeating only the previously failed check shall not be sufficient when the change can affect other requirements. A pass after uncontrolled tuning shall not be represented as the result of the original plan.

M.3 Qualification by similarity and analysis

SOURCE p. 74 | Normative when applicable

M.3(a) Use of similarity shall identify the reference article, verified evidence, differences and their effects on relevant failure mechanisms. The organization shall demonstrate that the prior evidence bounds the new configuration and conditions.

M.3(b) Analysis-based acceptance shall record the model, assumptions, validation, uncertainty and sensitivity. An independent reviewer shall be able to reproduce material calculations from the retained inputs. Unsupported similarity statements shall remain open evidence gaps.

AH.5 Samples, execution and continuing validity of results

SOURCE p. 124 | Normative when applicable

AH.5(a) The provider shall control sample receipt, unique identity, condition, requested work, storage, preparation, chain of custody, consumption and disposal. Deviations from requested conditions shall be resolved before using results for a claim. Raw data shall identify the item, method, equipment, personnel and actual conditions.

AH.5(b) Continuing validity shall be monitored using suitable reference checks, control samples, repeated or blind tests, interlaboratory comparison, proficiency activities or technically justified alternatives. The program shall cover significant technical scopes at justified intervals and respond to adverse results. Participation alone shall not establish competence when performance is unsatisfactory.

AH.5(c) Data-processing software and calculation tools shall be verified. Manual transcription, unit conversion, automated interfaces and electronic signatures shall be controlled. A report shall be amended when a material error is identified, preserving the earlier version and notifying affected users.

Required evidence: Sample and custody records; raw data; validity-monitoring program; comparison results; verified data processing; corrected reports.

Source tables — complete field and decision payloads

Table M-1 — Test-plan and report data requirements

Source p. 73 | Required structure when applicable

Area	Required content
Identity	Program; requirement IDs; test/report IDs; revision; article serial/lot; hardware/software configuration.
Objective	Claim being evaluated; acceptance criteria; excluded claims; required confidence or coverage.
Method	Procedure; setup; sequence; conditioning; instrumentation; sampling; data processing; approved deviations.
Environment	Relevant physical conditions, profiles, tolerances, duration, interfaces and monitoring locations.
Measurement	Equipment identity, calibration, range, resolution, uncertainty, correction and decision rule.
Safety and authority	Test authorization, hazards, limits, abort criteria, emergency arrangements and responsible personnel.
Execution	Actual date/time, performer, observations, raw data, environmental records, anomalies and interruptions.
Analysis	Calculations, software/tools, assumptions, exclusions, uncertainty, comparison with criteria and limitations.
Review	Technical review, independent review when required, anomaly disposition and authorized conclusion.
Retention	Raw and processed data, configuration, photographs where useful, records location, access and retention.

Table M-2 — Qualification-domain matrix

Source p. 73 | Required structure when applicable

Domain	Program-specific basis to establish	Evidence limitations to address
Mechanical / structural	Loads, dynamics, fatigue duty, attachment, shock/vibration and structural acceptance.	Boundary conditions, scaling, article representativeness and cumulative damage.
Thermal / climatic	Temperature, humidity, icing, dust, salt, altitude and cycling as applicable.	Dwell, gradients, condensation, combined environments and service duration.
Space environment	Vacuum, thermal balance/cycling, radiation, charging and contamination.	Mission equivalence, dosimetry, material behavior and inaccessible damage.
Electrical / EMC	Power quality, transients, emissions, immunity, grounding, ESD and relevant external fields.	Installation effects, cable configuration, modes, frequency coverage and failure criteria.

Domain	Program-specific basis to establish	Evidence limitations to address
Fire / hazardous energy	Applicable ignition, containment, propagation, smoke or emergency requirements.	Scale, ventilation, material state, energy inventory and authorized facility capability.
Software / digital	Requirements, interfaces, timing, robustness, security and configuration.	Coverage, target equivalence, systematic defects and tool limitations.
AI / autonomy	Domain, scenario coverage, data quality, performance, fallback and intervention.	Distribution shift, rare conditions, confidence and authority boundaries.
Human-system / operations	Representative users, tasks, workload, emergency and maintenance conditions.	Participant representativeness, learning effects and simulated-environment limits.