



AF 9100:2026

Aerospace Quality Management System

TECHNICAL PROFILE BOOK

Aviation, UAS and Advanced Air Mobility — Technical Application Book

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Publication identity and application

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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.

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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 Scope, responsibility and source priority

Design/production/maintenance approval interfaces, installation effects, full unmanned-system boundaries, alternative energy, ground services and continuing support.

Boundary	Required implementation decision
Object and route	Identify ORG, PRD, SVC, PRC, PER, SUB or CAB separately. Combined records do not merge outcomes.
Activity	Apply source technical modules by performed or retained responsibility, including relevant outsourced work.
Authority	Technical release, employer task permission, independent attestation and statutory authorization remain distinct.
Source priority	AF 9100:2026 and all compatible binding obligations control. This companion does not import ASTRA programme rules or external normative schemes.

2 Technical profile and prospective parameter completion

Aircraft/equipment family; actual installation; operating domain; control-station/link boundaries; life and maintenance data; energy duty; site/service compatibility

Parameter record	Content required before evaluating results
Identity and trigger	Stable criterion ID, source anchor, owner, actual object, phase, mode and reason it applies.
Limit or attribute	Value/range with compatible units and boundary convention, or an observable state with every essential step.
Technical basis	Actual environment, duty, consequence, derivation, qualified evidence and relevant approval.
Method and representation	Inspection, analysis, demonstration or test; method version, article/population, configuration and validity limits.
Uncertainty and decision	Corrections, model, covariance, coverage, pre-agreed rule, sample/scoring logic and hold conditions.
Authority and change	Technical and independent approvals, actual effectivity, preserved earlier basis and reopening triggers.

The fields above are completed for the actual application. A blank limit, undefined domain or unvalidated method prevents the dependent claim; the book deliberately does not invent one severity, tolerance or task threshold for unrelated applications.

3 Subject-by-subject implementation

15.1 — Airworthiness and operational approval interfaces

Source p. 33; complete conditions reproduced in Appendix A.

Implementation record: Approval-interface matrix; assigned obligations; change and repair approvals; supporting evidence.

Application check: Review every source clause and normative annex against actual activity and retained outsourced responsibility. Record affirmative triggers and reasoned exclusions; lack of resources, a small workforce or another certificate is not an exclusion rationale.

Review boundary: An undefined object, unjustified exclusion or unresolved essential criterion holds admission or acceptance. Record each source condition separately in the linked checklist and preserve approved exclusions.

15.2 — Aircraft and equipment integration

Source p. 33; complete conditions reproduced in Appendix A.

Implementation record: Installation assessment; integration verification; affected-system analysis; updated support data.

Application check: Review every source clause and normative annex against actual activity and retained outsourced responsibility. Record affirmative triggers and reasoned exclusions; lack of resources, a small workforce or another certificate is not an exclusion rationale.

Review boundary: An undefined object, unjustified exclusion or unresolved essential criterion holds admission or acceptance. Record each source condition separately in the linked checklist and preserve approved exclusions.

15.3 — Unmanned and remotely operated systems

Source p. 33; complete conditions reproduced in Appendix A.

Implementation record: System-level UAS assessment; domain definition; link-loss tests; workload and contingency validation.

Application check: Review every source clause and normative annex against actual activity and retained outsourced responsibility. Record affirmative triggers and reasoned exclusions; lack of resources, a small workforce or another certificate is not an exclusion rationale.

Review boundary: An undefined object, unjustified exclusion or unresolved essential criterion holds admission or acceptance. Record each source condition separately in the linked checklist and preserve approved exclusions.

15.4 — Electric, hybrid and hydrogen aviation

Source p. 33; complete conditions reproduced in Appendix A.

Implementation record: Integrated energy-hazard assessment; architecture qualification; degradation limits; ground-support and emergency information.

Application check: Review every source clause and normative annex against actual activity and retained outsourced responsibility. Record affirmative triggers and reasoned exclusions; lack of resources, a small workforce or another certificate is not an exclusion rationale.

Review boundary: An undefined object, unjustified exclusion or unresolved essential criterion holds admission or acceptance. Record each source condition separately in the linked checklist and preserve approved exclusions.

15.5 — Airports, ground support and air-navigation services

Source p. 34; complete conditions reproduced in Appendix A.

Implementation record: Service assurance plan; interface compatibility; change assessments; maintenance and operational verification.

Application check: Review every source clause and normative annex against actual activity and retained outsourced responsibility. Record affirmative triggers and reasoned exclusions; lack of resources, a small workforce or another certificate is not an exclusion rationale.

Review boundary: An undefined object, unjustified exclusion or unresolved essential criterion holds admission or acceptance. Record each source condition separately in the linked checklist and preserve approved exclusions.

15.6 — Continuing airworthiness and aviation maintenance

Source p. 34; complete conditions reproduced in Appendix A.

Implementation record: Capability list; approved maintenance data; personnel authorization; life-status records; maintenance release evidence.

Application check: Record tasks, observations, removed and installed parts, interruptions, temporary devices and unfinished conditions. Later signatures cannot make unobserved steps contemporaneous.

Review boundary: Unverified life, parts eligibility, mandatory inspection or release authority prevents the affected service release. Record each source condition separately in the linked checklist and preserve approved exclusions.

4 Representative evaluation and adverse evidence

Design, Systems Engineering and Lifecycle Gates

Witness or trace: Review hazards, common causes, resource budgets and assumptions. Validate models for their exact decision domain; identify where simulation cannot observe or bound an essential physical property.

Synthetic challenge: A component qualifies on the bench but the installation changes cooling and power supply. Retain only relevant unchanged evidence. Add installation-specific verification and update hazards and support instructions before an integrated-system conclusion.

Verification Campaigns, NDT and Test Reporting

Witness or trace: Capture raw inputs and responses, conditions, operator, method version, deviations, interruptions and alarms. Label simulated or model-derived results and expose inaccessible features.

Synthetic challenge: One NDT demonstration detects an easy reference flaw and is claimed to prove all installed defects are detectable. Restrict the conclusion to the demonstrated material, geometry, access and technique. Establish representative defect and statistical evidence before a broader detection claim.

Maintenance, Repair, Distribution and Retirement

Witness or trace: Use an approved repair or overhaul basis and valid detection for hidden damage. A successful bench test cannot reset missing life history or establish an unsupported as-new claim.

Synthetic challenge: A serviceable-looking part is recovered from a stored vehicle with no exposure history. Retain the unknown history and apply the real eligibility and life assessment. Cosmetic condition or a functional check does not establish unrestricted use.

5 Interface records, decisions and continuing use

Record	Required implementation purpose
AF-FR-9100-002	Application Profile and Acceptance Schedule
AF-FR-9100-016	Design, Interfaces, Gates and Engineering Budgets
AF-FR-9100-026	Service, Maintenance, Life and Retirement Record

Qualification, instance acceptance, current operating capability and independent attestation retain separate evidence and decisions. A new site, material, supplier, digital load, use environment or duty requires a relevant difference and requalification review. No previous result transfers automatically because the name is unchanged.

Appendix A — Controlling source and evidence

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.

15.1 Airworthiness and operational approval interfaces

SOURCE p. 33 | Normative when applicable

15.1(a) The organization shall identify the applicable civil or military approval basis and its own authorized scope. Design, production, maintenance and operational responsibilities shall be mapped to the relevant approval holders and interfaces.

15.1(b) AF conformity shall not be presented as an airworthiness approval. Technical changes, repairs and service information shall follow required approval routes. The organization shall maintain traceable evidence supporting the obligations assigned to it by the approval holder, customer or competent authority.

Required evidence: Approval-interface matrix; assigned obligations; change and repair approvals; supporting evidence.

15.2 Aircraft and equipment integration

SOURCE p. 33 | Normative when applicable

15.2(a) The organization shall assess installation effects, interface compatibility, environmental qualification, human factors and failure propagation when integrating equipment. Compliance at component level shall not automatically establish safe installation or aircraft-level compatibility.

15.2(b) Integration shall address power quality, electromagnetic effects, cooling, structural attachment, data behavior, timing, maintenance access and operational procedures as relevant. Modifications shall consider affected instructions, spares, training and configuration tracking.

Required evidence: Installation assessment; integration verification; affected-system analysis; updated support data.

15.3 Unmanned and remotely operated systems

SOURCE p. 33 | Normative when applicable

15.3(a) Unmanned-system assurance shall include the aircraft, control station, communication links, remote personnel, software, supporting services and operational environment. Loss or degradation of command, navigation, surveillance or external services shall have defined safe behavior.

15.3(b) Operational-domain boundaries, contingency procedures and human workload shall be validated. The organization shall assess behavior outside intended conditions, unauthorized control and foreseeable operator mistakes. A geofence or remote pilot shall not be assumed effective without evidence for the relevant failure conditions.

Required evidence: System-level UAS assessment; domain definition; link-loss tests; workload and contingency validation.

15.4 Electric, hybrid and hydrogen aviation

SOURCE p. 33 | Normative when applicable

15.4(a) Programs using alternative energy or distributed propulsion shall identify coupled electrical, thermal, mechanical, chemical and software hazards. Energy availability, isolation, containment, degradation and ground-support interfaces shall be included in requirements.

15.4(b) The organization shall demonstrate that qualification and maintenance assumptions address the specific architecture and duty cycle. Ground charging, fueling, transport and emergency responders shall receive the necessary controlled information. Environmental benefit claims shall be supported independently of airworthiness evidence.

Required evidence: Integrated energy-hazard assessment; architecture qualification; degradation limits; ground-support and emergency information.

15.5 Airports, ground support and air-navigation services

SOURCE p. 34 | Normative when applicable

15.5(a) Organizations providing airport, ground-support, air-navigation or related digital services shall identify how their output affects aircraft and people. Service interfaces, equipment compatibility, operational handovers and

failure communication shall be controlled.

15.5(b) Changes to service procedures, infrastructure, data feeds or equipment shall be assessed for operational and safety effects. Maintenance and inspection shall preserve the service configuration and performance. Incompatible aircraft or vehicle interfaces shall be identified before use.

Required evidence: Service assurance plan; interface compatibility; change assessments; maintenance and operational verification.

15.6 Continuing airworthiness and aviation maintenance

SOURCE p. 34 | Normative when applicable

15.6(a) Maintenance responsibilities shall include current approved data, authorized personnel, parts eligibility, life limits, configuration, required inspections and release documentation. Independent inspections shall be provided where required by the task or consequence.

15.6(b) New maintenance capability shall be verified before accepting work. Work interruptions, shift changes, remote locations and tool control shall be addressed. An AF management-system claim shall not replace the maintenance authorization required for the specific task or jurisdiction.

Required evidence: Capability list; approved maintenance data; personnel authorization; life-status records; maintenance release evidence.

Q.1 Aviation responsibility matrix

SOURCE p. 80 | Normative when applicable

Q.1(a) The organization shall identify its role in design, production, installation, maintenance, operation or support and the relevant approval interfaces. Table Q-1 shall be completed for each applicable product or service family.

Q.1(b) Where another entity holds the approval, the organization shall identify the obligations assigned to it and the evidence to be supplied. An assumption that the customer “handles certification” shall not leave technical responsibilities unassigned.

Q.2 Installation and modification acceptance

SOURCE p. 80 | Normative when applicable

Q.2(a) Installation acceptance shall verify the actual physical and digital configuration, affected interfaces, relevant operating modes and required documentation. Design changes shall include installation, maintenance and operator-information effects.

Q.2(b) The organization shall assess whether prior qualification remains representative. Approval for a component or a different installation shall not be carried forward without a justified applicability analysis.

Q.3 Operational and maintenance handover

SOURCE p. 80 | Normative when applicable

Q.3(a) Handover shall identify approved operating limits, maintenance requirements, life-limited items, software status, open restrictions and emergency information. The receiving organization shall acknowledge information necessary for its assigned responsibility.

Q.3(b) Where a remote or distributed service supports flight or maintenance, loss of that service shall be included in contingency validation. The handover shall preserve the ability to identify and support the actual deployed configuration.

Source tables — complete field and decision payloads

Table Q-1 — Aviation evidence topics

Source p. 80 | Required structure when applicable

Topic	Required evidence	Release or use restriction
Approval basis	Applicable authority/customer basis, role, approved scope and required submissions.	No claim beyond actual authorization.
Aircraft/equipment configuration	Design baseline, installation interfaces, software, hardware and change status.	No unreviewed mixed or substituted configuration.
Environmental qualification	Applicable temperature, vibration, electrical, electromagnetic and installation effects.	Component evidence valid only for demonstrated conditions.
System safety	Hazards, critical functions, assumptions, failure containment and independent reviews.	Unacceptable residual risk blocks the affected release.
Human interfaces	Crew/operator tasks, alerts, workload, errors, training and emergency validation.	Operational limitations shall be enforceable.
UAS system boundary	Aircraft, control station, links, supporting services, lost-link behavior and remote personnel.	Do not treat aircraft-only evidence as complete UAS evidence.
Advanced mobility energy	Battery/fuel/propulsion integration, degraded modes, ground interfaces and emergency information.	Alternative-energy qualification shall match actual architecture.
Airports and ground support	Service interfaces, equipment compatibility, access, procedures and operational changes.	Use only within verified compatibility and capability.
Maintenance capability	Current data, personnel authorization, tools, parts eligibility and independent checks.	No work outside verified capability/authorization.
Life limits and continuing support	Life consumption, field issues, service instructions, spares and configuration diversity.	Unknown life status requires controlled disposition.
Release documentation	Required authorized release, conformity evidence, restrictions and customer/operator information.	AF assessment does not replace required aviation release.
Safety communication	Notification responsibilities, recipients, acknowledgement and support for affected population.	Do not delay necessary safety information for commercial reasons.

Appendix B — Local implementation and release

Readiness condition	Evidence before consequential use
Authority and responsibility	Actual legal operator, owner, competent technical authority, independent reviewer and permitted result class are recorded.
Scope and criteria	Object, configuration, site, period, trigger, every technical value or observable attribute, units and prospective approval are complete.
Evidence and methods	Original accessible evidence, representative observations, valid methods, uncertainty, adverse cases and limitations support the intended conclusion.
People and independence	Competence is current for each task; genuine conflicts, relevant prior work and needed separation have been checked.
Records and tools	Field meanings, unique IDs, original history, access, retention, recovery and actual deployed workflows have passed local validation.
Decision and public use	All relevant blockers are resolved; required independent decision and written permissions precede the exact public claim.
Continuity and handover	Receiving custody, unresolved duties, corrections and historical decisions survive transfer, retirement or provider closure.

Record the completed local readiness and actual authorization in AF-FR-9100-032 or an equivalent controlled record. Preserve the unchanged source standard and each earlier decision basis. A blocked activity may continue only within a genuinely permitted development boundary, not as a provisional conformity certificate.