



AF 9100:2026

Aerospace Quality Management System

CHECKLIST

Space Systems, Mission Operations and Remote Assurance — Checklist

AF-CL-9100-005

FIRST EDITION

30 September 2026 | English master text

Publication identity and application

Control	Publication value
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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.

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 Checklist use and state definitions

Evaluate the whole source condition, including every joined sub-condition. Where different parts have different evidence, add separate continuation rows linked to the original identifier. Do not compress a compound requirement into a favorable summary.

Field state	Meaning
PASS	Conforming: valid evidence meets the approved applicable condition.
FAIL	Nonconforming: valid evidence demonstrates failure of the applicable requirement.
HOLD	Not yet demonstrated: applicability, criteria, evidence, validity, interpretation or authority remains unresolved.
N/A	Not applicable only with an approved absence-of-activity-and-responsibility rationale. Missing resources or access are not exclusions.

States in this companion map to the source’s requirement-status dictionary; operational record status and evidence validity remain separate. No prefilled state is supplied. A metric counts progress only and cannot override a mandatory failure.

Assessment / case / object / profile / evaluated version

Assessor / actual dates / route / sites / configuration / selected scope

Approved applicability and exclusions / continuation record location

2 Complete source-condition evaluation

14.1 — Space program and mission-product assurance

14.1(a) | Source p. 32

Space programs shall define product and mission assurance across spacecraft, payload, launch interfaces, ground segments, communication links and operations. Responsibility for each interface and lifecycle decision shall be established before integration.

Space assurance plan; mission interface allocation; environmental and lifecycle assumptions; gate evidence.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.1(b) | Source p. 32

The assurance plan shall address mission duration, repairability, access limitations, launch exposure, environmental extremes, reliability, contamination, software updates and end-of-life constraints. A commercial or rapid-development schedule shall not remove necessary evidence for an irreversible mission decision.

Space assurance plan; mission interface allocation; environmental and lifecycle assumptions; gate evidence.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.2 — Space environment and qualification rationale

14.2(a) | Source p. 32

The organization shall identify relevant mechanical, thermal, vacuum, radiation, electrical, electromagnetic, charging, contamination and material-degradation environments. Requirements and test levels shall be derived from the actual mission and approved technical basis.

Environmental specification; qualification matrix; test-article differences; margin and exposure rationale.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.2(b) | Source p. 32

Qualification and acceptance test strategies shall distinguish design demonstration from workmanship screening. Test-article representativeness, margins, notching or limitation decisions, cumulative exposure and over-test risk shall be assessed. No universal test profile is specified by this standard.

Environmental specification; qualification matrix; test-article differences; margin and exposure rationale.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.3 — Components, materials and contamination control

14.3(a) | Source p. 32

Critical components and materials shall have evidence appropriate to mission consequence, including provenance, process control, screening, derating, radiation susceptibility or other environment-specific properties as applicable. Commercial components shall be assessed for the intended use rather than accepted or rejected by label alone.

Parts and materials lists; environmental suitability; contamination plan; applicable protection-control evidence.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.3(b) | Source p. 32

Contamination control shall address particulate, molecular and biological concerns where relevant. Materials, cleaning, storage, integration and transport shall preserve the required condition. When planetary-protection obligations apply, responsibilities and verified controls shall be recorded without substituting an AF declaration for the required authorization.

Parts and materials lists; environmental suitability; contamination plan; applicable protection-control evidence.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.4 — Ground segment, command and mission operations

14.4(a) | Source p. 32

Ground systems and operational procedures shall be configuration controlled and validated for normal, degraded and emergency modes. Command authority, authentication, timing, data integrity and prevention of unintended actions shall be addressed.

Ground-segment baseline; command-authority rules; rehearsals; anomaly procedures; telemetry interpretation limits.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.4(b) | Source p. 32

Operational readiness shall include training, rehearsals, anomaly response, time synchronization, communication outages and handovers. Critical commands shall have suitable review or protective controls. Telemetry limitations shall be understood before using telemetry absence as evidence that a hazardous condition is absent.

Ground-segment baseline; command-authority rules; rehearsals; anomaly procedures; telemetry interpretation limits.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.5 — Orbital responsibility and end-of-life planning

14.5(a) | Source p. 32

The organization shall identify applicable responsibilities for tracking, coordination, collision-risk information, debris prevention, disposal and re-entry. Plans shall be established early enough to affect design and resource allocation.

Responsibility allocation; disposal concept; resource budgets; failure cases; end-of-life decision and verification records.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.5(b) | Source p. 32

End-of-life capability shall be assessed against credible failures and remaining resources. Disposal success shall not be assumed solely from nominal mission performance. Changes in mission duration, orbit or operating strategy shall trigger reassessment. Public statements about disposal or sustainability shall identify assumptions and uncertainty.

Responsibility allocation; disposal concept; resource budgets; failure cases; end-of-life decision and verification records.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.6 — Human spaceflight and habitation interfaces

14.6(a) | Source p. 33

Where people are exposed to spaceflight or habitation systems, the organization shall identify life-support, habitability, crew interface, emergency response, medical-support interface and rescue or safe-return assumptions within its responsibility. Human-centered evaluation shall address workload, fatigue, communication delay and maintainability.

Human-system requirements; life-support interface assurance; emergency scenarios; independent review; integrated validation.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.6(b) | Source p. 33

Independent safety review and integrated testing shall be matched to consequence. Crew or passenger acceptance of risk shall not replace required technical controls or authorizations. Degraded conditions and loss of a supporting service shall be included in validation.

Human-system requirements; life-support interface assurance; emergency scenarios; independent review; integrated validation.

STATE

EVIDENCE / APPROVED N/A BASIS

REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.7 — Surface mobility, in-space servicing and manufacturing

14.7(a) | Source p. 33

Lunar, planetary and other space-purpose vehicles shall be treated as mission systems, including mobility, energy, autonomy, communications, dust or contamination, maintainability and support interfaces. Terrestrial automotive qualification shall not be assumed valid for the space environment.

Surface or servicing concept; environment-specific qualification; remote acceptance strategy; safe-state and evidence limitations.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

14.7(b) | Source p. 33

In-space servicing, robotic assembly and manufacturing shall define inspection access, remote verification, material behavior, configuration control and abort or safe-state conditions. Where physical retrieval is impossible, evidence strategy shall be established before deployment and shall acknowledge unresolved observability limits.

Surface or servicing concept; environment-specific qualification; remote acceptance strategy; safe-state and evidence limitations.

STATE	EVIDENCE / APPROVED N/A BASIS	REVIEWER / ACTUAL EVENT

Gap / required action / continuation record:

4 Compound-condition continuation and final reconciliation

Duplicate these controlled continuation fields as needed. Each additional predicate retains its parent source identifier, object, criterion, evidence, actual result, gap and independent approval. The number of printed fields is not a limit on the required evidence.

Parent requirement / compound condition / applicable object

Separate criterion and approved technical basis

Method, actual configuration and original evidence

Result, uncertainty/rubric and PASS/FAIL/HOLD/N/A reason

Failed/held condition, owner, original due event and action

Approved exclusion and independent review reference

Final requirement population and unresolved conditions

Independent reviewer / decision authority / genuine approval reference

Initial grant, renewal and extension require closure of all in-scope nonconformities and the source's complete decision conditions. A separate authorized technical concession does not make a failed original criterion conforming. Preserve independent review, actual authority and precise scope.