



TESTING PROCEDURE

CAT-72 Procedure

Conformance Assessment Test

Version v1.0 · February 2026 · CONFIDENTIAL

CAT-72 Procedure · v1.1

SENTINEL AUTHORITY — ODD Conformance Determination

CAT-72 Procedure

Conformance Assessment Test

Version 1.1 — January 2026 — Procedural Specification

CAT-72 is the formal evidentiary procedure establishing that an autonomous system operates within its declared Operational Design Domain with ENVELO-compliant enforcement. CAT-72 completion is mandatory for ODDC determination. No waivers are issued.

1. Purpose and Scope

CAT-72 serves three functions:

Evidentiary Demonstration:

System maintains bounded operation across operational regimes

Enforcement Verification:

ENVELO-compliant mechanisms activate correctly on boundary approach

Audit Generation:

Cryptographically sealed records suitable for underwriting and incident reconstruction

This procedure applies to all applicants seeking initial ODDC determination or renewal. Partial completion does not satisfy requirements.

2. Test Duration

Parameter

Standard

Extended



Minimum Duration

72 hours (4,320 minutes\

Up to 168 hours

Continuity

Cumulative (active intervals

Applicability

Standard risk profiles

High-risk domains, complex ODDs

2.1 Interruption Events

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Any of the following events constitute an interruption requiring test restart:

- System shutdown, restart, or power cycle (planned or unplanned\
- Loss of evidentiary recording for any duration
- Manual override or intervention (except emergency safety stops\
- ENVELO enforcement activation resulting in system halt
- Loss of communication with Sentinel Authority witness infrastructure
- Any modification to system configuration, ODD parameters, or enforcement settings

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3. Demonstration Requirements

3.1 Convergence Demonstration

The system must demonstrate sustained operation within declared ODD bounds. Convergence is measured by:

- Mean operating point stability within declared tolerance bands
- Variance bounded within declared limits for all critical state variables
- No excursions beyond declared ODD boundaries

3.2 Enforcement Demonstration



ENVELO enforcement must be demonstrated through:

- Boundary approach scenarios showing correct enforcement activation
- Negative testing confirming no bypass pathways exist
- Fail-closed behavior verification on simulated enforcement failure

4. Evidence Requirements

Artifact

Format

Integrity

Telemetry Log

Time-series state data

Cryptographically signed

State Recordings

Snapshot sequence

Hash-chain linked

Interlock Events

Enforcement actions

Timestamped + signed

Convergence Metrics

Statistical summary

Boundary proximity calc

5. Tolerance Declaration

Applicants declare operational tolerances prior to CAT-72 based on:

- Equipment manufacturer specifications
- Applicable regulatory requirements
- Risk profile and consequence severity
- Industry standards and best practices

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IMPORTANT: Tolerances cannot be modified during the test period.



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