

ENV-004j — Detect Environmental Variation

[Go to ENV-004 — Provide Deterministic Test Environment](#)

Statement

The [DIDO-TE](#) SHALL detect environmental variation during each [Test Execution](#).

Derived From

- [ENV-004 — Provide Deterministic Test Environment](#)
- [\[DTE5\] DIDO-TE Requirements Register](#), source requirement identifier and obligation to be assigned
- [\[DTE6\] Structured Information Processing Reference Architecture \(SIP-RA\)](#)
- [\[DTE7\] Federated Data Interpretation Systems Reference Architecture \(FDIS-RA\)](#)

Rationale

Environmental variation occurs when an observed environmental condition differs from the condition specified by the applicable [Test Definition](#).

Variation may arise from changes to Baselines, Configuration values, Test Inputs, time sources, random value sources, execution ordering, resource allocation, external dependencies, or communication conditions.

Undetected variation weakens the interpretation, [Reproducibility](#), and [Comparability](#) of [Test Results](#).

Detection establishes whether the Test Execution remained within the conditions and tolerances specified by the Test Definition. The resulting record supports assessment of the variation and its effect on the Test Results.

Applies To

- [Test Environment](#)
- [Test Definition](#)
- [Test Execution](#)
- [Test Object](#)
- [Node](#)
- [Test Input](#)
- [Test Resource](#)
- [Baseline](#)
- [Configuration](#)
- [Constraint](#)

- [Evidence](#)

Verification

Verification confirms that:

- The applicable Test Definition identifies the environmental conditions subject to observation.
- Each observed condition has a specified value, range, state, sequence, or tolerance.
- The DIDO-TE observes each identified condition during its applicable period.
- The DIDO-TE compares each observed condition with its specified condition.
- The DIDO-TE detects variation outside the permitted tolerance.
- Each detected variation identifies the affected environmental condition.
- Each detected variation identifies its observed value, state, sequence, or behaviour.
- Each detected variation identifies the applicable expected condition.
- Each detected variation records its occurrence time and duration, where applicable.
- The DIDO-TE records detected variations as [Evidence](#).
- The DIDO-TE maintains [Traceability](#) among each detected variation, the affected environmental condition, the Test Definition, the Test Execution, the Evidence, and the Test Results.
- An undetected, unidentified, unsupported, unrecorded, or untraceable environmental variation constitutes nonconformance with this requirement.

Verification includes:

- Inspection of the environmental conditions and permitted tolerances specified by the Test Definition
- Observation of environmental monitoring during Test Execution
- Comparison of specified conditions with observed conditions
- A negative assessment that changes a Baseline or Configuration value
- A negative assessment that alters a Test Input or random value source
- A negative assessment that changes execution ordering or resource allocation
- A negative assessment that changes an external dependency or communication condition
- Confirmation that the DIDO-TE detects and records each variation
- Inspection of environmental-variation Evidence and Traceability records
- Confirmation that each negative assessment produces a nonconformance result

Referenced By

- [ENV-004k — Record Environmental Variation](#)
- [ENV-004l — Validate Environmental Determinism](#)

Related Architecture Sections

- Add links to the architecture sections governing environmental monitoring, variation detection, Test Execution, Evidence, Test Results, and Traceability.

Delivery Phase

Assign the applicable delivery phase.

Requirement Status

Draft

Statement Reference

Use the following syntax to reference this requirement's Statement section from another DokuWiki page:

```
{{section>dido:03-dido-te:99-annexes:annex-c-requirements:02-test-environment-requirements:env-004-provide-deterministic-test-environment:env-004j-detect-environmental-variation#Statement&noheader&nofooter&noeditbtn}}}
```

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