



CCDL

is a test specification language that provides a dedicated high-level and easily applicable test language for powerful requirements-based system testing. The fully automated test execution and evaluation shortens testing cycles and reduces required manpower.

Testing with CCDL – major features

- Powerful requirements-based system testing
- Fully automated test execution and evaluation
- Intuitively readable and easy to learn
- Reduces manual test tasks and documentation efforts
- Defining test stimulations and expected reactions in a human readable format
- Executes in real-time on the test bench
- Open test engine interface to connect arbitrary test benches
- Visualization of the test execution flow
- Open interfaces to test management solutions

Requirements-based testing

Traceability of test results to system requirements and vice versa is one of the most important issues arising while testing safety-critical systems according to aerospace, automotive or medical standards. CCDL automatically evaluates the SUT behavior and reports results based on requirement annotations within the test procedure.

Real-time black box testing

CCDL is applicable for black box system testing with input and output interfaces which are used for stimulation and checking of expected system reactions. The CCDL test procedure is automatically compiled into an executable test control program that runs as real-time process on the test bench.



ITE

Test management integration

CCDL has open interfaces to test management solutions and it is already part of our Integrated Test Environment (ITE).

Easy to use

The intuitively readable CCDL test specification reduces documentation efforts and the visualization of the test execution flow reveals the dynamic behavior of the system under test. It clearly spots any deviations against the expected results.

```

1 // Test Step 1, Timeout 99 [s]:
2 {
3   // Action: Set lever position to 2
4   set CTRL.LeverPosition to 2
5
6   // Check for motor speed of system
7   // - Set a trigger variable if the event occurred
8   set trigger T1 when CTRL.MotorSpeed >= 1000 [rpm] (RQNT:0015-1)
9
10  // Set failure condition: Manipulate sensor
11  when T1:
12    // Manipulate sensor value
13    set CTRL.MotorSpeed to offset 110 [rpm] (RQNT:4711-1)
14
15  // Check if system detects the failure condition
16  within T1 .. T1 + 100 [ms]: {
17    expect CTRL.BreakState ==> ENGAGE (RQNT:4711-1)
18    expect CTRL.FailureWarning ==> OFF (RQNT:4711-1)
19  }
20 }

```

A.2 Evaluated Test Procedure

Name: 1 (1) Sample

Result	Procedure Text
OK (100/200)	Action: Set lever position to 2 set CTRL.LeverPosition to 2 Check for motor speed of system - Set a trigger variable if the event occurred set trigger T1 when CTRL.MotorSpeed >= 1000 [rpm] When system is in state "ready for this test": Set failure condition: Manipulate sensor when T1: Manipulate sensor value set CTRL.MotorSpeed to offset 110 [rpm] during 0 [ms] .. T1 expect CTRL.FailureWarning ==> OFF
FAILED (0/200)	Check if system detects the failure condition within T1 .. T1 + 100 [ms]: expect CTRL.BreakState ==> ENGAGE expect CTRL.FailureWarning ==> OFF

Test bench interfaces

A well-defined interface to the underlying test execution engine allows running tests written in CCDL on any test tool that provides the required functionality. You will find all currently supported test benches at our web page.

