RESEARCH PROGRAM TestConCert
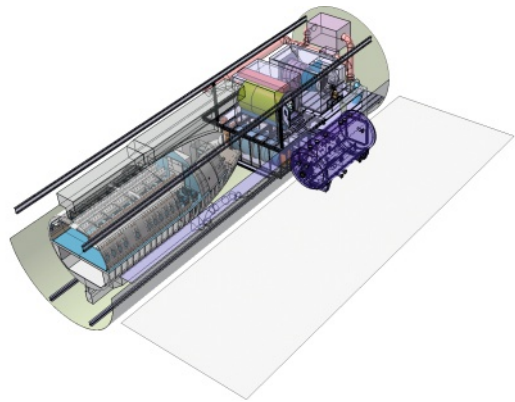
integrated
test bench control
with certifiable
test documentation

The research topic has the purpose to enhance and automate test conduction for the ground thermal test bench located in the *Flight Test Facility (FTF) Fraunhofer IBP*, Germany.

The *FTF* consists of a low-pressure chamber containing a 15 meter long passenger aircraft section, cockpit, cabin and aft business jet fuselage mock-ups and the aircraft calorimeter. The research partners *RST* and *Razorcat* successfully applied for this topic.

Razorcat

RST
Industrie Automation

in cooperation with: Fraunhofer
IBP

Team & technology

RST Industrie Automation GmbH is a platform provider for test and automation systems.

Their communications technology *Gamma V* interacts as a middleware to integrate test execution and hardware controlling. Different currently not compatible control systems should be able to work together.

The *FTF* is an automation system on low level and a flight test bench on superordinate level. Both technologies work in two different application domains with different timing requirements. *Gamma V* middleware should provide a datamodel that handles all signals.

CCDL

Razorcat integrates the test specification language *Check Case Definition Language (CCDL)* into this test domain.

The easy to use test language is intuitively readable and reduces documentation efforts because the scripts can directly be used as documentation for certification bodies.

CCDL and its runtime *TRM* will be updated and enhanced to match the unique requirements of thermal systems.

ITE

Razorcats test management tool *Integrated Test Environment (ITE)* will be established to enable a consistent work flow from requirements to acceptance test documents.
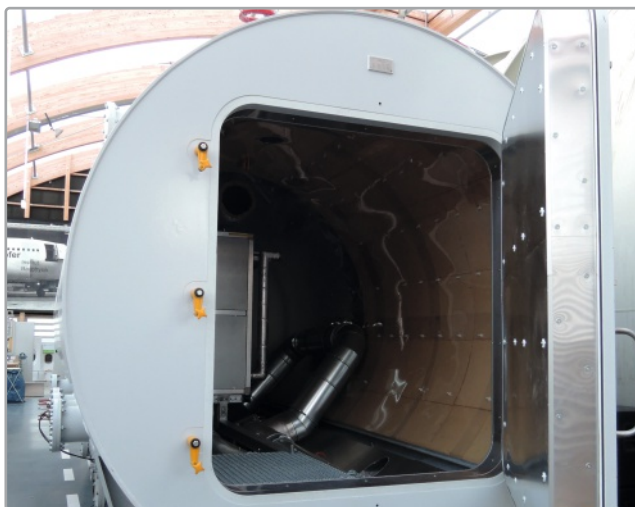
Core CCDL targets

- Ensure furnishing proof for the power and functional range of the language and runtime in the area of thermal aircraft testing.
- Clarify whether *CCDL* scripts can additionally be employed as documentation for certification bodies. This would lower the expenditure for certification documents by at least 50%.
- Establish an integrated solution by adapting the *Gamma V* platform for *CCDL*.

The challenge

Flexibility is needed as the system configuration can fundamentally change during the test phase or with a new unit under test.

ITE

CCDL

TRM

Gamma

ground termal test bench

Fraunhofer
IBP
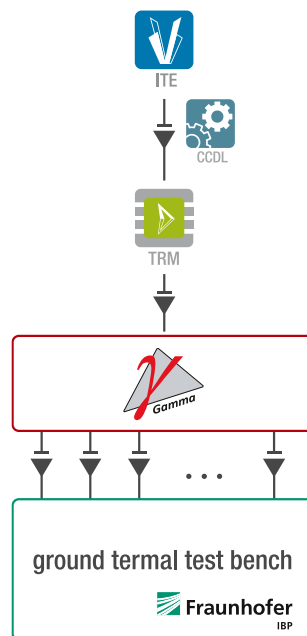
Avionics testing demands the highest requirements for its tools and processes:

The solution and architecture needs to support separate user roles for control operator and test operator.

The control operator has to be able to maintain, expand and parametrize the automation layer.

The test operator on the other hand must be able to load and run tests reliably and reproducibly.

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