

Reliable Diagnostics of a MOST System

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Agenda

1. Motivation
2. ECL in a MOST Network
3. Test Specification Development Process
4. Test Solution
5. Conclusion

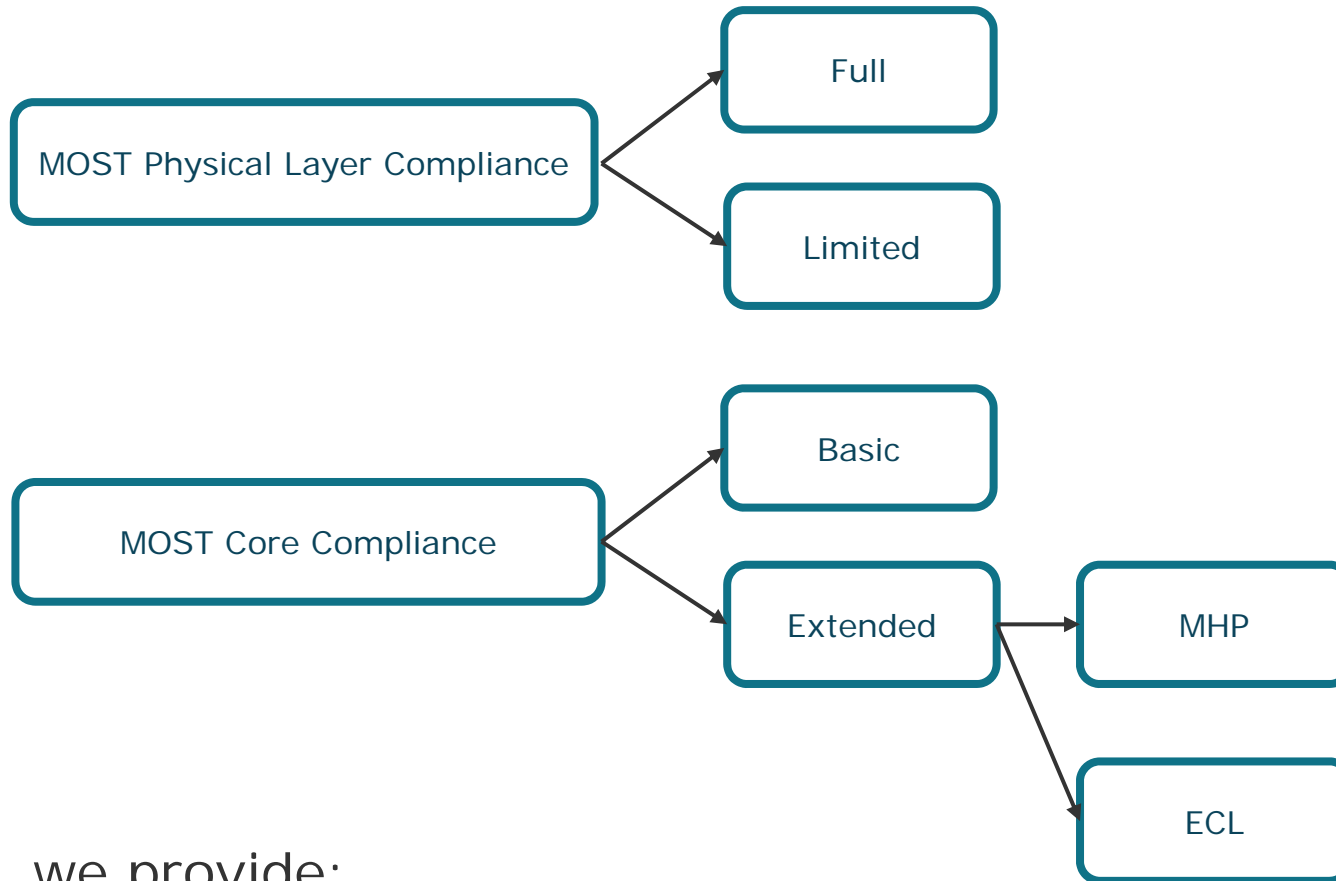
Compliance Process - New Scope of the MOST Cooperation

New specification:

- MOST Electrical Control Line Specification
- For all MOST speed grades
- Feature is optional

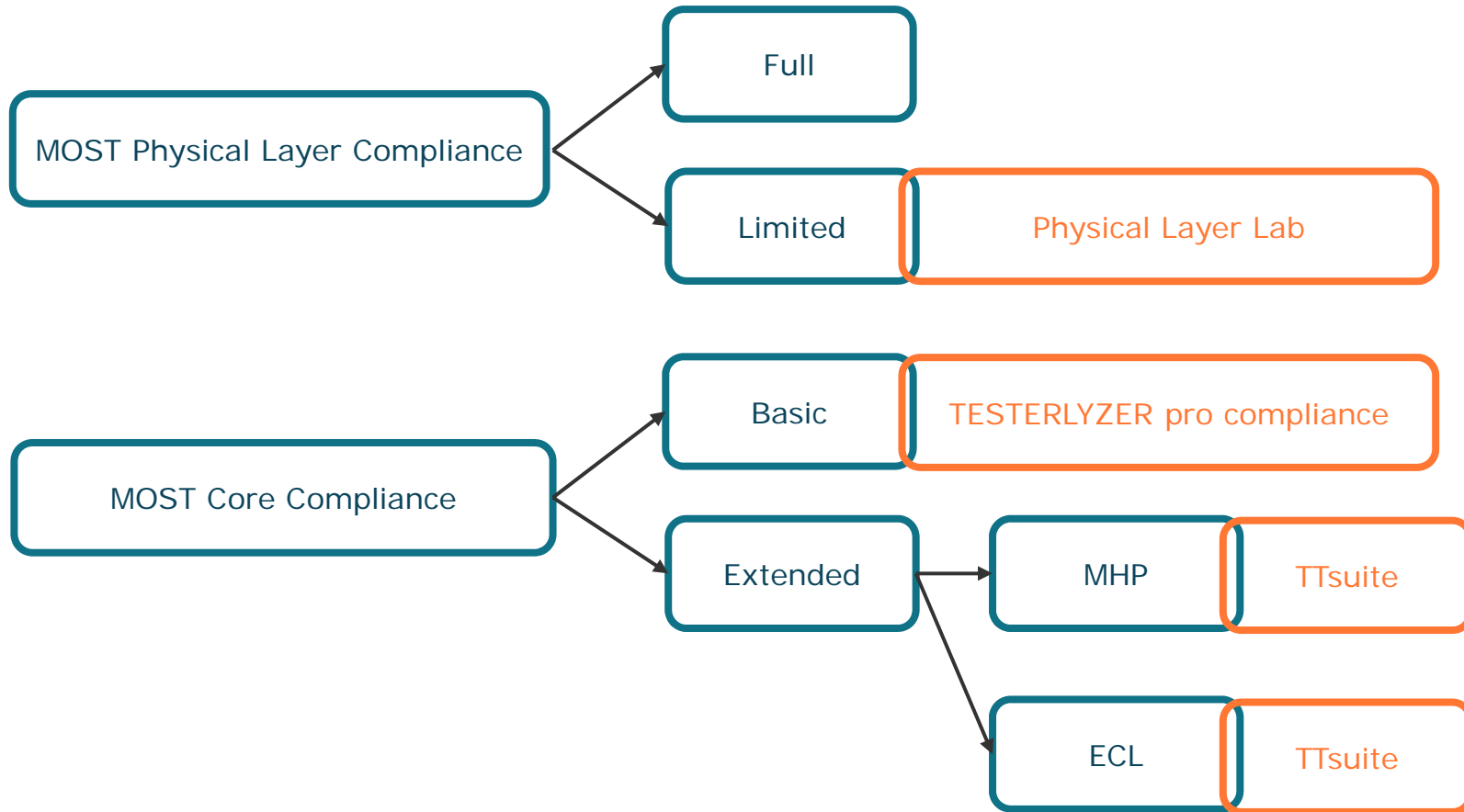
New test specification:

- MOST Extended Core Compliance Test Specification:
Electrical Control Line
- Compliance Test is mandatory if ECL is implemented



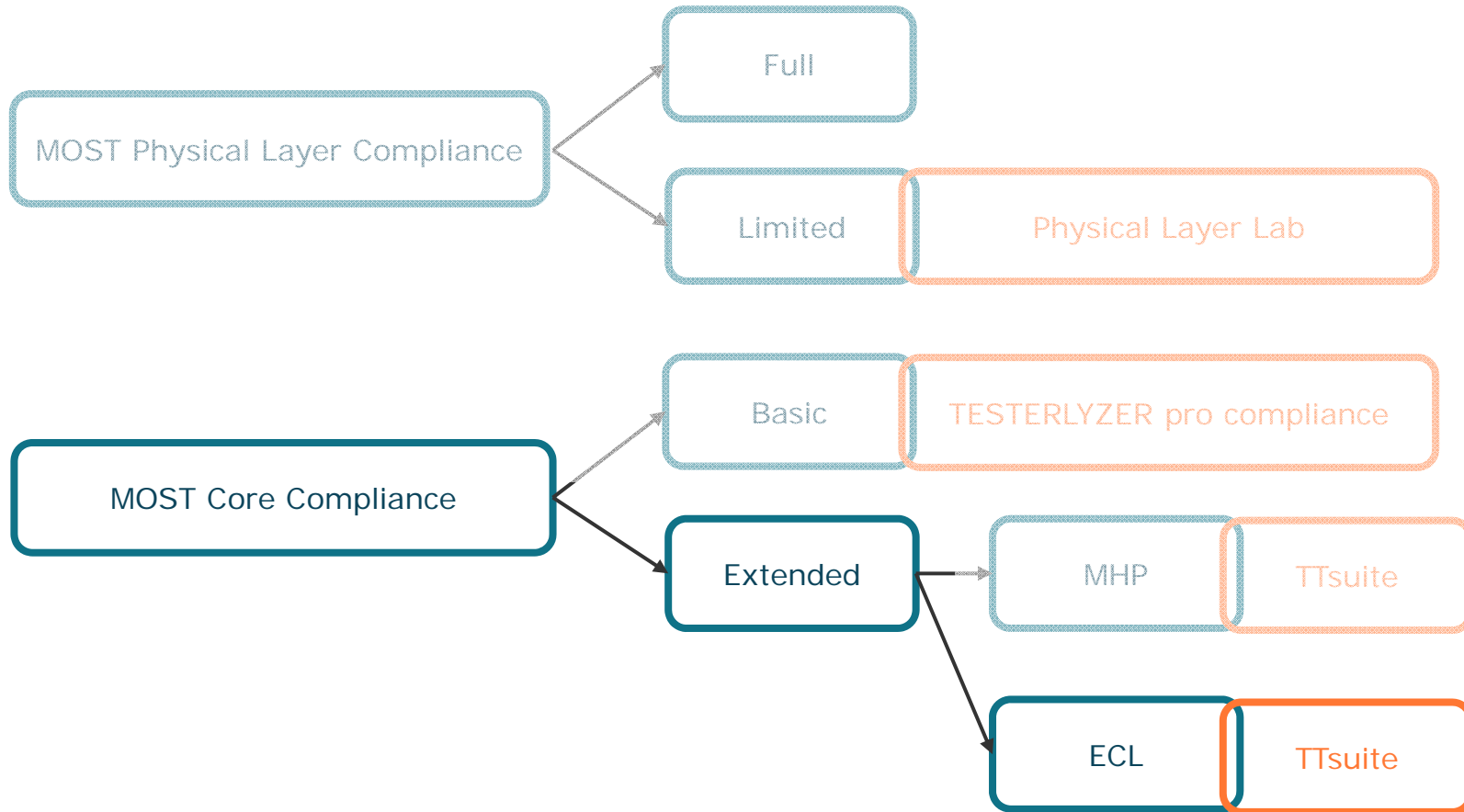
we provide:

- all scopes for compliance verification
- all available MOST speed grades



We provide:

-> Ready-to-use, fully automated test systems for all test scopes



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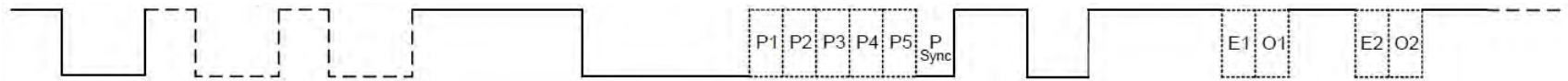
ECL in a MOST Network

Features

- Triggering a system test

- System test initiator 1
- System test participant 1..19

Sequence:



- Waking up the system via EWU

- Electrical wake-up initiator 1..n
- Electrical wake-up participant 1..(20-n)

Sequence:



ECL in a MOST Network

4 Kinds of System Tests

Start sequence

Parameter sequence

Result sequence



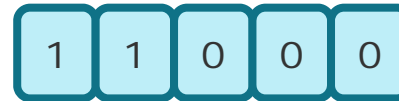
RBD



Alive



Coding error / threshold



SSO / CU

ECL in a MOST Network

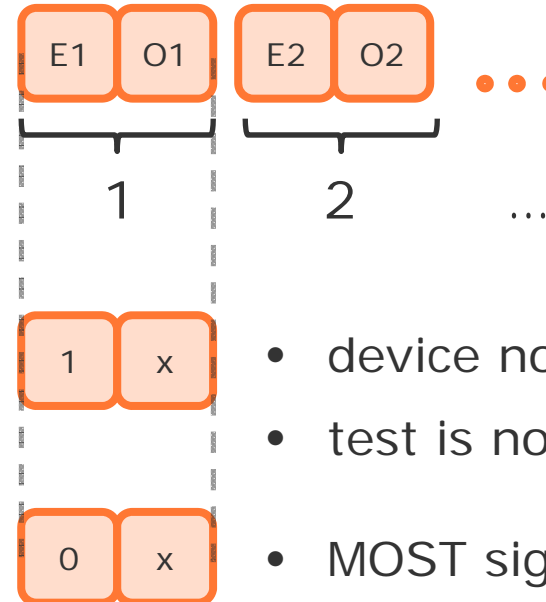
System Test Message Results

Start sequence

Parameter sequence

Result sequence

Identification of participants via unique
node class:



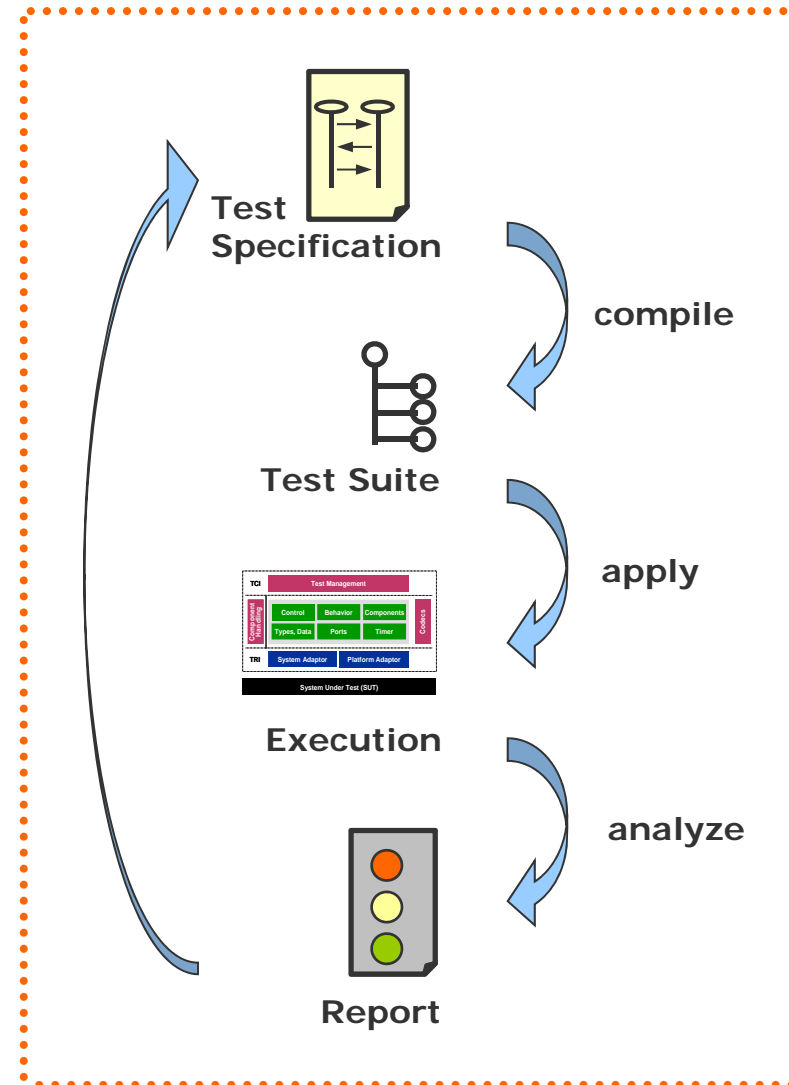
- device not alive or
- test is not supported
- MOST signal result

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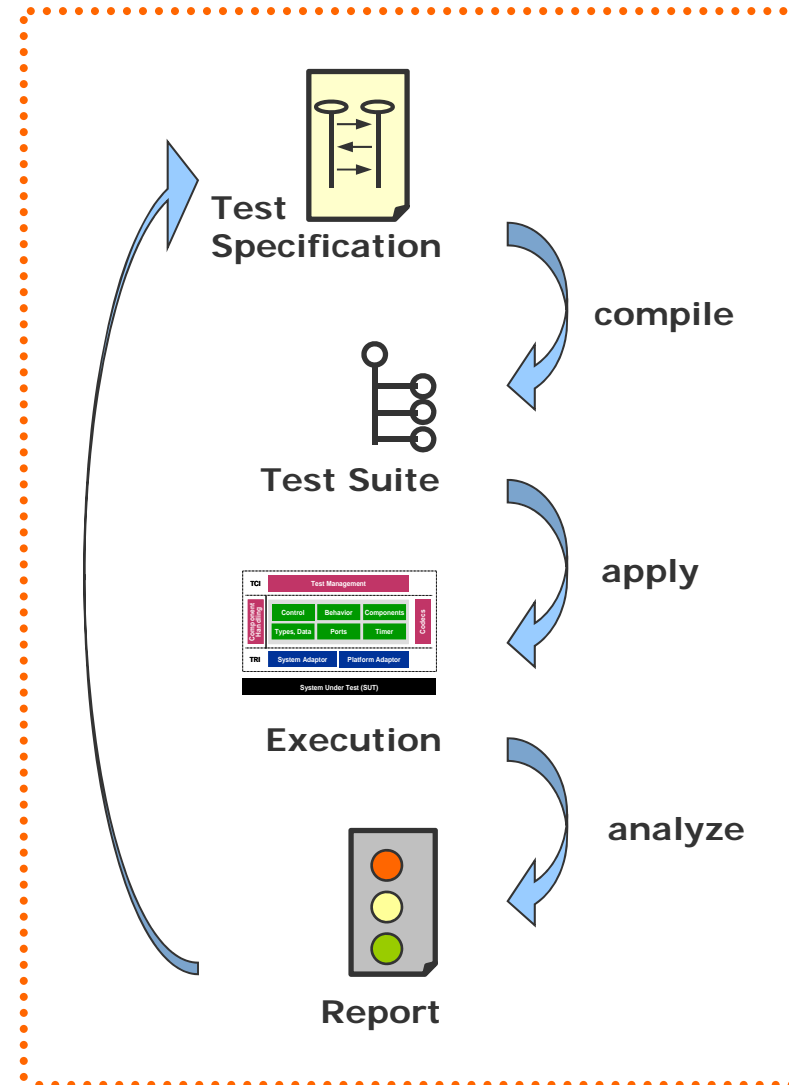
Executable Test Specification

- MCTG draws first version of Test Specification as GFT
(GFT: graphical representation of TTCN-3)
- GFTs are compiled with TTsuite to get executable testcases
- Testcases are tested with TTsuite on a reference implementation
- Recommendations for improvement for the Test Specification



Benefits

- Accelerated development process
- Test Specification is abstract, precise and complete
- High quality and high level of maturity prior to release
- Test Suite is available before release of Test specification



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Test Solution

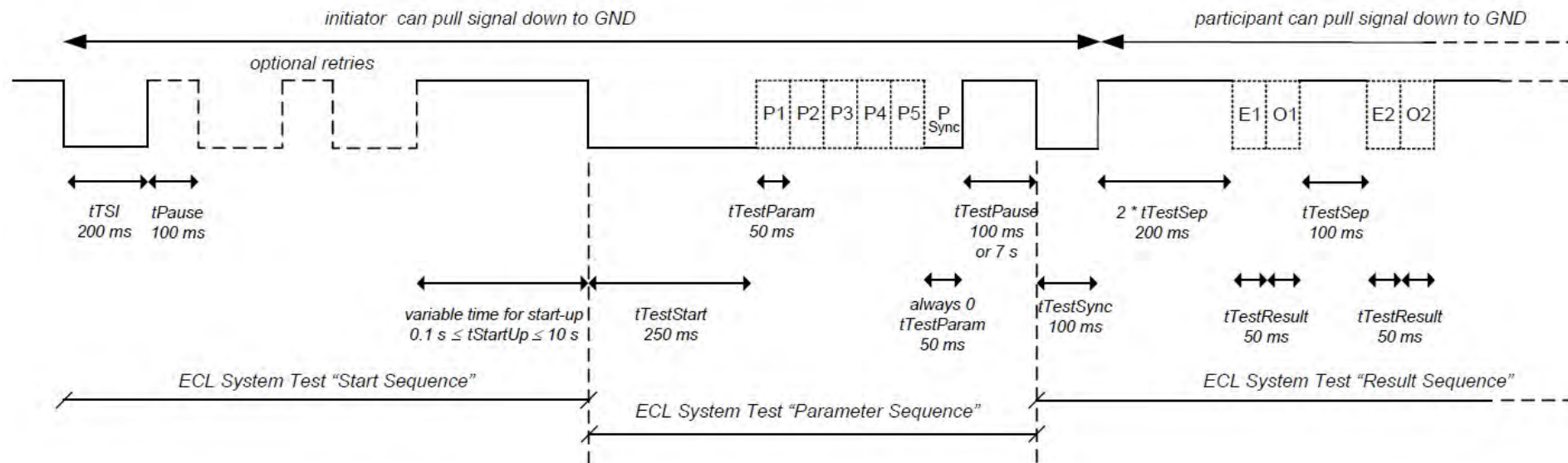
Challenges:

- Timing precision, especially at the header - response switch
- Variable pulse width, also for testing robustness and limits

Start sequence

Parameter sequence

Result sequence



Optimized Tools for ECL Testing (1/2)

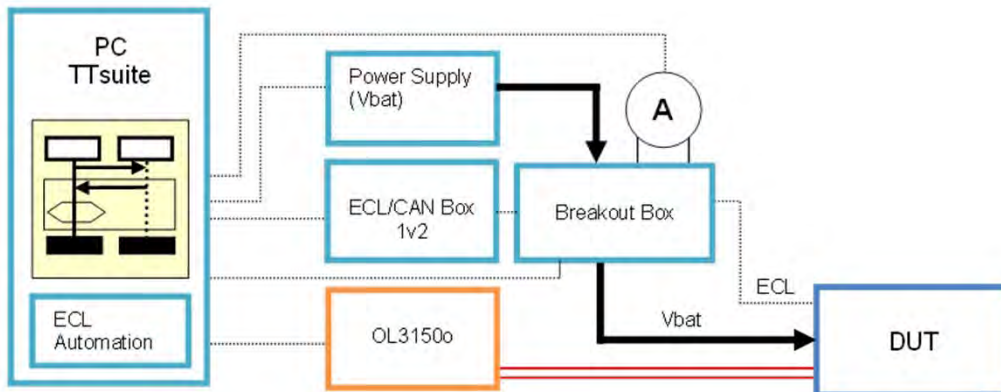
- ECL Box
 - Generates or measures ECL pattern for initiator or participant
 - ECL pulses can be programmed individually
 - A failure injection is easily reproducible
 - Measurement accuracy: 1 ms
 - CAN restbus simulation



Test Solution

Optimized Tools for ECL Testing (2/2)

- Breakout Box
 - Switches different test setup configurations automatically
 - Performs current measurements
 - Measurements can be triggered by ECL signal (e.g.: t_testsync)



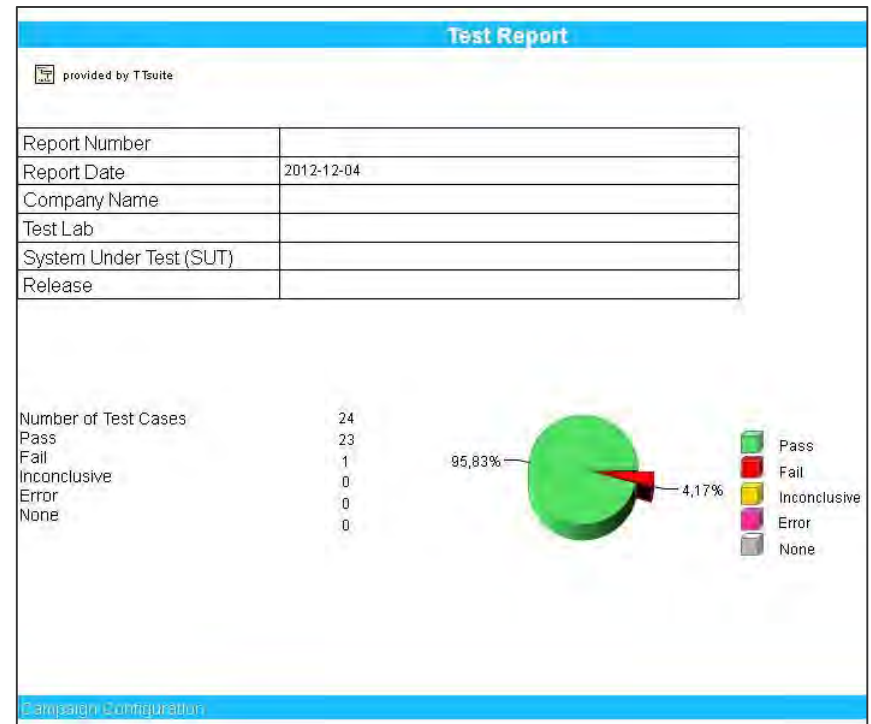
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Conclusion

Benefits

- Reliability
- Global consistency
- Testing with little effort
- Rapid test results
- Cost effectiveness



Conclusion

Testing process by Ruetz System Solutions includes:

- Easy preparation for the test
- Transparency:
 - Executable Test Specifications
 - Detailed Test Reports

Support for in-house tests:

- Tools and Processes are available
- High Degree of Test Automation
- Professional Training, Support and Maintenance

Thank you for your attention!

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