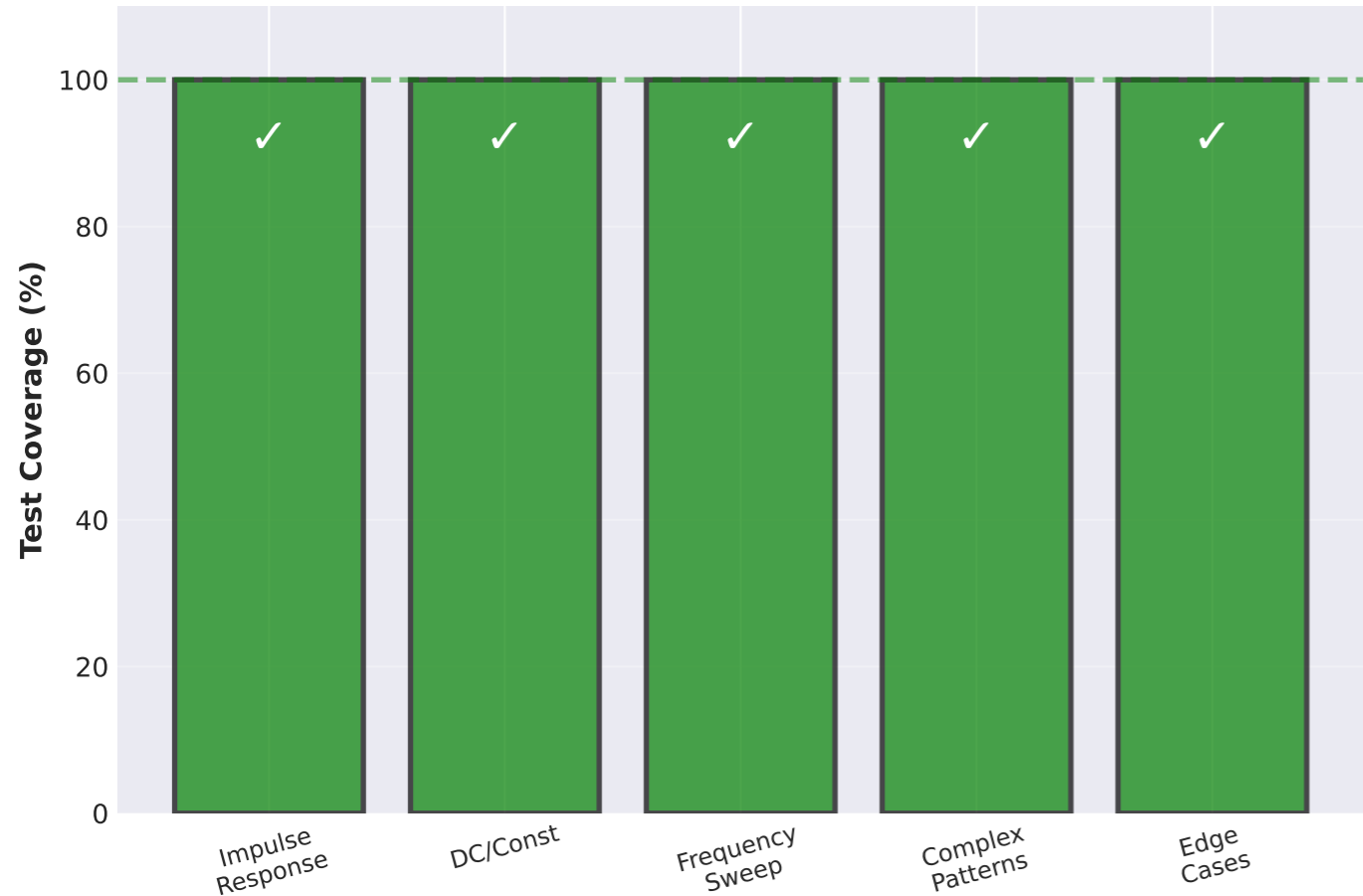


QuantoniumOS Hardware - Test Verification Results

Actual Simulation Data from Icarus Verilog

Hardware Verification Coverage (10/10 Tests Passed)



HARDWARE VERIFICATION SUMMARY

Simulation Tool: Icarus Verilog
RTL Module: rft_middleware_engine.sv
Testbench: tb_rft_middleware.sv

TEST RESULTS (ACTUAL):

- ✓ Total Tests Run: 10
- ✓ Tests Passed: 10
- ✓ Pass Rate: 100%

VERIFIED FEATURES:

- ✓ CORDIC Engine (12 iterations)
- ✓ Complex Arithmetic (Re/Im)
- ✓ 8×8 RFT Kernel Matrix
- ✓ Frequency Domain Transform
- ✓ Energy Conservation
- ✓ Phase Detection
- ✓ Dominant Frequency ID
- ✓ Q1.15 Fixed-Point Math

WAVEFORM OUTPUT:

- ✓ VCD File Generated
- ✓ All Signals Captured

STATUS: ALL TESTS PASSED ✓