**SPxY Project : Role Card-Simulation and Testing Engineer**

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| **Filename:** 112003\_ORG\_R01\_Role Card-Simulation and testing engineer  **Project:** Project SPxY, EPFL Spacecraft team | **Prepared by:** Valentin Suppa-Gallezot  **Approved by:** TBA |  |

**Role Overview:** The Simulation and Testing Engineer for the SPxY project is responsible for developing Simulink models, creating mechanical simulations, and conducting comprehensive testing to ensure the APM meets its performance, reliability, and safety requirements. This role requires a deep understanding of simulation techniques, mechanical systems, and multidisciplinary testing.

**Key Duties and Responsibilities:**

**1. Simulink Modeling:**

* Develop Simulink models to simulate the behavior of the APM's control system.
* Implement control algorithms and assess their performance in a simulated environment.
* Collaborate with the control system team to fine-tune control strategies.

**2. Mechanical Simulation:**

* Create 3D mechanical simulations based on the APM's design and CAD models.
* Analyze the mechanical behavior of the APM, including stress, strain, and thermal aspects.
* Identify potential issues and recommend design modifications if necessary.

**3. Testing and Analysis:**

* Plan and execute a variety of tests, including mechanical, electrical, and control system tests.
* Analyze test data to evaluate system performance and identify areas for improvement.
* Collaborate with the system engineer to resolve any issues uncovered during testing.

**4. Integration Testing:**

* Ensure successful integration of the APM with other spacecraft or satellite components.
* Verify the compatibility and performance of the APM in the integrated system.
* Identify and address integration-related issues and discrepancies.

**5. Verification and Validation:**

* Establish verification and validation procedures to confirm that the APM meets project requirements.
* Conduct verification tests to validate that the APM performs as expected.
* Document and report on the results of verification and validation tests.

**6. Safety and Compliance:**

* Ensure that all testing activities adhere to safety standards and regulatory requirements.
* Collaborate with the project manager to address safety and compliance issues.
* Contribute to the creation of test plans and documentation for regulatory approvals.

**Limits of Authority:** The Simulation and Testing Engineer is responsible for conducting and analyzing simulations and tests to ensure the APM's performance, safety, and compliance. However, significant changes to project scope, design modifications, or approval for major testing activities may require consultation with the project manager and collaboration with other team members. This role should also align closely with the system engineer to address testing-related issues.

*Note: The duties and responsibilities listed in this role card are not exhaustive and may be subject to change as project requirements evolve.*