**Integration Test Reports**

**Title:** *Comprehensive Integration Testing Report for Smart 5G Optimization Platform*

**A. Purpose**

Validate end-to-end interoperability and functionality between the optimization platform and critical external systems such as OSS/BSS, SDN controllers, monitoring tools, and data lakes.

**B. Test Scope**

| **Integration Point** | **Test Objectives** | **Test Types** |
| --- | --- | --- |
| OSS/BSS | Verify correct data exchange for configuration and billing | API functional tests, data validation |
| SDN Controllers | Confirm control commands properly affect network slicing and routing | Command execution, latency checks |
| Monitoring Systems | Ensure telemetry and KPI data flows accurately and timely | Data integrity, performance testing |
| AI/ML Model Deployment | Test deployment pipelines and inference API responsiveness | CI/CD pipeline verification, stress tests |
| Security Interfaces | Validate authentication and authorization across APIs | Authentication tests, access control validation |

**C. Test Methodology**

* **Test Environment:** Mirror of production environment with controlled test data.
* **Test Cases:** Detailed scenarios covering normal, boundary, and failure conditions.
* **Automation:** Use of tools like Postman, Selenium, JMeter for API and performance testing.
* **Defect Tracking:** Issues logged with severity levels, assigned, and tracked to closure.

**D. Sample Test Case Summary**

| **Test Case ID** | **Description** | **Expected Result** | **Status** | **Remarks** |
| --- | --- | --- | --- | --- |
| INT-OSS-001 | OSS config update triggers network parameter change | Parameter change reflected within 5 mins | Pass |  |
| INT-SDN-005 | SDN controller accepts traffic steering command | Traffic rerouted as expected | Fail | Latency exceeded threshold |
| INT-MON-010 | Telemetry stream delivers KPI data to dashboard | Data displayed within 1 min delay | Pass |  |