

Manual Test Plan – Carbon Analyser & Reporter (CAR)

1. Test Plan Objective

- To manually verify the critical functionalities, data flow, user access, and dashboard accuracy in the CAR system from ingestion

2. Scope of Testing

- In Scope:
 - UI validation of React frontend
 - Authentication checks (JWT)
 - API data ingestion tests
 - Data pipeline validation (DESNZ → GCS → BigQuery)
 - Dashboard correctness in Looker
 - User role & permission checks
- Out of Scope:
 - Performance/stress testing
 - CI/CD pipeline deployment
 - Internal Looker configuration logic

3. Test Types

- Functional: End-to-end features
- API Validation: Response codes, schema
- UI/UX Testing: UI behavior, visibility
- Data Consistency: Raw vs BigQuery vs Looker
- Role-Based Access: Admin/user roles
- Security Testing: JWT & unauthorized access

4. Test Environment

- Frontend: React UI + Looker SDK
- Backend: JWT Auth + API
- Cloud: GCS, BigQuery, Composer
- Test Data: CSV/JSON samples
- Browsers: Chrome, Firefox

5. Test Scenarios

- Authentication:
 - Valid/Invalid login
 - Token expiry check
 - Unauthorized dashboard access
- UI Testing:
 - Home page load
 - Filter functionality
 - Widget fallback behavior
 - Logout flow
- Data Ingestion:
 - Valid/invalid uploads
 - Authenticated access
- ETL Pipeline:
 - DAG run
 - BigQuery record validation
- Dashboard Validation:
 - Correct data visibility
 - Filter behavior
 - Aggregate check

-
- Security:
 - - JWT enforcement
 - - Role restriction validation

6. Test Data

- - valid_emissions.csv
- - malformed_emissions.json
- - large_file.csv
- - user_role_map.csv

7. Entry/Exit Criteria

- Entry:
 - - Environment setup
 - - Credentials ready
 - - APIs available
-
- Exit:
 - - 100% test execution
 - - 95%+ pass rate
 - - High-priority bugs resolved

8. Deliverables

- - Test Plan Document
- - Test Case Sheet (Excel)
- - Execution Report
- - Defect Logs (JIRA/GitHub)