**SERIS**

Solar Energy Research Institute Singapore



Cloud Based Realtime Analytical Monitoring of Photovoltaic Systems and Weather Parameters Project

Master Test Plan

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| Filing Reference | SE25PT7SERIS/SERIS/MGMT/QUALITY/MTP/ |
| Document Title | Master Test Plan |
| Version | 1.1 |
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| Date Created | 22/03/2018 |

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1. **History**

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| **Revision** | **Date** | **Author/Editor** | **Reason** |
| 1.0 | 18/04/2018 | NayLA | Initial version |
| 1.1 | 20/05/2018 | NayLA | Set baseline. |
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1. **Scope**

Software Master Test Plan describes the overall test plan for the SERIS project.The agreements within this document are obligatory for all testers.Changes are only possible by an agreement of Software Test Manager and the reason must be documented.

The Software Test Manager must take care that all Test Team Members and all other Stakeholders have access to the current Software Master Test Plan and that they are familiar with the content of this document.The Software Test Manager ensures that all Stakeholders (the responsible) will be informed if there are changes in the Software Master Test Plan.

* 1. **Test Object**

Short description of the objects under test:

Describe the objects and test cases to be automated and the one to be tested manually.

* 1. **Test Automation**

Provide short descriptions of the test automation process, tools and environment.

* 1. **Test Items/Levels**

Short description of test scope, which level, which functionalities, integration levels:

The details of each level are addressed in the test approach chapter or will be further defined in specific test specifications.

* 1. **Test Stakeholders**

Add the stakeholders in the below table. If necessary, adjust the table according to the needs.

|  |  |  |
| --- | --- | --- |
| **Stakeholder Name of Role** | **Concerned Test Level** | **Name /Dept** |
| <E.g, Software Test Manager, Function Responsible>  Nay Lin Aung | <E.g, Module/Unit Test , Integration Test , Software System Test>  Unit Test/Software System Test | Nay Lin Aung,  Kaung Myat Bo,  Treza Bawm Win,  Vincent Agnes Evangelin,  Gao Zhiyu,  Narasimhan Balasubramanian |
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* 1. **Related Documents**

Test specifications for respective module, file versions under test and test logs shall be added in “SWMODxx\_TS.xlsx”. Template is available at *SE25PT7SERIS/SERIS /MGMT/QUALITY/FORMS/BASELINE/*.

1. **Test Approach**

The test approach includes the planning of resources and the definition of the test strategy defining the test methods and the test depth/coverage to be achieved, the test criteria according to the test goal, prioritizing tests and specifying the schedule for the test activities.

* 1. **Test Goal**

With the definition of test goal, a certain quality of the system under test with respect to its criticality should be achieved. Like:

* Specific functionalities
* Complete interface coverage
* Specific time measurement (response time for some specific function)
* Robustness

When the test goal is reached, the test is completed. The decision on when the test can be ended is made according to suitable test criteria.

Write down the test criteria which defines when testing has achieved the test goal. If the test goal is achieved, the testing can be ended.

* 1. **Assumptions and Constraints**

Describe general assumptions and constraints to be considered for all test levels or all tests of a specific test level.

Also list the assumptions made for testing.

* 1. **Risks**

Describe all possible risks related to the test.

* 1. **Features not to be tested**

List all aspects out of the test scope, for example, names of software module.

* 1. **Test Strategy**

The test strategy defines guideline for specifying, implementing, scheduling and executing the tests. It has to be defined according to the test goal, risks, budget, and time. There is a differentiation in the test depth depending on the risks.

Additionally, the test strategy depends on the customer demands. If the software releases have to be delivered in short intervals, appropriate test strategy has to be used.

Establish what and how is to be tested and in what depth testing is to be carried out. Describe the test techniques chosen and the test cases are specified.

It is recommended to detail the test strategy in specific test plan/spec for the different test levels.

Also write down what has to be done if testing cannot be carried out completely (test goal is not fulfilled e.g, when testing has to be stopped because of serious bug or instable software) and how testing is resumed after that.

A priority of 1 to 3 is assigned to each test case. Not all test cases will be performed for every release. The testing depth depends on the quantity and severity of modifications implemented.

The test will be specified so that, by executing only test cases with priority of 1, a basic level of functionality is ensured. The following priorities have to be applied during the test case design and are valid for all test levels

|  |  |
| --- | --- |
| **Priority** | **Test Case Relavance** |
| 1 | Basic functionality |
| 2 | Standard functionality |
| 3 | Extended functionality |

with the following definition for the test execution:

1. execute all test cases with priority 1
2. execute all test cases with priority 1 and 2
3. execute all test cases with priority 1 ,2 and 3.

It has to be ensured that at least once the complete test scope is performed during a single test execution, i.e. all test cases of priority 1, 2 and 3 are executed all at once. For regression test, it has to be ensured that at least all priority 1 test cases have to be executed for one regression test.

* + 1. Module Test Level

The Software Test Manager plans the test for the implemented modules according to the aspect of test management guidelines. He decides for which modules the writing of a Module Test Specification is mandatory.

Define and document suitable criteria for selection the right modules which have to be tested.

* + 1. System Test Level

Define for which samples Software System Test have to be performed. The detailed planning of the Software System Tests has to be defined within Software System Test Plan.

* + 1. Customer Required Tests

Special tests required by the customer to verify specific issues.

Often the test specifications for these tests are written by the customer, refer them in related documents.

* + 1. Regression Test

Consider regression testing (renewed testing in the future changes to verify that modifications have not caused unintended effects and that the software still complies with the requirements): Reuse all test information as much as possible.

Due to budget, time and resource limitations, it is often necessary to define a strategy for selecting an adequate subset of tests for retesting.

It is always necessary to check the test specification if

1. new test cases have to be defined
2. existing test cases have to be modified
3. existing test cases have to be added

to ensure an adequate test coverage. After major changes, it is necessary to check the test plan as well.

Define a suitable regression test strategy considering the different test levels. Use the test case priorities to define an appropriate regression test scope. Ensure that at least all priority 1 test cases have to be executed for one regression test cycle.

1. **Software Error Management**

Use this chapter to document the Software Error Management planning.

* 1. Stakeholders

List here the stakeholders of Error Management activities.

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| --- | --- | --- | --- |
| **Stakeholder** | **Name/Organization** | **Involvement/Task** | **Activity** |
| <e.g. Customer> |  | Source for error reports | <e.g. error trend, status of error reports> |
| <e.g. Tester> |  | Verification of fixed errors |  |
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* 1. Reviewers of error reports

Project manager and QA manager are reviewers of the error reports.

* 1. Software Error Management Activities

Define Software Error Management activities based on

1. customer regulations
2. information demands of the stakeholders

Define which kind of errors is managed according to these definitions, e.g. based on severity of errors and relevance for customer.

1. **Document Planning**
   1. Reference Documents

List of the documents needed for the SW test activities.

* SE25PT7SERIS/SERIS/SPEC/REQUIREMENT/BASELINE/
* SE25PT7SERIS/SERIS/TECH/TEST/UT/BASELINE/
  1. Test Documents
* SE25PT7SERIS/SERIS/SPEC/REQUIREMENT/BASELINE/FMCA\_TURS.docx
* SE25PT7SERIS/SERIS/ TECH/TEST/UT/BASELINE/SWMODxxTS.xlsx
* SE25PT7SERIS/SERIS/TECH/TEST/UT/BASELINE/ SWMODxxTS.xlsx
* SE25PT7SERIS/SERIS/TECH/TEST/UT/BASELINE/ SWMODxxTS.xlsx

1. **Test Platform**

Specify test platform, hardware tools and software tools where necessary.

Clarify which test frames, scripts, etc are needed for the different test levels.If test frames scripts etc are used, the structure and handling has to be defined and described in detail in the specific test plans.

**Appendix:**