**SERIS**

Solar Energy Research Institute Singapore



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

Quality Plan

|  |  |
| --- | --- |
| Filing Reference | SE25PT7SERIS/ SERIS/MGMT/QUALITY/ATP/ATP.doc |
| Document Title | Acceptance Test Plan |
| Version | draft |
| Prepared by | Nay Lin Aung |
| Date Created | 25/07/2018 |

|  |  |  |
| --- | --- | --- |
| **Approved by:** | | |
| Name | Designation | Date |
| Treza | System Architect | 23/07/2018 |
| **Authorized by:** | | |
| Name | Designation | Date |
| Kaung Myat Bo | Project Manager | 24/07/2018 |

**Document Reference** : SE25PT7SERIS/SERIS/TECH/TEST/UAT/UAT.doc

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Author** | **Description** |
| Draft | 25/07/2018 | Nay Lin Aung | Initial version |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **For Internal use** | | **Date** | **Department** |
| Authorized By | Kaung Myat Bo | 20/03/2018 | Project Management Dept |
| Released By | Nay Lin Aung | 22/07/2018 | QA Dept |

**Distribution** :

|  |  |  |
| --- | --- | --- |
| **Name** | **Department** | **Organization** |
| Kaung Myat Bo | Project Management Dept | SE25PT7 |
| Nay Lin Aung | Quality Assurance Dept | SE25PT7 |
| Treza Bawm Win | System Design Dept | SE25PT7 |
| Gao Zhiyu | System Design Dept | SE25PT7 |
| Bala | Change ManagementDept | SE25PT7 |
| Soe Pyae | Technical Specialist | SERIS |
| Dr.Zhao Lu | Head of Solar System Technology Group | SERIS |

**Approval Client**

|  |  |  |
| --- | --- | --- |
| Client: | | Signature |
| Name | : |  |
| Division | : |  |
| Department | : |  |
| Function | : |  |
| Location | : |  |
| Telephone | : |  |
| E-Mail address | : | Date: |

Management summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Project objective**  The main objective of the project is to develop cloud-based real-tiime monitoring system for photovoltaic and weather parameters.This project involves implementation of cloud-based backend server system and front-end web application.This system will be deployed in AWS Cloud. | | | |
| **Test objective and assignment**  The objective of the test is to ensure that all the functionalitites of the project meet the requirements of the end users and the system works as intended.  User acceptance testing (UAT) is the last phase of the software testing process. During UAT, actual software users test the software to make sure it can handle required tasks in real-world scenarios, according to specifications. | | | |
| **Short description of the test approach**  User acceptance is a type of testing performed by the Client to certify the system with respect to the requirements that was agreed upon.  UAT is one of the final and most critical software project procedures that must occur before newly developed software is rolled out to the market. UAT is also known as beta testing, application testing or end user testing. UAT directly involves the intended users of the software.  This UAT will be implemented through an in-house testing team comprised of actual software users.  The testing team executes the designated test cases. All bugs will be logged in a testing document with relevant comments.  After all bugs have been fixed, the testing team indicates acceptance of the software application. This shows that the application meets user requirements and is ready to be rolled out. | | | |
| **Results to be realized** | | | |
| *Result*   * Well executed and finished system­ test | *Document*   * UAT test report | *Delivery date* <mm-dd-yyyy> |
| **Qualitative objectives**  Each test level needs to be finished on time and meet the user’s requirements and acceptance criteria. | | | |
| **Go/no-go decisions**  After each test level the test manager makes sure that a test report is drawn up. This report will, after reviewing with the project manager, be presented to the key stakeholders, who decide if it is possible to move to the next test level.  At the end of the total test project an end testing report will be drawn up, containing a risk based assessment of the test object. Based on this end report the key stakeholders make the final decision to go live or not. | | | |
|  | | |

Table of Contents

1. **INTRODUCTION**.………………………………………………………………………...5
   1. Purpose....……………………………………………………………………….........5
   2. Assignment .…………………...…………………………………………………..…5
      1. Client......................................................................................................................5
      2. Supplier...................................................................................................................5
      3. Assignment.............................................................................................................5
      4. Scope......................................................................................................................5
      5. Preconditions and assumption................................................................................5
      6. Acceptants and acceptance criteria.........................................................................5
2. **DOCUMENTATION**....………………………………………………….........................6
   1. Basis for the test plan ...................................................................................................6
   2. Test Basis .....................................................................................................................6
3. **TEST STRATEGY**....…………………………………....................……….………………7
   1. Test Strategy <Test Level> ..........................................................................................7
4. **APPROACH** …….............................................…………………………………………….7
   1. Test Design Table <Test Level> ..................................................................................7
   2. Description Test Approach <Test Level> ....................................................................7
      1. Intake Test Object ..................................................................................................7
      2. Test Type/Test Unit ................................................................................................7
   3. Phasing <Test Level> ..................................................................................................7
   4. Entry and Exit Criteria .................................................................................................7
      1. <Optional: Functional Acceptance Test> ..............................................................7
      2. <Optional: User Acceptance Test> ........................................................................7
      3. <Optional: Production Acceptance test> ...............................................................7
5. **INFRASTRUCTURE** ……...................…………………………………………………….8
   1. Test Environments ……………………………………………………..........……….8
      1. System Tests ..........................................................................................................8
      2. Acceptance tests ....................................................................................................8
   2. Office Setup ……………...……………………....……………………………….….8
6. **MANAGEMENT** …….........................................…………………………………………10
   1. Test Management ……………………….............…………………………………..10
   2. Defect Procedure ………………………………………....…………………………10
7. **ESTIMATION & PLANNING** …………..........………………………..………………...11
   1. Estimation ……………………………...............…………………………………...11
   2. Planning ……………………............……………………………………………….11

**APPENDIX 1: PRODUCT RISF ANALYSIS** ….............................................….……….18

1. **INTRODUCTION**

SERIS requires the development of cloud-based real-tiime monitoring system for photovoltaic and weather parameters .This will involve implementation of cloud-based backend server system and front-end web application.This system will be deployed in AWS Cloud. Users will be able to view, analyze, supervise and control different systems ranging from small roof-top systems to large ground-based PV power plants across different time zones.

**SE25PT7 team** will be taking care of implementation for cloud-based back-end application and front-end web applications.

This document is the project quality plan of SE25PT7 for development of back-end application and front-end web application system.Thefollowing sections describe the plan in terms of its purpose, audience, organisation and related documents.

* 1. **Purpose**

The goal of this Test Plan (TP) for User Acceptance Test is to inform all who are involved in the test process about the approach, the activities and the deliverables concerning User Acceptance Test for SERIS project.

This test plan describes a concrete and detailed elaboration of what has been described in the master test plan “\MGMT\QUALITY\MTP\SMTP.doc “for the User Acceptance Test.

* 1. **Assignment**

UAT Tester should possess good knowledge of the business. He should be independent and think as an **unknown user to the system**. Tester should be analytical and lateral thinker and combine all sorts of data to make the UAT successful.

Tester or Business Analyst or Subject Matter Experts who understand the business requirements or flows can prepare test and data which are realistic to the business.

1. **DOCUMENTATION**
   1. **Basis for the Test Plan**

A test plan is a technical documentation which details a systematic approach to testing a specific system.

#### Prerequisites of User Acceptance Testing:

Following are the entry criteria for User Acceptance Testing:

* Business Requirements must be available.
* Application Code should be fully developed
* Unit Testing, Integration Testing and/or System Testing should be completed
* No Showstoppers, High, Medium defects in System Integration Test Phase -
* Only Cosmetic error are acceptable before UAT
* Regression Testing should be completed with no major defects
* All the reported defects should be fixed and tested before UAT
* Traceability matrix for all testing should be completed
* UAT Environment must be ready
* Sign off mail or communication from System Testing Team that the system is ready for UAT execution
  1. **Test Basis**

One of the most important activities in the UAT is to identify and develop test scenarios. These test scenarios are derived from the following documents:

* Project Charter
* Use Cases
* Process Flow Diagrams
* Requirements Document
* System Requirements Specification(SRS)

1. **TEST STRATEGY**
   1. **Test Strategy**

Analysis of Business Requirements

* Creation of UAT test plan
* Identify Test Scenarios
* Create UAT Test Cases
* Preparation of Test Data(Production like Data)
* Run the Test cases
* Record the Results
* Confirm business objectives

1. **APPROACH**
   1. **Test Design Table**
   2. **Description Test Approach**

The main purpose of this testing is to validate the end to end business flow. This testing is carried out in separate testing environment with production like data setup. It is a kind of black box testing where two or more end users will be involved.

### Creation of UAT Plan:

The UAT test plan outlines the strategy that will be used to verify and ensure an application meets its business requirements. It documents entry and **exit criteria for UAT, Test scenarios and test cases approach and timelines of testing**.

### Identify Test Scenarios and Test Cases:

Identify the test scenarios with respect to high level business process and create test cases with clear test steps. Test Cases should sufficiently cover most of the UAT scenarios. Business Use cases are input for creating the test cases.

### Preparation of Test Data:

It is best advisable to use live data for UAT. Data should be scrambled for privacy and [security](https://www.guru99.com/ethical-hacking-tutorials.html) reasons. Tester should be familiar with the data base flow.

### Run and record the results:

Execute test cases and report bugs if any. Re-test bugs once fixed. [Test management](https://www.guru99.com/test-management.html) tools can used for execution.

### Confirm Business Objectives met:

Business Analysts or UAT Testers needs to send a sign off mail after the UAT testing. After sign-off the product is good to go for production. Deliverables for UAT testing are Test Plan, UAT Scenarios and Test Cases, Test Results and Defect Log

### Exit criteria for UAT:

Before moving into production, following needs to be considered:

* No critical defects open
* Business process works satisfactorily
* UAT Sign off meeting with all stakeholders

1. **INFRASTRUCTURE**
   1. **Test Management**
   2. **Office Setup**

UAT is done by the intended users of the system or software. This testing usually happens at the client location which is known as Beta Testing.

1. **MANAGEMENT**
   1. **Test Managment**
   2. **Defect Procedure**
2. **ESTIMATION & PLANNING**
   1. **Estimation**
   2. **Planning**

**APPENDIX 1: PRODUCT RISK ANALYSIS**