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**MALAYSIAN SOFTWARE TESTING BOARD
(MSTB) LECTURE AID
FOR SOFTWARE TESTING COURSE**

**TEST PLAN
(Completed Deliverable – SET A)**

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Test Plan

Automated Teller Machine System
(ATMS)

Independence Verification and Validation

Version : 1.0.0
Date : 16/04/2013



Project Title : ATMS Independence Verification and Validation		 ABC Test-Co
Date : 16/04/2013	Test Plan ID: ATMS_TP_1.0.0	

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1.0 Introduction

1.1 Purpose

This test plan support the following objectives:

- i. To detail the activities required to prepare for and conduct the system test.
- ii. To communicate to all responsible parties the tasks that they are to perform and the schedule to be followed in performing the tasks.
- iii. To define the sources of the information used to prepare the plan.
- iv. To define the test tools and environment needed to conduct the system test

1.2 Scope

The scope of testing only covers black box-functional testing for features developed in ATMS, from F001 to F008. This test plan only covers system level test, excluding unit test, static test, integration test, acceptance test, regression test, confirmation test and as well as other type of test not mentioned in this Test Plan. It would focus on meeting the requirement of the system and making sure that the system is fit for purpose.

1.3 References

The following IEEE standards have been referenced in preparation of this document:

- i. IEEE 829-1998 Standard for Software and System Test Documentation
- ii. IEEE 829-2008 Standard for Software and System Test Documentation

The following documents provide the test basis for this test design:

- i. ATMS Software Requirements Specifications (ATMS_SRS_1.0)
- ii. ATMS System Design Specifications (ATMS_SDS_1.0)



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2.0 Details of Test Plan

2.1 Test Items

The following documents will provide the basis for defining correct operation:

- i. ATMS System Requirement Specifications 1.0 (SRS)
- ii. ATMS Software Design Specifications 1.0 (SDS)

The test items include all system features in ATMS, as described in Section 2.2 below.

2.2 Test Traceability Matrix

The following table contains the functions in ATMS and its traceability:

MSTB_C_TP_V1.0.0	Function ID.	Risk Level	Function Description	Source of Function
Strictly For Educational Use Only	F001	High	System Start Up	SRS
	F002	High	System Shut Down	SRS
	F003	High	Session Verification	SRS
	F004	High	Transaction Menu	SRS
All rights reserved	F005	High	Withdrawal	SRS
	F006	High	Deposit	SRS
	F007	High	Transfer	SRS
	F008	High	Balance Inquiry	SRS

Table 2.2 Test Traceability Matrix



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2.3 Features To Be Tested

The following table contains the features to be tested based on ATMS Software Requirement Specifications (SRS). Listed together are the function id and its corresponding functions and estimated risk level.

MSTB_C_TP_V1.0.0	Function ID	Functions	Risk Level
	F001	Start Up	High
	F002	Shut Down	High
	F003	Session Verification	High
	F004	Transaction Menu	High
	F005	Withdrawal	High
	F006	Cash Deposit	High
	F007	Transfer	High
	F008	Balance Inquiry	High

Table 2.2 Features To Be Tested

2.4 Features Not To Be Tested

Aside from the features listed in Section 2.2, other aspects of the system are not covered in this test plan. This includes:

- i. Operation procedure

This test plan is for system level test, operation procedure is not covered here.
- ii. Network security

This test plan is designed for functional test, security is not covered here.



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2.5 Approach

The test on ATMS is a system level functional test that focuses only on the functional part of the system. Testing will be using risk-based strategy.

This test will also be a black-box test where test cases are derived using black box testing techniques such as:

- i. Equivalence partitioning
- ii. Boundary value analysis
- iii. Decision table testing
- iv. State transition testing
- v. Use case testing

Testing will be executed in 2 iterations. First iteration is testing functionality of Session Verification features and second iteration will be testing all other features (except for Session Verification feature) as defined in Feature To Be Tested section. Dedicated testing environment will be used, as defined in section 3.2.

Any defect found will be fixed in next release version.

2.6 Item Pass/Fail Criteria

The system must satisfy the following criteria in order to pass:

- i. All test cases must be passed.
- ii. 0% calculation error in any function involving monetary transaction
- iii. No deadlock during operation.

Other than that, all test items must fulfill its requirement as stated in SRS.

2.7 Suspension Criteria and Resumption Requirements

Suspension Criteria:

In case where a Java-enabled environment is not available, all tests will be suspended.

Resumption Requirement:

Java-enabled environment is prepared.



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2.8 Test Deliverables

The following documents will be generated by the system test group and will be delivered during the system testing.

Test documentation:

- i. Test Plan
- ii. Test Transmittal Report
- iii. Test Design Specifications
- iv. Test Case Specifications
- v. Test Procedure Specifications
- vi. Test Logs
- vii. Test Incident Reports
- viii. Test Summary Report
- ix. Test Completion Report

2.9 Entry Criteria

The following items are needed before the testing can begin:

- i. Requirements documents for ATMS 1.1
- ii. Software Under Test: ATMS 1.1

2.10 Exit Criteria

The following items are needed before the testing can end:

- i. All Test Deliverables in Section 2.8 Test Deliverables have been delivered to client.
- ii. Test execution has been completed.
- iii. Open defect at the end of final iteration shall be:
 - Zero fatal defect,
 - Zero major defect
 - <= three minor defects.



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3.0 Test Management

This section describes the test activities and tasks for each specified level and the progression of test of Automated Teller Machine System (ATMS). It is here to identify the infrastructure, responsibilities and authority, organization interfaces, resources, training, schedules, and risk(s) of this test.

3.1 Planned Activities and Tasks

The flowing table shows the set of tasks necessary to prepare for and perform testing for ATMS. It was identify dependencies of other tasks and significant constraint such as test item availability, testing resources availability and deadlines.

MSTB_C_TP_V1.00 Strictly For Educational Use Only All rights reserved ©2013 by Malaysian Software Testing Board	No.	Task	Activities	Target Date
	1	Test Planning and control	i. Define test project scope and objectives ii. Requirement view iii. Identified risks, staffing and scheduling iv. Documenting test plan v. Technical review vi. Submission and approval of test plan	16/04/2013
	2	Test Analysis and Design	i. Analyze product ii. Develop test design specification iii. Prepare test case specification	24/04/2013
	3	Test Environment	i. Setup ATMS ii. Identify and acquired test data	22/04/2013
	4	Test Implementation and Execution	i. Prepare test procedure specification ii. Perform smoke test iii. Perform functional test iv. Record test result v. Analyze test result	13/05/2013
	5	Documenting Test Summary Report	i. Summarize test result	13/05/2013
	6	Documenting Test Closure	i. Collecting test process data from completed activities to consolidate experience, testware, facts and numbers.	14/05/2013
	7	Test Complete	i. Delivery of product to client.	14/05/2013

Table 3.1 Planned Activities & Tasks



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3.2 Environment & Infrastructure

This section describes the hardware, software and operating system that require for this system testing.

3.2.1 Hardware

The following table shows the hardware requirements of ATM that will be used to install ATMS.

Hardware Name	CINEO C2040
Manufacturer	Wincor Nixdorf
Keyboard	EPP V6 (ZKA & PCI 1.x/2.x certified)
Card Processor	Hybrid motorized – EMV 4.x Level 1 certified

Table 3.2.1 ATM Hardware Requirements

3.2.2 Software

The following table shows the software requirements of ATM that will be used to install ATMS.

Application Name	Automated Teller Machine System (ATMS)
Version	1.1
Type of file	Executable Jar File (.jar)
Size of Application	65.7KB
Size on Disk	68.0 KB
Operating System	Windows CE 5.0, Windows CE 6.0

Table 3.2.2 ATM Software Requirements

3.2.3 Publications

The following documents are required to support system testing:

- i. ATMS System Requirements Specifications 1.0 (SRS)
- ii. ATMS Software Design Specifications 1.0 (SDS)



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3.3 Responsibilities and Authority

This section will identify the individuals or groups responsible for managing, designing, preparing, executing, witnessing, and checking results of this testing. In addition, it will identify the persons responsible for providing the test items in Section 2.0 and environmental needs identified in Section 3.2.

Name	Role	Responsibilities
Tester 1	Test Manager	<ul style="list-style-type: none"> Negotiating the ongoing purpose and deliverables of the test effort Ensuring the appropriate planning and management of the test resources Assessing the progress and effectiveness of the test effort. Advocating the appropriate level of quality by the resolution of important Defects. Advocating an appropriate level of testability focus in the software development process
Tester 2	Test Lead	<ul style="list-style-type: none"> Deploying and managing the appropriate testing framework to meet the testing mandate. Implementing and evolving appropriate measurements and metrics. <ul style="list-style-type: none"> To be applied against the Product under test. To be applied against the Testing Team. Planning, deploying, and managing the testing effort for any given engagement / release. Managing and growing Testing assets required for meeting the testing mandate: <ul style="list-style-type: none"> Team Members Testing Tools Testing Process Retaining skilled testing personnel.
Tester 3	Test Analyst	<ul style="list-style-type: none"> Identifying the Target Test Items to be evaluated by the test effort. Defining the appropriate tests required and any associated Test Data. Gathering and managing the Test Data. Evaluating the outcome of each test cycle
Tester 4	Tester	<ul style="list-style-type: none"> Test Requirements Analysis. Test Case Development / Updating. Test Data preparation. Test Execution and Results logging. Defect Analysis & Reporting. Re-tests for Fixes.

Table 3.3 Roles & Responsibilities



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3.4 Resources and Allocation

This section will describe any additional required resources that are not already documented by other parts of the plan. This is including internal or external resources.

3.4.1 External Resources

There are no external resources required in system testing.

3.4.2 Internal Resources

The internal Quality Assurance Team of ABC Test-Co shall be responsible for reviewing the test deliverables for adherence to compliance.

3.5 Training

All personnel that involve in this testing are require training on ATMS according to their responsibility.

- i. Training on the operation flow of ATMS.
- ii. Training on the business role that related to bank transaction services.

3.6 Schedules, Estimates, and Costs

This section will describe the project schedule and task milestones. The schedule will include estimated time that required for each testing task. Cost is not included for this testing.

Task	Milestone	Days	Duration
Test Planning and control	Submission of Test Plan for sign-off.	7	09/04/2013 - 16/04/2013
Test Analysis and Design	Submission of Test Design Specification, Test Case Specification, and Test Procedure Specification.	8	16/04/2013 - 24/04/2013
Test Environment	Setup of test Environment and	4	18/04/2013 - 22/04/2013
Test Implementation and Execution	Execution of system test of ATMS	17	26/04/2013 - 13/05/2013
Documenting Test Summary Report	Submission of Test Summary Report	1	12/05/2013 - 13/05/2013
Documenting Test Closure	Submission of Test Closure	1	13/05/2013 - 14/05/2013
Test Complete	Delivery of product to client.	1	14/05/2013

Table 3.6 Estimated Testing Schedule



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3.7 Risk & Contingency

This section identifies the risk issues that may impact successful completion of the system testing activities of ATMS. The potential likelihood, impact and mitigation plan was described in the following tables.

Rating for Likelihood for Each Risk	
1	Rated as Low
2	Rated as Medium
3	Rated as High
4	Rated as Extreme

Table 3.7.1 Likelihood Rating Table

Rating for Impact for Each Risk	
1	Rated as Low
2	Rated as Medium
3	Rated as High
4	Rated as Extreme

Table 3.7.2 Priority Rating Table



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Function ID	Risk Description	Likelihood	Impact	Risk Exposure	Risk Treatment Plan	People Responsible	Cost
F001	System unable to start up	3	3	9	Perform functional test and use at least 3 test techniques	Test Team	-
F002	System unable to shutdown	3	3	9	Perform functional test and use at least 3 test techniques	Test Team	-
F003	Session verification	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-
F004	Incorrect Transaction flow	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-
F005	Incorrect dispenser amount	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-
F006	Incorrect amount of deposit	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-
F007	Incorrect amount of transfer	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-
F008	Incorrect account information	4	4	16	Perform functional test and use at least 4 test techniques	Test Team	-

Table 3.7.5 Function List & Risk Ratings



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4.0 General

4.1 Metrics

The following metrics will be collected and used to monitor the progress.

Metric List	Metric Description	Goals
Actual duration vs. plan (variance)	Metric to monitor the project progress compared to the plan	Allow 10% delay
Percentage of test cases run during test execution	Metric to monitor total number of test cases executed	100%
Percentage of test cases passed against total of test cases executed	Metric to monitor total number of test cases executed with Passed criteria	All high-risk test cases passed
Percentage of baseline requirement covered against total test cases	Metric to monitor total number of baseline requirement coverage	100%

4.2 Glossary

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Term	Definition
SDS	Software Design Specification
SRS	Software Requirement Specification
ATMS	Automated Teller Machine System
TP	Test Plan

4.3 Incident Classification

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Impact
Mission Critical : Application will not function or system fails
Major : Severe problems but possible to work around
Minor : Does not impact the functionality or usability of the process is not according to requirements/design specifications
Priority
Immediate : Must be fixed as soon as possible
Delayed : System is unstable but incident must be fixed prior to next level of test or shipment
Deferred : Defect can be left in if necessary due to time or costs



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