Trapeze™
Here for the journey

VIA Metropolitan Transit of San Antonio, Texas

Contract #12-252   Purchase of Fare Collection System

Factory Acceptance Testing

CDRL # 28a

Revision: 1.1

Revision History

June 28, 2016	Rev 1.0	Initial release
October 3, 2016	Rev 1.1	1. Included OBV Maintenance Test Cases (TP-OBV-203) 2. Updated Slide numbers and FR/Paratransit PPT Versions (TP-OBV-201 & 202)

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Agenda

Day 1 (12/13/2016)

3.5 Hours	**EZADMIN, EZCST and Validator Readiness and Miscellaneous Tests**
30 min	**Break**
2 Hours	**Inventory Testing**
2 Hours	**Web Portal Testing**

Day 2 (12/14/2016)

4 Hours	**EZCST Testing**
30 min	**Break**
3 Hours	**Para Transit Functionality Testing**
1 Hours	**Maintenance Mode Testing**

Day 3 (12/15/2016)

4 Hours	**Fixed Route Functionality Testing**
30 min	**Break**
1 Hour	**Fixed Route Functionality Testing**
3 Hours	**Report Testing and Q/A**

1. INTRODUCTION

1.1. PURPOSE

The purpose of this document is to detail the features to be tested that will comprise the Software Factory Acceptance Test (SFAT) which tests all functional and operational requirements, including the Product Business Rules, for the VIA Transit Fare Collection System.

1.2. SCOPE

The scope of this testing will be limited to the following components and their associated functions and system interfaces and will be demonstrated via a functional end-to-end test:

- Central System Server, which includes:
    - EZAdmin web console;
    - EZAdmin Reports.
- EZCST Work Station;
- Wireless network;
- Validator;
- Media:
    - Smart Media.
- Web Portal
- Inventory

1.2.1. FAT Scope Modification

This FAT document will cover the functionality required for the AFCS (Automated Fare Collection System) implementation
This FAT will be conducted on Trapeze's existing software release of 16.3 which contains the following functionality and deliverables for VIA Transit:

- Support for the VIA Transit route fare structures and tables for routes;
- Smart Media usage for VIA Transit operators;
- Handling of all types of transactions on the Validator;
- Recording of all smart media transactions on the Validator

1.3. TERMINOLOGY

Terminology is a collection of acronyms and abbreviations as well as a glossary of terms extracted from applicable documents for ready reference in the context of this document.

1.3.1. Acronyms

Table 1: Acronyms and Abbreviations lists acronyms and abbreviations used in this document.

Acronym	Meaning
BO	Back Office
SFAT	Software Factory Acceptance Test
GUI	Graphical User Interface
LED	Light Emitting Diode
VIA	VIA Transit
SQL	Standard Query Language
TSG	Trapeze Software Group

Table 1: Acronyms and Abbreviations

1.3.2. Glossary

Table 2: Glossary lists a glossary of terms used in this document.

Term	Meaning
contactless	Reference to a Smart Media read in which the two do not have to come into contact; information is transferred via radio frequency from a close proximity.
interface	The conduit for which two separate components of the system perform its upload or download processing (e.g., Validator and EZAdmin Central System)
Passenger	A person using the VIA Transit bus on any route
Smart Card/Media	A credit card sized card with an embedded computer chip that utilizes the contactless technology
Wi-Fi	Wireless 801.11 Communications Devices

Table 2: Glossary

2. DEVICES/FEATURES TO BE TESTED

2.1. INTERFACES AND EZADMIN CENTRAL SYSTEM SERVER

- Data Management (Databases, Operating Environment);
- Configuration Management Functions (Fare tables, timeouts, etc.);
- Data Collection and Processing;
- Device Status Management;
- Transaction and Device Reporting – Validate reporting features;
- Pass Data Management and Reporting;
- Ridership Reports;
- Media and Maintenance Reports.

2.2. CENTRAL SYSTEM SERVER TO VALIDATOR

- Validator Configuration Data and Application Download;
- Validator Transaction Data Download.

2.3. CENTRAL SYSTEM SERVER TO EZCST MEDIA MANAGER

- Smart Media issuance data from EZCST to the Central System.

2.4. VALIDATOR

- Smart Media Usage:
  - Driver logon
  - Employee/Trans Id
  - Time-based pass
  - Date-based pass
  - Value pass
  - Ride/Token Pass
  - Transfer
  - Passback
- System Configuration
- Local Configuration
- Validator Interface with IVLU

2.5. VALIDATOR TO CENTRAL SYSTEM

- Validator Status Event Upload;
- Validator Transaction Data Upload.

2.6. EZCST MEDIA MANAGEMENT DEVICE

- Issuance of Smart Media.

3. TEST ENVIRONMENT

3.1. SOFTWARE

The Trapeze software versions will be recorded during the performance of the tests. A software bill of materials will be provided to establish a product baseline.

3.2. TEST HARDWARE

3.2.1. EZAdmin (Central System Server)

Trapeze is not providing the server to VIA and therefore a test environment at the Cedar Rapids office of TSG will be used.

3.2.2. Administration Workstation

The Administration Workstation will be used for both EZAdmin and EZCST testing. The Administration Workstation will include:

- Processor;
- Memory;
- Disk;
- Ethernet;
- Monitor;
- Keyboard; and
- Mouse

The Workstation will run MS Windows 7 and utilize Internet Explorer 10/11 connected to the Central Server.

3.2.3. Media

MiFare DESFire Smart Media will be the card media for the VIA AFC. The Smart Media will be programmed during the FAT using the EZCST software.

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4. TEST METHODOLOGY

For FAT, Black Box testing methodology will be used. This will comprise of the following Functional and System Tests listed below:

- Functional Tests – Cross-functional feature validation of expected behavior will be implemented to show that the deliverable end items meet the specified requirements.
- Negative Tests – Unsupported inputs will deliberately be introduced to check the feature's behavior and robustness.
- Recovery Tests – Some tests will employ error and/or adverse conditions to check for proper handling by application(s).

5. SOFTWARE FACTORY ACCEPTANCE TEST CRITERIA

All identified tests for all functional and operational components that have been reviewed and approved for the FAT must pass based on the Pass/Fail Criteria defined for each test case. These integrated components listed in *Section 2* will be tested from end-to-end in a secure network along with their respective integrated software components for the FAT.

5.1. TEST CASE PASS/FAIL CRITERIA

The result (pass/fail) of test cases shall be measured in terms of one or more of the following:

- Usage data record;
- Response / message sent to device;
- Pass record data on the fare media;
- Messages displayed on Devices or work stations;
- Messages displayed in Web application window;
- Transfer of configuration data and usage (transaction) files between devices and back office system.

There are five (5) possible values to be recorded outcomes for a test step with a Pass/Fail criteria:

P	PASS	The result of the step matches the expected result with no deviation or anomalies detected. A PASS result constitutes acceptance of the step.
V	PASS with Variance	The result of the step was that the result was acceptable, but an anomaly was detected which requires investigation. A Pass with Variance constitutes acceptance of the step, but requires the anomaly be recorded for investigation.
F	FAIL	The result of the step was not what was

		expected.
NA	Not Applicable	The step is no longer required due to elimination of the feature in the current release, a change in the requirement for the function, or configuration, or other reasons. These steps are excluded from the evaluation of the success of the procedure.
D	Deferred	The step cannot be executed due to the test environment, or a decision has been made to defer the step to a later test phase. These steps are excluded from the evaluation of the success of the procedure, but must be recorded to be run in a later test phase.

Based on the individual step results, the test can be qualified as '**PASS**', '**PASS with Variance'** or '**FAIL**'.

A Test Procedure which has met the '**PASS'** criteria is considered complete and successful.
A Test Procedure which has met the **'PASS with Variance'** criteria is considered complete and successful, however any variances recorded will be tracked to resolution and individually tested at a later date per an agreed upon procedure.
A Test Procedure which has been recorded as '**FAIL'** is considered unsuccessful. The nature and root causes of the failures recorded will be analyzed, and a recommendation made as the appropriate correction and test response. Some failures will require the entire test to be repeated, while others may only require basic regression testing where the section or step of the procedure to be repeated once a correction has been implemented.

5.2. VARIANCE LOG

A variance log will be maintained with an identifier, description, and current status of any variance or failure detected within testing.

Severity	Definition	Project Impact
1 - Critical	Defect that causes total failure of the software, critical function, or unrecoverable data loss. There is no work around. Example: defects that cause the system to crash, corrupt data files, or completely disrupt service.	Critical defects must be corrected prior to the next testing or deployment phase and demonstrated prior to moving to the next deployment phase.
2 - Major	Defect that results in severely impaired functionality or lack of conformance with the requirements. A work around may exist but its use is unsatisfactory. Examples: an error occurs, but with certain steps, an error message may be displayed that the user can click on and continue with no harmful effects.	Major defects must be evaluated for impact and work-arounds. A decision must be jointly made to move forward with testing / deployment.
3 - Minor	Defect causes failure of non-critical aspects of the system. There is a reasonably satisfactory work around. Example: a report option is not executing properly, but another method can be used to generate the report.	The system may move forward with testing / deployment while the defect is being resolved. The item may be moved to a post-acceptance punch list.
4 - Minimal	Defect of minor significance. A work around exists, or the impairment is slight. Examples: a button is slightly off center, or the problem is cosmetic, or in the background and not easily recognizable.	The system may move forward with testing / deployment. The item may be moved to a post-acceptance punch list or a joint decision can be made not to correct.
5 - Enhancement	Enhancement request or Design issue. These items do not represent non-compliance to a specification requirement.	Item will be documented and placed into the Change Management process.

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6. TEST CASE SPECIFICATION

The FAT test cases are organized such that the execution will begin and end in a manner that corresponds with how the complete system operates from end-to-end based on the interfaces of each of the hardware components. This will begin with power up of equipment, set up of configuration data, and end with the generation of various reports. Itemized below is the sequential order of the system interfaces, with each being tested for functionality and operability?

- Validator Readiness – Conduct device readiness test
- EZCST Readiness - Conduct device readiness test
- Validator and Central System Interface
- EZCST interface
- Central System Readiness – Conduct device readiness per software test specs
- Inventory
- Web Portal
- Reports

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7. TEST PROCEDURES

7.1. HARDWARE CONFIGURATION

TP-HWR-001 Hardware Configuration

Record Device Serial Numbers
Estimated time to complete: 10 minutes

Part No.	Description	Serial Number / Software Version Number	Comments
	Validator		
	GPS	N/A (Unit does not have a serial number)	
	Smart Media Reader		
	Operator FEIG reader		
	Customer FEIG reader		
	Cash Drawer		
	Epson Printer		
	Verifone Credit/Debit Device		
	EZCom	Version:	
	EZCST	Version:	
	EZAdmin	Version:	

	Validator application	Version:	
	Inventory application	Version:	
	Web Portal application	Version:	

Results – TP HW001 Hardware Configuration

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
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7.2. READINESS TESTING

Readiness Testing ensures basic function, and sets up specific conditions required for later tests.
The following procedures are required for support of this formal test phase:

- TP-ADM-001 EZAdmin Readiness
- TP-ADM-002 EZAdmin Setup for FAT
- TP-CST-001 EZCST Readiness
- TP-OBV-001 Validator Readiness
- TP-OBV-002 Wi-Fi Subsystem Readiness

TP-ADM-001 EZAdmin Readiness

Estimated Time Required for Test: 30 Minutes.

Number	Task	Pass/Fail	Comments
1	Turn on Administration Workstation		
2	Log in to EZAdmin with a System Administrator User name / Password (e.g.admin / coincard)		
3	**Enter EZAdmin Account**		
3a	Select User Management		
3b	Select EZAdmin Accounts		
3c	Add System Administrator User: • User Name of SysAdmin • Role of SystemAdministrator • Password of SysAdmin • Description of System Administrator • Active checked • Click Add button		
4	Log out from admin user		
5	Log in as SysAdmin user		
6	Verify database connectivity		
7	Record EZAdmin version		
8	**Display configuration data in EZAdmin and verify the following configuration information:**		
8a	VIA Transit EZAdmin Users		
8b	VIA Transit EZCST Users		
8c	VIA Transit Validator Settings		
8d	VIA Transit EZCST Settings		
8e	VIA Transit Web Portal Settings		
8f	Verify EZCom setup		
10	**Verify clean database**		
10a	Run all Ridership Reports for today's date (should return no data)		
10b	Run all Media Reports (should return no data)		
10c	Run all Sales Reports (should return no data)		
10d	Run all Maintenance Reports (should return no data)		

Results – TP-ADM-001 EZAdmin Readiness

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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TP-ADM-002 EZAdmin Setup for FAT

Estimated Time Required for Test: 1.5 Hours

Number	Task	Pass/Fail	Comments
1	Turn on Administration Workstation		
2	Login as "Administrator"		
3	**Assign Employee Roles**		
3a	Go to Employee Management		
3b	Select Employee		
3c	Edit existing Employees and assign specific Employee Roles OR Create New Employees		
4	**Add FAT Location and FCD Profile**		
4a	Go to Transit Management		
4b	Select Facilities		
4c	Select Location Management		
4d	Enter Location: • Location name • Location Description • Address • Active checked • Click Add button		
4e	Select Fare Collection Devices		
4f	Select Profile Management		
4g	Select New FCD Profile		
4h	Enter FCD Profile: • Profile Name (e.g.Fixed Route / Paratransit) • FCD Profile Type as Validator • Vehicle Type • Active checked • Click Save button		
5	**Create/Import Route Data**		
5a	Go to Transit Management		
5b	Select Planning		
5c	Select Run/Route Management		
5d	Add/Import Bus Stops, Routes and Stops in Routes data		
6	**Create Fare categories and Fare Sets**		
6a	Go to Transit Management		
6b	Select Planning		

6c	Select Fare Set Management		
6d	• Add Fare Categories (e.g. Regular, Free Ride, Reduced etc.) • Add Fare Sets (e.g. 2016 Summer Fareset, 2016 Fall Fareset etc.)		
7	**Create Time Period**		
7a	Go to Transit Management		
7b	Select Planning		
7c	Select Time Period Management		
7d	• Add Time Period Name • Date Range • Days range • Time Range • Active checked		
8	**Create Services and Service Schedule**		
8a	Go to Transit Management		
8b	Select Planning		
8c	Go to Service Management->Services page		
8d	• Add Services (Regular, Express etc.) and Service Schedule • Configure Routes for a Service in Service Schedule Page • Active checked		
9	**Create Fareset-Service Definition**		
9a	Go to Transit Management		
9b	Select Planning		
9c	Go to Fareset Management		
9d	• Click Details button associated with a Fareset • Click Edit Fare button associated with any Fare Category in a Fareset • Add appropriate Fare and Transfer amount • Check Enabled in FareSet-Service Checkbox		
10	**Map FareSet IDs**		
10a	Go to Transit Management		
10b	Select CAD/AVL Management		

10c	Select FareSet Management		
10d	Edit EZAdmin FareSet ID rows and add CAD/AVL Fareset IDs		
11	**Passenger Types**		
11a	Go to Media Management		
11b	Select Passenger Types		
11c	Click Create New Passenger Type and add Passengers		
11d	- Regular - Senior - Student - Employee - Trans ID		
12	**Media Product Rule**		
12a	Go to Media Management		
12b	Select Media Product Rule		
12c	Select Passenger Type and add required Products		
13	**Create Product Definitions**		
13a	Go to Media Management		
13b	Select Create Product Definitions and Add different types of products		
13c	- Value - Ride/Token - Date based - Time based products		
14	**Product Priority**		
14a	Go to Media Management		
14b	Select Product Priority Management		
14c	Drag and drop products on this page to change Priority of Products		
15	**Customer Management**		
15a	Go to Rider Management		
15b	Select Customer Management and Create New Rider		
15c	Customer Management should allow registering a Customer and accessing their Personal and Smart Card information		

Results – TP-ADM-002 EZAdmin Setup for FAT

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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TP-CST-001 EZCST Readiness

Estimated Time Required for Test: 20 Minutes.

Number	Task	Pass/Fail	Comments
1	Start EZCST application		
2	**EZCST Registration**		
2a	Start EZCST application		
2b	Configure application • Click on "Hammer and Wrench" icon • Enter Authorization code • Configure profile • Enter IP and port information		
2c	Click "Register" to send registration to EZAdmin		
2d	Open EZAdmin and activate registration		
3	Log in • Select profile • Type in "VIAFAT" • Click Logon		
4	**EZCST Status**		
4a	After EZCST registration is complete, Select EZCST Management in EZAdmin		
4b	Select EZCST Status and look for the FAT EZCST status details as follows: • FAT EZCST should be seen Online with correct Login, Location and Date/Time Details • All the CST Modules should be running without Errors • Card and Cash details should be reflected correctly		

Results – TP-CST-001 EZCST Readiness

PASS		PASS WITH Variance		FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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TP-OBV-001 Validator Readiness

Estimated Time Required for Test: 30 Minutes.

Number	Task	Pass/Fail	Comments
1	Start Validator		
2	**Validator Registration**		
2a	Start Validator application		
2b	Wait for the Validator to boot up completely		
2c	Open EZAdmin and go to Transit Management		
2d	Select Fare Collection Devices		
2e	Select FCD Management		
2f	• Validator should register automatically to the backoffice after boot up (if it is not already registered) and displayed on FCD Management Page • Click Edit button associated with the FAT validator, assign a Profile,Gate and check Active checkbox		
3	**Configuration Update**		
3a	Open EZAdmin and go to Operations		
3b	Select Configuration Transfer		
3c	Change time to current hour and click Apply Settings to push latest Configuration to the validator		
4	**Validator Status**		
4a	After Validator registration and Configuration update is complete, Select Operations in EZAdmin		
4b	Select Validator Status and look for the FAT Validator status details as follows: • Last Connection: Connected • Application and Configuration Version should be correct		

Results – TP-OBV-001 Validator Readiness

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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TP-OBV-002 Wi-Fi Subsystem Readiness

Estimated Time Required for Test: 5 Minutes.

Number	Task	Pass/Fail	Comments
1	Verify Wi-Fi connectivity on the Validator by checking Wi-Fi icon color (green) and Wi-Fi IP address		

Results – TP-OBV-002 Wi-Fi subsystem Readiness

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

Signatures

Trapeze	VIA	Date
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7.3.   INTERFACE VERIFICATIONS

Interface Verification Tests are designed to test the transmission of data between subsystems.
The following procedures are required for support of this formal test phase:

- TP-OBV-101 Download of Software build to Validator
- TP-ADM-101 EZAdmin to Validator Interface
- TP-CST-101 EZCST to EZAdmin Interface

TP-OBV-101 Download of Software Build to Validator

Estimated Time Required for Test: 15 Minutes

Number	Task	Pass/Fail	Comments
1	Turn on Administration Workstation		
2	Log in to EZAdmin as user "SysAdmin"		
3	**Create Validator Build**		
3a	Select Transit Management		
3b	Select Fare Collection Devices		
3c	Select Validator Upgrade		
3d	Select the correct Build Click Build		
3e	Click Auto Deploy		
4	Plug in external power supply of Validator		
5	Turn on Validator using "On/Off" switch		
6	After file download happens on the validator, it reboots automatically and displays Version of the latest Software Build and Configuration		

Results – TP-OBV-101 Software Build Download Tests

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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TP-ADM-101 EZAdmin to Validator Interface

Estimated Time Required for Test: 10 Minutes.

Number	Task	Pass/Fail	Comments
1	Verify Validator connectivity to EZAdmin by checking Operations->Validator Status Page on EZAdmin		

TP-CST-101 EZCST to EZAdmin Interface

Estimated Time Required for Test: 10 Minutes.

Number	Task	Pass/Fail	Comments
1	Log in to EZAdmin as SysAdmin		
2	Verify EZCST Station management		
3	Log in to EZCST as Clerk		
4	**Generate Smart Card Login Card**		
4a	Employee Driver login card		
5	**Generate Smart Media products (1 of each)**		
5a	Trans ID		
5b	Date Based		
5c	Ride/Token		
5d	E-Purse		
5e	Time Based		

Results – TP-ADM-101 EZAdmin to Validator Interfaces

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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7.4. FUNCTIONAL TESTS

Functional tests are designed to check performance of the software based on the design Use Cases.
The following procedures are required for support of this formal test phase:

- TP-OBV-201 Validator Fixed Route Functionality
- TP-OBV-202 Validator Paratransit Functionality
- TP-OBV-203 OBV Maintenance Mode Functionality
- TP-WEB-201 Web Portal Functionality
- TP-INV-201 Inventory Testing
- TP-CST-201 EZCST Testing
- TP-RPT-201 Reporting

TP-OBV-201 Validator and IVLU Fixed Route Functionality

Estimated Time Required for Test: 5 hours

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
1	Perform successful Smart Card Employee login OR IVLU Login			
2	Pass Fareset ID and Route ID from IVLU			
3	Arrive at a Stop and perform below tests			
4	**Value/E-Purse Pass**			
4a	Tap an E-Purse Pass			
4b	Check for the correct value amount deduction based on Fareset ID			
4c	Check other Transaction details like Name of the product, Product Balance, Vehicle number, Route number on the Validator display(Refer slide 86 of OBV FR Screens [10.3].pptx)			
4d	Driver Display should display "Paid" (Refer slide 86 of OBV FR Screens [10.3].pptx)			
5	**Ride/Token Pass**			
5a	Tap a Ride/Token Pass			
5b	Check for the correct Ride deduction			
5c	Check other Transaction details like Name of the product, Product Balance, Vehicle number, Route number on the Validator display (Refer slides 76 of OBV FR Screens [10.3].pptx)			
5d	Driver Display should display "Rides" (Refer slide 63 of OBV FR Screens [10.3].pptx)			
6	**Date based Pass (Period Pass)**			
6a	Tap a Period Pass			
6b	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number on the Validator display (Refer slide 72 of OBV FR Screens [10.3].pptx)			
6c	Driver Display should display "Period" (Refer slide 59 of OBV FR Screens [10.3].pptx)			
7	**Time based Pass (Rolling Period Pass)**			
7a	Tap a Rolling Period Pass			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
7b	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number on the Validator display (Refer slide 74 of OBV FR Screens [10.3].pptx)			
7c	Driver Display should display "Days" (Refer slide 74 of OBV FR Screens [10.3].pptx)			
8	**Peak/Off Peak Passes**			
8a	Tap a Card with Peak/Off Peak products			
8b	Verify that Validator allows Peak product only during Peak Time hours and similarly Off Peak product during Off Peak Time Hours (Normal products can be used anytime)			
9	**Employee/Retiree/Board Member Free Ride Pass**			
9a	Tap an Employee/Retiree/Board Member Free Ride Pass			
9b	Check all Transaction details like Employee Type, Product Balance, Vehicle number, Route number and "Show ID to Operator" text on the Validator display (Refer slides 53,54,55 of OBV FR Screens [10.3].pptx)			
9c	Driver display should display Employee Type and Check ID message(Refer slides 53,54,55 of OBV FR Screens [10.3].pptx)			
10	**Trainee/Trainer Pass**			
10a	Tap a Trainee/Trainer Free Ride Pass			
10b	Check all Transaction details like Trainee/Trainer Type, Product Balance , Vehicle number, Route number and "Show ID to Operator" text on the Validator display (Refer slides 63,64 of OBV FR Screens [10.3].pptx)			
10c	Driver display should display "Trainee/Trainer" depending on the card type and Check ID message (Refer slides 63,64 of OBV FR Screens [10.3].pptx)			
11	**Trans Id Card**			
11a	Tap a Trans Id Free Ride Pass			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
11b	Check all Transaction details like Product Name, Product Balance , Vehicle number, Route number and "Show ID to Operator" text on the Validator display (Refer slides 58,59 of OBV FR Screens [10.3].pptx)			
11c	Driver display should show "Check Id" message ,PCA and Companion details (e.g. PCA-Y,Comp-Y) (Refer slides 58,59 of OBV FR Screens [10.3].pptx)			
12	**Reduced Fare Pass**			
12a	Tap Reduced Fare Pass with E-purse product			
12b	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number and "Show ID to Operator" message on the Validator display (Refer slide 88 of OBV FR Screens [10.3].pptx)			
12c	Driver display should show "Paid " and "Check ID" (Refer slides 88 of OBV FR Screens [10.3].pptx)			
13	**Passback with E-Purse/Token Pass**			
13a	Tap any E-purse/Token Pass			
13b	Tap the same Pass again within Passback time limit			
13c	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number and 2nd Fare Paid message on the Validator display (Refer slide 94 of OBV FR Screens [10.3].pptx)			
13d	Driver display should show "2nd Paid " message (Refer slides 94 of OBV FR Screens [10.3].pptx)			
14	**Passback with Rolling Period/Period Pass**			
14a	Tap any card having both Rolling Period/Period and E-Purse/Ride products so that Period Pass gets accepted by the validator			
14b	Now Tap the same Pass again within Passback time limit and verify that validator deducts 2nd fare from the E-purse/Ride product			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
14c	Check all other Transaction details like Name of the product, Product Balance, Vehicle number, Route number and 2nd Fare Paid message on the Validator display (Refer slide 94 of OBV FR Screens [10.3].pptx)			
14d	Driver display should show "2nd Paid " message (Refer slides 94 of OBV FR Screens [10.3].pptx)			
15	**Passback with Employee Pass**			
15a	Tap any Employee card so that Validator accepts it as a Free Ride			
15b	Now Tap the same Pass again within Passback time limit and verify that validator deducts 2nd fare from the E-purse/Ride product			
15c	Check all other Transaction details like Name of the product, Product Balance, Vehicle number, Route number and 2nd Fare Paid message on the Validator display			
15d	Driver display should show "2nd Paid " message			
16	**Passback with Reduced Fare Pass**			
16a	Tap any Reduced Fare card			
16b	Now Tap the same Pass again within Passback time limit and verify that validator deducts 2nd fare with Regular fare amount (not reduced fare amount) from the E-purse/Ride product			
16c	Check all other Transaction details like Name of the product, Product Balance, Vehicle number, Route number and 2nd Fare Paid message on the Validator display			
16d	Driver display should show "2nd Paid " message			
17	**Same Service Transfer**			
17a	Tap any E-purse/Token Pass on a Validator running on Regular/Express service			
17b	Tap the same Pass again on another Validator running on the same type of service as 16a			
17c	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number,Transfer Validity Time and Transfer Charge on the Validator display(Refer slides 68 of OBV FR Screens [10.3].pptx)			

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Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
17d	Driver Display should show the message "Transfer"(Refer slides 68 of OBV FR Screens [10.3].pptx)			
18	**Different Service Transfer**			
18a	Tap any E-purse/Token Pass on a Validator running with Regular Service			
18b	Tap the same Pass again on another validator running with Express Service			
18c	Check all Transaction details like Name of the product, Product Balance, Vehicle number, Route number ,Transfer Validity Time and Route Upcharge on the Validator display(Refer slides 68 of OBV FR Screens [10.3].pptx)			
18d	Driver Display should show the message "Transfer"(Refer slides 68 of OBV FR Screens [10.3].pptx)			
19	**2nd Fare (Passback) Transfer**			
19a	Tap a Card having E-purse/Ride Pass on the Validator			
19b	Tap the same card again within Passback time limit and perform a valid passback transaction			
19c	Again tap the same card on a different validator twice and verify that 2 Valid Transfers are allowed (1st fare transfer and 2nd fare transfer)			
20	**Expired Card**			
20a	Tap an Expired Trans ID/ Employee ID/Reduced Card			
20b	Check for Expired Card Message on the Validator display (Refer slide 56,61 of OBV FR Screens [10.3].pptx)			
20c	Driver Display should show "Expired" message (Refer slide 56,61 of OBV FR Screens [10.3].pptx)			
21	**E-purse Pass with Insufficient Funds**			
21a	Tap an E-purse Pass having insufficient balance to pay for a ride			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
21b	Check for Insufficient Funds message along with other transaction details like Product balance, Vehicle number ,Route number and Addl fare due amount on the Validator display (Refer slide 90 of OBV FR Screens [10.3].pptx)			
21c	Driver Display should show "Fare Due" message (Refer slide 90 of OBV FR Screens [10.3].pptx)			
22	**Passback with Insufficient Funds**			
22a	Tap a Value/Token Pass			
22b	Tap the same Pass again within Passback time interval but this time it should have insufficient funds to pay for the ride			
22c	Check for Insufficient Funds message along with other transaction details like Product balance, Vehicle number ,Route number and Addl fare due amount on the Validator display (Refer slide 93 of OBV FR Screens [10.3].pptx)			
22d	Driver Display should show "2nd Due" message (Refer slide 93 of OBV FR Screens [10.3].pptx)			
23	**Transfer with Insufficient Funds**			
23a	Tap a Value/Token Pass on a Validator running with Regular/Express Service			
23b	Tap the same Pass again on a different Validator but this time it should have insufficient funds to pay for the Upcharge			
23c	Check for Insufficient Funds message along with other transaction details like Transfer Validity Until Time, Product balance, Upcharge Due, Vehicle number and Route number on the Validator display(Refer slide 69 of OBV FR Screens [10.3].pptx)			
23d	Driver Display should show "Upcharge Due amount" (Refer slide 68 of OBV FR Screens [10.3].pptx)			
24	**Badlisted Card**			
24a	Tap a Badlisted Card			
24b	Check for "Invalid Card" message on the Validator display (Refer slide 96 of OBV FR Screens [10.3].pptx)			

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Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
24c	Driver Display should show "BADLST" message (Refer slide 96 of OBV FR Screens [10.3].pptx)			
25	**Whitelisted Card**			
25a	Tap a 3rd Part Whitelisted Card			
25b	Check for all transaction details like Product balance, Charge amount, Vehicle number and Route number on the Validator display (Refer slide 97 of OBV FR Screens [10.3].pptx)			
25c	Driver Display should show "WHITELIST" message (Refer slide 82 of OBV FR Screens [08].pptx)			
26	**"Unable to Read" Card**			
26a	Tap any non-formatted Card or tap any Valid card inappropriately twice			
26b	Check for "Unable to Read" message on the Validator display (Refer slide 101,102 of OBV FR Screens [10.3].pptx)			
26c	Driver Display should show "INVALID" message (Refer slide 101,102 of OBV FR Screens [10.3].pptx)			
27	**Autoload**			
27a	Purchase products on a Full fare/Reduced Fare Card through Web Portal			
27b	Tap this card on the Validator after autoload time interval is over			
27c	Check for all transaction details like Name of the accepted Product, Product balance, Vehicle number ,Route number and "Added Pass/Value" message on the Validator display (Refer slides 104,105,106 of OBV FR Screens [10.3].pptx)			
27d	Driver Display should show "Period/Paid" and "Check Id" message depending on the card type (Refer slides 104,105,106 of OBV FR Screens [10.3].pptx)			
28	**Product Priority**			
28a	Tap a Card having multiple types of products on a Card			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products used and Transaction Time)
28b	Check for correct Pass/Product Priority on the validator based on the priority set in the Backoffice			
29	**Low Balance**			
29a	Tap a Card having product balance lower than the threshold value set in the backoffice			
29b	Check for "Low Balance" message along with all other transaction details on the Validator display (Refer slides 80,87,77,75 of OBV FR Screens [10.3].pptx)			
29c	Driver Display should show "Period/Paid" and "Check Id" message depending on the card type (Refer slides 80,87,77,75 of OBV FR Screens [10.3].pptx)			
30	**End of Transit Day**			
30a	Tap a Card with Period/Rolling Period product and activate it			
30b	Verify that Expiration time of any Period/Rolling Period Pass is End of Transit Day time (3 AM for VIA)			
31	**Driver Service Change with Transitmaster**			
31a	Change Route,Trip or Direction in Driver Display			
31b	Verify "Sevice Change" message on the Validator display with Route and Fareset details (Refer slide 36 of OBV FR Screens [10.3].pptx)			
31	**Driver LogOff**			
32a	Perform successful Driver LogOff by tapping the same Employee Card again which was used for Logon or Perform LogOff using IVLU			
32b	Verify LogOff message on the Validator Refer slide 24,33 of OBV FR Screens [10.3].pptx)			

Results – TP-OBV-201 Fixed Route Validator Functional Tests

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

TP-OBV-202 Validator and IVLU ParaTransit Functionality

Estimated Time Required for Test: 3 hours

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
1	**Valid Driver Logon using Transitmaster MDT**			
1a	Enter valid Driver ID, Route and Block details on Driver Display to perform successful Driver logon			
1b	Validator displays "Logon Received" first and then "In Service" message (Refer Slides 11,12 of OBV Para Screens 10.3.pptx)			
1c	Driver Display(PASS) should show Passenger Pick Up details (Refer Slide 11,12 of OBV Para Screens [10.3].pptx)			
2	**Valid Driver Logon using Driver Login Card**			
2a	Tap a valid Driver Card on the validator			
2b	Validator displays "Attempting Logon" first and then "In Service" message (Refer Slides 14,15 of OBV Para Screens [10.3].pptx)			
2c	Driver Display (PASS) should show Passenger Pick Up details (Refer Slide 14,15 of OBV Para Screens [10.3].pptx)			
3	**Invalid Driver Logon using Driver Login Card**			
3a	Tap an invalid Driver Card on the validator			
3b	Validator should display "Logon Failed" message (Refer Slide 16 of OBV Para Screens [10.3].pptx)			
3c	Driver Display should show Passenger Driver name, Block 000 and DENIED-INVALID BLOCK message (Refer Slide 16 of OBV Para Screens [10.3].pptx)			

Factory Acceptance Testing

VIA METROPOLITAN TRANSIT – SAN ANTONIO, TEXAS
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Phase 2A

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
4	**Stop Arrival**			
4a	After arriving at a Stop, press Arrive Button on the Driver Display			
4b	Validator should display "Welcome to VIA" as primary message and "Reader Enabled" secondary message(Refer Slide 25 of OBV Para Screens [10.3].pptx)			
5	**Valid Trans Id card**			
5a	Tap a Valid Trans Id Card(Valid means Trans Id of the card should be present in the Manifest list of the validator)			
5b	Check for all transaction details like Name of the Passenger, Ride Value, Validity Date and Card Balance on the Validator Display (Refer Slide 33 of OBV Para Screens [10.3].pptx)			
5c	Driver Display (PASS) should show "Picked Up" and Fare amount charged (Refer Slide 33 of OBV Para Screens [10.3].pptx)			
6	**Trans Id card with Low Balance**			
6a	Tap a Valid Trans Id Card(Valid means Trans Id of the card should be present in the Manifest list of the validator)			
6b	Check for all transaction details like Name of the Passenger, Ride Value, Validity Date ,Card Balance and Low Balance message on the Validator Display (Refer Slide 34 of OBV Para Screens [10.3].pptx)			
6c	Driver Display should show "Picked Up" and Fare amount charged (Refer Slide 34 of OBV Para Screens [10.3].pptx)			
7	**Trans Id card with Insufficient balance**			
7a	Tap a Valid Trans Id Card with Insufficient funds			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
7b	Check for "Insufficient Funds" message along with other transaction details like Name of the Passenger, Ride Value, Validity Date and Card Balance on the Validator Display (Refer Slide 36 of OBV Para Screens [10.3].pptx)			
7c	Driver Display should show "Picked Up" and Fare due amount (Refer Slide 36 of OBV Para Screens [10.3].pptx)			
8	**Expiring Soon Trans Id card**			
8a	Tap a Valid Trans Id Card which is expiring soon			
8b	Check for "Renew Card" message along with other transaction details like Name of the Passenger, Ride Value, Validity Date and Card Balance on the Validator Display (Refer Slide 35 of OBV Para Screens [10.3].pptx)			
8c	Driver Display should show "Picked Up" and Fare amount charged (Refer Slide 35 of OBV Para Screens [10.3].pptx)			
9	**Trans Id card with No Fare Due**			
9a	Tap a Valid Trans Id Card which has no fare due			
9b	Check for "Card Accepted" message along with other transaction details like Name of the Passenger, Validity Date and Card Balance on the Validator Display (Refer Slide 37 of OBV Para Screens [10.3].pptx)			
9c	Driver Display should show "Picked Up" and Fare amount as $0.00 (Refer Slide 37 of OBV Para Screens [10.3].pptx)			
10	**Badlisted Trans Id card**			
10a	Tap a Badlisted Trans Id Card			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
10b	Check for "Invalid Card" message on the Validator Display (Refer Slide 43 of OBV Para Screens [10.3].pptx)			
10c	Driver Display should show "Badlist" and Fare amount (Refer Slide 43 of OBV Para Screens [10.3].pptx)			
11	**Invalid Trans Id card**			
11a	Tap a Trans Id card whose Id number is not present in the Manifest on the validator			
11b	Check for "Invalid Card" message on the Validator Display (Refer Slide 46 of OBV Para Screens [10.3].pptx)			
11c	Driver Display should show "Invalid" and Fare amount (Refer Slide 46 of OBV Para Screens [10.3].pptx)			
12	**Expired Trans Id card**			
12a	Tap an Expired Trans Id Card			
12b	Check for "Expired Card" message on the Validator Display (Refer Slide 47 of OBV Para Screens [10.3].pptx)			
12cc	Driver Display should show "Expired" and Fare amount (Refer Slide 47 of OBV Para Screens [10.3].pptx)			
13	**Autoload**			
13a	Add E-purse to a Trans Id card through Web Portal			
13b	Tap this card on the validator after autoload time interval			
13c	Check for all transaction details like Name of the Passenger, Ride Value, Validity Date and Card Balance along with Added $ xx message at the bottom right on the Validator Display (Refer Slide 51 of OBV Para Screens [10.3].pptx)			

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
13d	Driver Display should show "Picked Up" and Fare amount charged (Refer Slide 51 of OBV Para Screens [10.3].pptx)			
14	**Stop Departure**			
14a	Press PICK UP button on the Driver Display after passenger pick up is complete			
14b	Validator should display "In Service" and "Reader Disabled" messages and Driver Display should display words "PICKED UP" on the Manifest screen (Refer Slide 27 of OBV Para Screens [10.3].pptx)			
14c	Press "DONE" button on the MDT Manifest Screen and complete Stop Departure process (Refer Slide 27 of OBV Para Screens [10.3].pptx)			
15	**Driver Logoff using Transitmaster MDT**			
15a	Press LOGOUT button on the Manifest Screen and then press CONFIRM LOGOUT button on the Driver Display			
15b	Validator should display "Logoff Received" and then "Not Logged In" message (Refer Slide 19,20 of OBV Para Screens [10.3]..pptx)			
16	**Driver Logoff using Validator**			
16a	Tap the same Driver Card again which was used for Driver Logon on the validator			
16b	Validator should display "Logging Off" message and Driver Display should also be seen in logged out status			

Results – TP-OBV-202 Validator Paratransit Functionality

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

TP-OBV-203 OBV Maintenance Mode Functionality

Estimated Time Required for Test: 1 Hour

Number	Task	Pass/Fail	Comments	Input Data (Media ID, Products Used and Transaction Time)
1	**Maintenance Access Card Tap**			
1a	Tap a Maintenance Access Card on the Validator			
1b	Validator displays "Maintenance Access" screen (Refer Slides 8 of OBV FR Screens 10.3.pptx)			
2	**Command Card Tap**			
2a	Tap Maintenance Access Card and then a Command Card on the Validator			
2b	Verify display of correct Maintenance details like IP address, Wi-Fi Credentials, Software Application Version etc.			
3	**Wi-Fi Credentials Change**			
3a	Tap Maintenance Access Card and then Valid Wi-Fi credentials encoded Command Card			
3b	Reboot the validator and Verify that Wi-Fi credentials on the Validator change to the credentials encoded in the Command Card			
4	**EZCom IP Change**			
4a	Tap Maintenance Access Card and then Valid EZCom IP encoded Command Card			
4b	Reboot the validator and Verify that EZCom IP address on the Validator change to the IP encoded in the Command Card			

Results – TP-OBV-203 OBV Maintenance Mode Functionality

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

Signatures

Trapeze	**VIA**	**Date**
(Print Name)	_(Print Name)_	
(Signature)	_(Signature)_	

TP-WEB-201 Web Portal Functionality

Estimated Time Required for Test: 2 hours

Number	Task	Pass/Fail	Comments
1	**New Account Creation**		
1a	Click Create an Account link on the Web Portal Main Page		
1b	Enter valid details in Create Account Page and click Create button		
2	**Confirmation Email Acknowledgement**		
2a	Confirmation Email is sent after account creation to the Email address entered in the Create Account Page		
2b	Acknowledge Confirmation Email and logon to the portal		
3	**Existing account logon**		
3a	Enter valid Email address and Password of an existing account and go to the Home Page		
3b	Enter invalid Email address or Password of an existing account and verify Logon Failed message		
4	**Update Profile**		
4a	Logon to Web Portal and click "Update my Profile"		
4b	Update any information like name, address, and phone number and verify that it got updated		
5	**Change Password**		
5a	Logon to Web Portal and click "Change my Password"		
5b	Update Password and verify that it got updated		
6	**Valid Card Registration**		
6a	Logon to Web Portal and click Register new Cards link		
6b	Enter a nickname for the card, valid card serial number, and security ID ,click 'Register' and verify that Card gets added to My Registered Cards list		
7	**Invalid card Registration**		
7a	Logon to Web Portal and click Register new Cards link		
7b	Enter a nickname for the card, invalid card serial number or invalid security ID ,click 'Register' and verify 'Unable to register card with the server' error message		
8	**Badlisted card Registration**		
8a	Logon to Web Portal and click Register new Cards link		
8b	Enter a nickname for the card, badlisted card serial number and security ID ,click 'Register' and verify 'Unable to register card with the server' error message		
9	**Already Registered card Registration**		
9a	Logon to Web Portal and click Register new Cards link		

9b	Enter a nickname for the card, serial number and security ID of an already registered card, click 'Register' and verify 'This card appears to be already registered' error message		
10	**Valid Card Linking**		
10a	Logon to Web Portal and click Link registered Cards to my Account		
10b	Enter a nickname for the card, serial number and security ID of a registered card, click 'Link' and verify that the card gets added to My Linked Cards list		
11	**Unregistered Card Linking**		
11a	Logon to Web Portal and click Link registered Cards to my Account		
11b	Enter a nickname for the card, serial number and security ID of an unregistered card, click 'Link' and verify the error message 'This card does not appear registered'		
12	**Invalid Card Linking**		
12a	Logon to Web Portal and click Link registered Cards to my Account		
12b	Enter a nickname for the card, invalid serial number or invalid security ID of a registered card, click 'Link' and verify the error message 'Cannot find this card'		
13	**Card Suspension**		
13a	Logon to Web Portal and click Manage my Cards		
13b	Click "Suspend' button associated with any card and verify that the card gets added to the Badlist on the server		
14	**Purchased Products Status Display**		
14a	Logon to Web Portal and click See My Cards and Products		
14b	Verify correct Products Status display with all registered/linked cards		
15	**Product Purchase**		
15a	Logon to Web Portal and click Buy Products		
15b	Select the products and quantities desired and add to the shopping cart		
15c	Proceed to Payment page, enter valid payment details and verify Order successful page display with Order Completion receipt		
16	**Order History**		
16a	Logon to Web Portal and click Account		
16b	Select Order History		
16c	Verify historical Transaction details		
17	**Spanish Content Verification**		
17a	Change Browser Language Preference to Spanish		

17b	Navigate to all Web Portal pages and verify Spanish content		

Results – TP-WEB-201 Web Portal Functionality

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

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TP-INV-201 Inventory Testing

Estimated Time Required for Test: 2 hours

Number	Task	Pass/Fail	Comments
1	**Organizations Creation**		
1a	Logon to Inventory with Administrator credentials (admin / coincard)		
1b	Go to System Administration->Organization		
1c	Add a new Organization of Type "Transit Agency"		
1d	Add another new Organization of Type "Vendor"		
2	**Locations Creation**		
2a	Logon to Inventory with Administrator credentials (e.g. admin / coincard)		
2b	Go to System Administration->Location		
2c	Add a new Location for "Transit Agency"		
2d	Add another new Location for "Vendor"		
3	**Adding Persons**		
3a	Logon to Inventory with Administrator credentials (e.g. admin / coincard)		
3b	Go to System Administration->Person		
3c	Add new Person Details for "Transit Agency"		
3d	Add another new Person Details for "Vendor"		
4	**Adding Users**		
4a	Logon to Inventory with Administrator credentials (e.g. admin / coincard)		
4b	Go to System Administration->User		
4c	Add new User Details for Role "Transit Agency Manager"		
4d	Check Active checkbox		
5	**Create Vendor Order**		
5a	Logon to Inventory with Transit Agency Manager credentials		
5b	Go to Vendor order->New Vendor Order		
5c	Select appropriate Vendor details, Agency details ,Media Details and create a Vendor order		
6	**Verify Vendor Order Image file**		
6a	Logon to Inventory with Transit Agency Manager credentials		
6b	Submit/Create Vendor Order and click Generate Image File button on Order Confirmation Page		
6c	Download the image file, open it and verify correct Naming(date) and Serial numbers in the file		
7	**Receive Vendor Order**		

7a	Logon to Inventory with Transit Agency Manager credentials		
7b	Click Open Orders link on the Home Page and go to Order Detail page		
7c	Click Receive Order button on Order Details page, enter appropriate Serial number and Quantity details and complete Vendor Order receiving process		
8	**Create New Distribution**		
8a	Logon to Inventory with Transit Agency Manager credentials		
8b	Go to Stock Management->New Distribution		
8c	Create a Distribution for EZCST Location		
9	**Receive Distribution**		
9a	Logon to Inventory with Transit Agency Manager credentials		
9b	Go to Stock Management->Receive Distribution		
9c	Receive a Distribution at EZCST Location		
10	**Stock Level Verification**		
10a	Sale cards from EZCST		
10b	Logon to Inventory with Transit Agency Manager credentials		
10c	Go to Stock Management->Stock Level		
10d	Filter Stock Level with EZCST Location		
10e	Verify Stock Level details in Inventory against details of cards sold from EZCST		

Results – TP-INV-201 Inventory Functionality

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

TP-CST-201 EZCST Testing

Estimated Time Required for Test: 4 hours

Number	Task	Pass/Fail	Comments
1	**Card Formatting**		
1a	Logon to EZCST with valid EZCST Operator credentials		
1b	Tap any new Card and verify Card Formatting process for all Passenger Types		
2	**Open Register**		
2a	Logon to EZCST with valid EZCST Operator credentials		
2b	Click Open Register, enter appropriate Media and Cash details and click Save button		
2c	Click Approve button, enter valid Supervisor credentials and start the Product Sale process		
3	**Register Media**		
3a	Logon to EZCST with valid EZCST Operator credentials		
3b	Tap any new Card and click Register button		
3c	Add new Customer details or select from existing Customer details and complete Media Registration		
4	**Product(s) Sale and Display**		
4a	Logon to EZCST with valid EZCST Operator credentials		
4b	Tap any Card and click Sale button		
4c	Products available for purchase (depending on Card's Passenger Type) are displayed		
4d	Select Product(s), Add to Cart, click Checkout, select a Payment Method and complete Product(s) Sale.		
4e	Verify purchased products/existing products on the card under Products/Pending Products tab in EZCST		
5	**Payment Methods**		
5a	Logon to EZCST with valid EZCST Operator credentials		
5b	Verify product purchase process using all types of Payment Methods		
6	**Cash Drawer Functioning**		
6a	Logon to EZCST with valid EZCST Operator credentials		
6b	Purchase a product using "Cash" Payment method and verify opening of Cash Drawer		
7	**Receipt Printing**		
7a	Logon to EZCST with valid EZCST Operator credentials		
7b	Perform Card/Product purchase and verify printing of receipt by the printer		
8	**Receipt Content**		
8a	Logon to EZCST with valid EZCST Operator credentials		

8b	Perform Card/Product purchase and verify receipt content for the following : • Product purchase Date/Time • Product Name and Amount paid • Serial Number • Security Code (if applicable)		
9	**Autoload**		
9a	Purchase products on a card through Web Portal		
9b	Logon to EZCST with valid EZCST Operator credentials		
9c	Tap the same Card on the EZCST reader after autoload time period is over		
9d	Verify auto loading of correct products by EZCST		
10	**Card Badlisting**		
10a	Logon to EZCST with valid EZCST Operator credentials		
10b	Tap any Card and click Badlist button		
10c	Verify that the Card gets added to the Badlist in the server and is not allowed to be used on the EZCST, Validator or Web Portal		
11	**Manual Badlist**		
11a	Logon to EZCST with valid EZCST Operator credentials		
11b	Click Manual Badlist button ,enter Serial number of the card and click Add to Badlist button		
11c	Verify that the Card gets added to the Badlist in the server and is not allowed to be used on the EZCST, Validator or Web Portal		
12	**Express Functionality**		
12a	Logon to EZCST with valid EZCST Operator credentials		
12b	Click Express Preference button, select required products , click Save and check for display of Selected products under Express Products section		
12c	Now select products from Express Products section, complete purchase process , tap the card on the reader and Verify that correct products have been added to the card		
13	**Renew Card**		
13a	Logon to EZCST with valid EZCST Operator credentials		
13b	Tap any Reduced fare/Trans Id/Employee card and click Renew button		
13c	Select a new date and verify that expiration date of the card changes as per the newly selected date		
14	**Card Credit**		
14a	Logon to EZCST with valid EZCST Operator credentials		

14b	Tap any Card and click Card Credit button		
14c	Select appropriate product (if applicable), Usage and Sale Transaction details (if applicable), enter Credit amount in "Request Value" field and click Get Credit button		
14d	Verify correct Credit value gets added to the card amount		
15	**Card Replacement**		
15a	Logon to EZCST with valid EZCST Operator credentials		
15b	Tap a Card which needs to be replaced and click Replace button		
15c	Tap new card which is of the same format ,click Replace and Verify that the new card gets written with same products and customer details (Old Card should be badlisted)		
16	**Manual Replace**		
16a	Logon to EZCST with valid EZCST Operator credentials		
16b	Click Manual Replace and enter Serial number of the card which needs to be replaced		
16c	Tap new card which is of the same format ,click Replace and Verify that the new card gets written with same products and customer details (Old Card should be badlisted) Note: In case of Manual Replace, products on new cards will be loaded only after Replace Card Wait Day period (which is a configurable setting on the server) is over		
17	**Balance Correction**		
17a	Logon to EZCST with valid EZCST Operator credentials		
17b	Go to Products Page and click "Balance correction" button associated with all types of product		
17c	Change Product Value in Correct Value field and click Apply button		
17d	Verify that new Corrected value gets written on the Card		
18	**Price Override**		
18a	Logon to EZCST with valid EZCST Operator credentials for which Price Override capability is enabled in the server		
18b	Select a Card/Product and proceed to Shopping Cart page		
18c	On shopping Cart page, click the product row for which price has to be modified		
18d	Enter new price in Override Price text box and click Apply		
18e	Click Checkout, enter valid Supervisor credentials, click Approve and verify that new price gets applied for that transaction		
19	**Last 10 Transactions**		

19a	Logon to EZCST with valid EZCST Operator credentials		
19b	Tap any Card on the Customer Card Reader		
19c	Verify display of Card's Last 10 Transaction details on the reader		
20	**Transaction History**		
20a	Logon to EZCST with valid EZCST Operator credentials		
20b	Tap any Card on the Customer Card Reader and click Transaction tab		
20c	Verify last 3 months transaction history display with print capability		
21	**Close Register**		
21a	Logon to EZCST, Open register, Perform transactions and click Close Register		
21b	Enter appropriate Media and Cash details and click Save button		
21c	Click Approve button, enter valid Supervisor credentials and complete register closure		
22	**End Of Day Report**		
22a	Logon to EZCST, Open register, Perform transactions and click Close Register		
22b	Click End of day report button after closing register and Verify correct date/time , operator ,Cash in, Cash out , Credit/Debit amount and Smart Card quantity details		
23	**Operator Role-Administrator**		
23a	Logon to EZCST with Administrator role credentials		
23b	• Show system settings panel, enable editing of all settings, profiles and changing devices' communication ports • "Save" and "Exit" button on the bottom are enabled • Disable smart media reading on all readers		
24	**Operator Role-Clerk Level 1**		
24a	Logon to EZCST with Clerk Level 1 role credentials		
24b	• Show main panel; Enable existing function of selling of all products; Remove cheque from payment methods list; • Disable the editing of all settings, profiles and devices configuration • Disable smart media reading on customer facing readers		
25	**Operator Role-Clerk Level 2**		
25a	Logon to EZCST with Clerk Level 2 role credentials		
25b	• All functions that a Clerk Level 1 can access can		

	be accessed in this role; • Allow cheque payment; • Display and enable end of day report button on toolbar of the main UI		
26	**Operator Role-Supervisor**		
26a	Logon to EZCST with Supervisor credentials		
26b	• All functions that a Clerk Level 2 can access can be accessed in this role; • All functions that an Administrator can access can be accessed in this role.		
27	**Operator Role-Maintenance**		
27a	Logon to EZCST with Maintenance credentials		
27b	• Standalone and Maintenance type of functions can be accessed • Operator should be able to create Standalone cards with Route Id and Fareset ID information • Operator should also be able to create Maintenance cards with Wi-Fi credentials and EZCom IP details		

Results – TP-CST-201 EZCST Functionality

PASS		PASS WITH Variance		FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	**VIA**	**Date**
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

TP-RPT-201 Reporting

Estimated Time Required for Test: 3 hours.

Number	Task	Pass/Fail	Comments
1	Rebuild report database		
2	**Ridership Reports – Detailed Ridership Report**		
2a	Daily By Bus		
2b	Daily By Route		
2c	Monthly By Bus		
2d	Monthly By Route		
2e	Custom Date/Time By Bus		
2f	Custom Date/Time By Route		
3	**Ridership Reports – Bus Ridership Report**		
3a	Daily		
3b	Monthly		
3c	Custom Date/Time		
4	**Ridership Reports – Route Ridership Report**		
4a	Daily		
4b	Monthly		
4c	Custom Date/Time		
5	**Ridership Reports –Ridership Revenue Report**		
5a	Daily By Bus		
5b	Daily By Route		
5c	Monthly By Bus		
5d	Monthly By Route		
5e	Custom Date/Time By Bus		
5f	Custom Date/Time By Route		
6	**Ridership Reports – Fare Category Report**		
6a	Daily By Bus		
6b	Daily By Route		
6c	Monthly By Bus		
6d	Monthly By Route		
6e	Custom Date/Time By Bus		
6f	Custom Date/Time By Route		
7	**Ridership Reports –Fare Category Group Report**		
7a	Daily By Bus		
7b	Daily By Route		
7c	Monthly By Bus		

7d	Monthly By Route		
7e	Custom Date/Time By Bus		
7f	Custom Date/Time By Route		
8	**Media Reports –Media Usage Report**		
8a	Daily By Smart Media		
8b	Monthly By Smart Media		
8c	Custom Date/Time By Smart Media		
9	**Media Reports –Valid/Invalid Media Usage Report**		
9a	Daily By Valid Media Usage		
9b	Daily By InValid Media Usage		
9c	Monthly By Valid Media Usage		
9d	Monthly By InValid Media Usage		
9e	Custom Date/Time By Valid Media Usage		
9f	Custom Date/Time By InValid Media Usage		
10	**Sales Reports-Media Sales Report**		
10a	Daily – Detailed – EZCST Station for all products, all operators and all stations		
10b	Daily – Detailed – Web Portal for all products		
11	**Bus Connectivity Report**		
11a	Daily – By Bus – File Transfers		
11b	Monthly – By Bus – File Transfers		
11c	Custom – By Bus – File Transfers		
11d	Exceptions – By Bus		
12	**Event/Transaction Report**		
12a	Daily – By Bus		
12b	Monthly – By Bus		
12c	Custom – By Bus		

Results – TP-RPT-201 Reporting

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

7.1. EXCEPTION TESTING

Exception Testing is designed to test abnormal conditions or negative test cases for software.
The following procedures are required for support of this formal test phase:

- TP-CST-301 EZCST Exception Testing
- TP-ADM-301 EZAdmin Exception Testing

TP-CST-301 EZCST Exception Testing

Estimated Time Required for Test: 5 minutes

Number	Task	Pass/Fail	Comments
1	Attempt programming non-VIA smart card		
2	Attempt logging in without EZAdmin connectivity		
3	Attempt logging in with incorrect user name		
4	Attempt logging in with incorrect user password		

Results – TP-CST-301 EZCST Exception Testing

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

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Signatures

Trapeze	**VIA**	**Date**
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

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TP-ADM-301 EZAdmin Exception Testing

Estimated Time Required for Test: 5 minutes

Number	Task	Pass/Fail	Comments
1	Attempt login with invalid password		
2	Attempt login with invalid login		
3	Shut down network connection on PC		
4	Attempt login		

Results – TP-ADM-301 EZAdmin Exception Testing

PASS	PASS WITH Variance	FAIL

Steps Completed	
Steps Passed	
Steps Failed	
Steps not Run	
Steps with Variance	

Comments and Variances

Signatures

Trapeze	VIA	Date
(Print Name)	*(Print Name)*	
(Signature)	*(Signature)*	

Appendix B: Certificate of Completion

Formal Project Testing
Certificate of Completion

Activity	
Contract	#12-252 – Purchase of A Fare Collection System
Customer	VIA Metropolitan Transit – San Antonio, Texas
Test	Phase 2A Factory Acceptance Testing
Dates of Testing	

RESULTS				
Total Procedures Run				
Results				
	Passed	**Passed with Variance**	**Failed**	

Procedures Run		
TP-HWR-001	Hardware Configuration	
TP-ADM-001	EZAdmin Readiness	
TP-ADM-002	EZAdmin Setup for VIA FAT	
TP-CST-001	EZCST Readiness	
TP-OBV-001	Validator Readiness	
TP-OBV-101	Validator Data Transfers	
TP-OBV-101	Validator Wi-Fi	

Trapeze	**VIA**	**Date**
(Print Name)	_(Print Name)_	
(Signature)	_(Signature)_	

Variances

Step	Description	Severity