# Introduction

### 1.1 Purpose

The purpose of this document is to document testing done on SVI FF DD release3 revision 2. It also gives as the information about the statistical report of TFS bug report and status of project as well. This document must be evaluated well before product technical release.

### 1.2 Scope

The testing covers Resource and Transducer blocks only. DD of Function blocks come from FF Standard Library and are tested automatically with ITK. The only exception is extensions of PID FB, which are previously tested carryover from SVI FF Rev. 2 DD (all DD versions).

The scope of testing covers the following parts of SVI FF release3 project DD V&V activities:

* Functionality V&V testing.
* FDI Host Interoperability testing.

### 1.3 Requirements

Please refer to Appendix 4.1 - All SVIFF RB/TB Parameters and methods full list.

DD test should cover all following checkpoints:

1. Parameters of both Transducer Block and Resource Block
2. All parameters must be exposed to DD (in a menu or via a method).
3. Labels and Help strings must be adequate.
4. Menus and Methods
5. Labels and Help strings must be adequate.
6. Both PC and handheld root menus must be sufficiently equivalent.
7. All menus and methods must work as intended.
8. Device interface functionality
9. Read-only variables should be grayed out.
10. Writable variables can be edited and can be written to the device.
11. All TB and RB parameters must be accessible (via menus or methods).

### 1.4 Document Terminology and Acronyms

|  |  |
| --- | --- |
| AMS | Emerson’s Asset Management System |
| DD | Device Description |
| DeltaV | Emerson’s Distribute Control System |
| FDI | Field Device Integration  FDI was jointly developed by leading process industry foundations including FieldComm Group, FDT Group, PROFIBUS & PROFINET International, and the OPC Foundation. |
| ITK | Interoperability Test Kit |
| FB | Function Block |
| FF | Foundation Fieldbus |
| QA | Quality Assurance |
| RRTE | Reference Runtime Test Environment  A FDI develop tool for DD testing. |
| SFEC | Shanghai F&PT Engineering Center |
| TFS | Team Foundation Server  A version control and bug report track system in project development and software test. |
| Trex | Emerson’s handheld field device communicator |
| V&V | Validation and Verification |

### 1.5 References

* All SVIFF RB/TB Parameters and methods full list
* SVI FF DD release3 revision 2 fixed bugs in TFS
* SVI FF DD release3 revision 2 known issue in TFS

# Environmental Report

### 2.1 Human Resources

The following table will give the organization and responsibility of the team involved in validation and verification.

|  |  |
| --- | --- |
| Resource | Role & Responsibility |
| Ark Khasin | Developer, take care of project management and bug fixing. |
| Vison Zhang | Developer & QA, take care of test execution and bug fixing. |

Table 1: Roles & Responsibilities of SVI FF DD V&V team

### 2.2 Hardware/Software Resources

The real test environment is as below:

* SVI FF Rev3 positioner w/ a air to open 88 actuator, mounted on a 2-inch 21000 valve
* Emerson DeltaV (v14.3.1 Build7282)
* Emerson AMS (v14.0.000.394)
* Emerson Trex Unit (Software version: v1.8.1934.1)
* RRTE (v6.3.1)

# Validation and Verification Summary

### 3.1 Requirements and Functionality V&V Testing

The requirements and functionality testing were done by Ark and Vison before new code check in. All requirements are based on those changesets after the changeset 85858 till 97294 in TFS history of following branches:

* $/FW SVI FF Releases/Release3/FD-SW
* $/FW SVI FF Releases/Release3/FIRMWARE
* $/FW SVI FF Releases/Release3/DD-only

### 3.2 FDI Host Compatibility Testing

FDI Host Compatibility Testing were done on following platforms and no critical issue existing:

* FDI RRTE (by Ark in US)
* DeltaV and AMS with DD5(by Vison in SFEC)
* Trex Unit with DD4/DD5(by Vison in SFEC)

# Appendix

### 4.1 All SVIFF RB/TB Parameters and methods full list:



### 4.2 SVI FF DD release3 revision 2 fixed bugs in TFS:

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|  |  |
| --- | --- |
| Bug ID | Title |
| 89619 | SVI FF DD->0302->NI Configurator->"Identification" menu of TB shows fuzzily |
| 89618 | SVI FF DD->0302->RB.RESTART -> DD will likely go out of sync with the device |
| 89617 | SVI FF DD->0302->NI Configurator->"Device Setup" menu of RB reports error |
| 89380 | DD method: Manually Find Stop failed in NI configurator |
| 89328 | DD - BLK\_ERR\_DESC doesn't have a a string value for bit 0x10000000 used by PID |
| 88644 | SVI FF DD->0302->AMS->Auto Tune failed when current slot is NOT 0 and all custom control set parameters are 0 |
| 88639 | SVI FF DD->0302->NI Configurator->Replace Stops method failed for cannot find variable |
| 88638 | SVI FF DD->0302 ->NI Configurator->Auto tune failed for wrong variable type in Step3 |
| 88532 | SVIFF DD->0302->Auto tune cannot start when activate control set is NOT 0 |
| 88415 | DD-Trex-Replace Stops failed while AMS succeeded in C95840 but verse in C95839 |
| 88414 | DD-Trex-Auto Tune-User cannot edit the supply pressure before start |
| 88413 | DD-Trex-Travel Calibration-CAL\_DATE shows the year "1922" but not "2022" during the process |
| 88398 | DD->AMS->Replace Stops method always failed for step 26 failed |
| 88338 | DD -- Tentative Working position in "replace stops" method doesn't account for ATO/ATC |
| 88329 | DD Travel Calibration methods may crash depending on CAL\_DATE |
| 87614 | DD - A mess with ACTUAL\_POSITION and incorrect use of FINAL\_POSITION\_VALUE |
| 87444 | Potentially garbled UI display displaying FF data + Wrong DD labels for UI options |
| 82137 | DD - Missing data refresh in trends, histogram, working times |
| 82136 | DD - Help - Missing help |
| 82135 | DD - Help - ALERT\_NEAR\_CLOSED help is wrong |
| 82018 | DD cannot run autotune procedure |
| 70237 | SVI FF DD - Extraneous text |
| 70186 | SVIFF DD - Obsolete minor DD version |
| 70178 | SVIFF DD - Autotune method may fail to switch to custom control set with no indication |
| 70177 | SVIFF DD - Autotune method undeservedly clears current faults |
| 70176 | SVIFF DD - Autotune method doesn't have abort method |
| 70175 | SVIFF DD - Autotune method: Incorrect test for protected limits |
| 70173 | SVIFF DD - CHECK\_DEVICE\_IN\_PROCESS macro is wrong |
| 70172 | SVIFF DD - Autotune method uses hardcoded pressure units |
| 67721 | SVI FF FW->User cannot change "Write Lock" setting by DD or NI |
| 67696 | SVIFF DD->Replace Stops ->"Stop Lo Pos" and "Stop Hi Pos" values cannot be stored to device |
| 67694 | SVIFF DD->Trex->Clear Working Times ->It shows blank message when mthod completed |
| 67693 | SVIFF DD->Trex->Clear Position Err. Histogram ->It shows blank message when mthod completed |
| 67692 | SVIFF DD->Trex->Clear Position Histogram ->It shows blank message when mthod completed |
| 67691 | SVIFF DD->Trex->Clear Position Error Trend ->It shows blank message when mthod completed |
| 67690 | SVIFF DD->Trex->Clear Cycle Counter->It shows blank message when mthod completed |
| 67689 | SVIFF DD->Trex->Clear Travel Trend->It shows blank message when mthod completed |
| 67688 | SVIFF DD->Trex->Replace Stops->Error message shows up when run this method on Trex |
| 67687 | SVIFF DD->Trex->Some parameter names show different from AMS |
| 67665 | SVIFF DD->Trex->Application hangs up when run Manual Stops |
| 67381 | SVIFF DD->TB->PST->"Trigger By Local UI" lost |
| 63898 | SVIFF DD->TB->Index 125 TB\_FSTATE\_STATUS->User cannot store changes to device |

### 4.3 SVI FF DD release3 revision 2 known issues in TFS:

|  |  |  |
| --- | --- | --- |
| **Bug ID** | **Bug Title** | **Comment** |
| 88413 | DD-Trex-Travel Calibration-CAL\_DATE shows the year "1922" but not "2022" during the process | Caused by built-in definitions in Foundation Fieldbus spec, refer to FieldComm group ticket 17757:  [https://support.fieldcommgroup.org/helpdesk/tickets/17757](https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fsupport.fieldcommgroup.org%2Fhelpdesk%2Ftickets%2F17757&data=05%7C01%7Cark.khasin%40bakerhughes.com%7C16db91526ec3412eefa508da7a4eab7c%7Cd584a4b7b1f24714a578fd4d43c146a6%7C0%7C0%7C637956775543002741%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=xjdUgldaX2HFsUbjDMhABU%2FY9%2F3ciaR8YXlgTTbalWE%3D&reserved=0) |
| 67687 | SVIFF DD->Trex->Some parameter names show different from AMS | Caused by differences in versions of standard libraries used by different FDI hosts. |