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| **REV** | **ECO** | **DESCRIPTION OF CHANGE** | **Date** | **ORG** | **CHK** | **APP** |
| A | - | ORIGINAL ISSUE | 11/2016 | SW |  |  |
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**ALL SHEETS ARE AT THE REVISION LEVEL INDICATED BELOW.**

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| INSERT APPLICABLE REVISION LEVEL FOR EACH SHEET OR **ALL** I N FIRST | **SHT** | **ALL** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BLOCK IF SHEET REVISION IS NOT DESIRED. | **REV** | **A** |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **ORG** | **Steve White** | **DATE** | **11/2016** |  |  |  |  |
| **CHK** | **<Reviewer Name>** | **DATE** | **MM/YYYY** | **APPV** | **<Approver Name>** | **DATE** | **MM/YYYY** |
|  | **Solid State Match Characterization Modeler** | | | | | | |

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| Scope |

This specification describes the process of compiling the data collected during the SS Match Characterization test as implemented in 51890323.

This document provides a technical description of the set-up, algorithms, test parameters, test results, and the test code.

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| References |

Related documents:

* 51220045 Solid State Match test strategy
* 51890323 Solid State Match Characterization Test

Software:

* Modeler – Matlab
* Handler – Labview

Configuration files:

* Configuration file(s) will be BOM controlled and will be uploaded by the Characterization test along with the data files.

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| Test Prerequisites |

The modeler needs three data files and a configuration file uploaded to a target location to begin processing.

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| Special Test Equipment |

A multiprocessor server (minimum 4 cores, max 12) or cloud processing is needed to run the compiler.

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| Theory of Operation |

The Solid State Match Characterization test creates a series of data files needed to characterize the matches’ S parameter characteristics. This characterization data is used by a modeling program and generates EEPROM files used by the unit for tuning an RF impedance. Full S-parameter data is collected by running the Characterization test as detailed in 51890323. A configuration file is also needed to set regression limits and control other parameters within the modeler.

## Test Pass/Fail criteria

Pass/fail limits are contrained within the configuration file and the results are written to a log file to be read by the EEPROM file loader.

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| Software Process Definition |

## General

The <<file name >> is implemented as a compiled executable using << dev environment >>.

File names: <<file name >>



Summary of Process Flow:

**Handler in idle state awaiting data upload**

Hander in in this mode is currently not running active data modeling

**Data file(s) are created and uploaded to server location xxx**

Production test creates and uploads the data files and configuration to the automation server

**Handler “sees” newly uploaded file(s) and moves them to a “processing” location**

When a new file is uploaded, the handler checks to see if a job has already been created for that SN and timestamp combination. If not, a job number is created and is used as a reference for all modeler calls. Once the prerequisites for a call to the modeler are met, a command line call is made to the modeler, passing parameters to the modeler in the command line parameter fields as defined later in this document. Once the job is complete, the files are moved to a location that will eventually contain the output file that will eventually be uploaded to the unit.

**Create status buffer for SN**

The handler will publish a front panel via a web interface so that the status of different jobs can be reviewed. The status of each job is commincated from the modeler via a TCP/IP socket that is read by the handler.

**Check data file contents for valid data**

The handler will perform a data integrity check on the input data to make sure it is compatible with the compiler. If there are any issues, the status is updated to show that there was an error processing the file.

**Updates status to “Processing <SN>”**

If the data integrity is good, the status is updated to Processing <SN>

**Handler call Modeler**

Handler runs the program to process the data and output the characterization .tab and .log file.

**When complete, copy data files to location xxx**

The output characterization file is saved to the same location as the data files.

**Set status to complete**

Set status value to show that the handler completed the characterization without issue.

**Format of command line call to the modeler:**

<PathToExe><ExeName> -p <config file name> -d1 <data model file> -o <output path>

**TCP/IP command handshake protocols:**

**Format:** <parameter name> : <parameter value> /n

IP address: 127.0.0.1 port 9000

## Configurable Test Parameters and Limits

* Definitions:
  + **Parameters** – Values used to determine the settings/conditions of equipment during a test.
  + **Limits** – Values used to determine the pass/fail criteria of the test.

The test parameters and limits will be stored in the SQL database and can be created/edited using the “AETS Test Configuration Editor”. List the parameters and limits here with any generic range and/or default values they may have and a brief description of what they are used for. Also list here the initial number of testpoints for this test (they may be modified later). **DO NOT LIST the actual values** of the parameters or limits, this will be tracked in the 5141xxxx Test Flow document which will be under revision control in the AE vault. Keep in mind this can be used by multiple part numbers and multiple test flows.

*\*Note1: When creating new parameters, please include unit of measure in the name (e.g. Hz, MHz, Vdc, mA, etc.).*

*\*Note2: The variable names inside the software MUST match EXACTLY the name to be entered into the database.*

*\*Note3: List only parameters that come from the database. All must start with a “\_”.*

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| **Test Parameters** | **Units** | **Description** |
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| **Test Limits** | **Units** | **Type\*** | **Description** |
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\*Type reference:

* = Equal to
* != Not Equal to
* > Greater Than
* < Less Than
* >= Greater Than or Equal to
* <= Less Than or Equal to

## Test Results

N/A