

Keysight Technologies

First Pass Yield (FPY) and Alarm Triggers on the *Medalist* i3070 In-Circuit Test System

Application Note



Introduction

By now many of you are aware of the first pass yield (FPY) display that is part of the i3070 operator interface. But did you know that this display can be customized and that certain FPY conditions can trigger alarms? This application note will explain some customizations and how to create alarm triggers.

Procedure

The information displayed in the first pass yield (FPY) display area in the operator interface (see Figure 1) is based upon specific events from the execution of a test plan.

The test plan updates the operator interface based on the number of boards tested and passed. The data is also recorded to a file, “**FirstPassYield\first_pass_yield.txt**” located in the board directory.

By default, a test plan generated using the Medalist i3070 software will contain the commands to display the FPY information.

Clearing the FPY counters

The command `first pass yield 0,0` will reset the counters for the number of boards passed and tested to zero.

From the operator interface, the counters can be reset by selecting **View > Operator > Clear First Pass Yield**.

Changing FPY parameters

If you wish, you can customize the first pass yield warning and alarm levels and thresholds. To change parameters edit the file “**Operator_en_US.properties**” in directory “`\Keysight ICT\lib\properties\com\keysight\mtd\agt3070\application\oper`”.

The following lines set the percentage at which a warning and an alarm level will be indicated as being reached. Modify these values to meet your process needs:

- `fp.warningLevel: 94`
- `fp.alarmLevel: 90`

Using alarm triggers

As the first pass yield drops below the warning or alarm level, individual Korn shell scripts will be executed. The names of the scripts follow the “:” in the following lines.

- `fp.warningDownTransitionAction: warningDownTransitionAction.ksh`
- `fp.alarmDownTransitionAction: alarmDownTransitionAction.ksh`

As the first pass yield rises above the warning or alarm level, individual Korn shell scripts will be executed.

The names of the scripts follow the “:” in the following lines.

- `fp.warningUpTransitionAction: warningUpTransitionAction.ksh`
- `fp.alarmUpTransitionAction: alarmUpTransitionAction.ksh`

The contents of these scripts are user defined, not predefined. A typical action would include notification of support personnel using email. If the script is missing, no action will be taken for a warning or alarm level transition. The scripts can be stored in any location within the user’s search path.

Since any process can move up and down through a given alarm threshold, care must be taken to provide a certain amount of hysteresis to prevent multiple triggers from annoying the recipient of alarms.

For example, if a value drops below an alarm threshold of 90% it will not be re-armed until the value exceeds 92% if the hysteresis is set to “2”. Modify this value to meet your process needs.

For example: `fp.hysteresis: 2`

When a low number of boards have been tested it is too easy to reach alarm levels. For example, if five boards have been tested and one has failed, the first pass yield percentage would be 80%. This is below the default alarm level and would trigger an alarm unnecessarily. A threshold, based on the number of boards tested, defines when alarm triggers will be armed or enabled. Modify this value to meet your process needs.

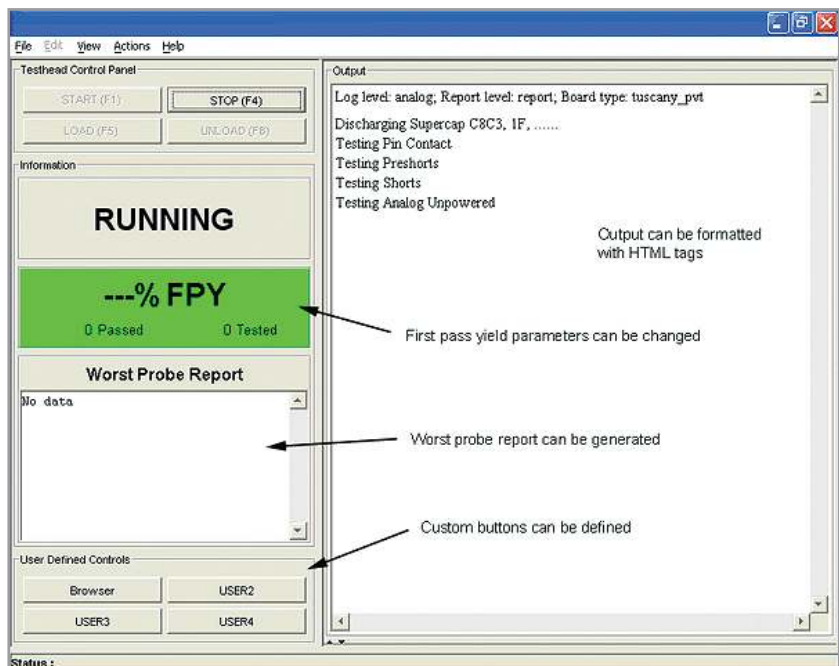
For example:
`fp.armTriggers: 20`

When finished, save the “**Operator_en_US.properties**” file. Then re-start the Operator Interface to test it and make sure the changes were implemented correctly.

Summary

The additional functionality associated with the First Pass Yield display should be useful and will help improve your circuit board testing processes.

Figure 1. Operator interface



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