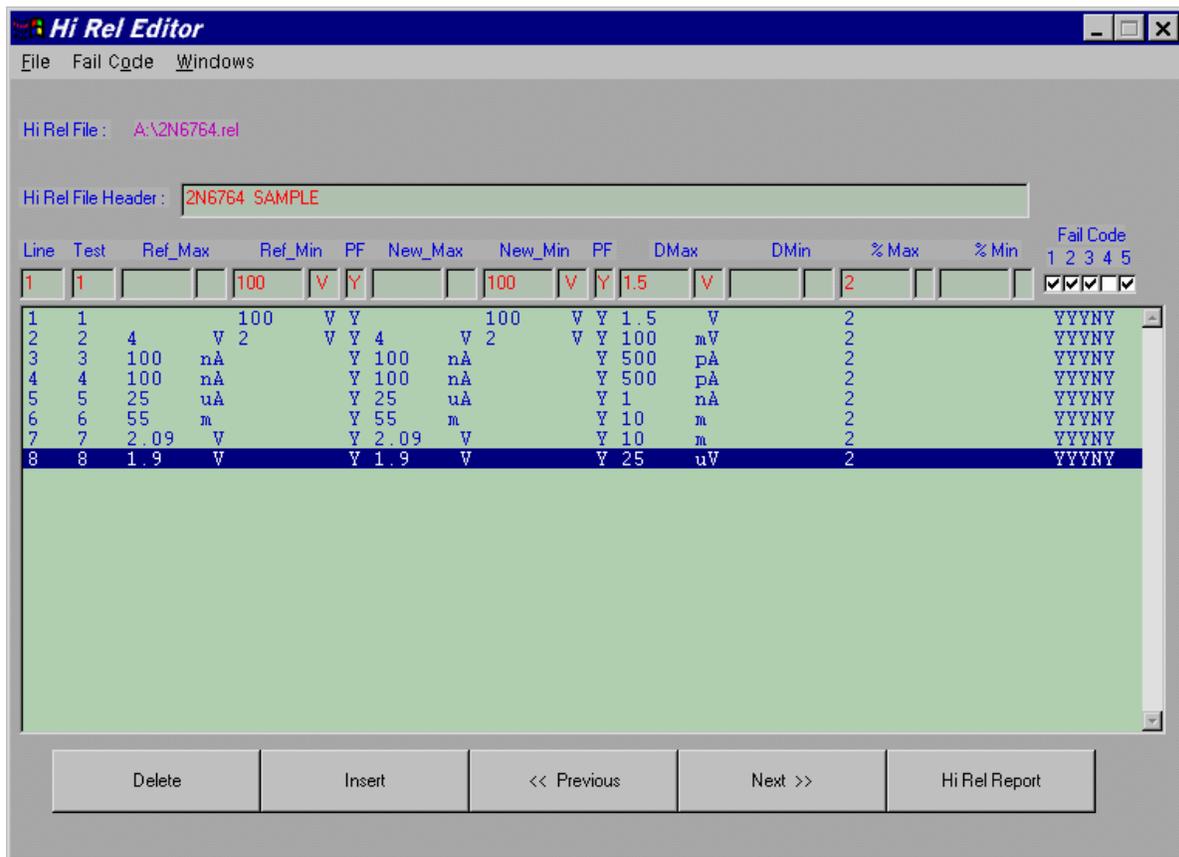




The Lorlin Impact Series software correlate pre and post test results on devices that have been treated, stressed, or subject to other environmental extremes, the HiRel Editor feature allows for the definition of permissible Deltas and/or Percentage changes in the device test results that are acceptable for the market they are intended to be used in. This feature works in conjunction, typically, with the test results data logged in the Verify Single DataLog window in the Lorlin Impact Series software, and relies primarily on the correlation of results based upon device or DUT serial number entries in the two data log files that are used.

An example of the window is given below.



The user will need to create a new HiRel File for each run/part type tested. To do this, from the Menu Bar select "File", "Create New". A standard Windows display will appear, prompting the user to input a file name. HiRel editor files have a .rel file type automatically assigned by the software when it is created. If a HiRel editor file already exists, the user may select from the Menu Bar "File", "Open Existing" and either type in the file name or use the left mouse button to select the appropriate file icon.

Once a HiRel Editor file is open, the user may then begin to input the required test delta limits. It is recommended that the user have a copy of the test program available as a reference. First, an optional file header may be input in the Hi-Rel File Header field. This information will be printed as well as stored with the HiRel file. Directly below the header field is the parameter input field for the HiRel file.

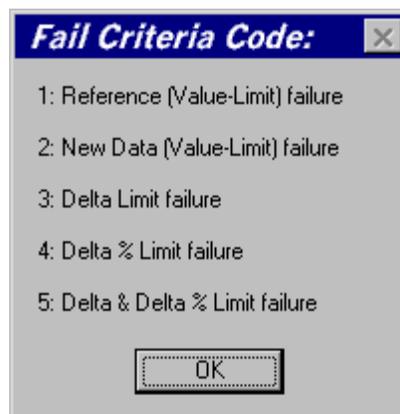
The user will note that the HiRel file information is entered on a test-by-test basis. In the area of the window that is reserved for inputting of the HiRel delta information, the user should start from the left side of the screen and input the desired starting test number (from the .tst file).

The next 2 fields ("Ref\_Max", "Ref\_Min") refer to the maximum and minimum values for the reference value of the data. Entering a value or values into these two fields will cause the software to "ignore" the values that were in the original test program and the HiRel program will perform limits checking to determine if the reference data value passed. If the user desires the original programmed limit values to be used, then the "PF" column should contain a "Y" response, otherwise, an "N" for a no should be entered. If a "Y" is entered, then "Ref\_Max", "Ref\_Min" may be blank. Similarly, for the next two fields ("New\_Max", "New\_Min"), entering a value or values will cause the software to perform limits checking on the new data and to "ignore" the limits from the test program. As above, in the "PF" field for the "New\_Max", "New\_Min", a "Y" response will have the software revert to the programmed limits for limits checking.

The next two fields, "DMax", "DMin" allow the user to define the maximum allowable delta increase and decrease, respectfully, of the new data versus the reference data. Any new data value that exceeds these defined delta limits will be indicated as a delta failure. The value for the "DMin" should be entered as a negative number.

The next two fields, "% Max", "% Min" allow the user to define the maximum allowable percentage increase and decrease, respectfully, of the new data versus the reference data. Any new data value that exceeds these defined percentage limits will be indicated as a percentage failure. The value for "% Min" should be entered as a negative number. The last grouping of information that needs to be entered relates to which of the Fail Criteria codes the user wishes to be applied to this particular test. This is based, in part, on the information that was just entered.

Each checkbox labelled "Fail Code 1 2 3 4 5" has the following meaning:



Access to the Fail Criteria Codes is via the Menu Bar "Fail Code" selection. To close the window out, press the "OK" switch or hit "Enter" on the keyboard. The failure criteria sets the methodology for the software to test the new values versus the old based upon the Min/Max and PF entries. A check in each numbered box will select the criteria as indicated. A check in box 5 means that both Delta and Delta% limits must both fail to meet this criteria.

The user may proceed with the definitions for the Hi-Rel feature on any or all of the remaining tests in the test program. When complete, the user must save the Hi-Rel editor file by selecting from the Menu Bar "File", "Save" or "Save As".

When this process is complete, the user may access the HiRel Report generator by selecting the pushbutton at the bottom right of this window, or by closing this window and selecting "Rel Report" from the top level of the Window.

Once the window for the HiRel Report is open, the user may create a new HiRel Report file by selecting from the menu bar "File", "Create New" and a dialog box will appear prompting the user for a file name. Assignment of the .hrr file type will be automatic. If an existing file has already been saved, then from the Menu Bar the user may select "File", "Open Existing", "Report", and a dialog box will query the user for a HiRel Report file name. The user may enter the file name or select the desired file icon with the left mouse switch.

Should the user be starting the HiRel Report process with a new report file, then the user must stipulate to the software the names of the HiRel Editor, Reference Log, and New Log files. This must be done before a report can be generated. To do this, select from the Menu Bar "File", "Open Existing", "Associate" and one of the three selections that are made available. These are "HiRel", "Ref Log" and "New Log". All three must be selected, one at a time, when this process is being done for the first time.

Should the user change the HiRel Editor file at any time after a report has been generated, then the editor file must be re-saved in the editor window and re-opened in the report window using this procedure. If multiple batches of identical parts are needed to be processed through the HiRel Report generator, then the pairs of Reference and New log files would need to be opened. The HiRel editor file in this case should, generally, remain the same.

Once the necessary file have been opened, the user may enter an optional "Report Header" field in the area directly below the "Associated Files" field in the Report Window. Simply click in the "Report Header" text entry field with the left mouse button and enter the desired information.

To generate the Hi-Rel Report, simply depress the "UpDate/Generate" pushbutton switch with the left mouse button. If successful, a report as shown below will appear in the HiRel Report Window.

The screenshot shows the 'Hi Rel Report Window' with a menu bar (File, Windows, Arrange) and a title bar. The 'Report File' is 'A:\2N6764.hrr'. The 'Associated Files' section includes 'Hi Rel File: 2N6764.rel', 'Ref Log File: 2N6764A.log', and 'New Log File: 2N6764B.log'. The 'Report Header' is 'Hi Rel Report For Company XYZ 2N6764A Temperature Stress Screening'. The main area contains a table of test results with columns for P/F, Ser#, Test, Name, Ref Value, F, New Value, F, Delta, F, Percent, and F. The table lists various tests like BVDSS, VTHI, IGSS, IDSS, RDS, VDS, and VSD, with 'FAIL' status for most. At the bottom, there are buttons for 'Hi Rel Editor' and 'UpDate / Generate'. On the right side, there is a 'View' section with checkboxes for 'Pass Only' and 'Fail Only'.

P/F	Ser#	Test	Name	Ref Value	F	New Value	F	Delta	F	Percent	F
FAIL	1	1	BVDSS	117.8 V		123.2 V		5.4000	F	4.5840	F
FAIL	1	2	VTHI	3.120 V		3.395 V		275.00m	F	8.8141	F
FAIL	1	3	IGSS	2.642nA		2.764nA		122.00p	F	4.6177	F
FAIL	1	4	IGSS	1.795nA		2.127nA		332.00p	F	18.495	F
FAIL	1	5	IDSS	29.29pA		50.78pA		21.490p	F	73.369	F
FAIL	1	6	RDS	37.84mR		31.83mR		-6.010m	F	-15.88	F
	1	7	VDS	127.5uV		127.5uV		0.0000	F	0.0000	F
	1	8	VSD	178.2mV		178.2mV		0.0000	F	0.0000	F
FAIL	2	1	BVDSS	122.2 V		120.3 V		-1.900	F	-1.554	F
FAIL	2	2	VTHI	3.291 V		3.239 V		-52.00m	F	-1.580	F
FAIL	2	3	IGSS	2.610nA		2.764nA		154.00p	F	5.9003	F
FAIL	2	4	IGSS	1.485nA		2.127nA		642.00p	F	43.232	F
FAIL	2	5	IDSS	29.29pA		35.15pA		5.8600p	F	20.006	F
FAIL	2	6	RDS	32.36mR		31.81mR		-550.0u	F	-1.699	F
	2	7	VDS	127.5uV		127.5uV		0.0000	F	0.0000	F
	2	8	VSD	178.2mV		178.2mV		0.0000	F	0.0000	F
FAIL	3	1	BVDSS	119.8 V		121.4 V		1.6000	F	1.3355	F
FAIL	3	2	VTHI	3.275 V		3.208 V		-67.00m	F	-2.045	F
FAIL	3	3	IGSS	2.777nA		2.610nA		-167.0p	F	-6.013	F
FAIL	3	4	IGSS	1.655nA		1.485nA		-170.0p	F	-10.27	F
FAIL	3	5	IDSS	17.57pA		29.29pA		11.720p	F	66.704	F

The HiRel Report Window

The default for the display is to show all of the tests, with general test failures indicated in the "P/F" column and specific failure criteria indicated, as stipulated in the Fail Code entries, with an "F" next to the failing Min/Max, Delta, and Percent values displayed.

If a HiRel Report generation is unsuccessful, then it is advised that the user review the entries in the Editor Window and try to determine if there is a parameter value that is causing the problem(s). The user is reminded once again, that any changes to the Editor file will necessitate the re-opening of that file in the Report Window before the regeneration of a new report will be allowed.

The default display will show all Pass and Fail entries. The user may stipulated showing only "Pass" or only "Fail" information by selecting in the "View" box to the right of the HiRel report the desired display type.

A check in either box will select this type of information display. In either case, it is necessary to depress the "Update/Generate" switch to reflect the desired changes in the displayed information. Selection is made by simply placing the mouse arrow over the desired entry and depressing the left mouse switch. In addition to this feature, the user may select from the Menu Bar "Arrange", "Arrange By Serial" (default setting) or "Arrange By "Test". When the user selects the "Arrange By Test" feature, when "UpDate/Generate" is depressed, the displayed data will sequentially move down on a per test basis, rather than the default per serial number (part) basis.

If the amount of data displayed is greater than the 21 lines that the screen can display, a vertical scrolling bar will appear on the right hand side of the data display. The user may scroll or page down/page up through the HiRel Report using this feature.

To generate a hard copy of the HiRel Report, simply select from the Menu Bar "File", "Print". To save the current HiRel Report to disk, select from the Menu Bar "File", "Save" or "Save As".

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