



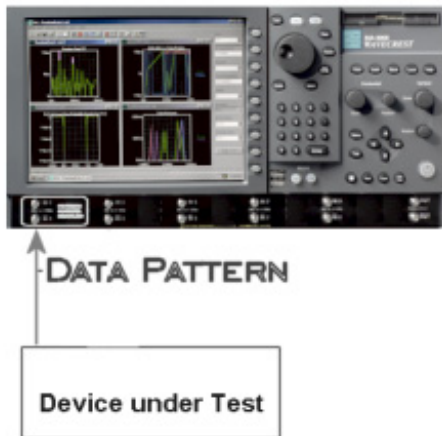
FIBRE CHANNEL TOOL

For the SIA

This paper describes the setup and explains the results of the Fibre Channel Measurement tool. The first section focuses on the setup; the second section, making the measurement and understanding the results.

Tool Setup

The tool requires a known repeating pattern such as CRPAT, CJTPAT, K28.5, etc. If the SIA has the PM50 Pattern Marker option installed, connect the data directly to Channel 1 (IN1).

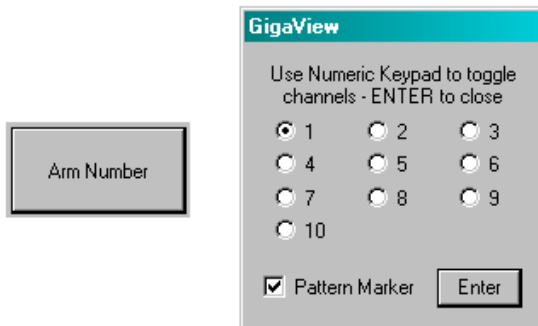


Note: if the Pattern Marker Option is not installed, you must have a pattern marker signal supplied externally. The Marker is a pulse that repeats once per pattern. Pattern Generators typically have a "pattern trigger" or "pattern sync" that will work.

From the Main Menu, press "Data Standards" and "Fibre Channel" to open the tool.



Verify the channel settings. Press Arm Number and select channel 1 and select/check Pattern Marker.

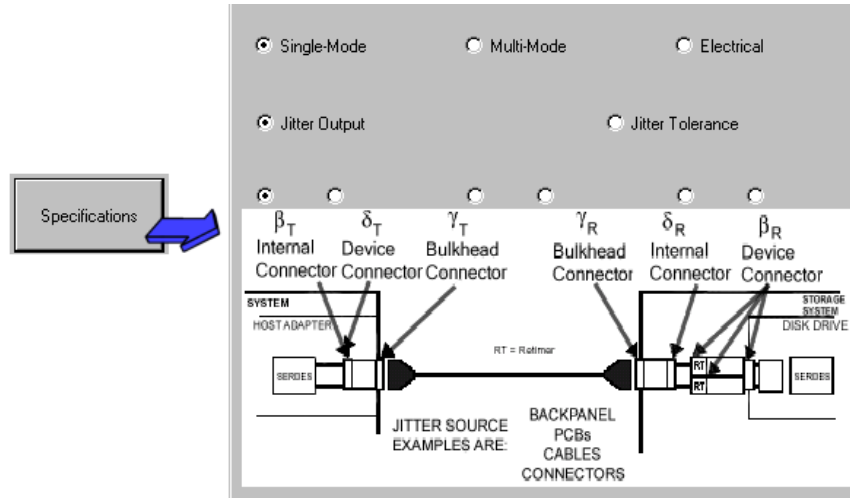


Note: if the Pattern Marker Option is not installed, connect a marker from your pattern generator to channel 2 and select channel 2. With an externally supplied pattern marker, uncheck the pattern marker box.

The Data Channel defaults to channel 1 and does not need to be changed.

Press "Specifications" and configure the setup you have.

Is it Optical (single mode or multimode) or Electrical? Is it a Jitter Output or Jitter Tolerance Measurement? Which test point will the measurement be made at?



Configuring these settings allows the tool to determine if the measured results pass or fail the specification requirements. Therefore, it is critical that these settings reflect the actual test setup.

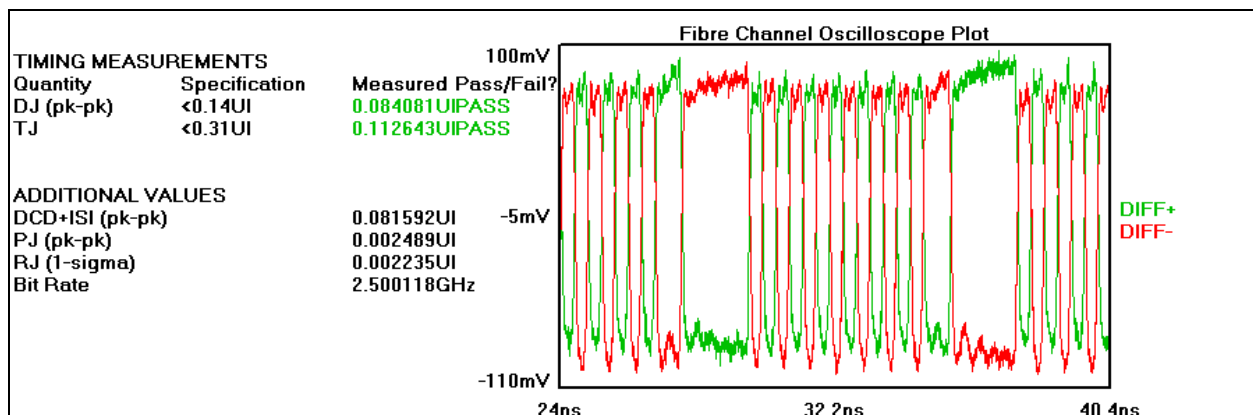
Finally, press "Load Pattern" and choose the data pattern that is to be measured for this test.

Making the Measurement and Understanding Results

To perform the measurement press "Single/Acquire". Several views are available once the measurement is complete. All views are displayed with the results summarized to the left of the plot. The specification value, the measured value and Pass or Fail is displayed. Additional values are displayed below. These values are not directly required for the Specification, but are useful for diagnostic purposes in the event that a test fails or only passes by a small margin.

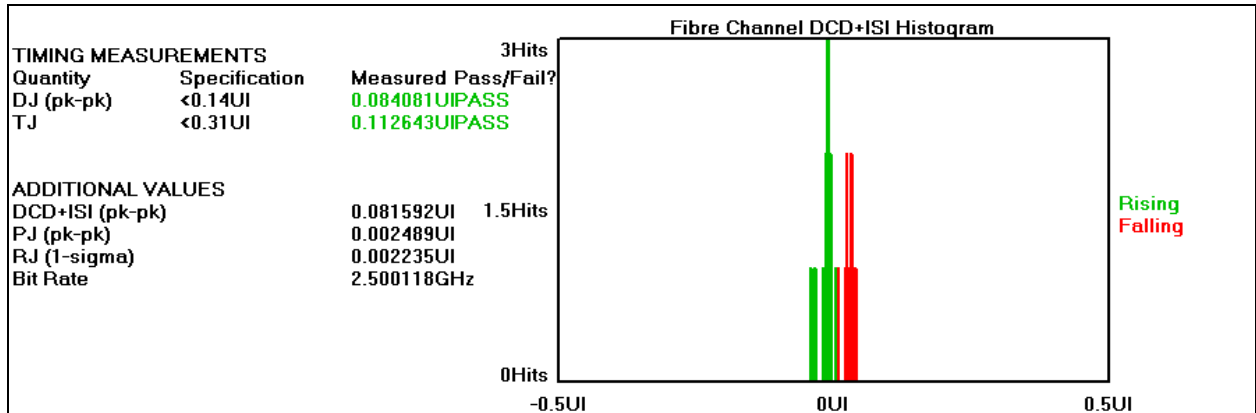
Oscilloscope View

This view shows the voltage vs. time for a portion of the pattern.



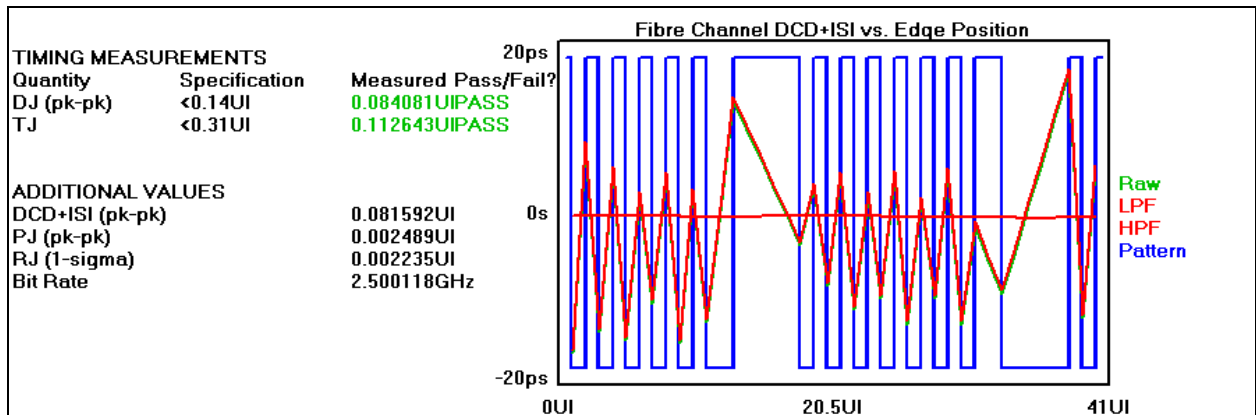
DCD+ISI Histogram View

This view shows the rising and falling edge histograms relative to the center time of all edges measured.



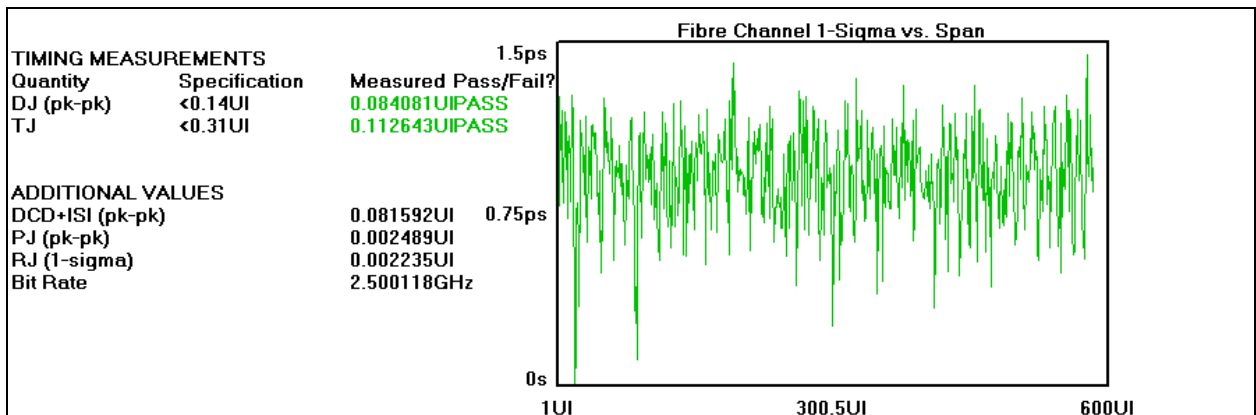
DCD+ISI vs. Edge Position

This view shows a representation of the pattern. Each edge is displayed as three lines that are the min, mean and max times measured for that edge. The "raw" line shows long or short UI bits. The LPF and HPF are the receiver filter characteristics.



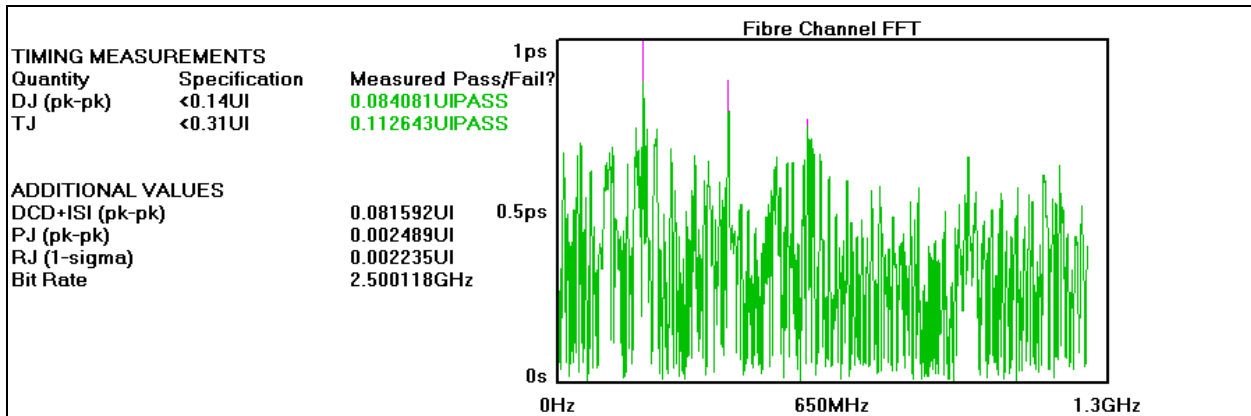
1-sigma vs. Span View

This View shows the 1-sigma values over increasing number of UI, or the accumulation of random jitter.



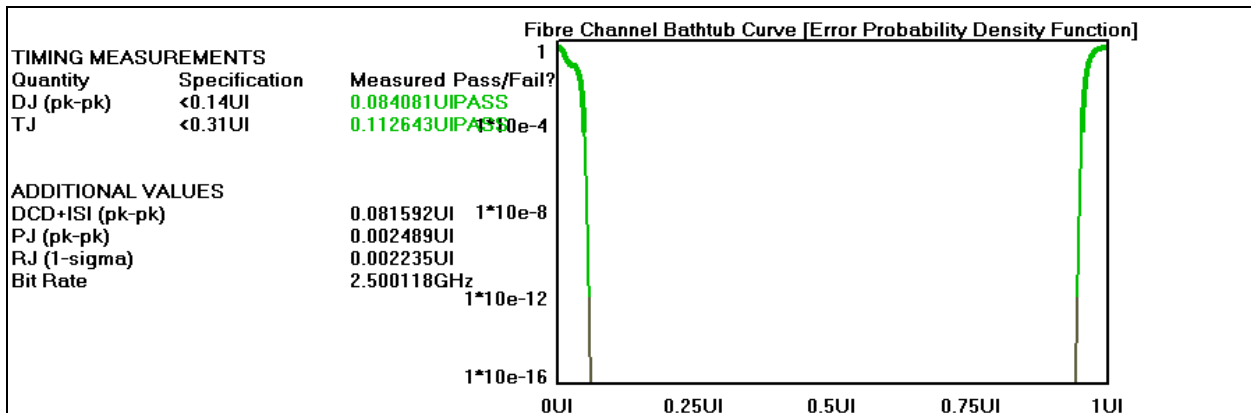
FFT View

This view is derived from the 1-Sigma vs. Span view. It shows the spectral content of the jitter. The largest spike on this plot is reported as PJ.



Bathtub Curve View

Shows the predicted Total Jitter (TJ) at a specific BER— $1 * 10^{-12}$.



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