



## Finding the “Hidden” Pulse Stream

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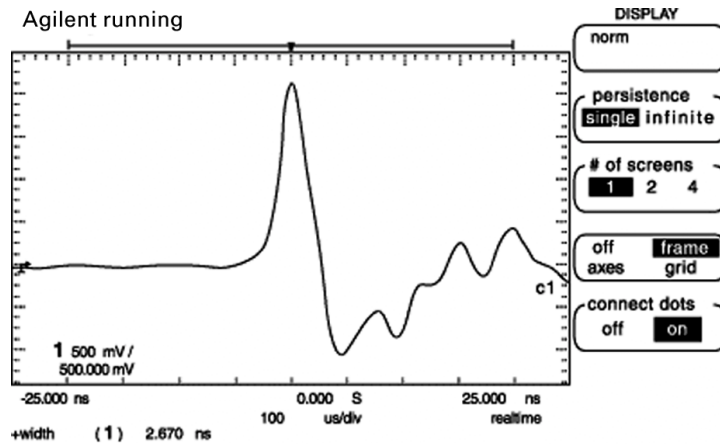
### Purpose:

In this hands-on exercise, you will learn how to use the oscilloscope's Peak Detect acquisition mode to capture and view narrow pulses, while still viewing waveform activity on slow timebase ranges.

### Equipment:

- Agilent 54520-Series Oscilloscope
  - Agilent 54720-66506 Application Training Board
1. Connect channel 1 to TP6 and ground to TP10 on the Agilent 54720-66506 Application Training Board.
    - a. Close switch #2 and #4 on S1. All other switches should be open.
    - b. Set **VAR LFCK** fully **CCW**
  2. Load the scope setup from the disk file.
    - a. Press the **[blue shift key]** and then press **[Disk]**.
    - b. Select the **load scope** soft key and then select **SET**.
    - c. Turn the general entry knob to select setup from file **[LAB 1A.SET]**.
    - d. Press **execute**.
  3. Adjust the **vertical sensitivity, position,** and **trigger level** for a properly scaled and triggered display.

What is the sample rate at the current timebase setting (sample rates displayed in the **HORIZONTAL** setup menu)?



4. Using the automatic measurements, measure the width of this pulse: \_\_\_\_\_
5. While observing the display, change the **timebase** to **500 us/div**. What happens to the display of this narrow pulse as you slow down the timebase? \_\_\_\_\_
6. Select the **HORIZONTAL** setup menu and note the sample rate: \_\_\_\_\_
7. What are the statistical odds of capturing a pulse this narrow at this sample rate on any random acquisition cycle? (Hint: Pulse Width/SampleInterval) \_\_\_\_\_



8. Select the **Peak Detect** mode in the **[Display]** menu. What are the odds of capturing the narrow repetitive pulses using 1 nanosecond peak detection? \_\_\_\_\_

