# Specifying the Signal at the Receiver When Using Receiver Equalization

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- The following is a proposal for a method to specify the signal at the receiver when using receiver equalization

- This proposal is based on using the training pattern waveform.

- We propose using the receiver's response to a fixed pattern because this is simpler and more accurate than using an eye diagram.
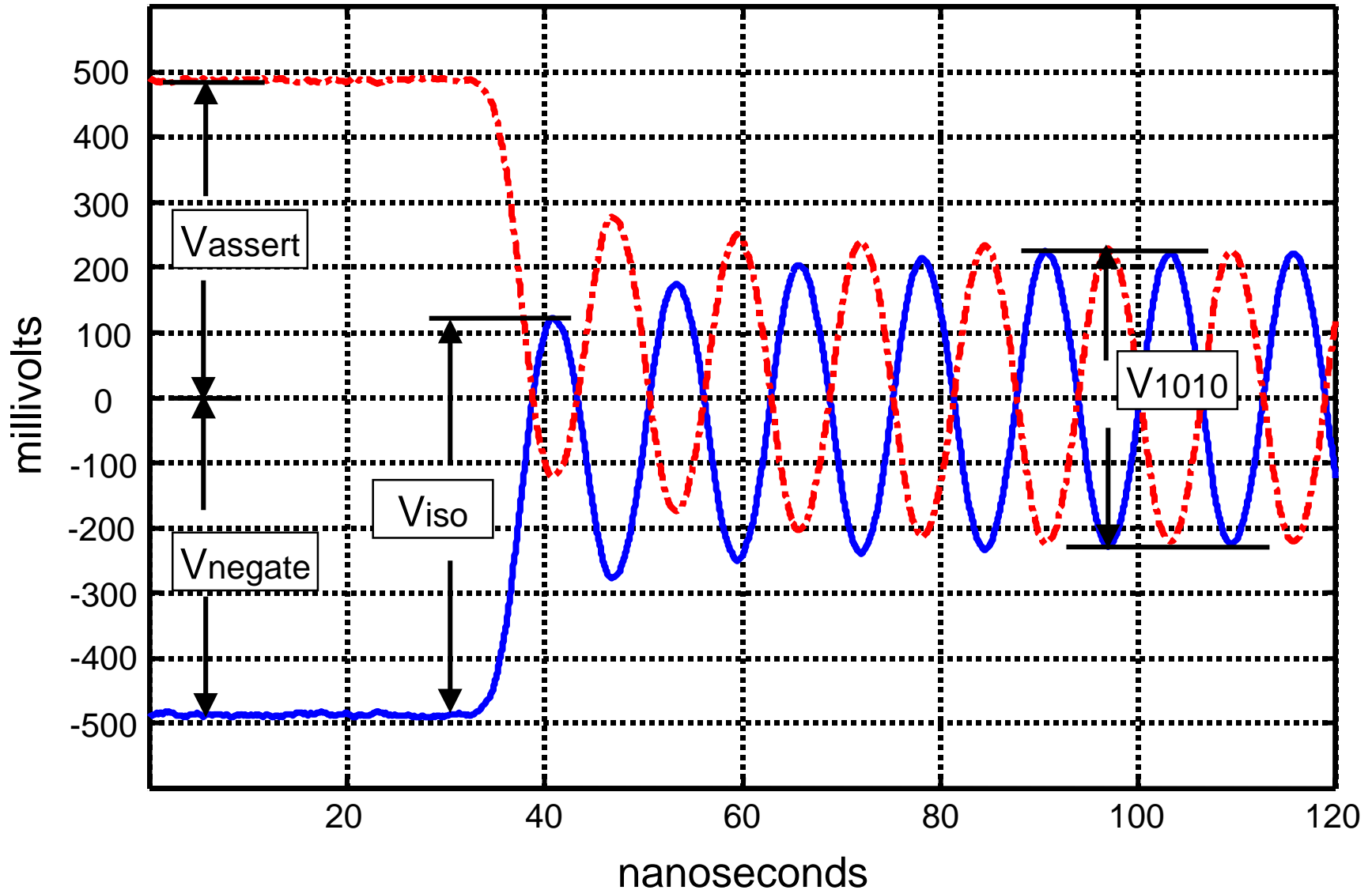
- $|V_{assert}|$ and $|V_{negate}|$ must be > 320 mV and < 800 mV

- V_{iso} is the peak amplitude of the isolated pulse

  $V_{iso} > 0.6 \times (|V_{assert}| + |V_{negate}|)$

- V_{1010} is the peak to peak amplitude of 1010... pattern.

  $V_{1010} > 0.45 \times (|V_{assert}| + |V_{negate}|)$

- The common mode voltages, V_{cm}, are measured single ended at the positive signal and the negative signal reference to ground: $0.845\ V < V_{cm} < 1.655\ V$

- $V_{iso} > 0.6 \times (|V_{assert}| + |V_{negate}|)$

- An isolated pulse is measured from the DC negated level to the peak of the pulse.

- The measurement is not dependent on the amount of the peak above 0 V.

- A receiver equalizer with a maximum boost of 2 will boost a peak sufficiently if it meets this specification.

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- $V_{1010} > 0.45 \times (|V_{assert}| + |V_{negate}|)$
- This amplitude can be lower than that for an isolated pulse, since more of the pulse will cross 0.
- A 1010... pattern is DC-free and therefore has negligible ISI
- A boost of 2 allows the equalizer output to be 90% of the DC level.

- Because of the deskew circuitry, referencing data edges to the clock at the receiver is meaningless.

- During a 1010… pattern, the time between peaks can be tightly specified.

- Skew can be specified between the clock and the data edges during a 1010… pattern to ensure that skew is within the specified limits of the deskew circuitry.

- The amplitude specifications will then guarantee skew.