Discussion of

The choice of is optimal, yielding the lowest probability of error because it is the point where the two pulse signals meet. This gives the smallest overlap area under both curves, which translates to less error. This value should change if the probability of a ‘1’ is not equal to the probability of a ‘0’. This would result in a shift of the value.

As can be seen from the plot, the experimental BER is much higher than the theoretical BER.

Furthermore, from the plot, the experimental BER is even *higher*, showing that a deviation in *either direction* results in a higher BER.

Using a non-optimal pulse template also skewed the results for the BER. In the case of the square-wave pulse template, the BER was again much higher than projected.

Lastly, from the original theoretical vs. experimental BER graph, it can be seen that there is a near-perfect correlation between the two values.

Discussion of Clean and Noisy Signals

It can be seen from the clean and noisy signals that the noise corruption at 10dB is quite profound. Given such a noisy signal, it is amazing that the BER at 10dB is so low.