Date …………………… Experiment No………

**EYE DIAGRAM**

Aim: To

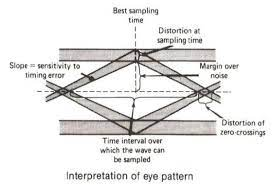
1. Generate a string of message bits.

2. Use raised cosine pulse p(t) as the shaping pulse, and generate the corresponding baseband signal with a fixed bit duration Tb. You may use roll-off factor as α = 0.4.

3. Use various roll off factors and plot the eye diagram in each case for the received signal. Make a comparison study among them.

Theory:

An eye pattern is a pattern displayed on the screen of a cathode ray oscilloscope (C.R.O.). The shape of this pattern resembles the shape of the human eye and therefore, it is called an eye pattern. The eye pattern is a practical way to study Inter symbol interference (ISI) and its effects on a PCM or data communication system. The interior region of the eye pattern is called the eye-opening. The eye pattern provides a great deal of information about the performance of the system. The height of eye-opening at a specified sampling time defines the margin over the noise.



An eye diagram is used toevaluate high speed data quality. An eye diagram is measured in the time domain.

Algorithm:

1. Specify the no. of symbols transmitted
2. Specify the no. of samples of transmitted signal.
3. Generate random binary data and convert it to NRZ format.
4. Oversample each bit by adding 8 samples.
5. Assume the number of taps, roll off rate (alpha) and sample period.
6. Create Raised Cosine filter.
7. Perform convolution between raised cosine filter and input signal.
8. Simulate an AWGN channel.
9. Send the convoluted signals through AWGN channel.
10. Generate output after convolution of noise affected signal with matched filter response.
11. Generate eye diagram
12. Obtain eye pattern for various roll off rates.

**Program** (put your program here) :

**Result :**

Put graphs and waveforms here.

The eye diagram for various roll off rate is simulated..