Description about the data files :

The required data has been simulated using Cadence Virtuoso with a coaxial cable model used as channel. The signal generator transmits pseudo-random bit sequence (nrz_prbs_data.mat file) at 25GHz with a bit period of 40ps and sample period of 1ps. This signal is passed through the coaxial cable and the received data is stored in nrz_data.mat file.

Procedure to run files:

Step 1: Run "load_data_mat.m"

This will load the Received Signal and Transmitted Signal Data.

Step 2: Run "equalize_data.m"

This will process the data and give output Equalized data in "op" variable.

Step 3: Run "plot_data.m"

This will plot the various variables according to your requirements.

Results:

Least mean square (LMS) algorithm has been used for perform equalization. The resulting eye-diagrams have been shown below . As you can see from the images below,

Initial Opening of Eye= 0.1V

Final Opening of Eye = 1.4V

Difference= 1.3V

Percentage Change can be calculated as :

%change = Difference / Initial_opening_of_eye

%change = 1300%

Received Signal Eye

Equalized Signal Eye