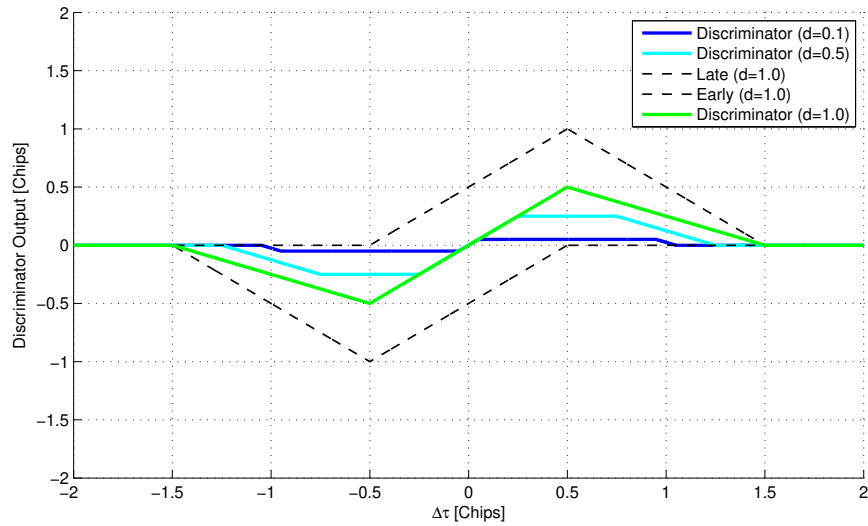


2 Lab Tasks Explanation

1) Coherent DLL

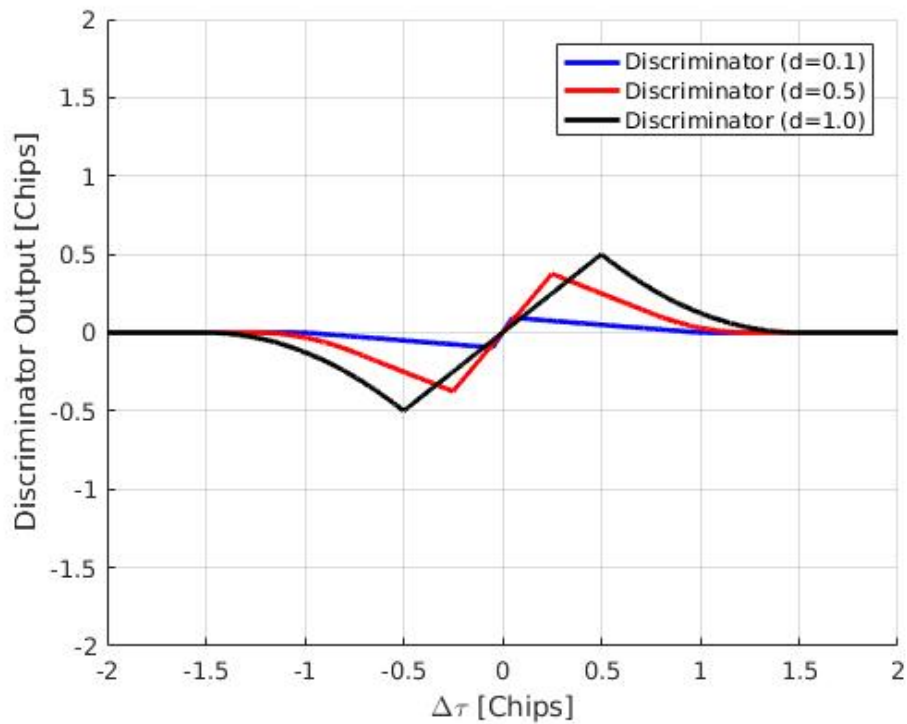
E-L:



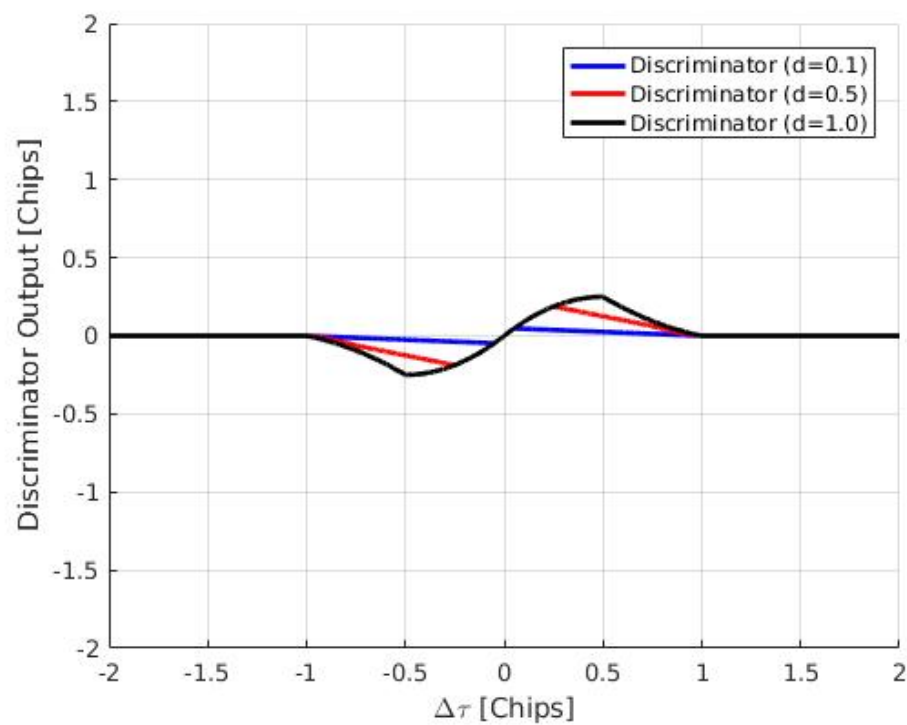
⇒ Wider valid area for larger spacing d .

2) Non-coherent DLL

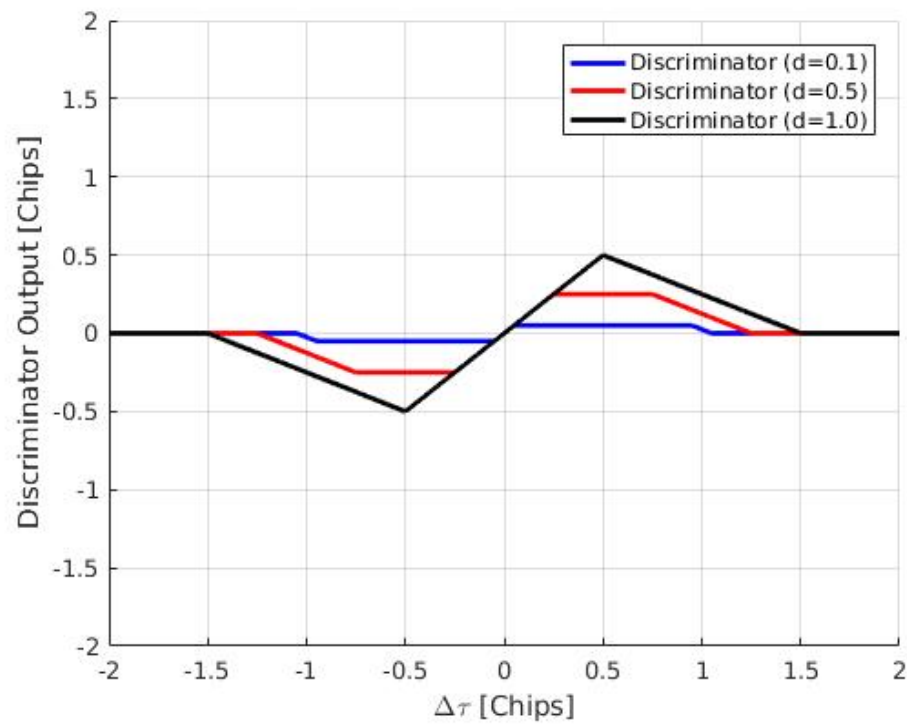
E-L power:



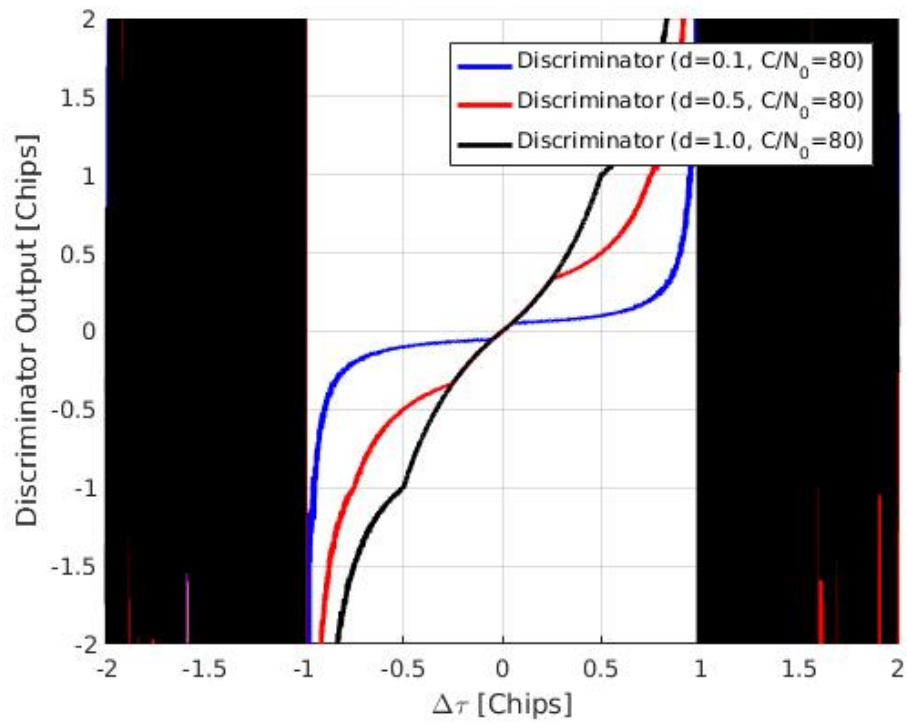
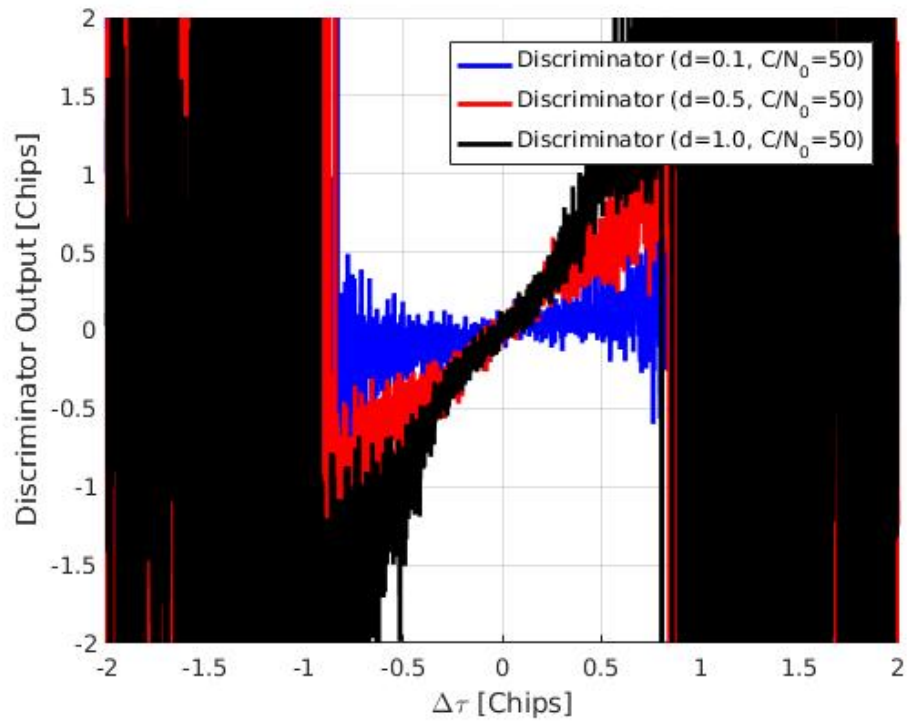
Dot product:



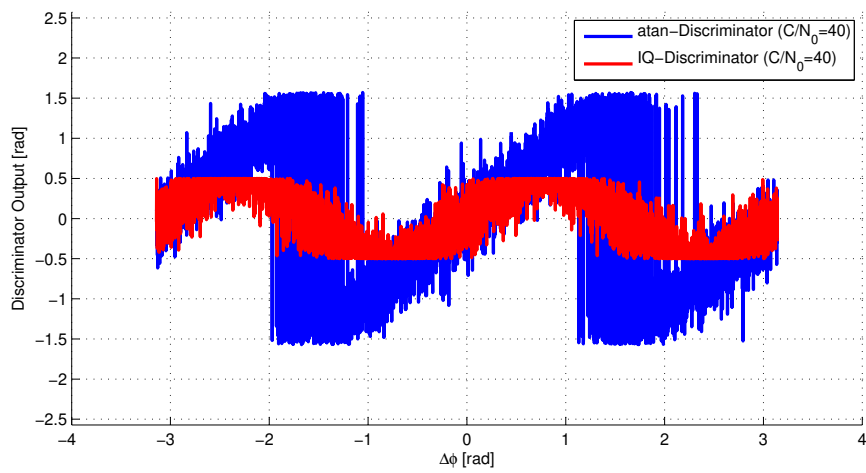
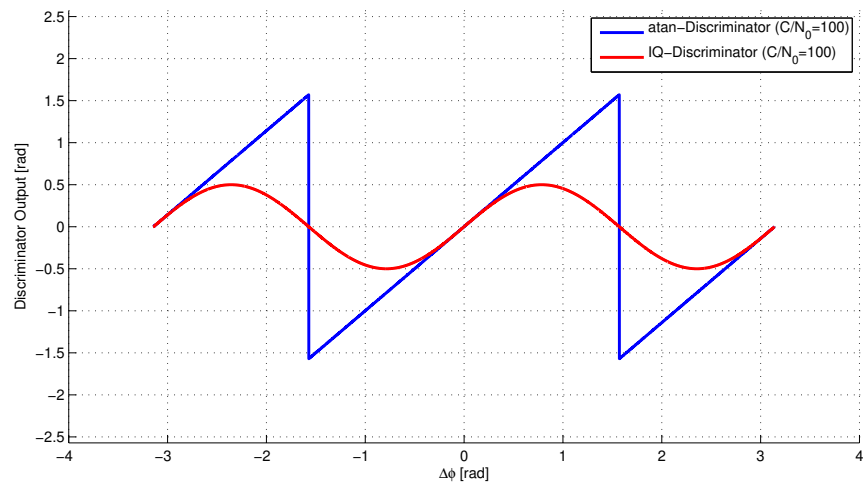
E-L envelop:



3)

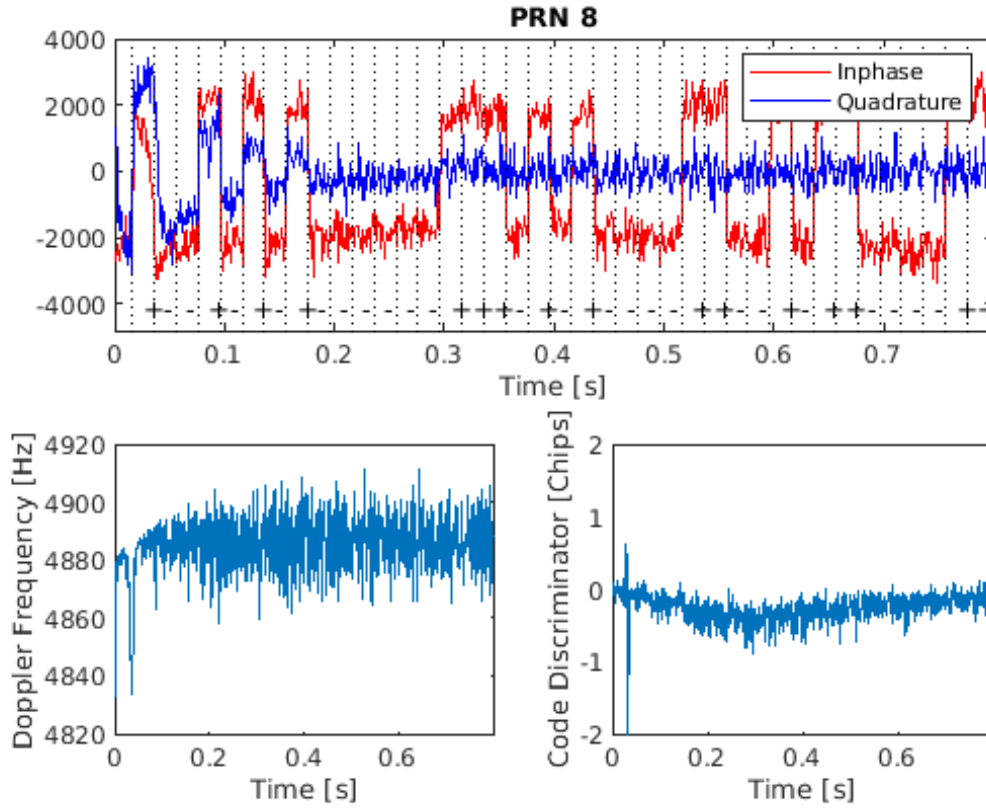


4)

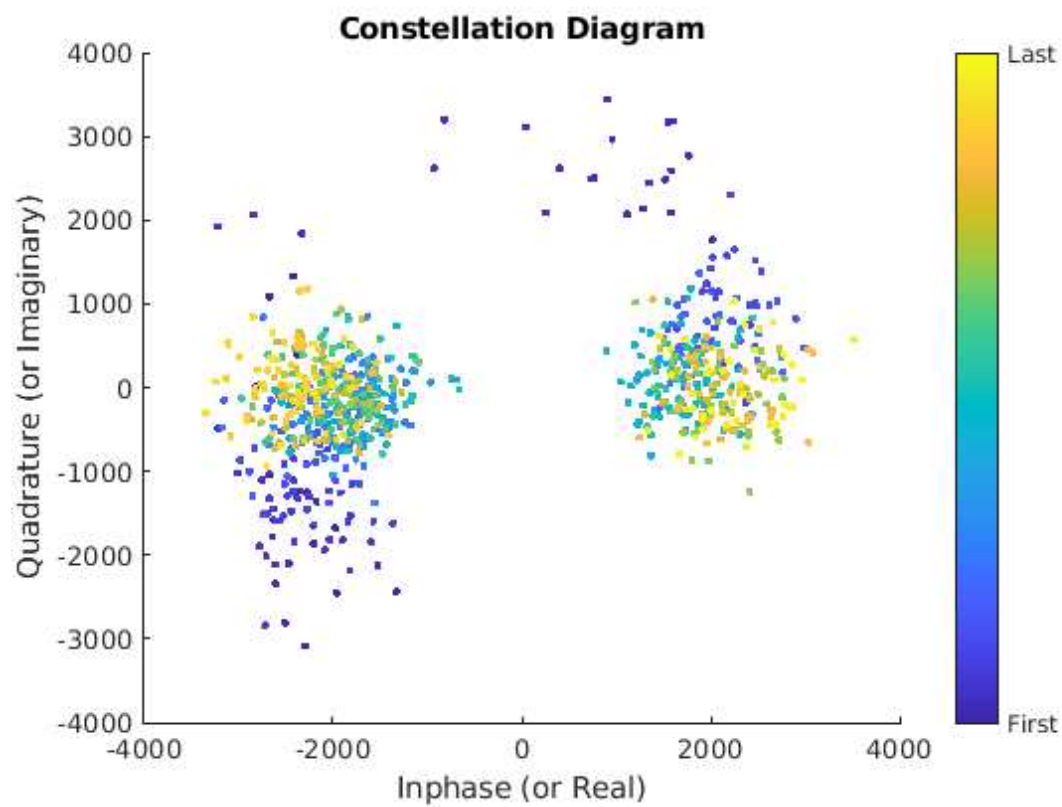


5) Discriminator setup

- DLL: E-L (normalized)
- PLL: Costas (normalized)



- Doppler shift and the code phase delay are locked ($\Delta\theta \approx 0, \Delta\tau \approx 0$).
- Since $\Delta\tau \approx 0$ and $\Delta\theta \approx 0$, $I_P \approx \sqrt{P_{rcv}}D$ and $Q_P \approx 0$.



As iteration progressed (First \rightarrow Last), the correlators are converged to the real values.