

Figure 1: *Online PCA with  $p = 100$*

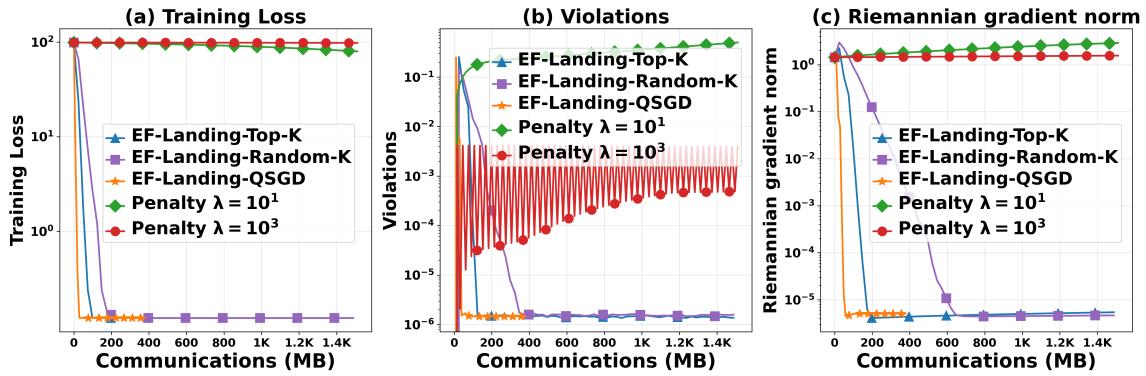


Figure 2: *Online PCA with  $p = 200$*

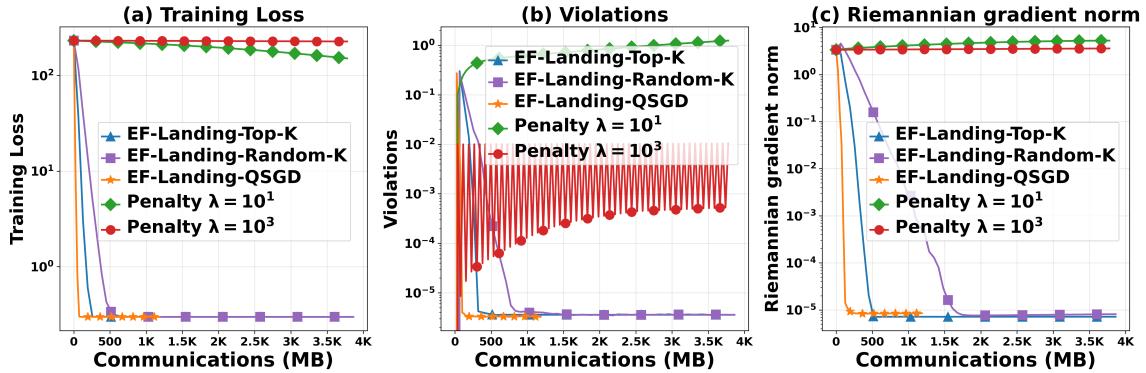


Figure 3: *Online PCA with  $p = 500$*

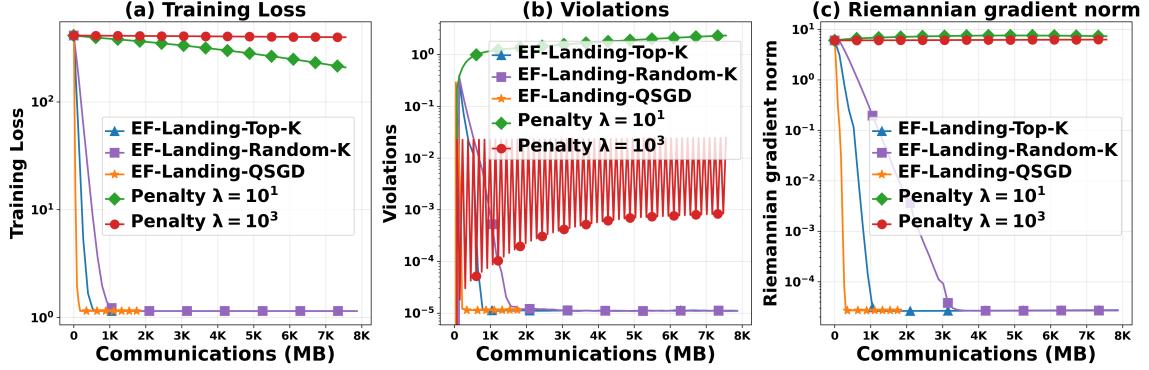


Figure 4: *Online PCA with  $p = 1000$*

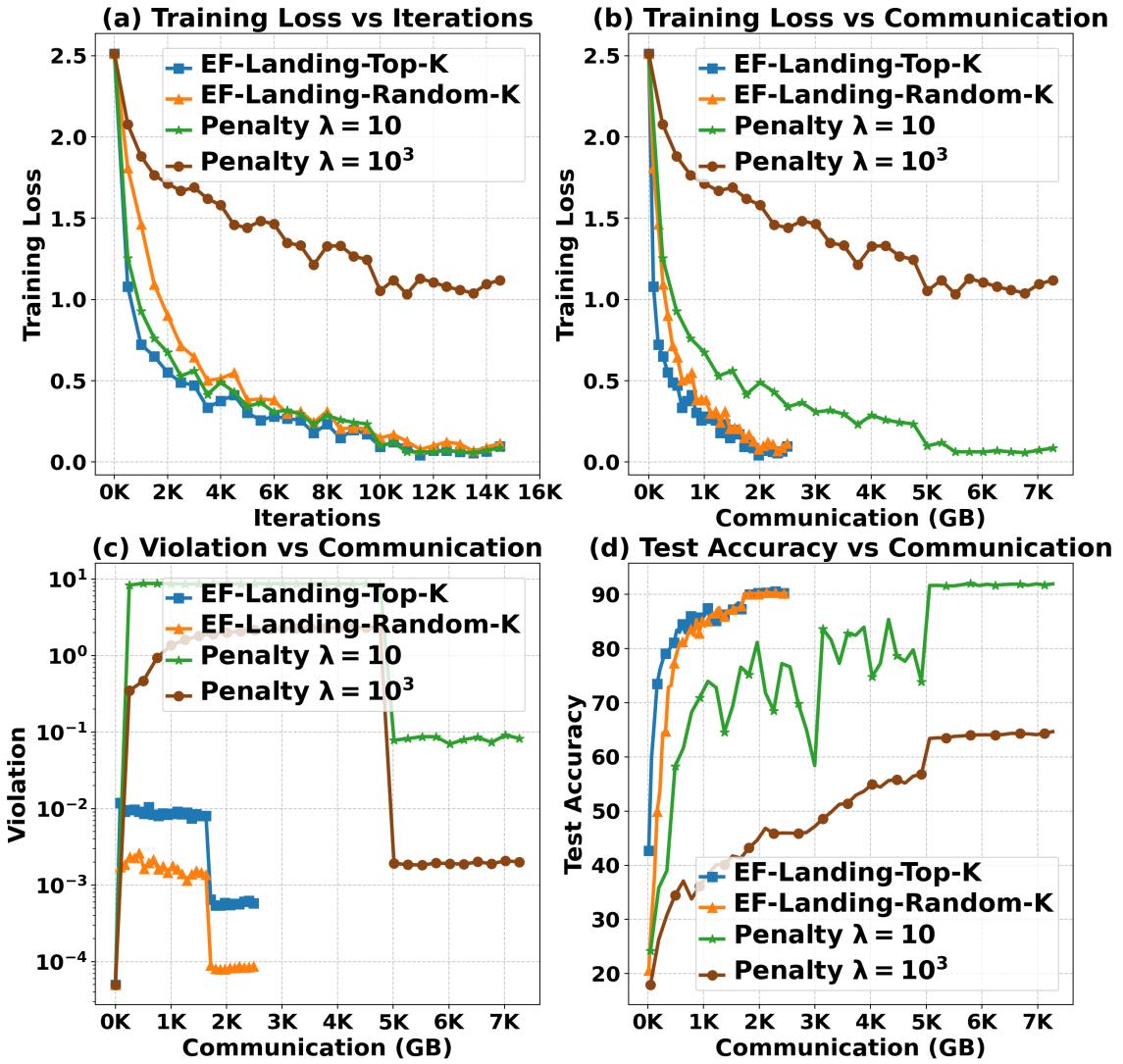


Figure 5: *Comparison of EF-Landing Algorithm and Penalty Method: VGG16 on CIFAR-10*

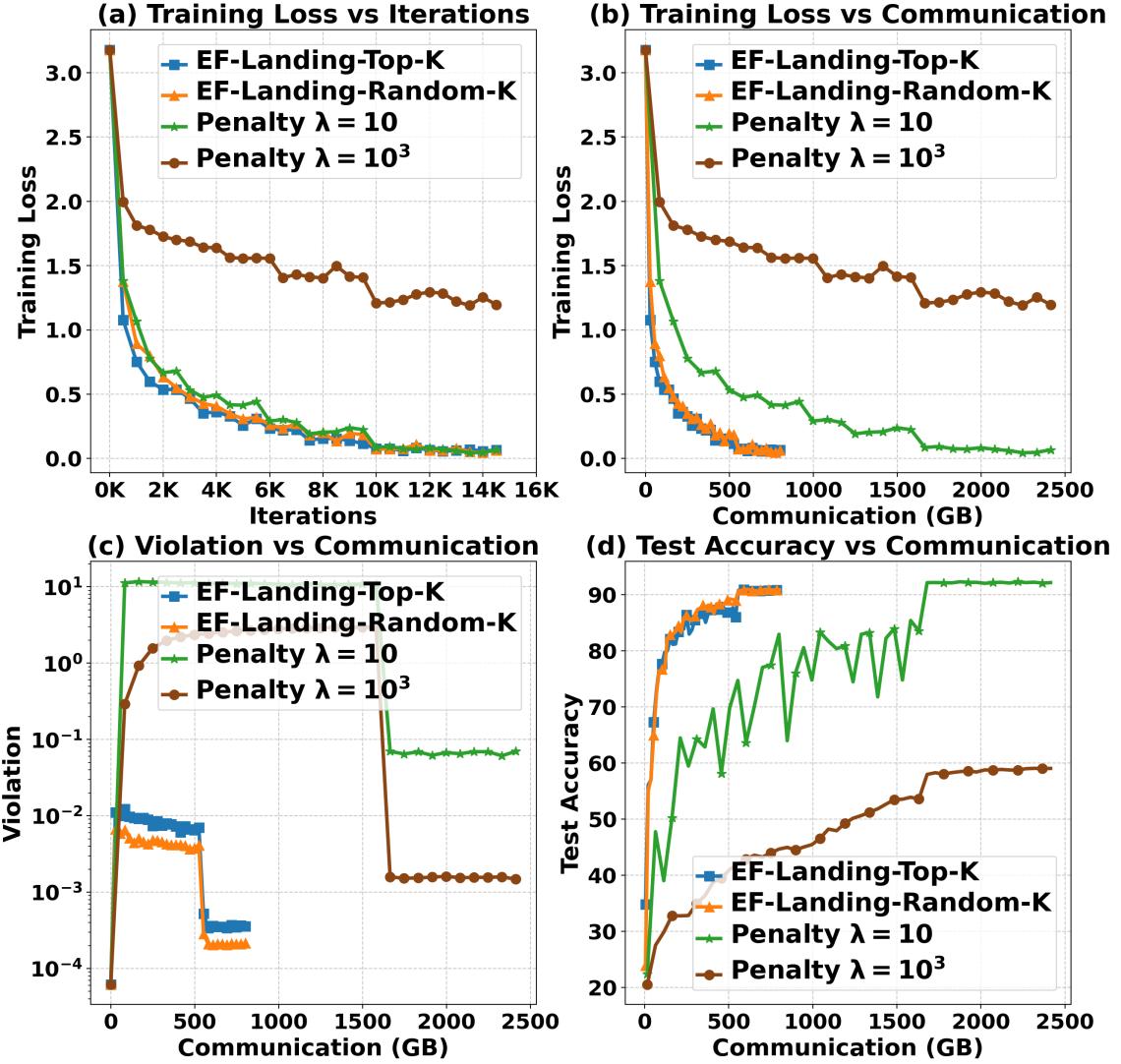


Figure 6: Comparison of EF-Landing Algorithm and Penalty Method: ResNet18 on CIFAR-10

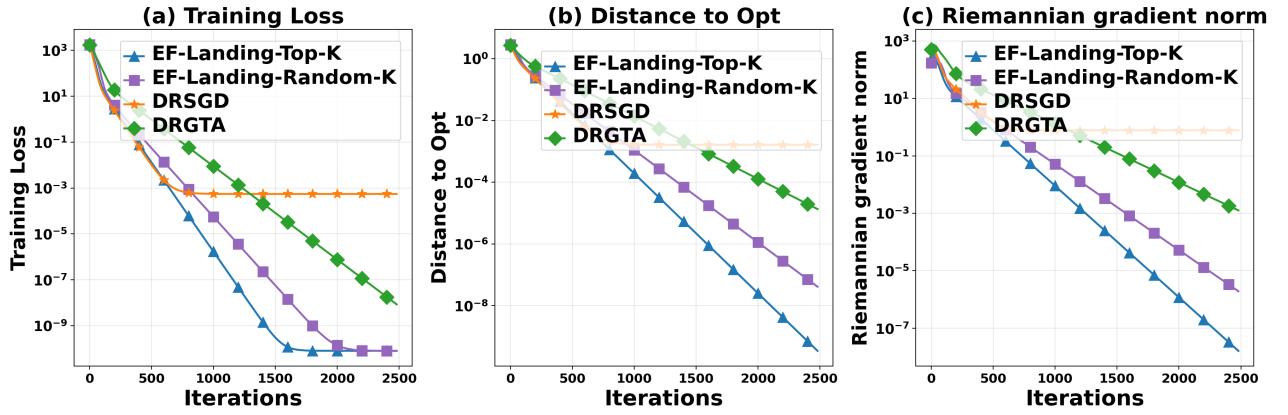


Figure 7: Comparison of EF-Landing Algorithm and Decentralized Algorithm On Synthetic Dataset 1

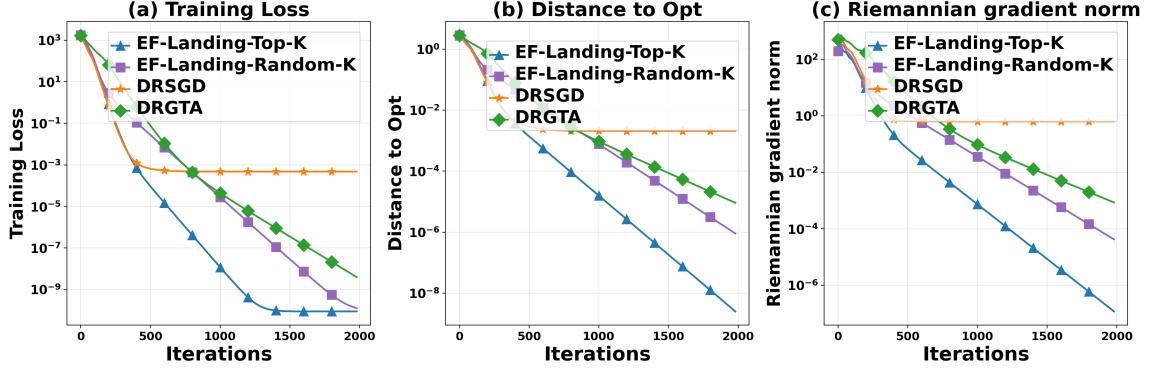


Figure 8: Comparison of EF-Landing Algorithm and Decentralized Algorithm On Synthetic Dataset 2

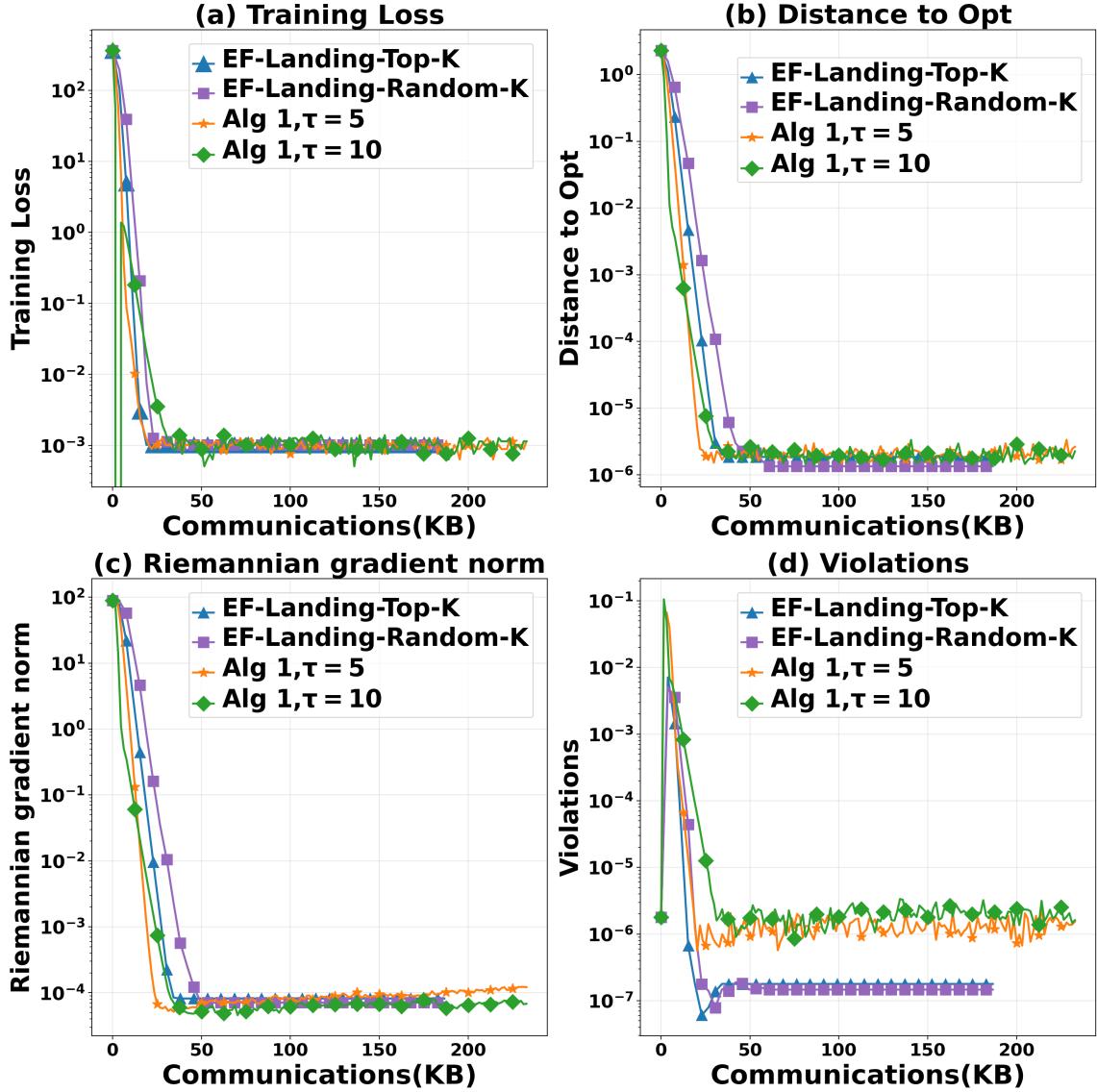


Figure 9: Comparison of EF-Landing Algorithm and Algorithm 1 in [Zhang et al. 2024] Synthetic Dataset 1

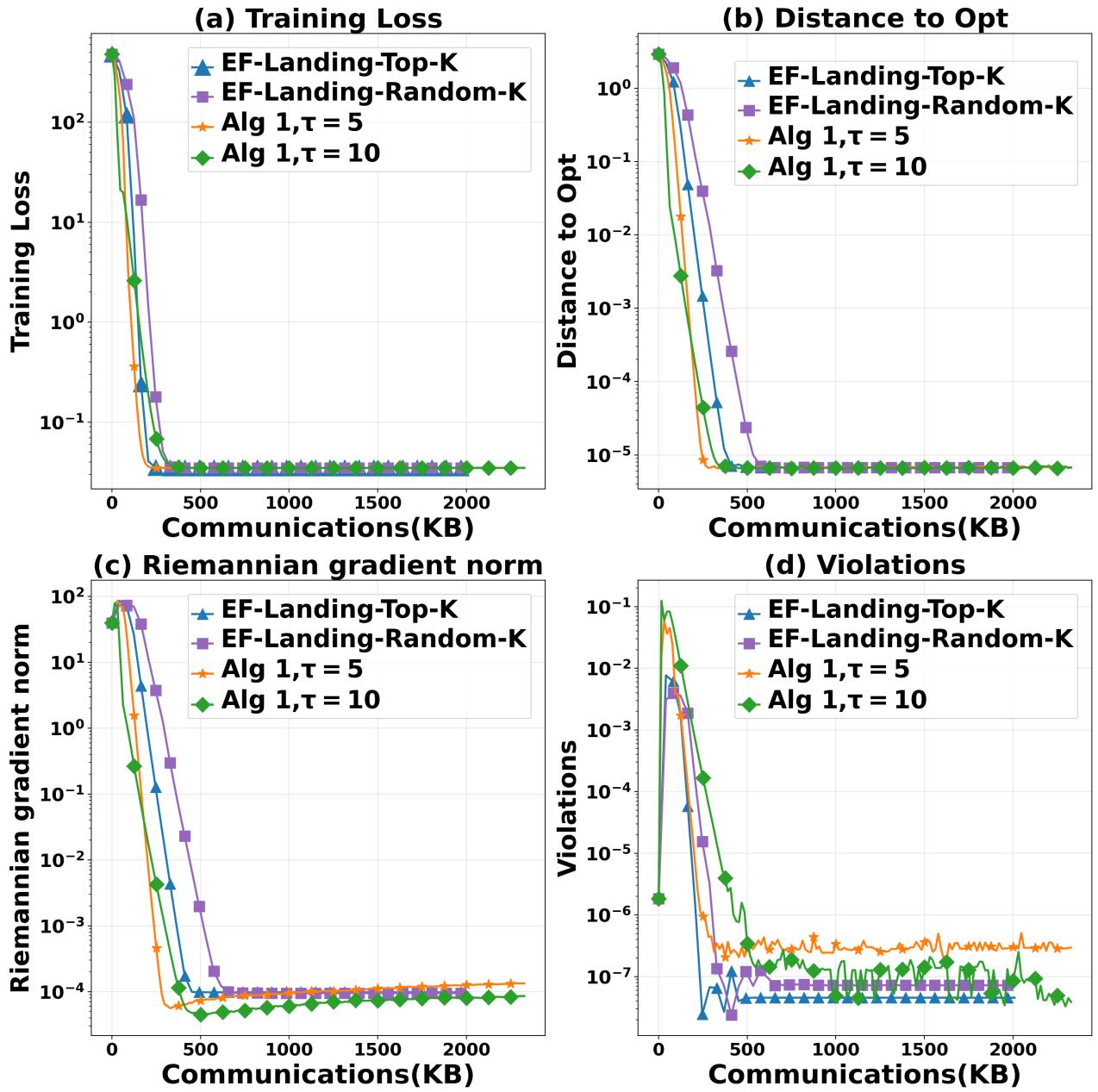


Figure 10: Comparison of EF-Landing Algorithm and Algorithm 1 in [Zhang et al. 2024] Synthetic Dataset 2