Self-Learning Assignment 4

One characteristic issue of modern RF CMOS technologies is low supply voltage and that has its impact on the best circuit topologies. Passive mixers have overthrown the classic active mixers because they do not require high supply voltage. They are nowadays de facto standard mixers for RF ICs and you should familiarize yourself well with them.

Download from *the ieeexplorer* (http://ieeexplore.ieee.org) the following papers:

1. A. Mirzaei, H. Darabi, J. C. Leete, X. Chen, K. Juan, A. Yazdi, "Analysis and Optimization of Current-Driven Passive Mixers in Narrowband Direct-Conversion Receivers," *IEEE J. Solid-State Circuits*, vol. 44, no. 10, pp. 2678–2688, Oct. 2009.

2. S. Chehrazi, A. Mirzaei, A. A. Abidi, "Noise in Current-Commutating Passive FET Mixers," *IEEE Trans. Circuits and Systems-I,* vol. 57, no. 2, pp. 332–344, Feb. 2010.

3. H. Khatri, P. S. Gudem, L. E. Larson, "Distortion in Current Commutating Passive CMOS Down-conversion Mixers," *IEEE Trans. Microwave Theory Tech.*, vol. 57, no. 11, pp. 2671–2681, Nov. 2009.

Read the papers and write a brief summary (about 10-20 lines) of each paper. Consider what are the key issues and findings of the paper, and what you have learnt from the paper. Label these summaries with notation 1, 2, and 3. Guideline: papers include some mathematical derivations - remember that it is essential to understand the background, reasoning, and the results, not every details of derivation.

Upload your answer as a **pdf-file** to MyCourses Return Box no later than **8.5.**
The total length of your text should be no more than two pages.

Note: if you are not able to meet the deadline date, assignment grading will be
lowered by one during the first week, and by two if you are even more late.