

EE619 – RF Microelectronics Chip Design

Spring 2021, IIT Bombay

(Instructor: Prof. Jayanta Mukherjee)

Course Project

Due Date : Will be announced after Mid-Sem

Design a single ended cascoded common source Low Noise Amplifier (CS-LNA) in UMC 180nm CMOS technology to meet the following specifications:

- Frequency of operation – 2.3 to 2.4 GHz
- Input and Output Matched to $50\ \Omega$ impedance
- $V_{DD} = 1.8V$
- Noise Figure (NF) ≤ 2 dB
- Forward voltage gain v_{in} to v_{out} : $S_{21} > 15$ dB
- Input port and Output port voltage reflection coefficients:
 $S_{11}, S_{22} < -10$ dB { Mandatory specification }
- $IIP_3 > -8$ dBm
- Output load capacitance $C_L = 200$ fF (From analogLib)