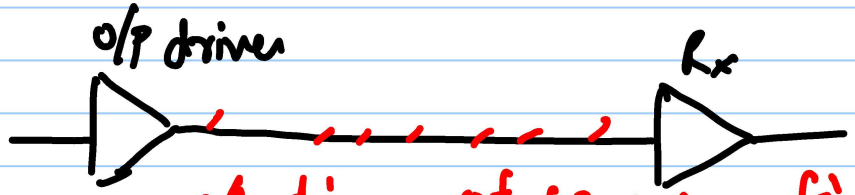
Note Title 25-09-2017

Lecture # 27

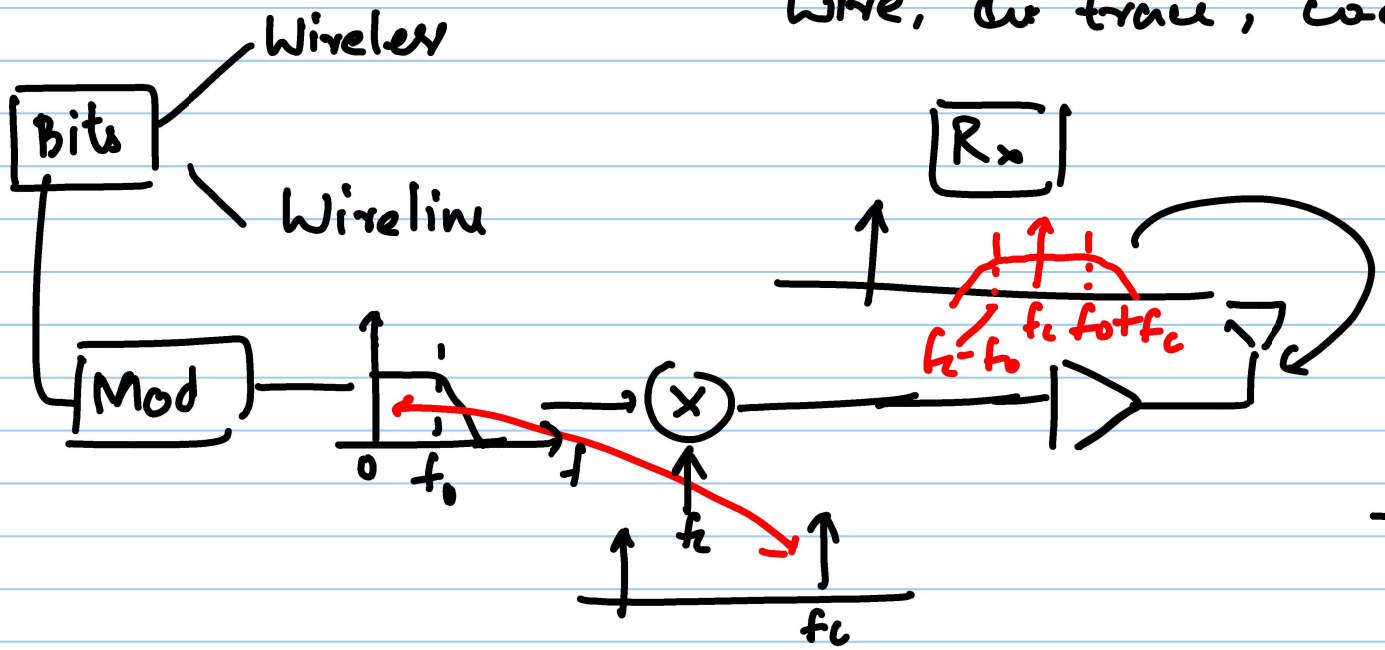
PLLs
- Wireless
- Wireline

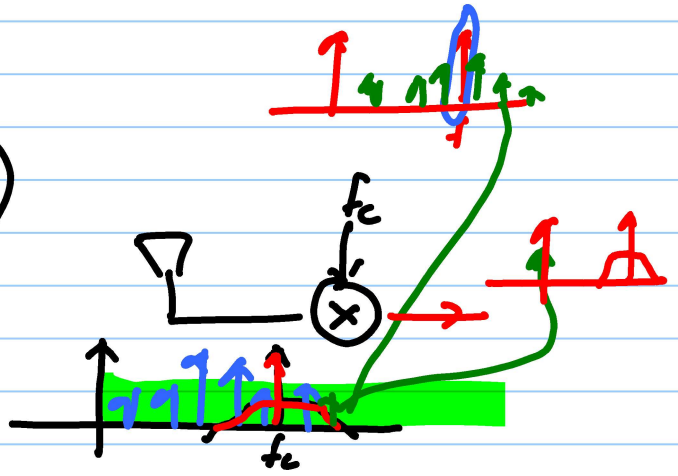
Medium of communication isn't const.

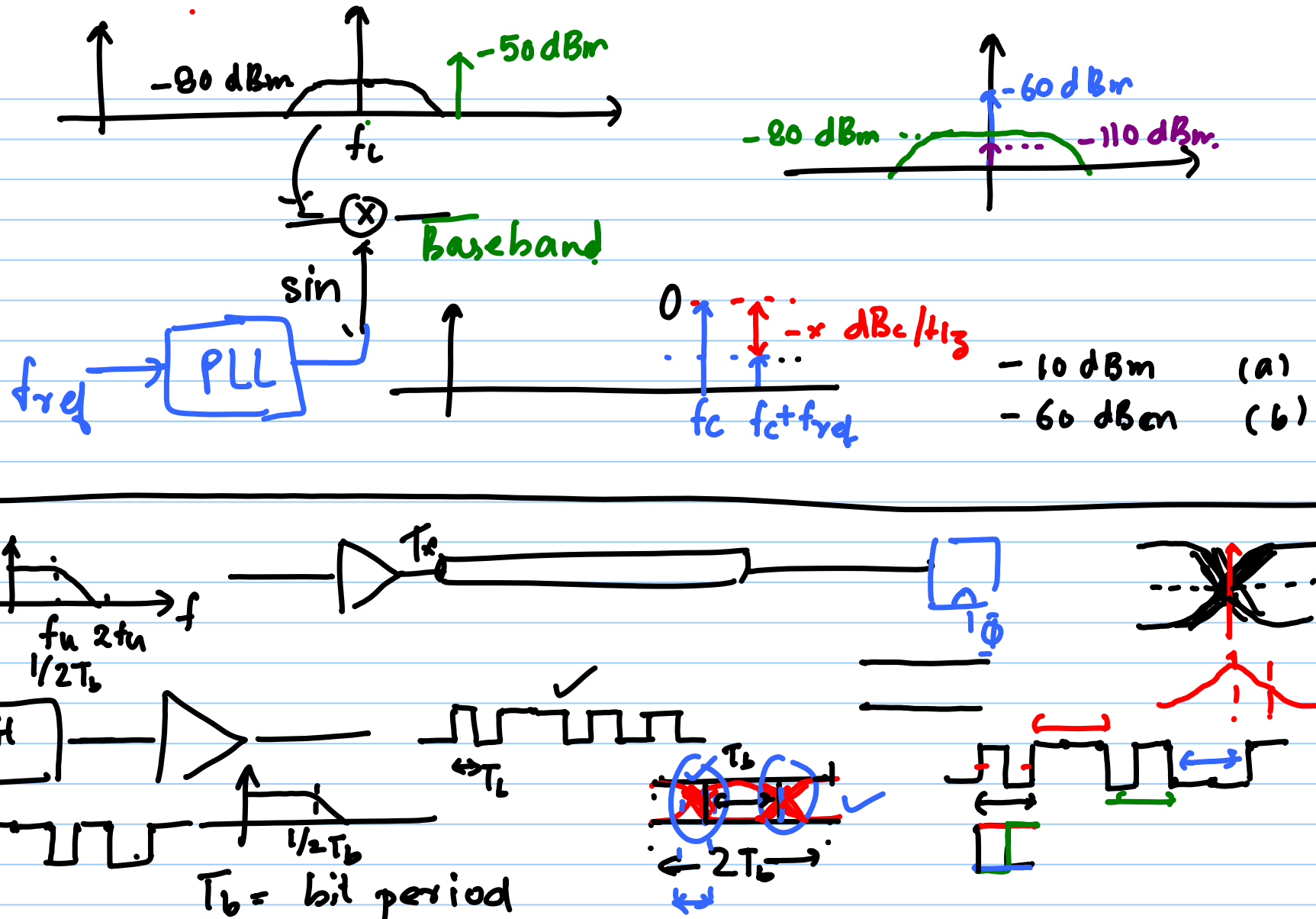


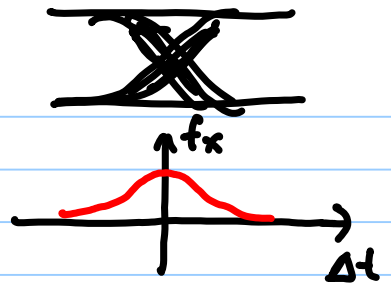
Medium of comm. fixed.

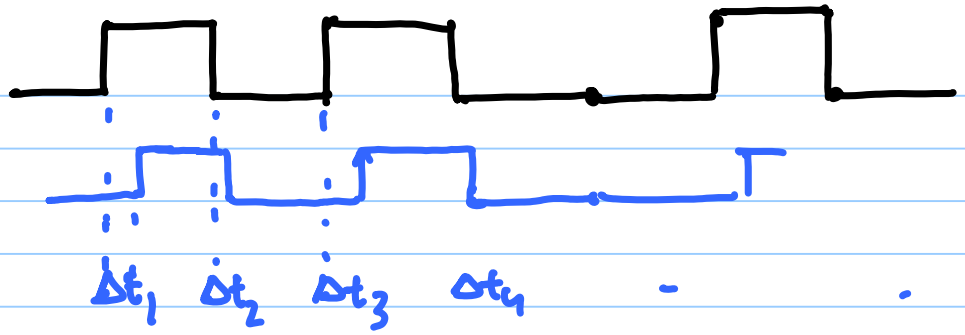
wire, Cu trace, coaxial cable,

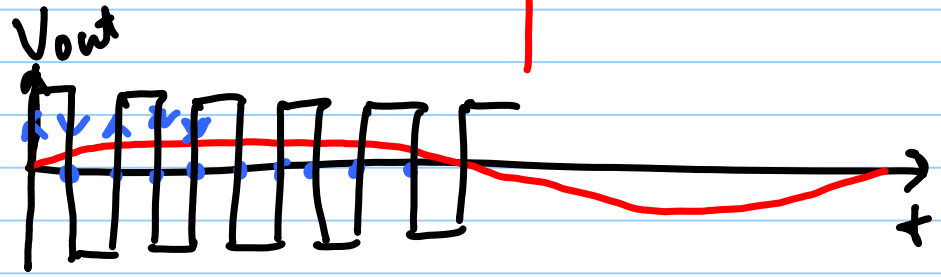





-80 dBm
-50 dBm
f_L
Baseband
sin
freq
PLL
0
-x dBc/Hz
f_c
f_c+f_{vd}
-60 dBm
-80 dBm
-110 dBm
-10 dBm (a)
-60 dBm (b)
T_b
Φ
f
f_u $2f_u$
$1/2T_b$
BiH
PLL
T_L
$1/2T_b$
T_b = bit period
10 1 1 0 1
T_b
$2T_b$

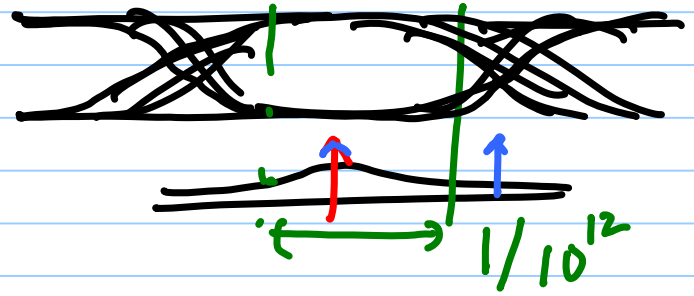




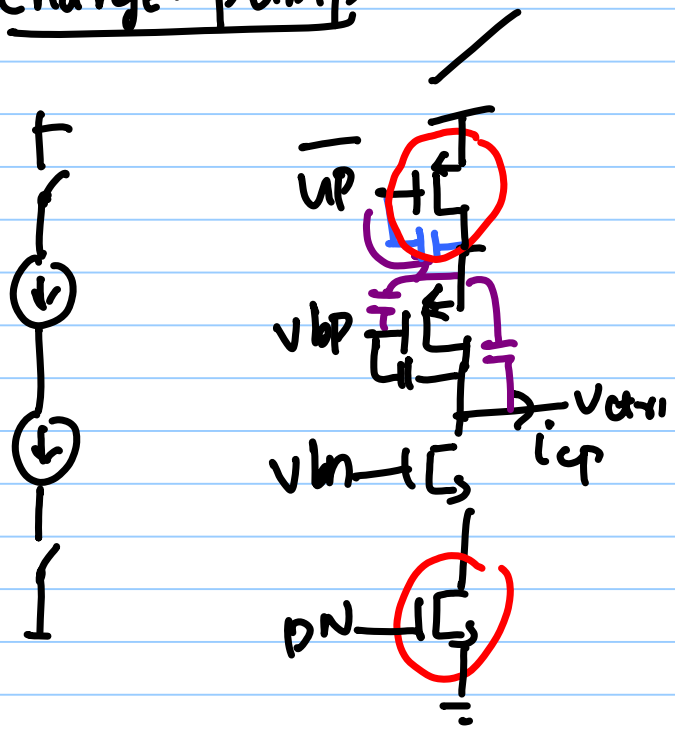


$V_{out} = + a_m \sin(\omega_{ref} t)$

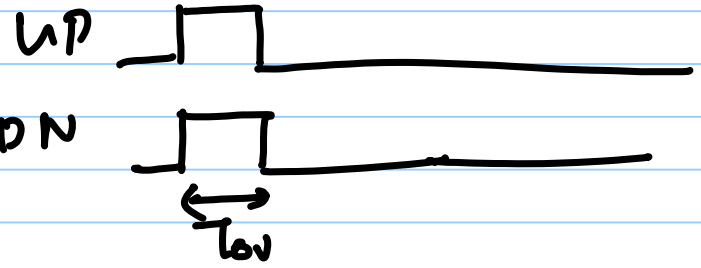
1 $\uparrow$ $\uparrow 10^{12}$ 12×10^{12} 3×10^{12}

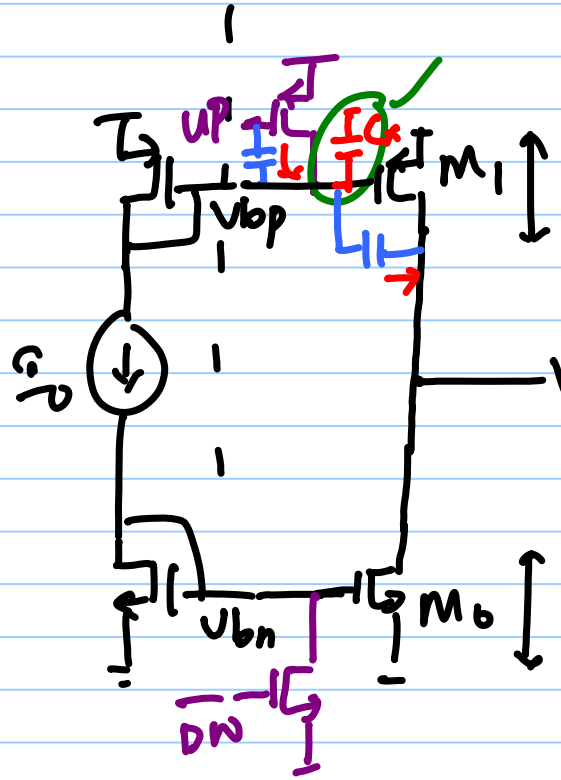


Charge-pump



Source-switched.

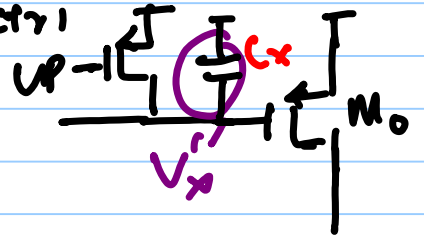


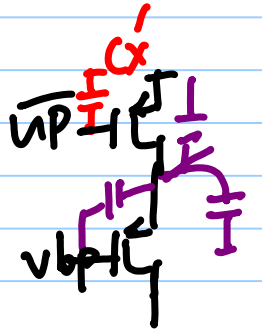


Gate-switched CP

* Zero head-room req. for switches

*





$C_x > C_x'$

$V_x - V_{bp} - |V_{tp}|_{th}$

$V_{x0} = V_{bp} + |V_{tp}|$

V_{bn}
M_0
V_{G1}
M_1
i_D
V_{G2}
M_2
V_{bp}
M_3
$V_x \rightarrow V_{out}$