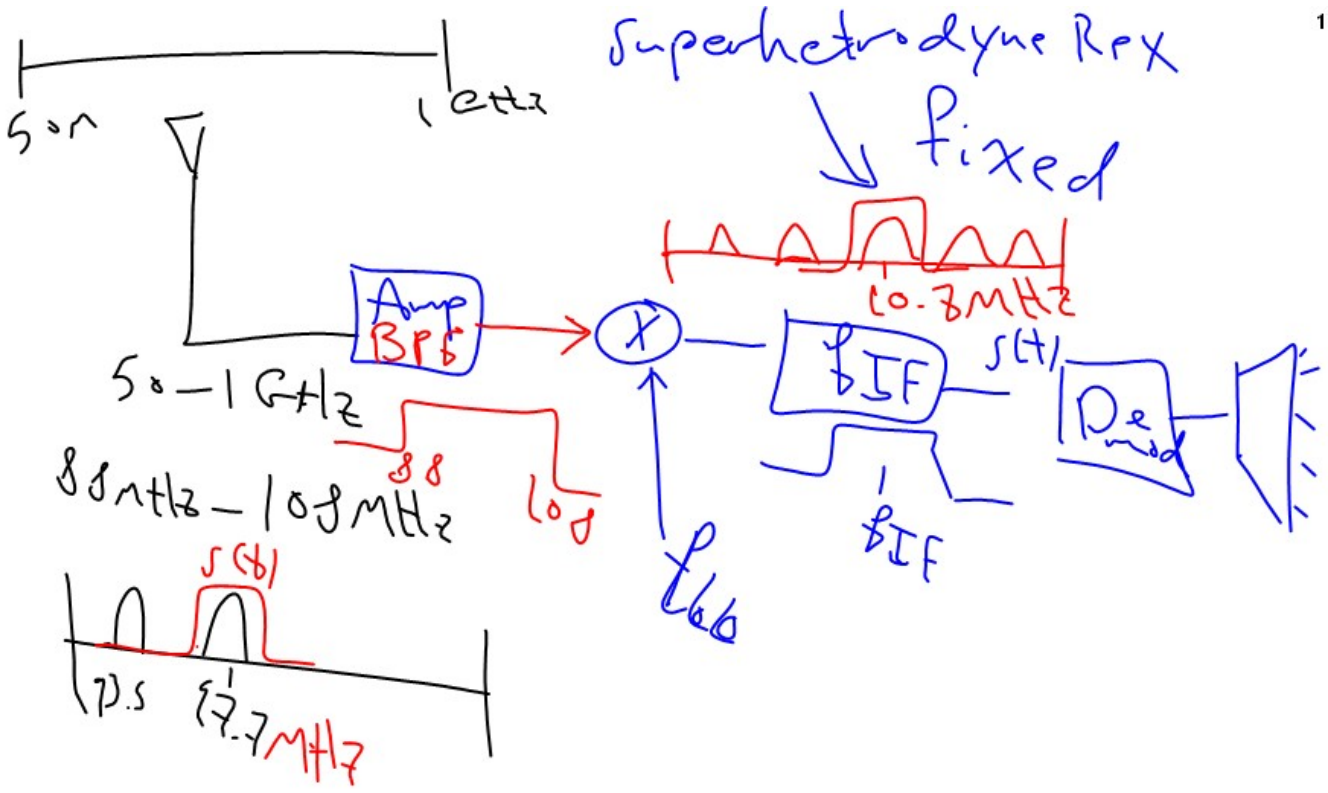
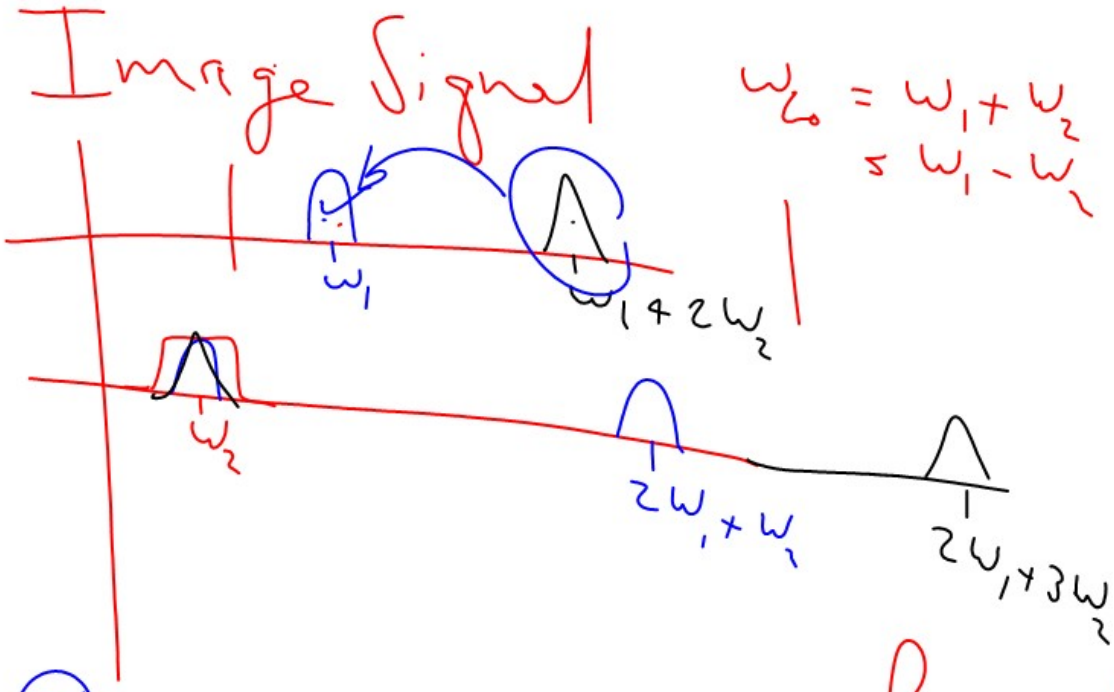
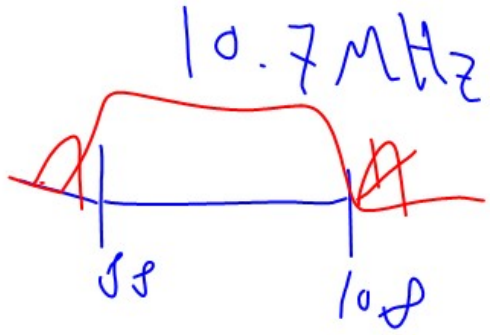


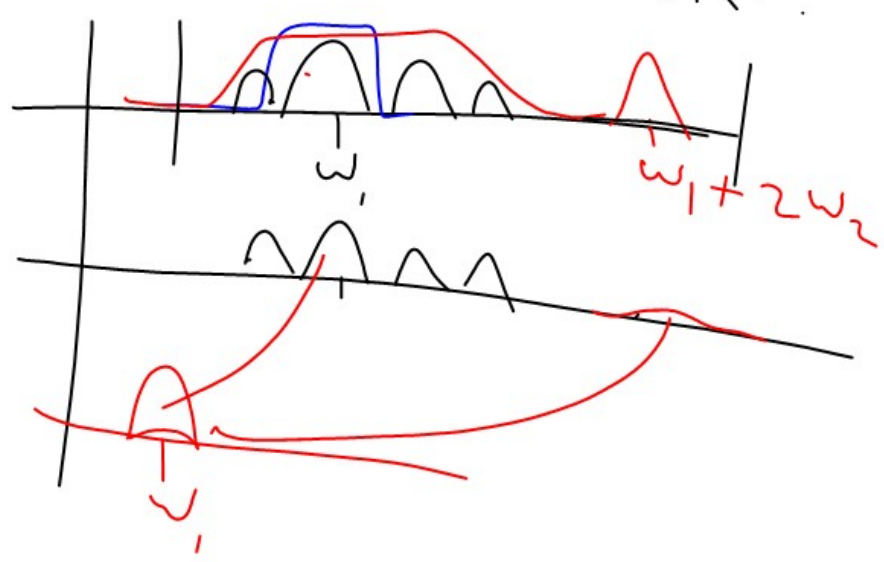


① pick a good IF $\geq \frac{f_{max} - f_{min}}{2}$



② Do not assign a station to an image freq.

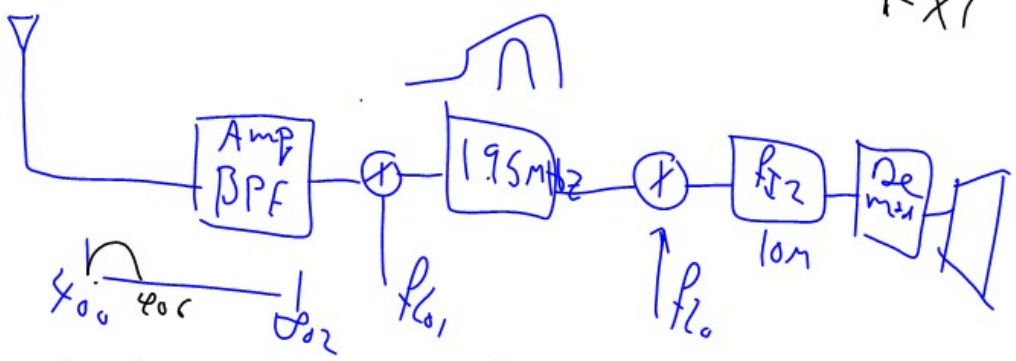
③ Attenuation filter



Design a double Conversion Superhetrodyne Rx to receive signals 400 – 802 MHz

assume each channel has Bandwidth = 6 MHz
and 1st If = 195 MHz
and 2nd If = 10 MHz

ⓐ sketch the block of superhetrodyne Rx?



ⓑ what is values of f_{LO1} and f_{LO2}?

$f_{LO1} = [400+195 - 802+195]$
$[595, 997]$
or
$[400-195 \Leftrightarrow 802-195]$
$[205 \longrightarrow 607]$

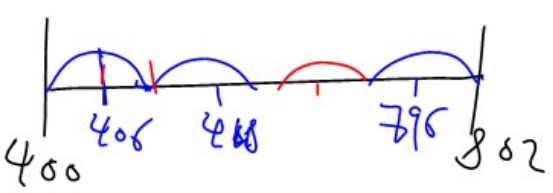
$f_{LO2} = 195-10 = 185$
or $= 195+10 = 205$

ⓒ Is there an image problem?

$f_{IF} \geq \frac{802-400}{2} \geq 201$ ✓

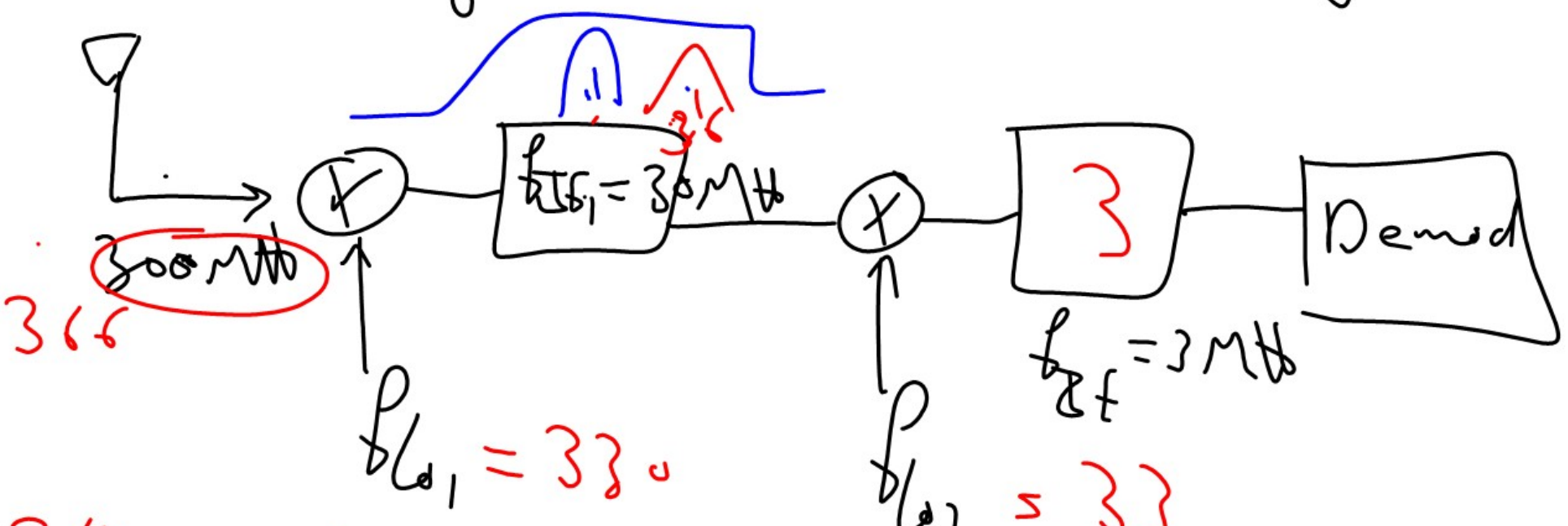
Yes.

If we use DSB-SC as Mod find all image?



$f_{image1} = 406 + 2X195 = 796$ ✓
$f_{image2} = 418 + 2X195 = 808$ ✗
$f_{image3} = 796 - 2X195 = 406$ ✓

Q2) A double Conversion receiver designed for receiving $f_c = 300MH$



- assume that the Rx receives everything
- assume that the 1st IF filter is not ideal

find all image freq!

$f_{image} = 300 + 2(30) = 360$ ✓

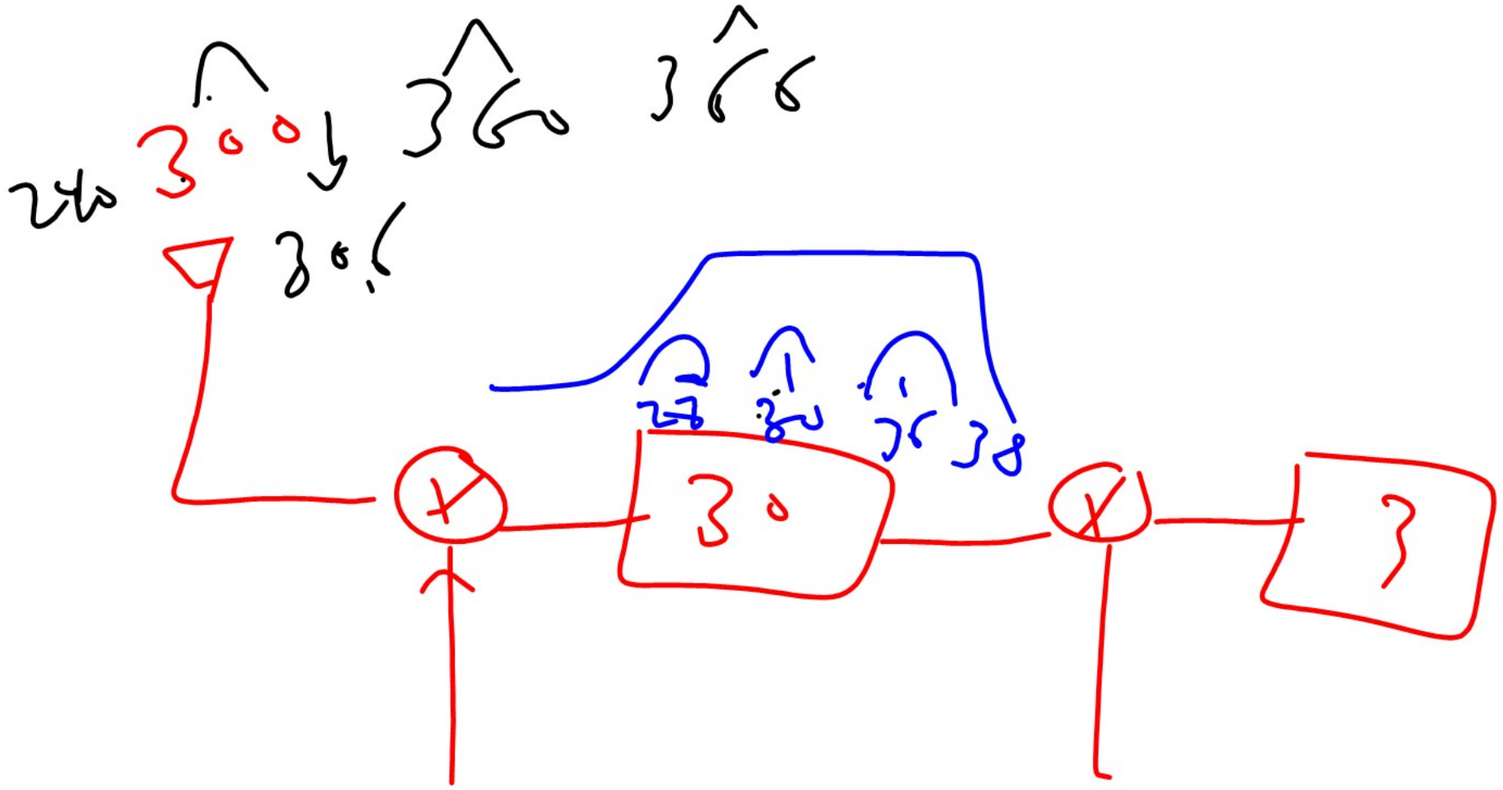
$f_{image2} = 300 - 2(30) = 240$ ✓

$f_{LO_1} = 300 + 30 = 330$

or $= 300 - 30 = 270$

2nd stage L_O

$30 + 2(3) = 36 \longrightarrow 330 + 36 = 366$ ✓



330
270

33
27

$30 + 2(3) = 36$
$300 - 2(30) = 240$

$30 + 2(3) = 36$
$36 + 330 = 366$
$366 + 270 = 636$