

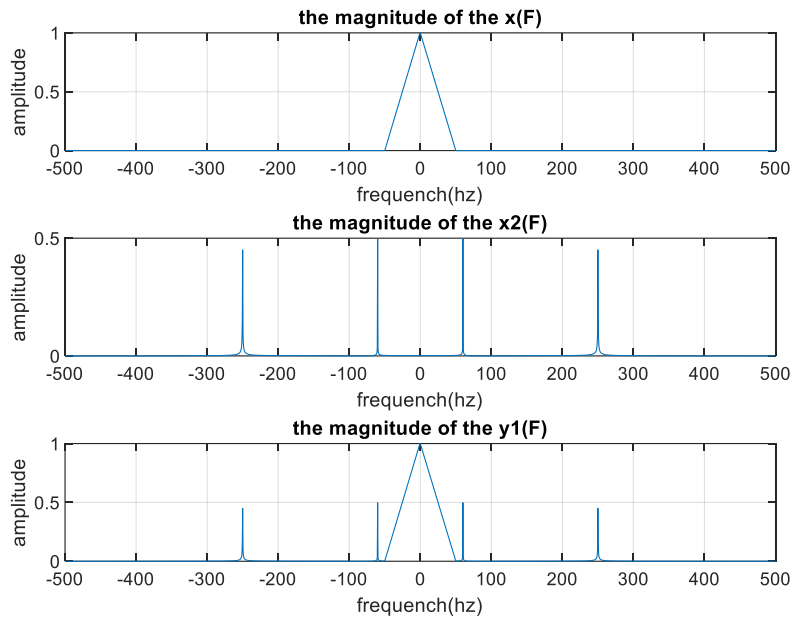
EE352 – Communication Systems I Laboratory

Lab 2 Report Signals & Systems Review

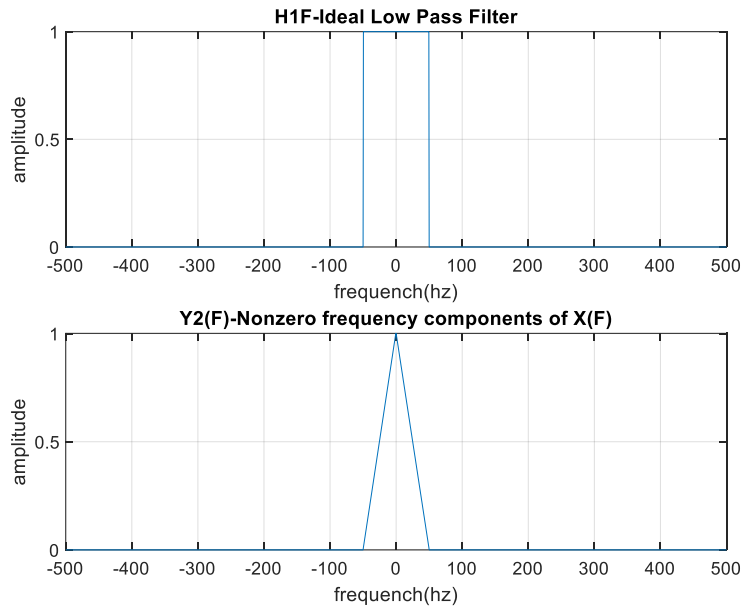
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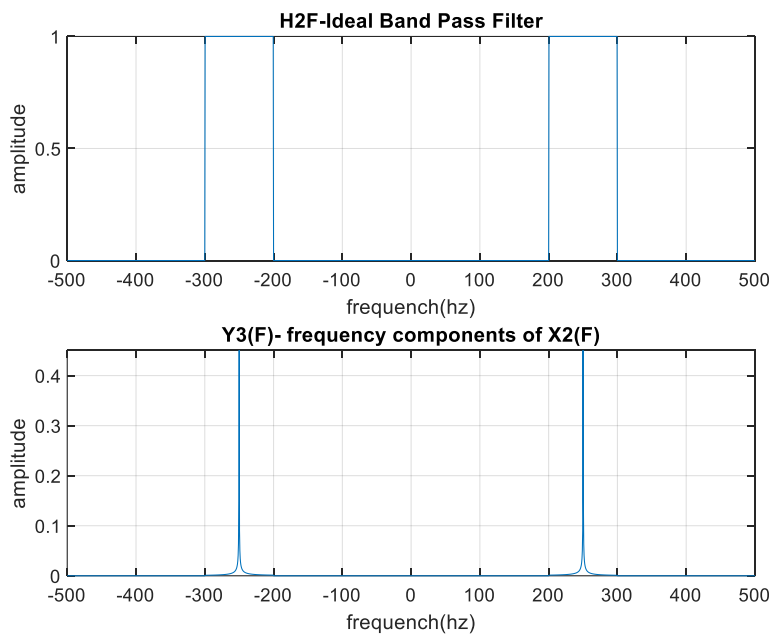
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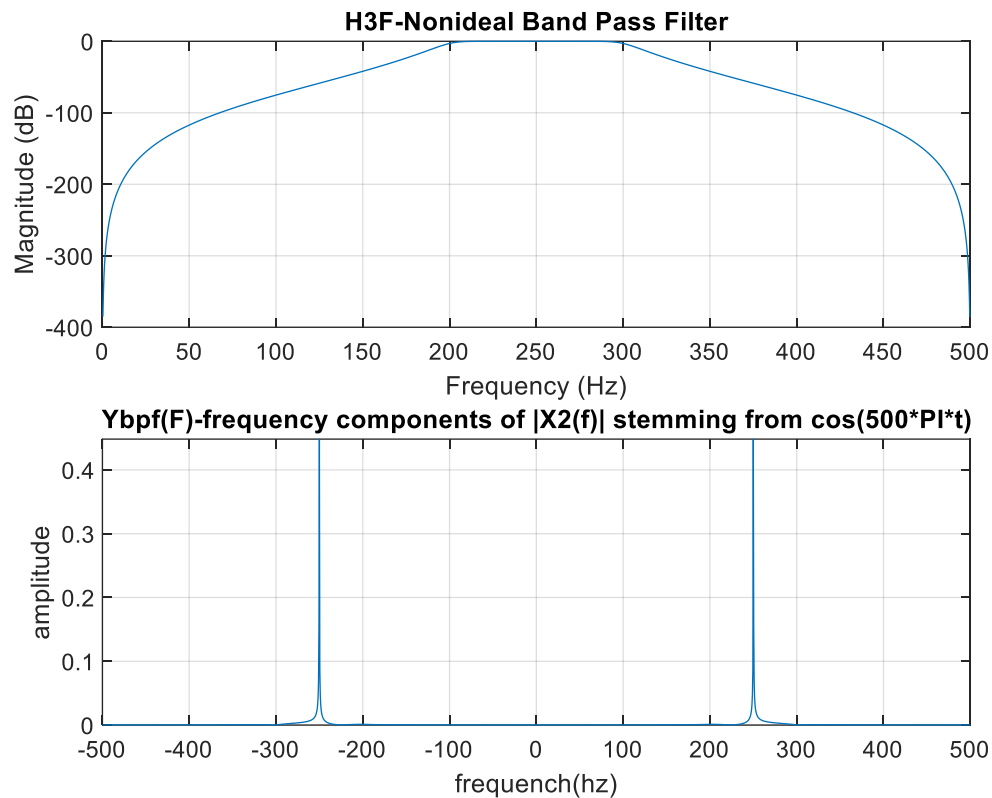
→ In this figure, we can see desired triangular signal between -50 Hz and 50 Hz which name is $x[F]$ at the top of the figure, we can see fourier transform of given $x_2(t) = \cos(120\pi t) + \cos(500\pi t)$ signal at the middle of the figure, also we can see magnitude of signal at $+60$ and $+250$ frequency values (because of $W=2\pi f$) and in last part we can see the summation of both of these signals at the bottom of the figure.



→ In this figure, we can see ideal low pass filter which passes frequency values between -50 hertz and +50 hertz at the top of the figure. At the bottom of the figure, we see the components of the $Y1(F)$ signal passing through the low pass filter. According to graph we can say some of $Y1[F]$ components passed because of our Ideal Low Pass Filter design values.



→ In this figure, we can see ideal band pass filter which passes frequency values between 200 and 300 hertz or -200 and -300 hertz at the top of the figure. At the bottom of the figure, we see the components of the $Y1(F)$ signal passing through the band pass filter. According to graph we can say some of $Y1[F]$ components passed which in the range of 200 and 300 hertz or -200 and -300 hertz because of our Ideal Band Pass Filter design values.



→ In this figure, we can see nonideal band pass filter which passes frequency values between 200 and 300 hertz or -200 and -300 hertz at the top of the figure. At the bottom of the figure, we see the components of the $X_2(F)$ signal passing through the band pass filter. Also, we can say because of nonideal filters do not have a sharp frequency response and transition band can cause to have undesired frequency components.