Capon's power estimator is

$$P_{Capon}=\frac{1}{\boldsymbol{e}^{H}(\mathbf{k})R(f)^{-1}e(\mathbf{k})}$$

where R is the spatiospectral correlation matrix; $\boldsymbol{e}$ is the steering vector. I used conventional f-k method (FDBF), Capon's method and MUSIC method for a synthetic case: one single wave of 10 Hz and kx= 0.25 rad/m propagating along the array as shown in Figure 1. The R is given as the phase shifts between every two sensors. Figure 2 shows the power output from these three methods. They all give the peak at 0.25 rad/m. But Capon's method has the second peak. It doesn't make sense for me.

I made the Matlab scripts to conduce these three methods. For Capon's method, just add one additional matrix inversion and different power output equation. Other parts are all same. I am sure that I didn't mess up with programming. Figure 3 give dispersion curve results from FDBF and Capon's methods. As you see, Capon's method gives more scattered results. I knew that you also used Capon's, have you ever had this problem? Thanks.

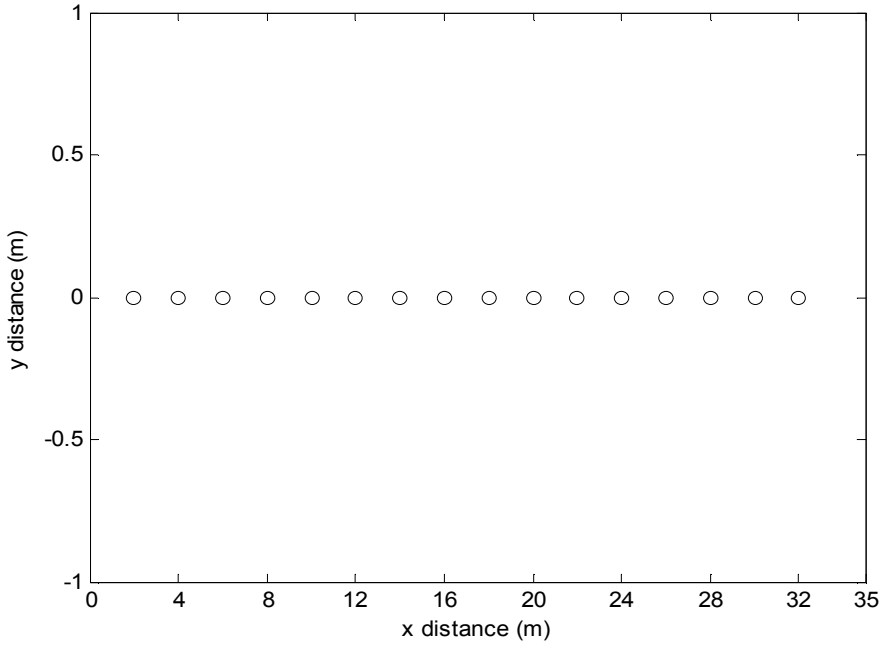

Figure 1 Sixteen sensor uniformly spaced linear array (spacing =2m between each sensor)

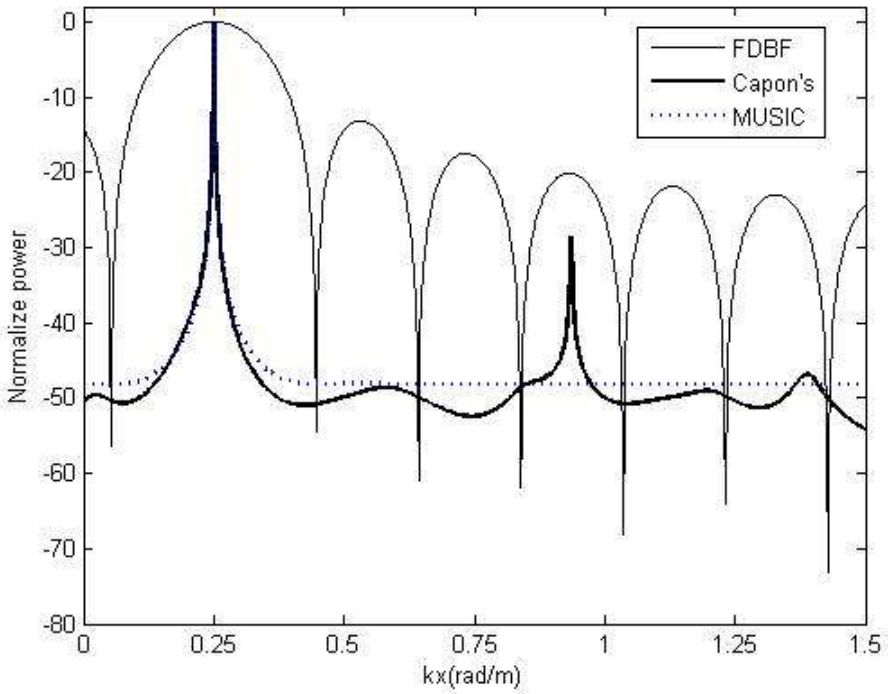

Figure 2 Power output for three different beamformers for a single wave at kx=0.25 rad/m

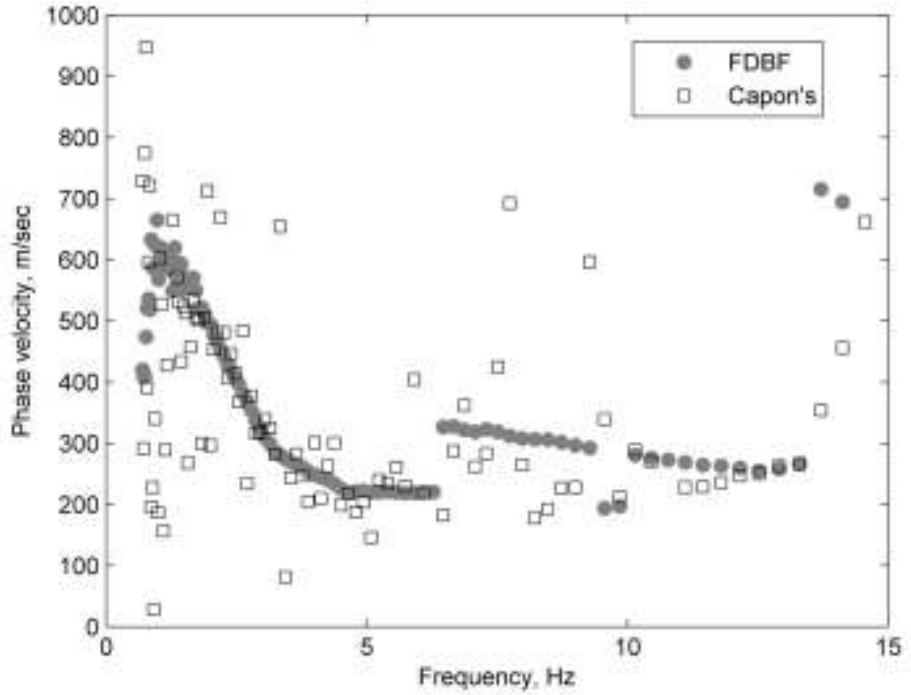

Figure 3 Dispersion curves from FDBF and Capon's method for one of my testing sites