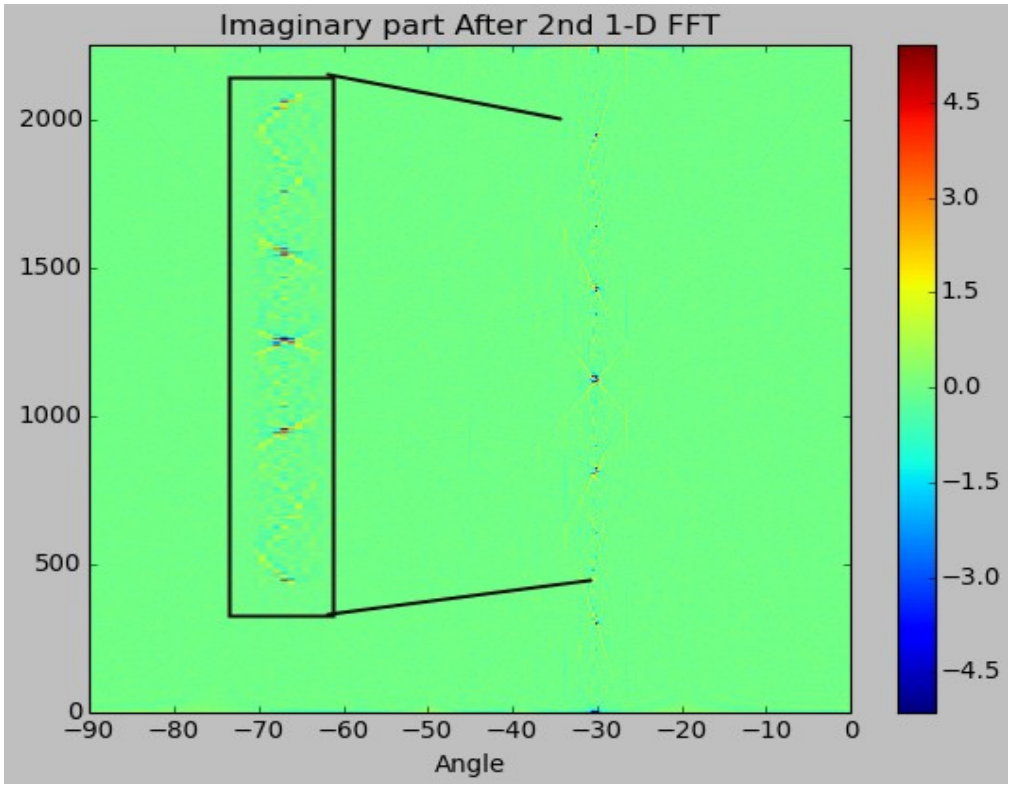
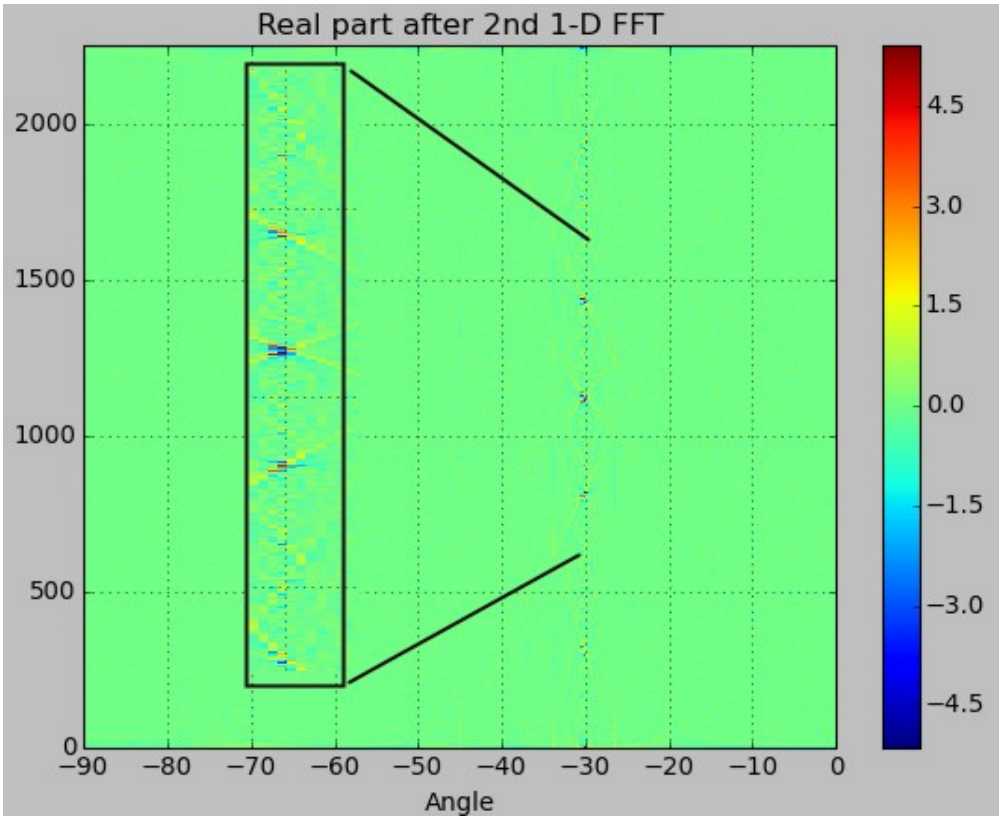
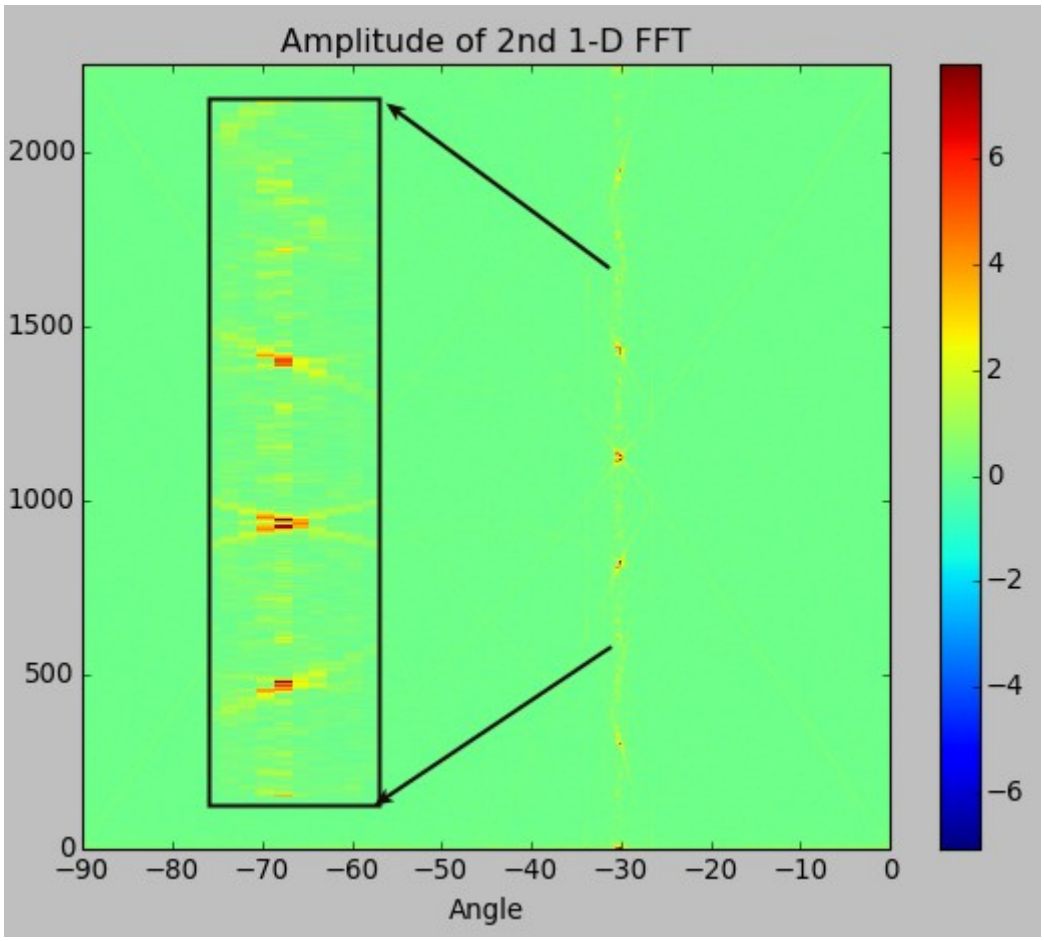
The following pictures are the 2nd 1-D FFT along the y-axis. We found the image is changing with the SNR and the width of the signal. In the simulation,We use a Gaussian form for each frequency varied with time. So we use the sigma to change the width of the simulated signal.
(The simulate signal has not been done the fft-shift during the 2nd FFT ,because I thought the points are obviously. The pulsar and FRB data have been done the fft-shift along the y-axis.)

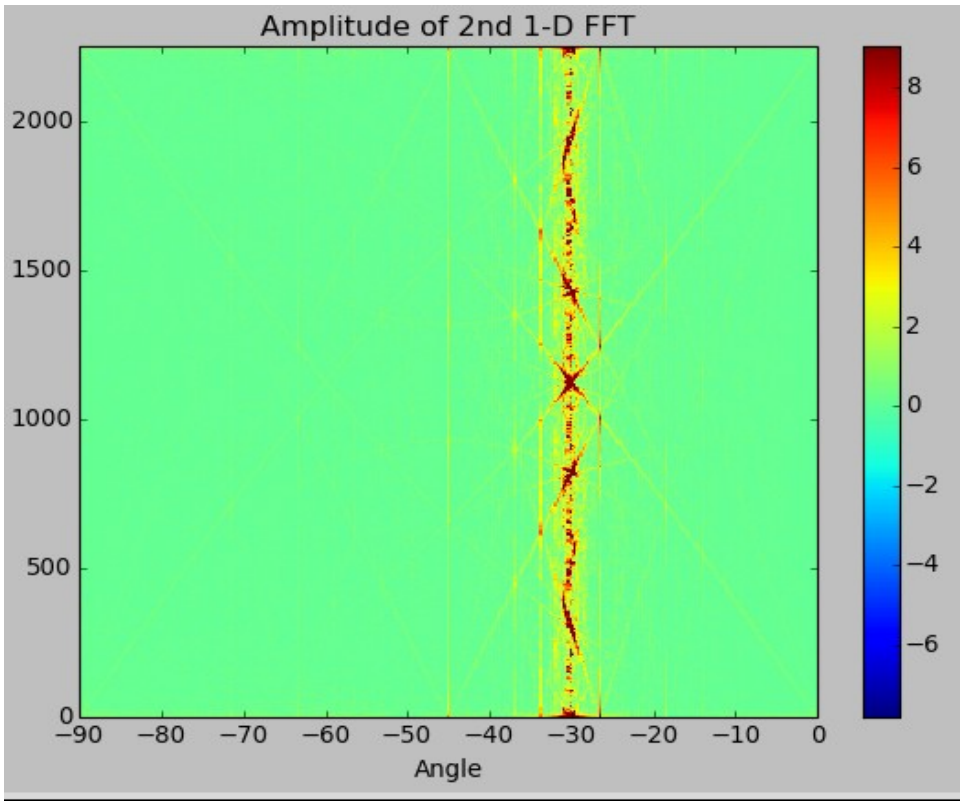
Simulate signal with SNR 5 and sigma=1:

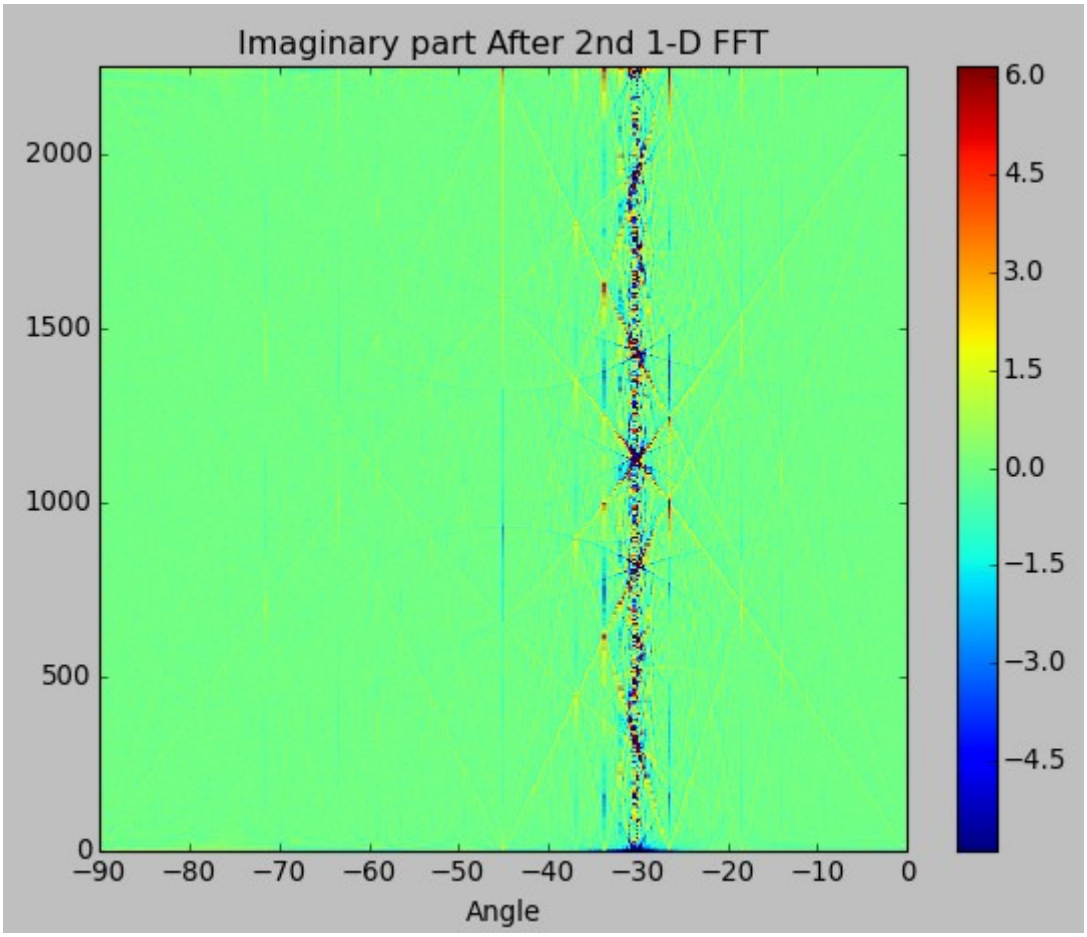


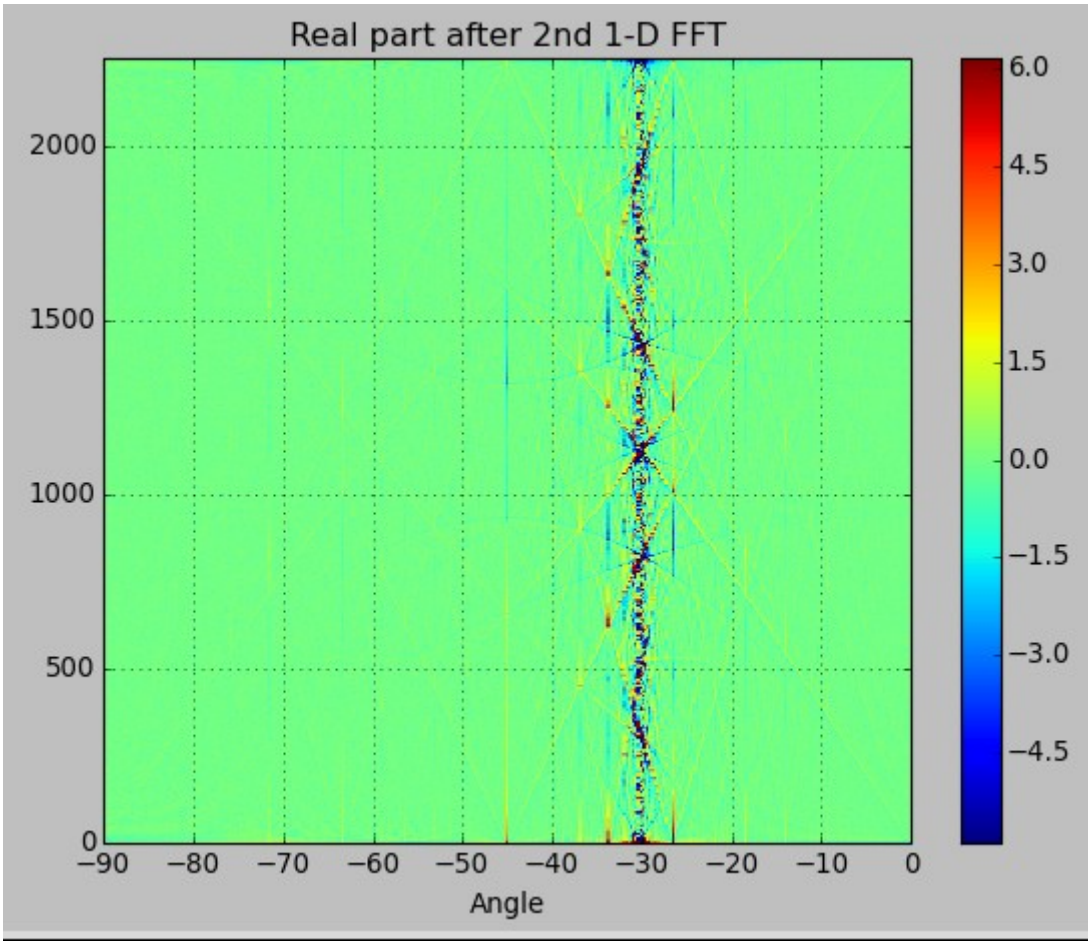




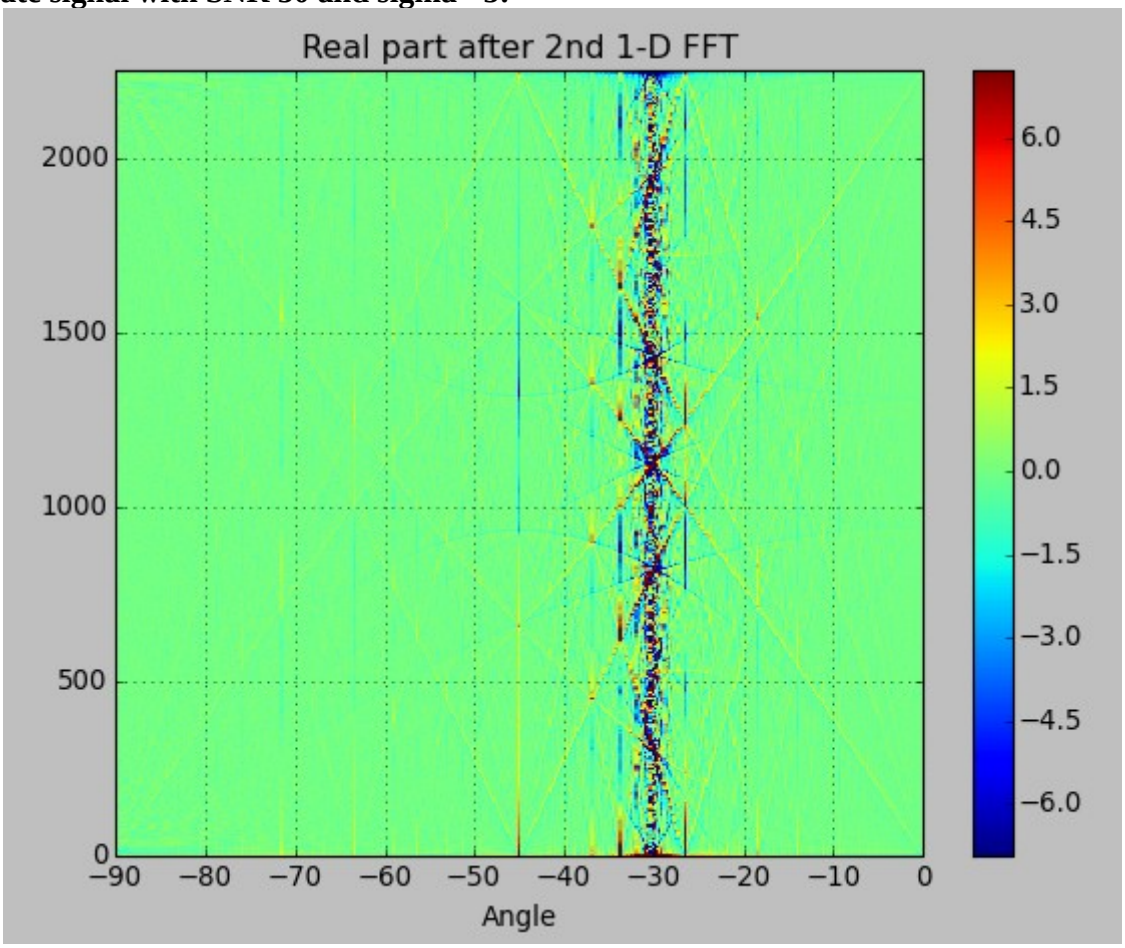
Simulate signal with SNR 50 and sigma= 1:



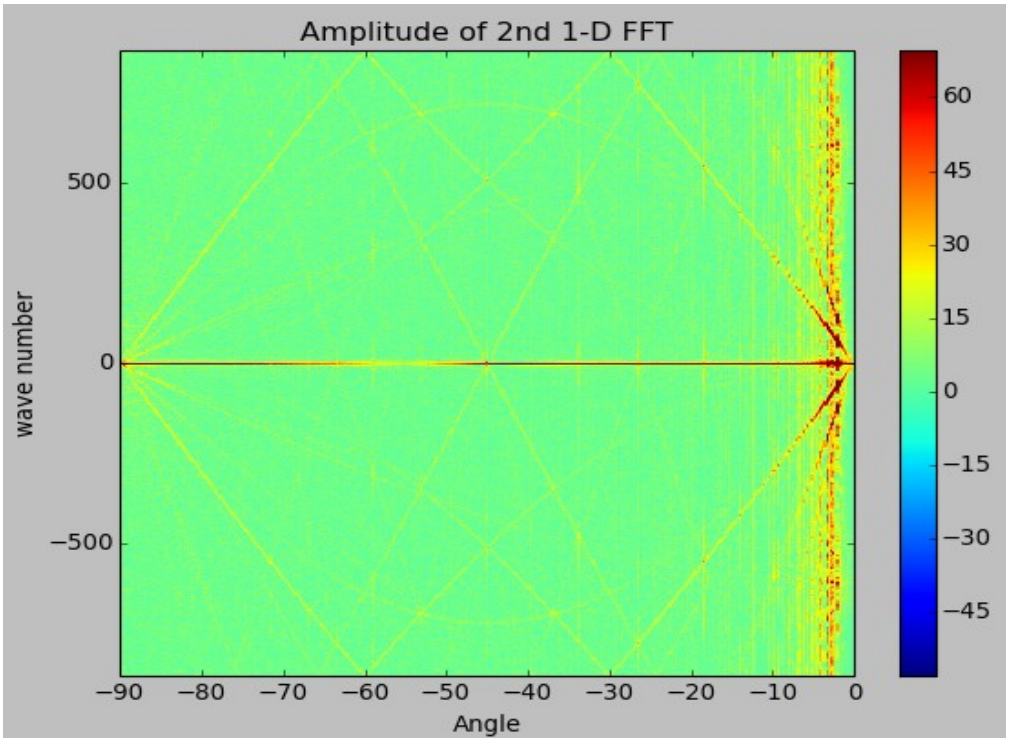

Imaginary part After 2nd 1-D FFT
2000
1500
1000
500
0
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
Angle
6.0
4.5
3.0
1.5
0.0
−1.5
−3.0
−4.5

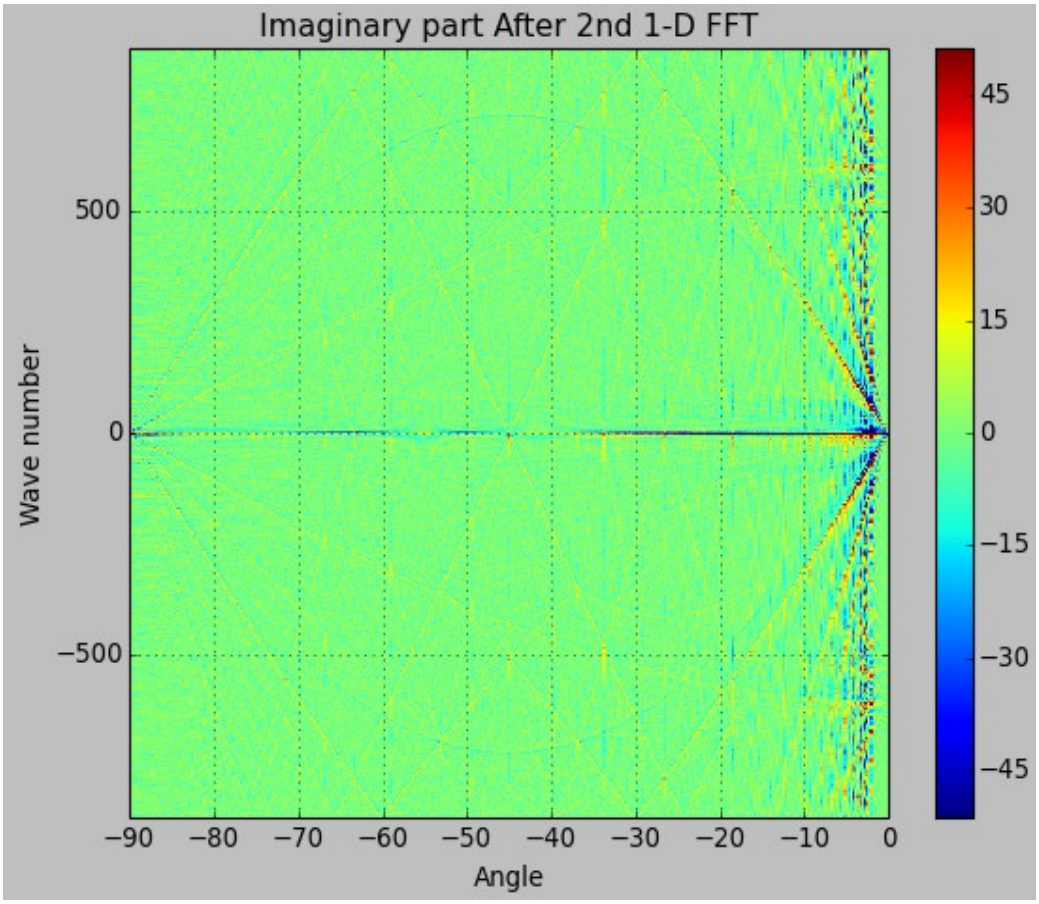

Real part after 2nd 1-D FFT
2000
1500
1000
500
0
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
Angle
6.0
4.5
3.0
1.5
0.0
−1.5
−3.0
−4.5

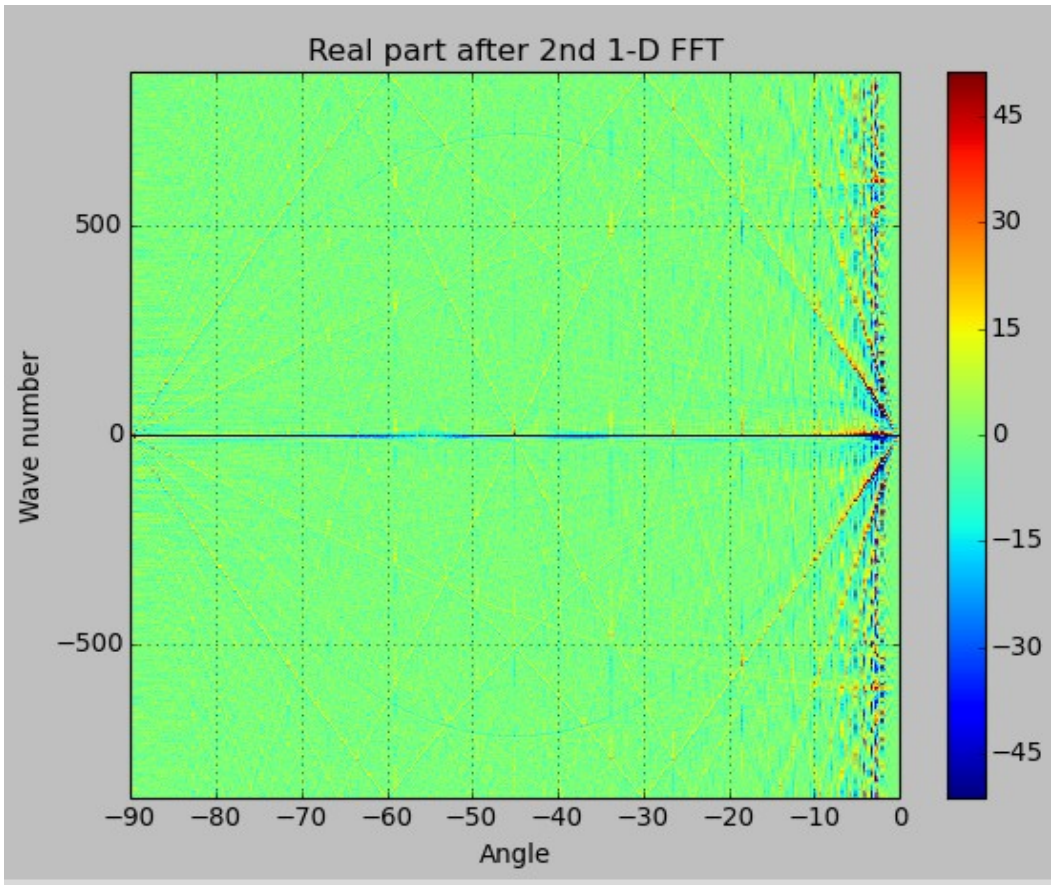
Simulate signal with SNR 50 and sigma= 5:



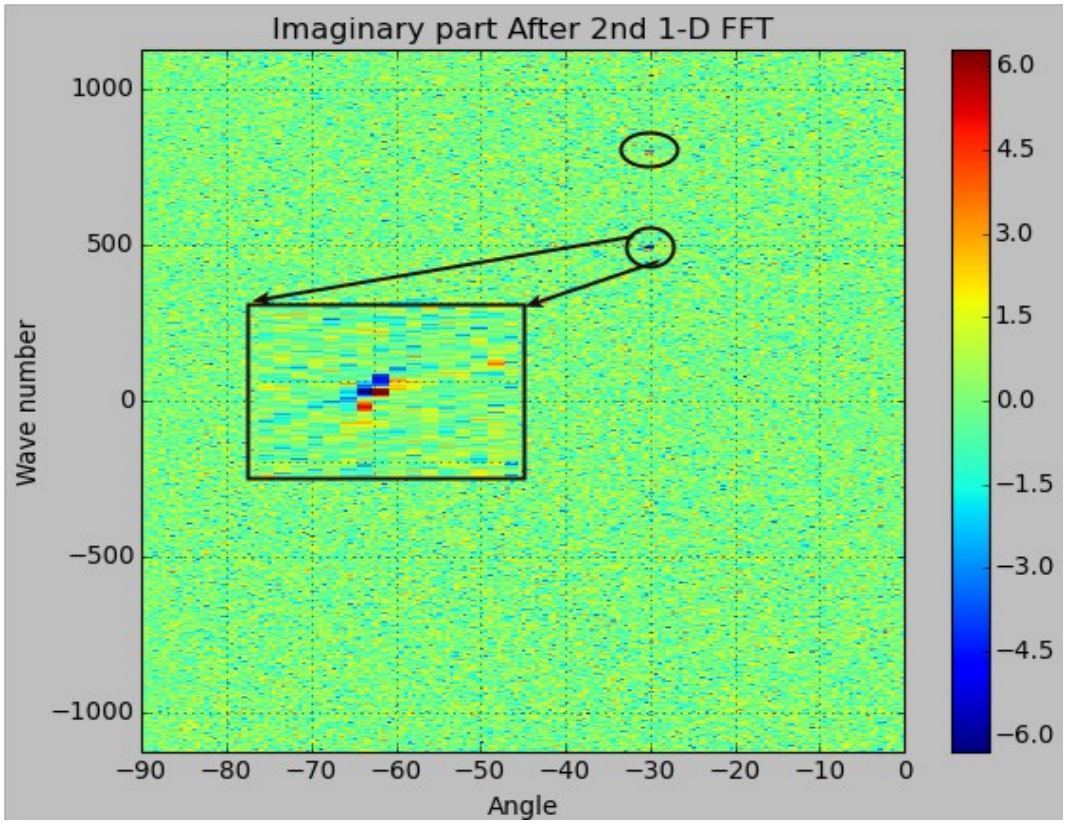
Pulsar B0329+54:

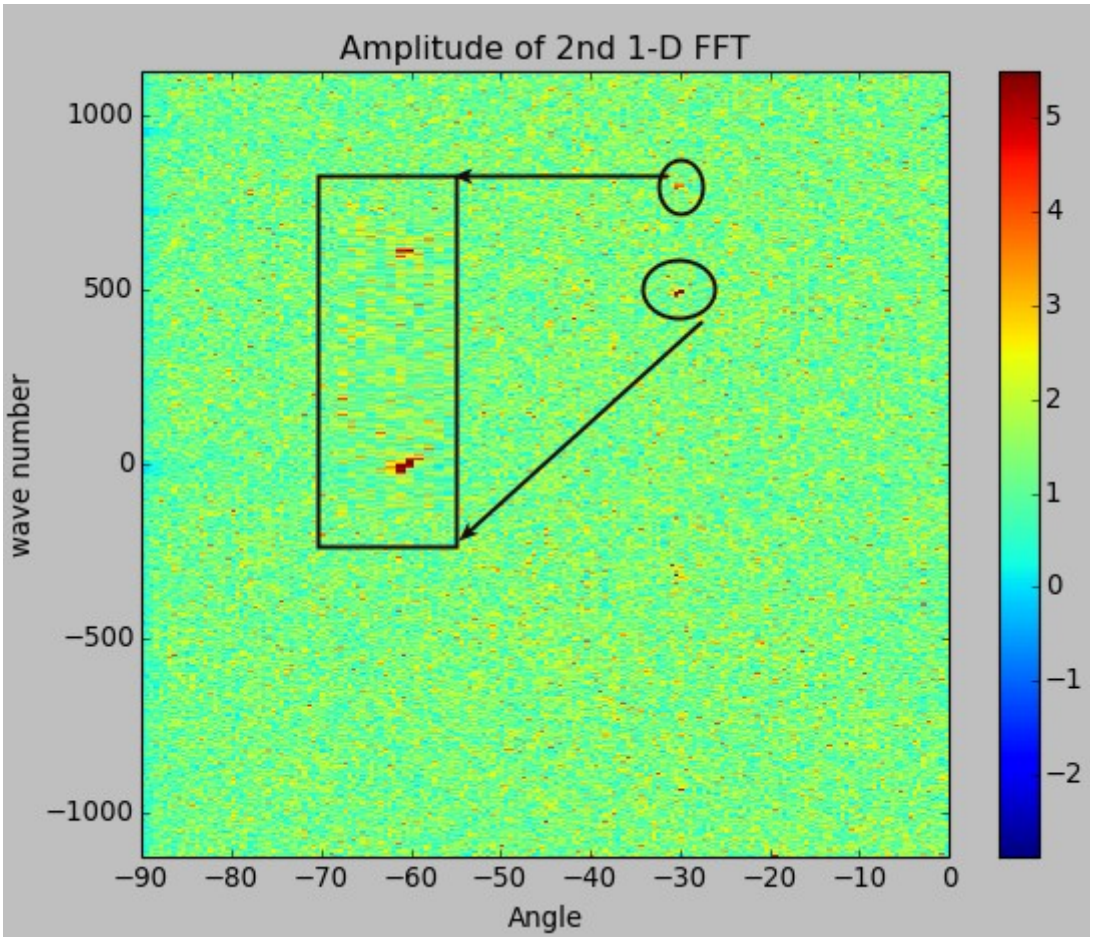


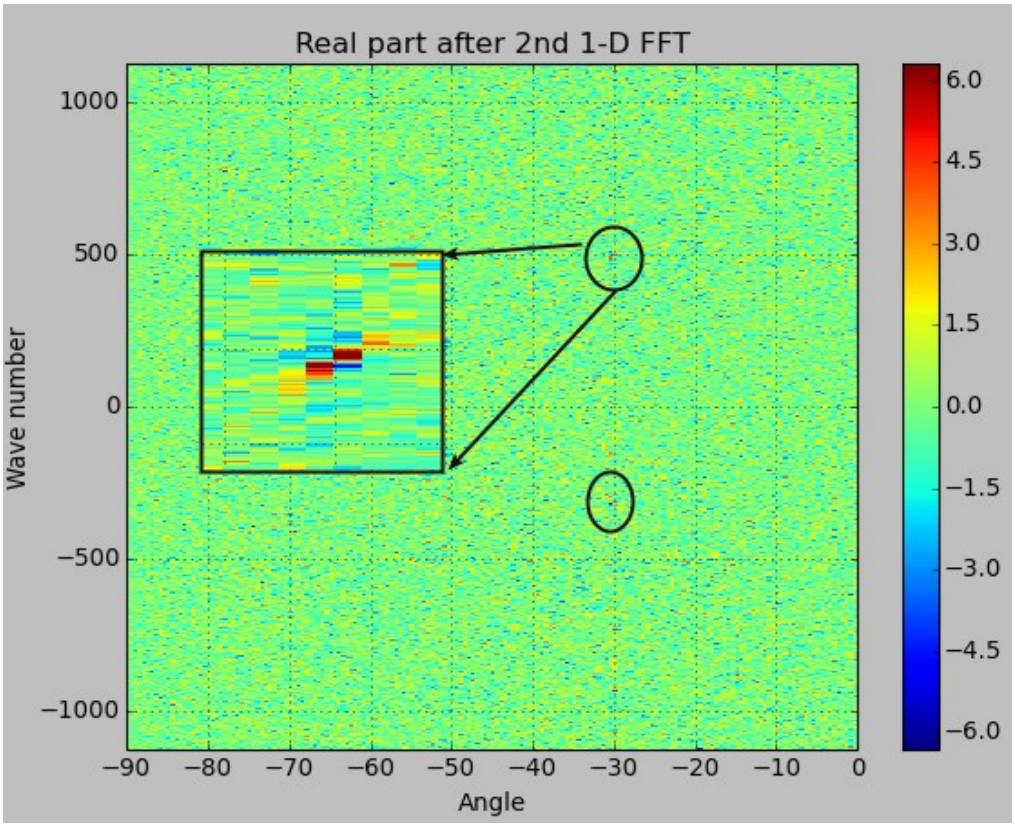

Imaginary part After 2nd 1-D FFT
Wave number
500
0
−500
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
Angle
45
30
15
0
−15
−30
−45


Real part after 2nd 1-D FFT
Wave number
500
0
−500
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
Angle
45
30
15
0
−15
−30
−45

FRB 110523:


Imaginary part After 2nd 1-D FFT
Wave number
Angle
1000
500
0
−500
−1000
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
6.0
4.5
3.0
1.5
0.0
−1.5
−3.0
−4.5
−6.0


Amplitude of 2nd 1-D FFT
wave number
Angle
1000
500
0
−500
−1000
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
5
4
3
2
1
0
−1
−2


Real part after 2nd 1-D FFT
Wave number
Angle
1000
500
0
−500
−1000
−90
−80
−70
−60
−50
−40
−30
−20
−10
0
6.0
4.5
3.0
1.5
0.0
−1.5
−3.0
−4.5
−6.0