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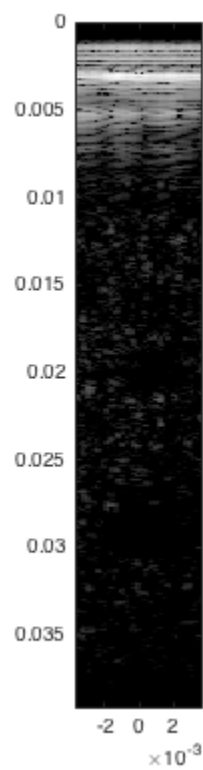
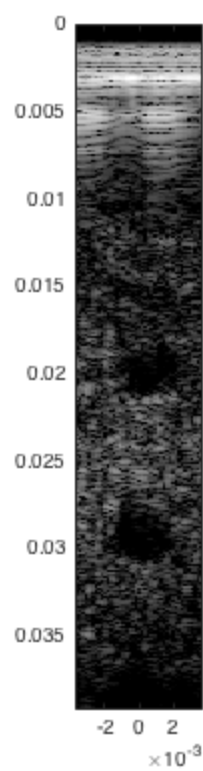
```
% Initialize variables:
bf_params.pitch = 0.201e-3; % inter element spacing (m)
bf_params.compression = 0.6; % compression factor
bf_params.app_size = 0.03/2; % receive apperture size in m
bf_params.apodization = 'none';
bf_params.num_foci = 1;
load('s2000_hypo_phantom.mat');
```

Part A: A fixed receive focus beamformed image

```
focus_cm = 2.5;

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = focused_beam(rf, acq_params, bf_params, focus_cm);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

data = 'imageData_PlaneWave.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = focused_beam(rf, acq_params, bf_params, focus_cm);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;
```

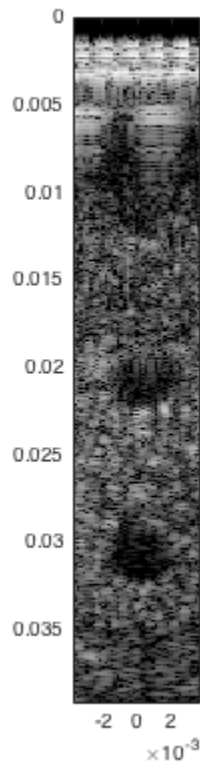


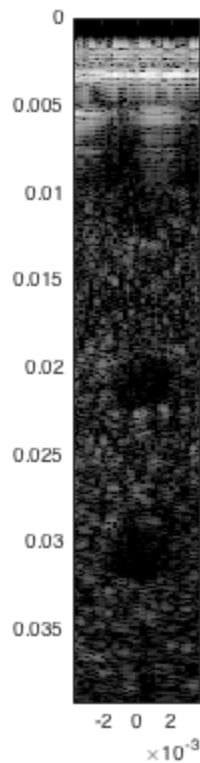
Part B: A dynamically focused image (on receive) with a minimum of 5 focal position updates

```
bf_params.num_foci = 5;

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

data = 'imageData_PlaneWave.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;
```





Part C: Apodization

```
bf_params.apodization = 'hamming';

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

data = 'imageData_PlaneWave.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

bf_params.apodization = 'hann';

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

data = 'imageData_PlaneWave.bin';
```

```
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;
```

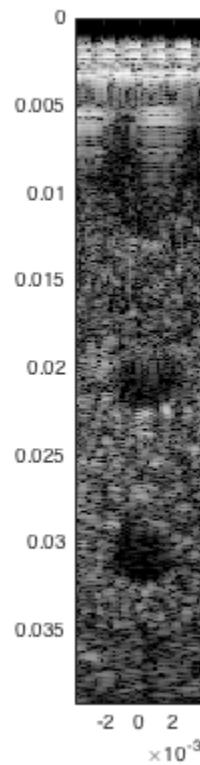
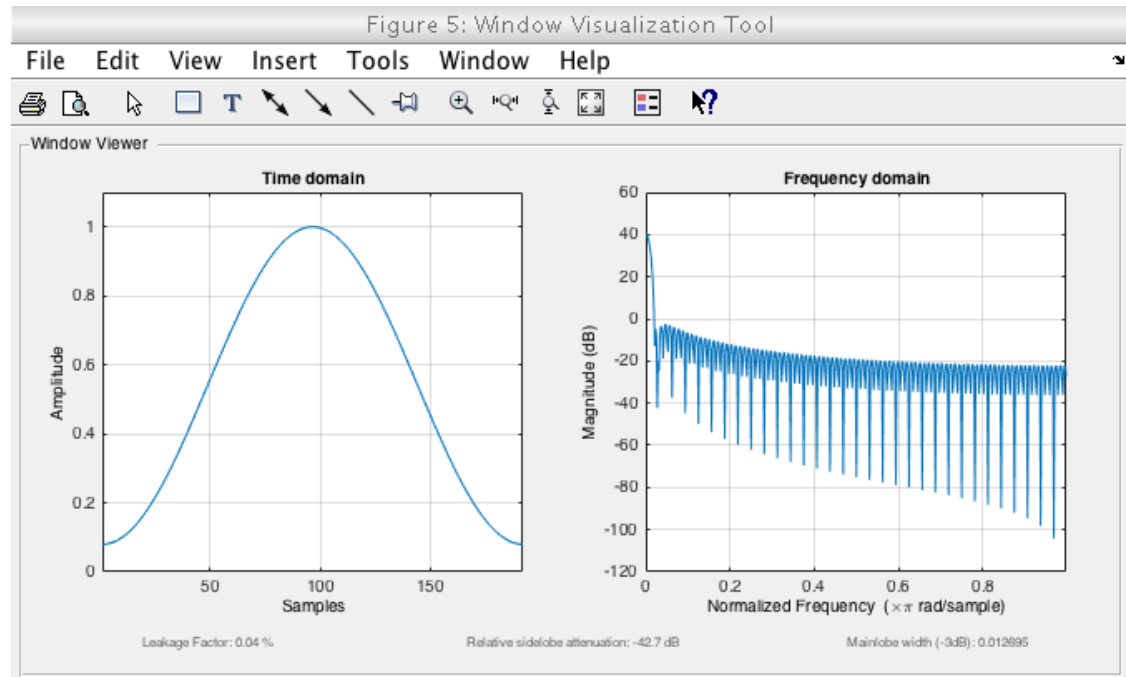


Figure 7: Window Visualization Tool

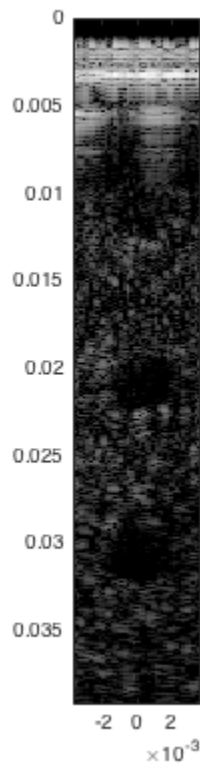
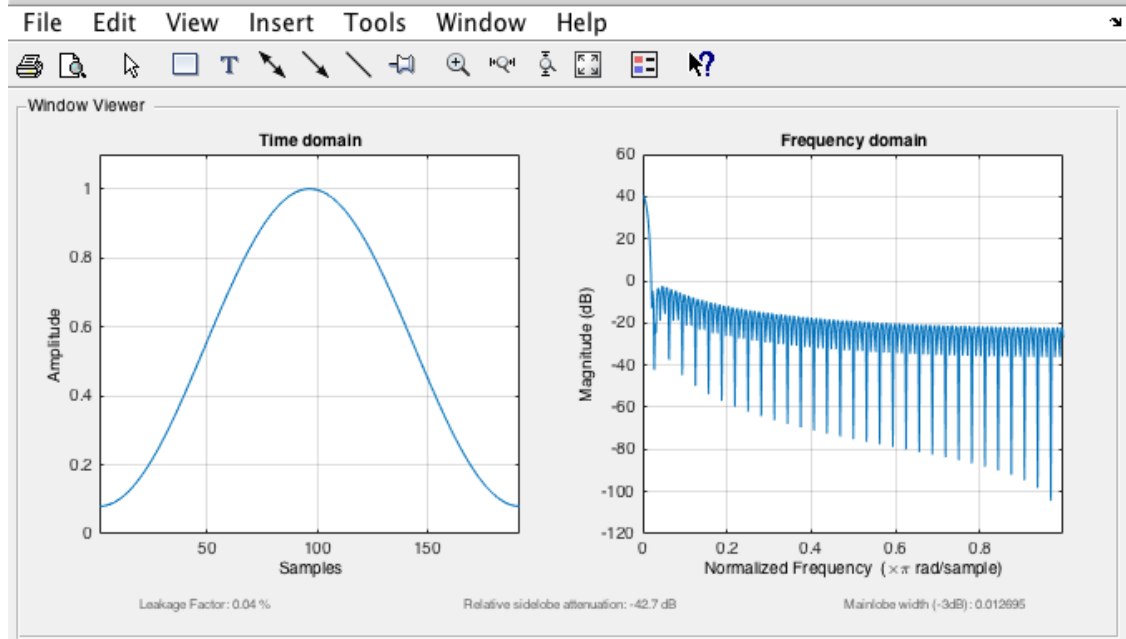
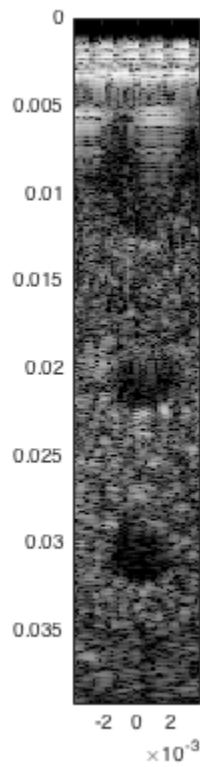
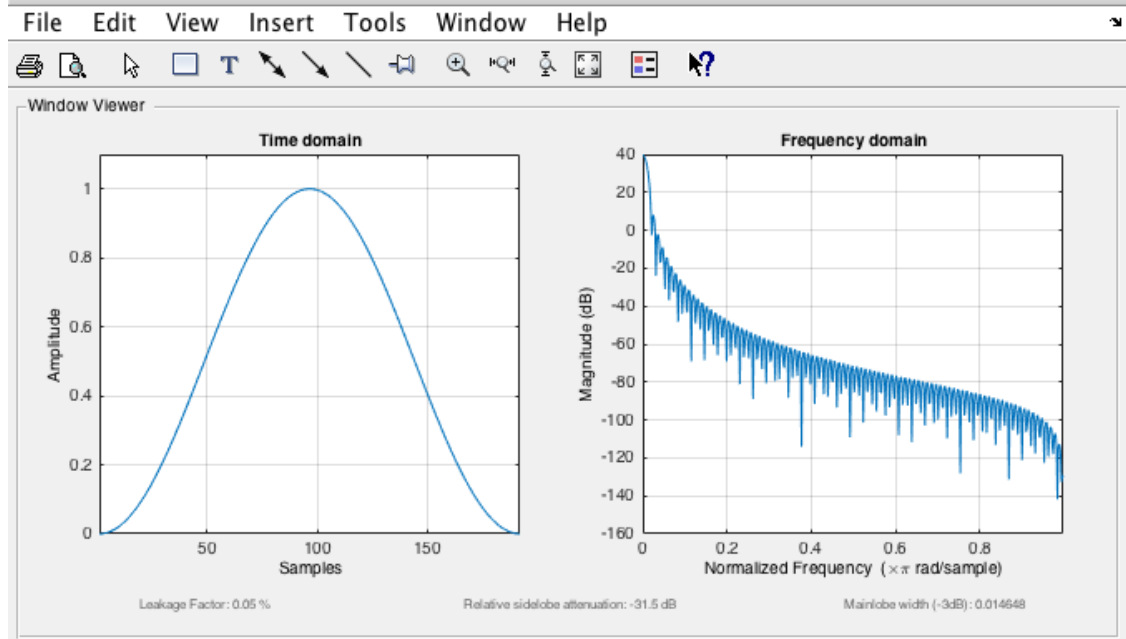
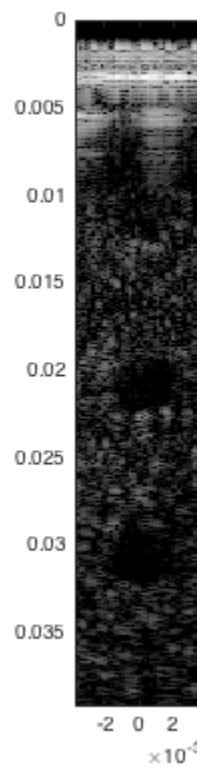
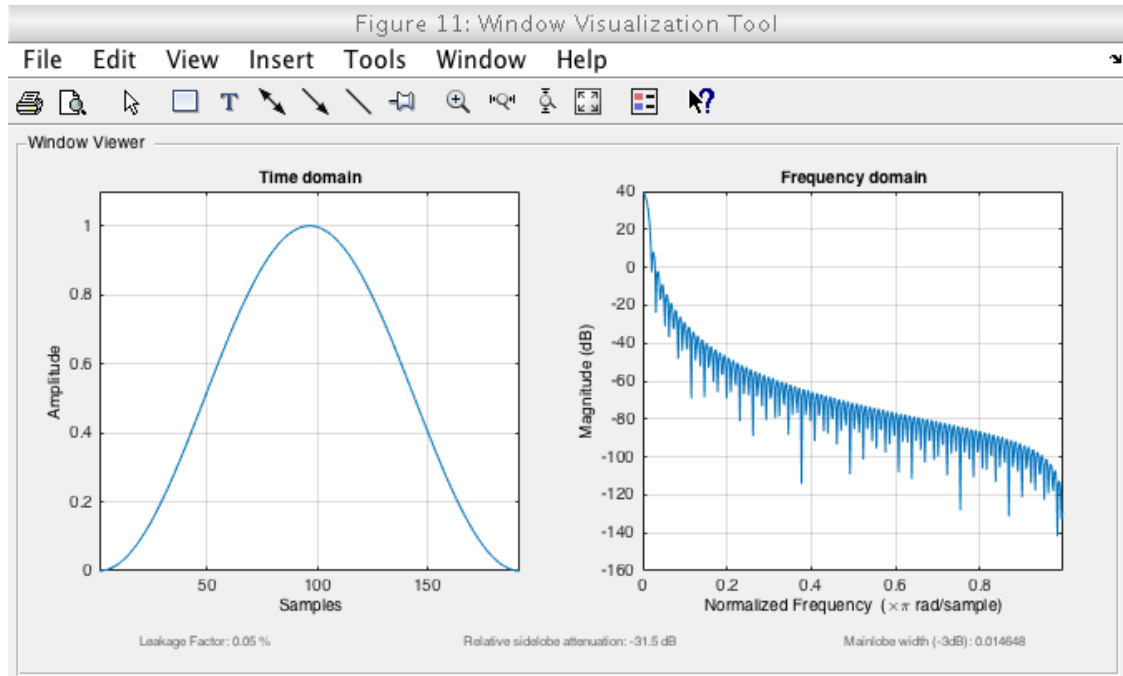


Figure 9: Window Visualization Tool





Part D

```
bf_params.apodization = 'flat';
bf_params.num_foci = 6;
```

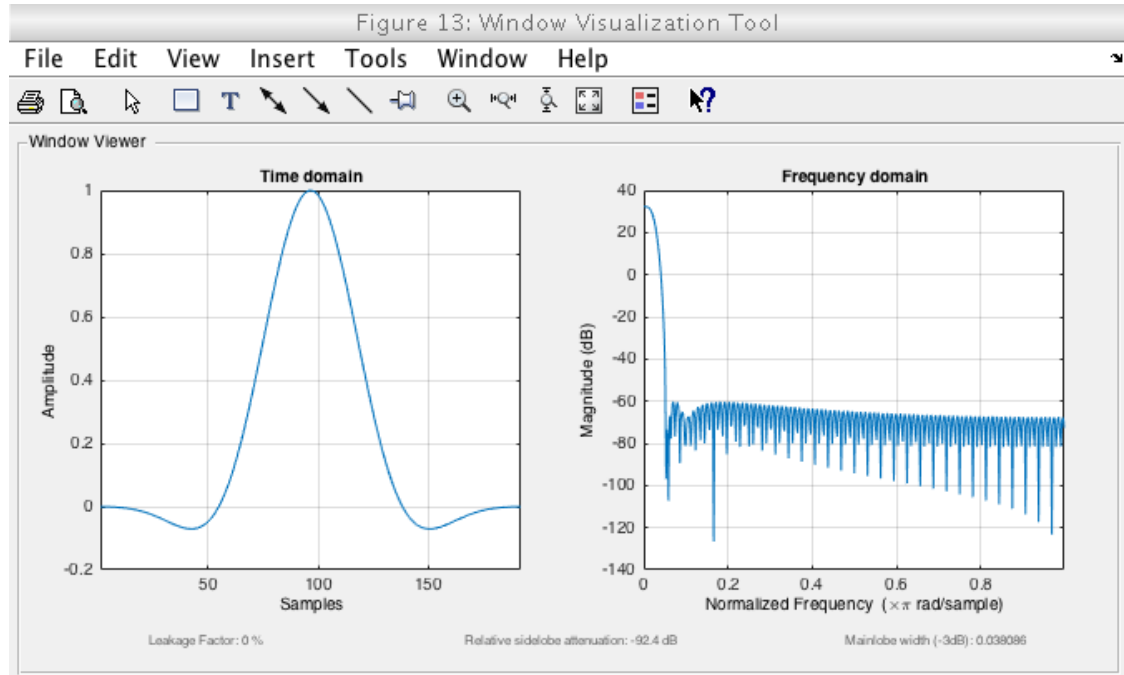


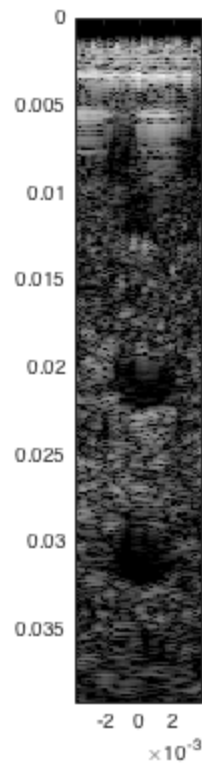
```

bf_params.compression = 0.6;

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = dynamic_beam(rf, acq_params, bf_params);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;

```





Part E

```
acq_params.num_foci = 1;
focus_cm = 2.5;

data = 'imageData_Focused.bin';
[rf,num_tx,num_el,num_samp] = readBinData(data);
[b, x, z] = focused_beam_singleTransmit(rf, acq_params, bf_params,
    focus_cm);
figure();
imagesc(x,z,b,[-40,0]); colormap gray; axis image;
```

