

## APPENDIX

Table A: Show Hamming, Blackman, and Kaiser ( $\beta=4$ ) apodization functions compared to rectangular window [2]

Type of Window	Peak Side-lobe Amplitude (relative)	Approximate Width of Main-lobe	SNR (relative)
Rectangular	-13.3	0.0137	32.6680
Hamming	-42.6	0.0195	37.6472
Blackman	-58.1	0.0252	38.4245
Kaiser ( $\beta=4$ )	-30.0	0.01758	37.0413

Table B: Show the effect of the over-sampling to the radial resolution [2]

<b>Sampling Frequency (Fs)</b>	<b>Sampling Period (Ts=1/Fs)</b>	<b>Radial Sampling Resolution (=Ts/2*c) Delta Distance (Dd) C=1.480mm/μsec</b>	<b>Delay Resolution (1/(2*sampling ratio))</b>
Fs=13.8889 Sampling Ratio=1	Ts=72 nsec	Dd= 0.0533mm/samples	1/2
Fs=2*13.8889= 27.7778 Sampling Ratio=2	Ts=36 nsec	Dd= 0.0267mm/samples	1/4
Fs=4*13.8889= 15.5556 Sampling Ratio=4	Ts=18 nsec	Dd= 0.0133mm/samples	1/8
Fs=8*13.8889= 111.1112 Sampling Ratio=8	Ts=9 nsec	Dd= 0.0067mm/samples	1/16