ABSTRACT:

Noise in medical images is recognized as an important factor that determines the image quality. Image noise is characterized by noise power spectrum (NPS). We compared two methods of NPS determination namely the methods of Wagner and Dobbins on Lanex Regular TMG screen-film system and Hologic Lorad Selenia full field digital mammography system, with the aim of choosing the better method to use. The methods differ in terms of various parametric choices and algorithm implementations. These parameters include the low pass filtering, low frequency filtering, windowing, smoothing, aperture correction, overlapping of region of interest (ROI), length of fast Fourier transform, ROI size, method of ROI normalization, and slice selection of the NPS. Overall, the two methods agreed to the practical value of noise power spectrum between 10 -3-10-6mm2 over spatial frequency range 0-10mm-1.