

AbstractID: 5710 Title: Comparison of image quality in contact and magnification modes in digital mammography

Purpose: To compare image quality in contact and magnification modes in digital mammography.

Method and Materials: Images of three anthropomorphic breast phantoms were acquired using a Hologic FFDM system. First, images were acquired in contact mode with grid. The exposure parameters were determined by AEC. Second, images were acquired in 1.5x magnification mode without grid. The exposure parameters were selected such that the detector entrance exposures were the same as those in the first experiment. The third, images were acquired in contact mode with grid and with the same patient doses in magnification mode. Image quality was analyzed using MIPAV software.

Results: 9lp/mm and 6lp/mm were resolved in the magnification mode and in the contact mode respectively. However, the smallest specks group in the phantoms (0.13 mm) could be detected in all modes. For masses and fibers, more features were detected in the magnification mode when the detector entrance exposures were fixed at those determined in the contact mode. More masses and fibers were detected in contact mode when the breast skin entrance exposures were the same as those in the magnification mode.

Conclusion: At the same patient dose, the contact mode provides better detectability of masses and fibers. The detectability of microcalcification above 0.13 mm is not improved by using the magnification mode. The detectability of smaller microcalcifications (<0.13 mm) needs further investigation.

Conflict of Interest (only if applicable):