

## FIRST RESULTS OF THE ACCEPTANCE TESTS ON DIGITAL MAMMOGRAPHY SYSTEMS

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Digital mammography is emerging technology that is evaluated for potential use in breast cancer screening programmes. Excellent image quality and an acceptable dose are the two main prerequisites prior to the safe use of this technology. The new “European guidelines for quality assurance in breast cancer screening and diagnosis” include a specific protocol to test for these systems. We report on our experience with the protocol.

In this study, the physical – technical tests were run on 19 digital mammography systems of 12 different vendors. The series include DR and CR technology and a slot scanning system based on photon counting.

New tools had to be developed for an efficient assessment of signal and contrast to noise ratios, homogeneity, dead pixels and contrast detail analysis. CR and DR technology have typically very different characteristics. Contrast detail analysis allows however to test both systems with the same criteria. Contrast-detail images were both manually read and evaluated with automatic software. The limiting values for the contrast detail analysis seem to correspond well to a necessary quality level that should be achieved in the radiological practice. This makes the protocol a success story.

The protocol should be further worked out for a few aspects. For some tests, data reporting is not standardized yet. Clear criteria are lacking for some tests (example: how many or which dead pixels are acceptable?). For quantities such as MTF, noise power and DQE, there are no established standards for a detector included (fixed) in a complete system (how to remove the grid or measure the dose at the detector?). We are in need for guidelines regarding computerized CDMAM evaluation. It is not clear whether and when flat field corrections should be performed. Image processing is not being evaluated.

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