

60. APPENDIX L: STEREOTACTIC BREAST BIOPSY QUALITY ASSURANCE (QA) PROGRAMME

L:1 QA Responsibilities and Relationships

L:2 MRT QC Checks and Tests for Stereotactic Equipment

L:3 Medical Physicist's Checks and Tests

L:1 QA RESPONSIBILITIES AND RELATIONSHIPS

Responsibilities for the Stereotactic Breast Biopsy QA Programme are the same as for the MQA Programme, Appendix K.

Stereotactic Breast Biopsy QA Programme

This should be as per the ACR Stereotactic Breast Biopsy Accreditation Programme,⁸⁶ modified as detailed:

1. when a completely dedicated Stereotactic Breast Biopsy system is used, or where the unit does not otherwise have documented testing to satisfy the requirements of Appendix K then it must be tested, in full, to the ACR Standard⁸⁷
2. when the Stereotactic Breast Biopsy system is an accessory, attached to a mammography system which has been satisfactorily tested, as per Appendix K then the modified tests tabulated below may be used to avoid duplication.

Individual screening units must recognise that these are minimum standards and that often increased frequency or additional tests may be necessary to ensure quality. This will vary from site to site and time to time.

NRL-C5 requires that the MQA programme is approved by the Medical Physicist:⁸⁸

1. all tests must be fully documented
2. for a number of tests a standardised report must be used.

Test results must be made available for inter-comparison and the collation of national statistics.

If any QC test fails, the problem must be identified and corrective action taken. In some cases, when the test result falls outside action limits, this must be done before any further examinations are made, or any films processed, using the component of the mammography system that failed the test. Other test failures must be corrected within 30 days of the test date.

L:2 MRT QC CHECKS AND TESTS FOR STEREOTACTIC EQUIPMENT

The QC MRT shall supervise the performance of the tests in accordance with the RANZCR or ACR Manual. There must be an appropriate allocation of staff time to perform these tests.⁸⁹ All MRTs need to be able to perform these tests and notify the QC MRT of any issues. These tests shall be agreed with the Medical Physicist.⁹⁰

There shall be a record kept of the test measurements as well as any faults, breakdowns or maintenance of equipment. This should include, for example, any fault messages from on-board computers, even if they resolve themselves.

86 ACR. 1999 b.

87 ACR. 1999 b.

88 NRL. 1994.

89 RANZCR 2002, ACR. 1999b.

90 NRL. 1994.

TABLE L:1 MRT QC CHECKS AND TESTS FOR STEREOTACTIC EQUIPMENT

	Comments	Corrective Action
DAILY*:		
Localisation Accuracy (in air)	ACR, or manufacturer's protocol (The needle length shall be identical to that most commonly used clinically)	Immediately except where the radiologist performing the biopsy is satisfied that they can correct for a consistent registration error
Zero Alignment Before each patient	If required by manufacturer	As specified by manufacturer
WEEKLY**		
Phantom images	ACR protocol. Not required for screen: film systems tested as part of Appendix K	Immediately except where the radiologist performing the biopsy is satisfied that there is sufficient image detail to permit successful localisation
MONTHLY		
Hardcopy Output Quality***	ACR, or manufacturer's protocol	Within 30 days of test date.
Visual checklist	ACR protocol	Immediately ****
SIX-MONTHLY		
Repeat analysis	ACR protocol	Within 30 days of test date
Compression	ACR protocol. Force limits are > 150N and <200N	Immediately

* Each day that the stereotactic breast biopsy system is used on patients.

** Each week that the stereotactic breast biopsy system is used on patients.

*** If hardcopy is produced from digital data.

**** The failure of any critical test would require immediate suspension from use; for non-critical tests, at the radiologist's discretion. Suspension would occur 30 days from test date if uncorrected.

TABLE L:2 ADDITIONAL TEST FOR SCREEN: FILM SYSTEMS

	Comments	Corrective Action
DAILY*		
Processor quality control	ACR protocol. No additional testing required if processor assessed as per Appendix K	Immediately
Processor cleaning (crossover rollers)		Follow manufacturer’s protocols and recommendations; not required if covered by Appendix K
WEEKLY**		
Clean screens (dry and wet)	ACR protocol; not required if covered by Appendix K	Immediately (whenever an artefact is identified by a MRT or radiologist)
View boxes and viewing conditions	ACR protocol; not required if covered by Appendix K	As per ACR 1999a
QUARTERLY		
Analysis of fixer retention in film	ACR protocol; not required if covered by Appendix K	Within 30 days of test date
SIX-MONTHLY		
Darkroom fog	ACR protocol; not required if covered by Appendix K	Immediately
Screen film contact	ACR protocol; not required if covered by Appendix K	Immediately

* Each day that the stereotactic breast biopsy system is used on patients.
 ** Each week that the stereotactic breast biopsy system is used on patients.

L:3 MEDICAL PHYSICIST’S CHECKS AND TESTS

All tests must be recorded on the approved forms or spreadsheet equivalent, in the manner described in the ACR Manual⁹¹, with copies sent to the designated MQA radiologist, Charge MRT and National Mammography Physics Co-ordinator.

Prompt reporting is important. If any equipment fails a critical examination (MGD, Image Quality or accurate localisation) then every effort must be made to advise the Licensee, the Designated MQA radiologist and the

Charge MRT immediately. A written preliminary report shall be left with the facility documenting the failure. A final report for all tests shall be sent to the facility within 15 working days.

Except where specified in Table L:2, tests must be performed at least annually. The qualified Medical Physicist may decide to increase the frequency of certain tests, perhaps only for a limited period of time, based upon the machine performance.

91 ACR 1999 b

TABLE L:3 ACR STEREOTACTIC CHECKS AND TESTS

Test Frequency	Corrective Action
1. Mammographic Unit assembly evaluation Six-monthly	Within 30 days of test date
2. Collimation assessment	Within 30 days of test date
3. Evaluation of focal spot performance*	Within 30 days of test date
4. kVp accuracy and reproducibility Six-monthly abbreviated Full test annually	Within 30 days of test date
5. Beam quality assessment (half-value layer)**	Within 30 days of test date
6. Automatic exposure control (AEC) system performance assessment Six-monthly Density control function annually Note: ACR 1999b explicitly requires AEC testing to a thickness of 8 cm	Within 30 days of test date
7A. Uniformity of screen speed	Within 30 days
7B. Digital Receptor Uniformity	Within 30 days of test date
8. Breast entrance exposure, average glandular dose, and AEC reproducibility Six-monthly	Immediately if >3mGy; Within 30 days of test date if >2 mGy***
9. Image quality evaluation Six-monthly	Immediately
10. Artefact evaluation	Within 30 days of test date
11. Localisation Accuracy (Gelatine Phantom Test****) Six-monthly	

* At commissioning this shall be evaluated for the stereotactic geometry, after that monitoring as per Appendix K will suffice.

** This test is systematically different from that in Appendix K. This test shall be performed at commissioning (to establish the difference). Thereafter monitoring as per Appendix K will suffice

*** It is unusual for the MGD to the MAP to exceed 2 mGy. If this occurs then technique and equipment parameters shall be reviewed to bring it below 2 mGy. If the MGD exceeds 3 mGy then the system shall be suspended from use until MGD is brought under control.

**** This requires phantom availability.