Technical Parameters

Digital X-ray Mammography System

1. Purpose and components of the equipment

1.1 Suitable for radiography of human breast tissue to obtain images for clinical diagnosis.
1.2 To ensure the compatibility of the whole machine and after-sales support, the high-voltage generator, flat panel detector, mechanical system, beam limiter, and image acquisition system in the complete set of equipment shall be from the same manufacturer.

2. High-voltage Generator

2.1 Maximum output power: ≥5kW;
2.2 Tube voltage range: 20kV～40kV;
2.3 Tube current range: 10mA～160mA;
2.4 Loading time range: 50ms～10s;
2.5 Current-time product range: 0.5mAs～500mAs;
2.6 With Automatic Exposure Control (AEC) function;
2.7 The digital mammography machine shall be equipped with anti-overload measures to ensure that the selection of loading factors does not exceed the rated capacity of the X-ray tube.

3. X-ray Tube Assembly

3.1 Anode type: rotating anode;
3.2 Target material: molybdenum;
3.3 Effective focal spot: 0.1/0.3;
3.4 Inherent filtration: 0.5mmBe;
3.5 Target angle: 10°;
3.6 Heat capacity of the tube assembly: ≥1300kHU;
3.7 Nominal tube voltage: ≥40KV;
3.8 Anode heat capacity: ≥300kHU.

4. Beam Limiter

4.1 Power supply: ≤DC 3.3V;
4.2 Lights up when the compressor is pressed down.

5. Digital X-ray Mammography Detector

5.1 Material: amorphous silicon cesium iodide flat panel;
5.2 Nominal size: ≥313mm x 236mm;
5.3 Pixel array: ≥4096 X 3072;
5.4 Pixel size: ≤77um;
5.5 Pixel sampling resolution: ≥16bits;
5.6 Spatial resolution: ≥6.0lp/mm;
5.7 Afterimage: During photography, the afterimage coefficient value shall be ≤0.3;
5.8 Average glandular dose of breast
a) The device shall display the average glandular dose of the breast for each irradiation;
b) The device shall display the average glandular dose for each acquired image;

6. Image Processing Software

6.1 Network communication: Complies with DICOM3.0 standard, and provides a DICOM3.0 standard compliance statement in the random documents;
6.2 Information management: The system shall be able to manage patient and image information; shall have the function of recording and displaying exposure parameters; shall have the function of displaying and inputting patient's name; shall be able to display left and right marking symbols on the image;
6.3 Image acquisition and processing and system configuration: The system has functions such as radiography examination, image processing, image browsing and printing, and system configuration;
6.4 Data interface:
a) Can perform electronic data exchange through a limited network, and exchange data with a certified DICOM storage server;
b) The data format is DICOM format;
c) Data can be stored on a local disk or burned to an optical disc;
6.5 User access control:
a) Users are divided into administrators and ordinary users (customized by users);
b) Users with administrator privileges have all permissions and can manage ordinary users, including adding, modifying, deleting ordinary users, and authorizing permissions;
c) Ordinary users have the permissions authorized by the administrator.
6.6 Performance efficiency: The minimum system imaging time under typical configuration is not more than 10 seconds.

7. Column

7.1 The radiography frame can rotate within the range of -90°～+90°;
7.2 Vertical movement stroke range of the radiography frame: the minimum ≤1050mm, the maximum ≥1650mm (the height of the image receiving surface from the ground when the radiography frame is at 0° position);
7.3 The radiography frame can be locked at any position in the full stroke;
7.4 The distance between the focal spot and the image receiving surface: ≥600mm;

7.5 The tube arm can rotate independently, with an angle between -60°～+60°;
7.6 In case of power interruption, the mechanical movement except the compression plate shall be in the locked state;
7.7 Compression device
a) The compression mode can be automatic or manual;
b) The compression speed can be automatically adjusted during compression to protect the patient;
c) Equipped with a flexible compressor, which can automatically decompress quickly after exposure;
d) The device can display the applied pressure;
e) Manual quick decompression is possible.

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