

Annexure – 01

Technical Specification for AI-powered mammography decision support solution

Product Overview

An advanced **AI-powered mammography decision support solution** designed to assist radiologists in the **early, accurate detection of breast cancer**, including small and subtle lesions. The system integrates seamlessly into existing mammography workflows and is trained on **global, multi-racial and multi-ethnic datasets** to minimize bias and improve diagnostic equity.

Clinical Challenges Addressed

- Racial and ethnic bias in traditional AI systems
- Breast cancer as the most common cancer worldwide
- Need for early detection to improve survival outcomes
- Global shortage of trained mammography radiologists

Key Features & Capabilities

- AI-assisted analysis for **2D & 3D mammography**
- High performance across **multi-racial & multi-ethnic populations**
- Enhanced detection of **small, subtle cancers and micro-calcifications**
- Reduction in **false positives and false negatives**
- Faster image interpretation and reporting
- Radiologist-in-the-loop approach (decision support, not replacement)

Performance Highlights

- Trained Engineers on **globally distributed datasets** (North America, Europe, Asia, Africa, Middle East & South America)
- Consistent accuracy across varying breast densities
- Optimized for early-stage cancer identification

Workflow Integration

- Fully integrates within **existing mammography console and PACS**
- No disruption to current clinical workflow
- AI processing performed via dedicated processing engine
- Results returned directly to workstation for review

Clinical & Operational Benefits

- Earlier cancer detection and improved patient outcomes
- Reduced unnecessary recalls and biopsies
- Improved radiologist efficiency and confidence
- Lower screening program costs
- Expanded reach to under-represented and underserved populations

Compatibility

- Digital Mammography & DBT systems
- PACS / Workstation environments
- Supports comparative review with prior studies

MAMMOGRAPHY MACHINE- SPECIFICATIONS	
Specification	Details
X-RAY GENERATOR	3.5 KW HIGH FREQUENCY GENERATOR 22KV TO 35KV IN 0.5KV PER STEP UPTO 70mA OUTPUT
X-RAY TUBE	DUAL FOCUS ROTATING ANODE SMALL FOCUS 0.1 / LARGE FOCUS 0.3
CONTROL PANEL	Soft feather touch panel with LCD display for parameters, mode selected & error messages
	APR Modes for automatic selection of Exposure parameters (KV & mAS) as per Large, Medium & Small breast sizes with manual override to select parameters manually.
	Digital Display of kV, mAs, Interlocks indicating fault, Focal Spot selected
	Machine ON/OFF switch, kV and mAs selection switch, Ready & Exposure Switches on Panel with indicators, Hand Switch with Retractable Cord for initiation of Exposure
BUCKY	Tabletop Size & Material: 24cm x 30 cm with Carbon fiber tabletop
	Grid: 24x 32 cm, 5:1 ratio, 31lp/cm lines focal distance 60cm, Carbon fiber interspaced material.
	Grid Movement type: Motorized oscillating
	Film Marking device: Alpha Numeric film identification device.
COMPRESSION	MAIN FEATURES <ul style="list-style-type: none"> • Automatic release of Compression at end of each Exposure. • Automatic release of Compression if there is Power Failure • Step Movement of Compression Paddle after 2 Kg. • Automatic compression locking after maximum compression of compression paddle.
	DISPLAY: <ul style="list-style-type: none"> • Digital display of applied Compression Force (In Kg). • Compression force up to 20Kg. • Movement of compression paddle up to 200 + 10mm. • Compression paddles: normal size 24x30cm, spot paddle (square). • Foot Switch: 1set of foot switches for compression & Gantry up & Down movements
STAND ASSEMBLY	A compact Stand on which C-Arm containing X-Ray Tube & Bucky Assembly is mounted suitable for lateral projections. Vertical Movement (Motor operated) : 550mm Angular movement of X-Ray tube and Bucky: +/-90 degree Source to Image Distance : 650mm. Magnification Device : 1.8X
SWITCHES	<ul style="list-style-type: none"> • 2 No's "Emergency OFF" switches on each side of Gantry Column are provided to shut down the machine in case of emergency. • Compression Up & Down Switch for force selection on both side of Gantry • Gantry Up & Down Switches and handle for rotation on both side of machine's gantry.
PROTECTIVE BARRIER	Transparent Lead Glass Screen for Operator Protection