

Preventive Maintenance Checklist

Hologic Selenia Dimensions (2D & 3D Tomosynthesis System)

Frequency: Semi-Annual
Standard: MQSA / ACR Compliance

FACILITY NAME [Facility Name]	SYSTEM SERIAL # [Serial Number]	SERVICE DATE October 9, 2026
SERVICE ENGINEER (FSE) [Engineer Name]	WORK ORDER / CALL ID [WO Number]	SOFTWARE VERSION [Software Rev]

1. VISUAL, MECHANICAL & ENVIRONMENTAL SAFETY CHECKS

DONE	INSPECTION TASK & VERIFICATION CRITERIA	RESULT
☐	Room Environment Inspection Verify ambient temperature (68°F–75°F / 20°C–24°C) and relative humidity within spec for a-Se detector stability.	Pass / Fail
☐	Emergency Stop Switches Test all E-stop buttons (Gantry left/right and AWS console) for immediate cut-off and clean reset.	Pass / Fail
☐	Radiation Shields & Safety Glass Inspect lead acrylic AWS operator shield and gantry face shield for cracks, looseness, or mounting play.	Pass / Fail
☐	Cables, Drag Chains & Interlocks Inspect C-arm and workstation cable carriers, connectors, and main power cords for pinching or wear.	Pass / Fail
☐	Mechanical Covers & Hardware Ensure all gantry, tube housing, base, and lift covers are securely fastened with no missing hardware.	Pass / Fail
☐	Footswitches & User Interface Controls Test rotation/height footswitch pedals, C-arm manual drive handles, trackball, mouse, and AWS keyboard.	Pass / Fail

2. GANTRY & MOTION MECHANICS CALIBRATION

DONE	INSPECTION TASK & VERIFICATION CRITERIA	RESULT
☐	Gantry Elevation & C-Arm Rotation Drive Verify smooth vertical drive motion and C-arm rotation (+180° to -180°); verify encoder accuracy at cardinal angles.	Pass / Fail
☐	Rotation Brake Assembly Ensure electromechanical rotation brake engages firmly and maintains lock under load.	Pass / Fail
☐	Compression Drive Mechanism Inspect motor drive, lead screws, and belt tensioning. Clean and lubricate vertical guide rails.	Pass / Fail
☐	Compression Force Calibration Calibrate using certified digital load cell. Verify auto power release, manual emergency release, and max limit (25–45 lbs).	Pass / Fail
☐	FAST & SmartCurve Paddles Inspect paddles for micro-fractures, latching alignment, and correct magnetic/optical paddle ID detection.	Pass / Fail
☐	Collimation & Light Field Alignment Verify light field-to-radiation field congruency for 2D and 3D modes. Ensure compliance with MQSA tolerance limits.	Pass / Fail

3. X-RAY GENERATOR, TUBE & EXPOSURE VERIFICATION

DONE	INSPECTION TASK & VERIFICATION CRITERIA	RESULT
☐	X-Ray Tube Assembly Check housing for oil leaks, excessive fan noise, and monitor Tube Heat Unit (HU) loading history logs.	Pass / Fail
☐	HV Cables & Termination Integrity Inspect high-voltage cable terminations, clean pins, and re-apply silicone grease if needed.	Pass / Fail
☐	kVp Accuracy & mAs Linearity Verify delivered kVp across 20–49 kV range using non-invasive meter. Confirm mAs output linearity.	Pass / Fail
☐	Beam Quality (Half-Value Layer - HVL) Measure HVL compliance across standard target/filter combinations (W/Rh, W/Ag, W/Al).	Pass / Fail
☐	Automatic Exposure Control (AEC) Calibration Perform AEC thickness tracking and dose calculation checks using BR12/acrylic blocks (2 cm – 8 cm).	Pass / Fail

4. FLAT-PANEL DETECTOR (A-SE) & TOMO RECONSTRUCTION

DONE	INSPECTION TASK & VERIFICATION CRITERIA	RESULT
☐	Detector Thermal Controller Verify thermoelectric cooling/fan operation; confirm detector operating temp is maintained within target spec.	Pass / Fail
☐	Gain & Flat-Field Calibration Execute full flat-field gain calibration sequence to map uniform pixel response.	Pass / Fail
☐	Bad Pixel Map & Artifact Analysis Update defect map. Perform uniform low-dose exposures to verify absence of ghosting or ring artifacts.	Pass / Fail
☐	3D Tomo Arc Synchronization & Geometry Verify smooth mechanical motion over 15° sweep arc. Perform Tomo geometric calibration for slice resolution.	Pass / Fail

5. AWS CONSOLE, DISPLAYS & PACS CONNECTIVITY

DONE	INSPECTION TASK & VERIFICATION CRITERIA	RESULT
☐	Diagnostic Display GSDF Calibration Calibrate 2MP/5MP Barco/EIZO monitors using photometer; verify DICOM GSDF, Lmax, and Lmin brightness levels.	Pass / Fail
☐	Database Maintenance & System Backups Clean database logs, purge temporary cache, export configuration, detector maps, and license keys.	Pass / Fail
☐	DICOM Network Integration Verify store, query/retrieve, Modality Worklist (MWL), and MPPS communication with PACS and RIS.	Pass / Fail

FIELD SERVICE ENGINEER SIGN-OFF

I certify that all PM checks and calibrations listed above have been executed per Hologic service documentation.

FSE SignatureDate

CUSTOMER / LEAD TECH ACCEPTANCE

System inspected and returned to clinical operation following service verification.

Accepted By (Print / Sign)Date

