Empowered by Innovation NEC

NEC Healthcare Display Solutions

HOSPITAL WIDE QUALITY ASSURANCE

REFERENCE

Featuring GammaCompMD QA with QAXRAY Module

Consistent DICOM Imaging for More Confident Diagnosis and Review

Quality assurance is increasingly demanded for assessing display image quality with a reliable recording and documentation at varying time intervals. Particularly for those larger installations in a modern multi-disciplinary hospital, featuring numerous diagnostic workstations, keeping track of what has been measured and on which display and when, can become a full-time task.

It is well recognised that a good asset management programme gives an optimised return on investment; aids scheduling of routine maintenance and assists QA compliance.

The NEC GammaCompMD QA Quality Assurance Solution with the QAXRAY™, module developed by diraal*, meets all challenges and demands head on by providing either an entry-level QA solution for small practices and clinics or a comprehensive solution for an entire hospital establishment.

IDEAL FOR DICOM DISPLAY QUALITY ASSURANCE IN:

Mammography and Primary Diagnosis (MD Series)

Clinical Review (MDview Series)

Conference and Education (Large Format Displays)

GammaCompMD QA delivers confidence that your hospital wide diagnostic and viewing displays all conform to the recognised DICOM standard

A total quality assurance solution from calibration to reporting that allows you to concentrate first on patient care

From a name to trust, a Quality Assurance Solution to depend on.

As the fourth largest Global IT Company, NEC manufacture over 30% of the Grayscale Display Panels installed in medical establishments today and can offer the largest range of hospital wide display solutions, supported by an unrivalled Pan-European Service Network.

NEC's GammaCompMD QA with QAXRAY™ is a powerful and comprehensive software tool to assist in maintaining, calibrating and documenting NEC diagnostic and clinical review monitors for Quality Assurance Compliance. The tailored service solution allows comprehensive configuration and adjustment to meet individual display system requirements.

TG18-QIQ Image Quality Test Pattern

Quality Assurance Essentials

Quality Assurance (QA) sets out a process by which medical services and appliances can be objectively evaluated against a designated standard, documented and securely archived. Quality assurance in all forms of medical care is important to safeguard the well being of patients. As well as increasing patient confidence in a service it also ensures that healthcare professionals are knowingly providing care and services with un-compromised diagnostic confidence. Quality Assurance offers a win-win situation with best-practice patient care and healthcare professionals working to continuously improve their performance.

Quality Assurance of medical displays can be a time consuming process. Appropriately assessing image quality requires the use of various optical instruments, the results of each needing to be recorded and documented at varying time intervals. Depending on the size and equipment complexity in any installation, keeping track of all measurement data can quickly become an expensive and onerous task.

Quality Assurance also increasingly becomes a legal regulatory requirement and serves to provide an objective basis on which to judge should any medical mal-practice occur or legal action be opened. Some local governments oblige hospitals to be able to present high-grade QA reports for medical display systems on demand and to archive them for many years. Any system which simplifies the important and vital quality documentation of a medical technique or application is welcomed by all management levels in the healthcare system.

Long-term Partnership and Cooperation

The management and smooth running of a radiological department in any hospital is a huge responsibility. With its unique Pan-European network of qualified sales and service personnel, NEC provides all the tools, expertise and support to help you in the day-to-day demands of high quality patient care.

GammaCompMD QA

TECHNICAL DISPLAY MANAGEMENT AND STANDARD QA ROUTINES

The powerful GammaCompMD QA software suite has been designed with an easy to use interface for the configuration, control and management of NEC medical displays. It additionally provides QA routines for straight-forward DICOM compliance.

GammaCompMD QA with straight-forward GUI Menu Structure and Network Administration Structure

ASSET MANAGEMENT

The asset management features of GammaCompMD QA provide a comprehensive overview of all NEC displays and display controllers connected to the network. Information about the display number, manufacturer, model name, serial number, resolution, LUT and temperature of each connected display are presented. The asset data allows optimal scheduling of future hardware upgrade or new investment. An individual asset ID name can be setup for each display.

ADVANCED SECURITY

The Display Lock function prevents the unauthorised changing of display settings in the OSD menu, whilst an automatic backup function saves client settings and calibration and QA test reports, thus increasing data security and peace of mind.

AUTOMATED DICOM CALIBRATION

The DICOM calibration schedule indicates when the grayscale calibration and DICOM conformance test were last executed and will be next scheduled. Calibration parameters such as white and black luminance level, as well as chromaticity target value (X,Y) and tolerance limits for white point control on NEC MD/MDview colour displays can also be set, which maximises the image quality and DICOM consistency throughout the hospital. Regular users of GammaCompMD QA will appreciate the high level of automated procedures, with additional batch commands of selected actions, executed in auto mode, ensure even more productive work processes.

DISPLAY MATCHING

White luminance and conformance test data from a source display can be easily copied to one or more target displays using the Display Matching function.

ALERTS AND NOTIFICATIONS

An automated e-mail (GammaCompMD QA Server only) or display notification system generates an alert when the result of the white luminance measurement or DICOM conformance test exceeds a predefined allowable deviation. Maximum uptime of all NEC displays throughout the hospital is assured.

QA REPORTS

GammaCompMD QA offers Quality Assurance routines according to the AAPM TG-18 (2005) and JESRA X-0093 test image and form standards.The Latest Results List presents a comprehensive overview including the most recent execution date and test results for a specific display. Detailed Test Reports present the test results of the selected measurement or QA test routine. The QA Test reports can be exported in CSV File Output for electronic archiving.

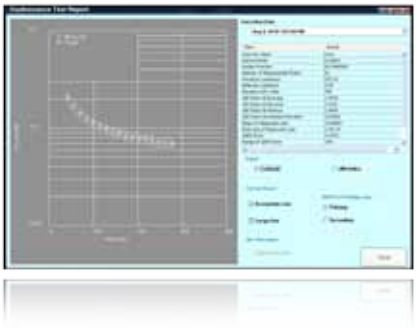
NETWORK AND REMOTE ADMINISTRATION

The optional GammaCompMD QA Network Administration software is a secure software tool, fully controlled by the Clinical Physicist or ICT Manager, capable of performing remote technical display management using the front sensor of MD Series displays within the same VPN network, even over multiple sites. Web-Browser access to the GammaCompMD QA Network Administration software allows intervention from anywhere throughout the web, for example in response to an automated e-mail alert notification. This optional software is available in a license model, covering varying quantities of networked workstations as part of a PACS system.

GammaCompMD QA Asset Management Review

GammaCompMD QA Automated Scheduling

GammaCompMD QA Alert Parameter Setup



GammaCompMD QA Report Generation

QAXRAY™ for IEC 62563-1, DIN V 6868-57 and future DIN 6868-157 QA conformance

Now all test parameters – as laid down by international standards authorities – can be queried, documented, stored and printed out at a touch of a button.

The QAXRAY™ optional module works seamlessly with the GammaCompMD QA Client and allows for high-grade Quality Assurance guaranteeing consistent image quality across the radiological imaging chain, and is available in several variants. QAXRAY™ offers QA routines for the German QS-RL (DIN V 6868-57 acceptance test, constancy test, daily/weekly visual test) and for the new international standard IEC62563-1 (acceptance test, constancy test). The QAXRAY™ modular system is so flexible that, for example the very latest regional regulations can be interpreted and incorporated within a very short period of time after publication and automatically made available to all users (if the appropriate maintenance contract is in place).

QAXRAY QA Data Entry Form

SPEED UP AND SIMPLIFY YOUR WORKFLOW

The QAXRAY™ Module integrates powerfully into your local network environment. The operating system independent and web-based documentation management system offers:

- Unified QA workflow with efficient documentation of all medical displays realising cost and time savings
- Internet Server based storage of documents and images with Multi-Language Support
- Test Images with Data Entry Wizard
- Simple organisation of reports and document
- Generation of 'Ready to Print' PDF Reports
- Always up-to-date QA Documentation
- Compatibility with non NEC branded displays

READY TO PRINT PDF REPORTS

QAXRAY™ generates a PDF report for each completed test form that can be printed from any browser using a PDF reader. A single report can be generated combining the QA results of both diagnostic monitors from a workstation. Each test report is electronically signed after any form value change to avoid any data manipulation.

QAXRAY PDF REPORT

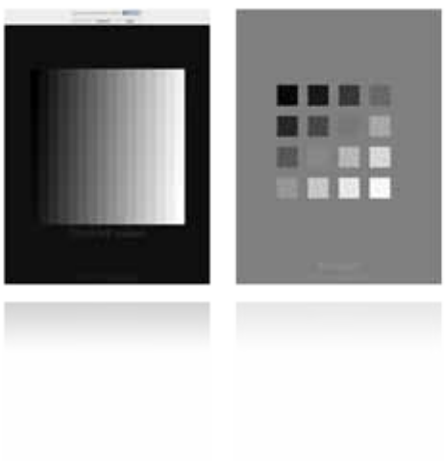
ORGANISE YOUR ENVIRONMENT AND QA DOCUMENTS

The QAXRAY™ hierarchical arrangement of hospital department or workstation group of diagnostic display assets and is designed to reflect your organisational structure. Security level based access routines enable staff to work only on those data records for which they are responsible, whilst web-based technology gives authorised personnel remote or off-site access to their data. Storage of external documents is effortless by straightforward linking of any file to any individual form.

TEST IMAGES WITH THE DATA ENTRY WIZARD

The Data Entry Form includes a wizard for easier and quicker completion. A simple and intuitive interface allows users to measure values immediately from the test image without using the mouse, so the other free hand can be used to handle measuring equipment. On completion of the test image sequence the wizard automatically completes the data entry form with the collected data.

No installation is required on the client workstation, whilst collection of measured data occurs directly while you view the test image.



Test Images

Up-to-Date QA Compliance with All Key Regional Variations

A single system that meets the challenging requirements of QS-RL, IEC 62563-1, as well as AAPM guidelines in a straight-forward and easy to use way. Up to date conforming forms and test images are presented in a web browser. Changes to guidelines and statutes are quickly implemented.

Included with MD and MDview Displays

The NEC GammaCompMD QA stand-alone Client software is included as standard with all NEC's MD and MDview medical display solutions. The optional GammaCompMD QA Network Administration software is available in a license model, covering varying quantities of networked workstations as part of a PACS system. QAXRAY™ add on module licenses are available on request.

QUALITY ASSURANCE STANDARDS AND GUIDELINES

AAPM (American Association of Physicists in Medicine)
AAPM Task Group 18 (Imaging Informatics Subcommittee)
Assessment of display performance for Medical Imaging Systems

DIN V 6868-57 Deutsche Industrie Norm
DIN V 6868-57: "Image Quality Assurance in X-Ray Diagnosis"
Part 57: "Acceptance Testing for Image Display Devices"

QS-RL "Qualitätssicherungs-Richtlinie"

PAS 1054
Publicly Announced Standard (Germany)
"Anforderungen und Prüfverfahren für digitale Mammographie-Einrichtungen"

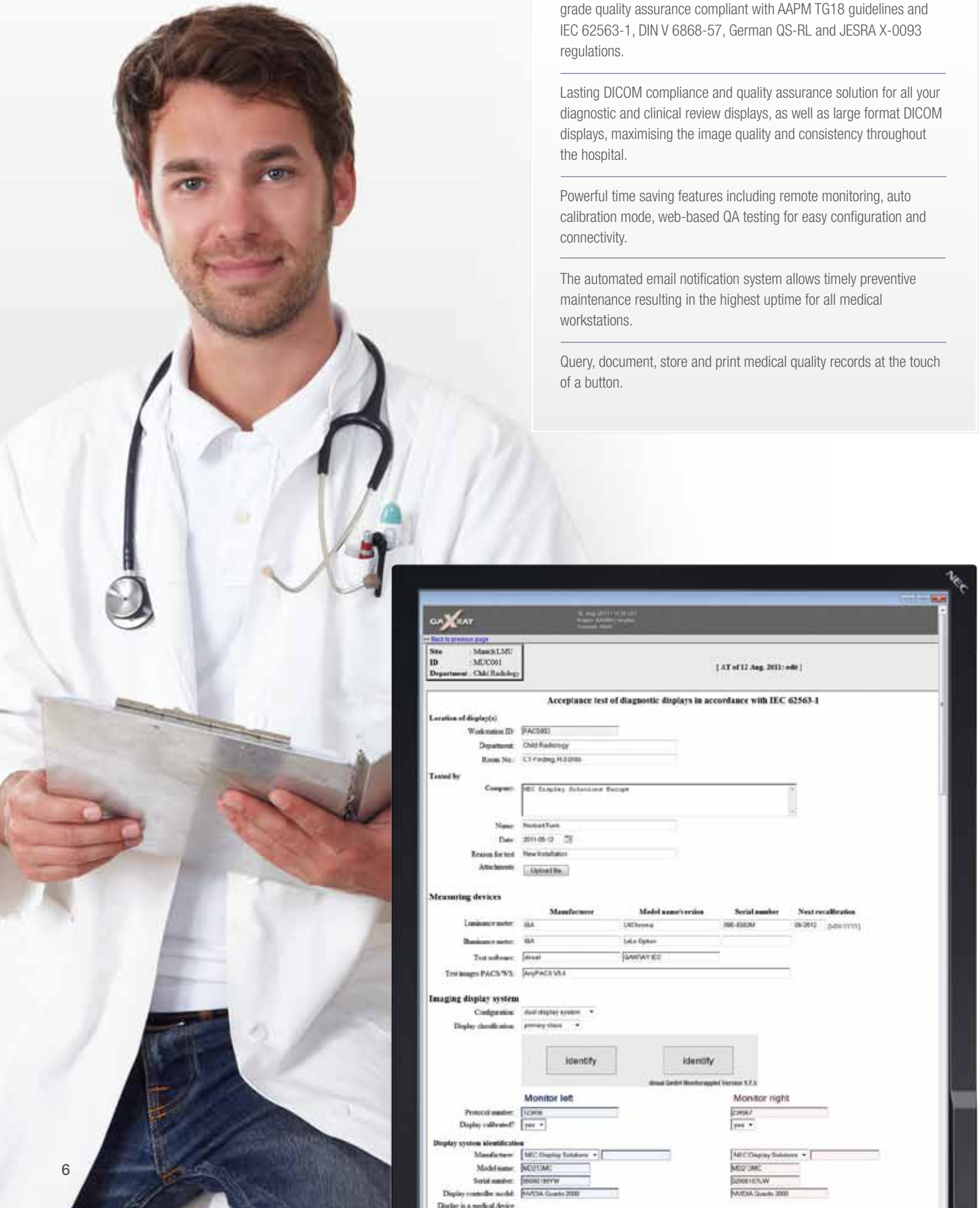
IEC 62563-1:2009
International Electrotechnical Commission
Medical electrical equipment – Medical image display systems
Part 1: Evaluation methods

JESRA X-0093
Japan Industries Association of Radiological Systems (JIRA)

EUREF
European Reference Organisation for Quality Assured Breast Screening and Diagnostic Services
www.euref.org

GammaComp MD QA Client Technical Specifications and Compatibility

HARDWARE	Core2Duo 2 GHz or newer, 2 GB RAM, 500 MB of free hard disk space
DISPLAY CONTROLLER BOARD(S) FOR NEC MD SERIES DISPLAY MODELS	NEC Supplied Matrox RAD, RAD LPX, MED and Xenia Series NEC Supplied Nvidia Quadro FX / Quadro / NVS Series NEC Supplied ATI FirePro Series
ATTACHMENT OF DISPLAYS	One (1) to five (5) MD Series Displays or NEC MDview Series Displays
OPERATING SYSTEMS	MS Windows XP Professional Service Pack 3 or MS Windows 7 Professional
COMPATIBILITY INFORMATION	GammaCompMD QA is fully compatible only with NEC MD Series Displays and MDview Series Displays with a minimum display resolution of 1280 x 1024 pixels.



GammaCompMD QA WITH QAXRAY BENEFITS

A comprehensive solution for technical display management and high grade quality assurance compliant with AAPM TG18 guidelines and IEC 62563-1, DIN V 6868-57, German QS-RL and JESRA X-0093 regulations.

Lasting DICOM compliance and quality assurance solution for all your diagnostic and clinical review displays, as well as large format DICOM displays, maximising the image quality and consistency throughout the hospital.

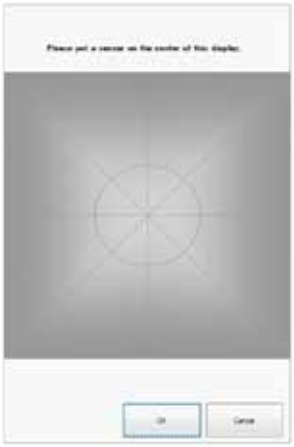
Powerful time saving features including remote monitoring, auto calibration mode, web-based QA testing for easy configuration and connectivity.

The automated email notification system allows timely preventive maintenance resulting in the highest uptime for all medical workstations.

Query, document, store and print medical quality records at the touch of a button.

OVERVIEW OF CALIBRATION SENSORS

The optional MDSVSensor PRO is positioned manually in the centre of the display for individual DICOM calibration and QA routines. A single MDSVSensor Pro can serve a complete hospital site. The integrated front sensor (in the right corner of the high brightness NEC MD Series displays) is used for automatic backlight stabilisation, as well as DICOM calibration and other technical display management routines as stand-alone or remotely using the GammaCompMD QA Network Administration software.



GammaCompMD QA
Calibration Sensor Placement Request

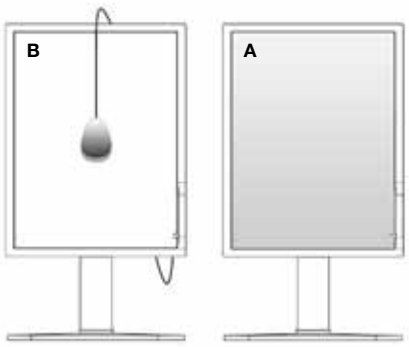
NEC MD Display
with Integrated Sensor

MDSVSENSOR PRO Kit
with USB connection

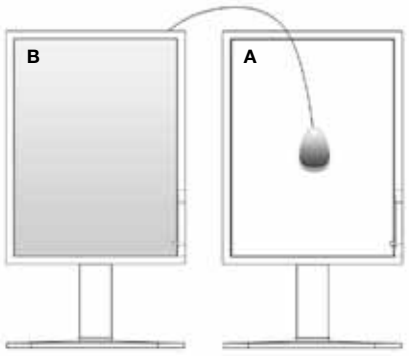
STAND-ALONE CALIBRATION FEATURE

The On Screen Display (OSD) Menu of the NEC MD Series includes a unique stand-alone calibration routine, which allows the self-calibration of the monitor or copy calibration settings from another monitor connected to the same workstation, without the need for any operating system or PC-based calibration application. This unique feature allows external calibration of NEC MD Series displays which are connected to modalities, Linux workstations or other PC operating systems not compatible with the standard calibration application.

A self-calibration is easily performed by connecting an MDSVSensor calibration device (placed on the centre of the display panel) to the display's right USB port and starting the procedure in the monitor OSD. During a copy calibration the white point (MD212MC/MD213MC) and white luminance of a source display are matched with a target display. The stand-alone calibration feature is available in the OSD Menu of the NEC MD212MC, MD213MC, MD213MG and MD301C4 displays.



Self-Calibration Process



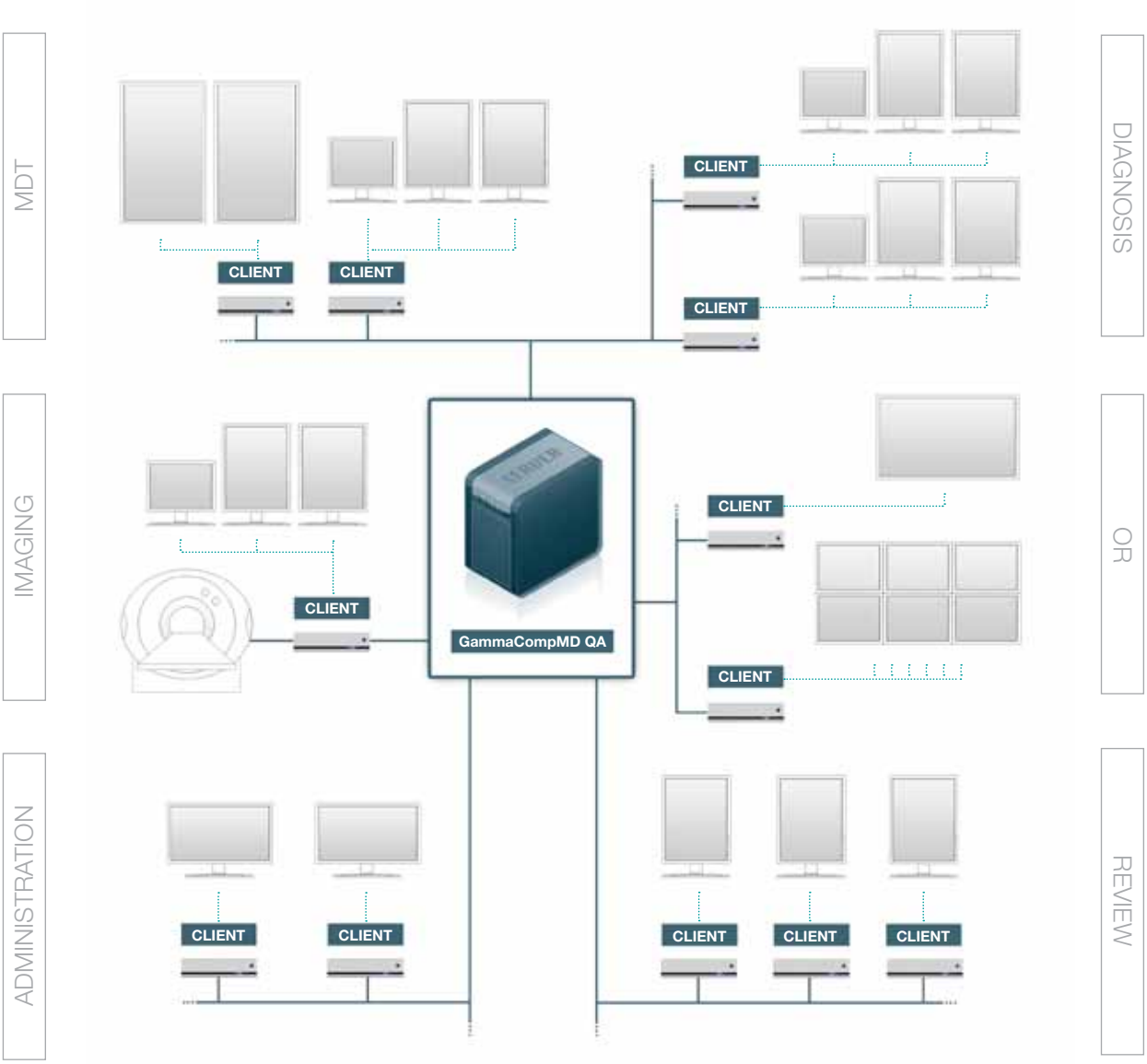
Copy Calibration Process

The NEC REFERENCE designation is awarded to our products and solutions which through their performance and benefits we consider to be the market benchmark for our customers. The logo is a tangible reminder of our high quality, performance-driven Japanese heritage, our focus on award-winning design flair and our passion for state of the art leadership in innovation and meeting the demands of our customers in the most challenging applications.

HOSPITAL WIDE QUALITY ASSURANCE

Featuring GammaCompMD QA with QAXRAY Module

Comprehensive Hospital-Wide QA Network



* Diraal is a leading supplier of specialised medical quality assurance software. More information about diraal can be obtained by visiting their website www.diraal.com

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Document Name: GammaCompMD QA Overview
Document Revision: Version 1
Document Date: 09/11

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