Access all areas with the premium DR room to go

Philips MobileDiagnost wDR mobile digital radiography specifications

PHILIPS

sense and simplicity

Contents

Conformity

The mobile digital radiography system MobileDiagnost wDR from Philips Healthcare conforms to the provisions of Medical Device Directive 93/42 EEC and MPG and meets the IEC standards. It complies with the requirements for safety and regulatory in Europe and fulfills the requirements for approvals for North America, and other regions.

Ambient Conditions	
Temperature	
Operation	+ 10 °C to + 35 °C
Storage	-15 °C to + 40 °C
Relative humidity	
Operation	30% to 75%
Storage	20% to 90%
Air Pressure	
Operation	700 hPa to 1060 hPa
Storage	700 hPa to 1060 hPa
Class A device according to EN 60601-1-2	

1 Introduction

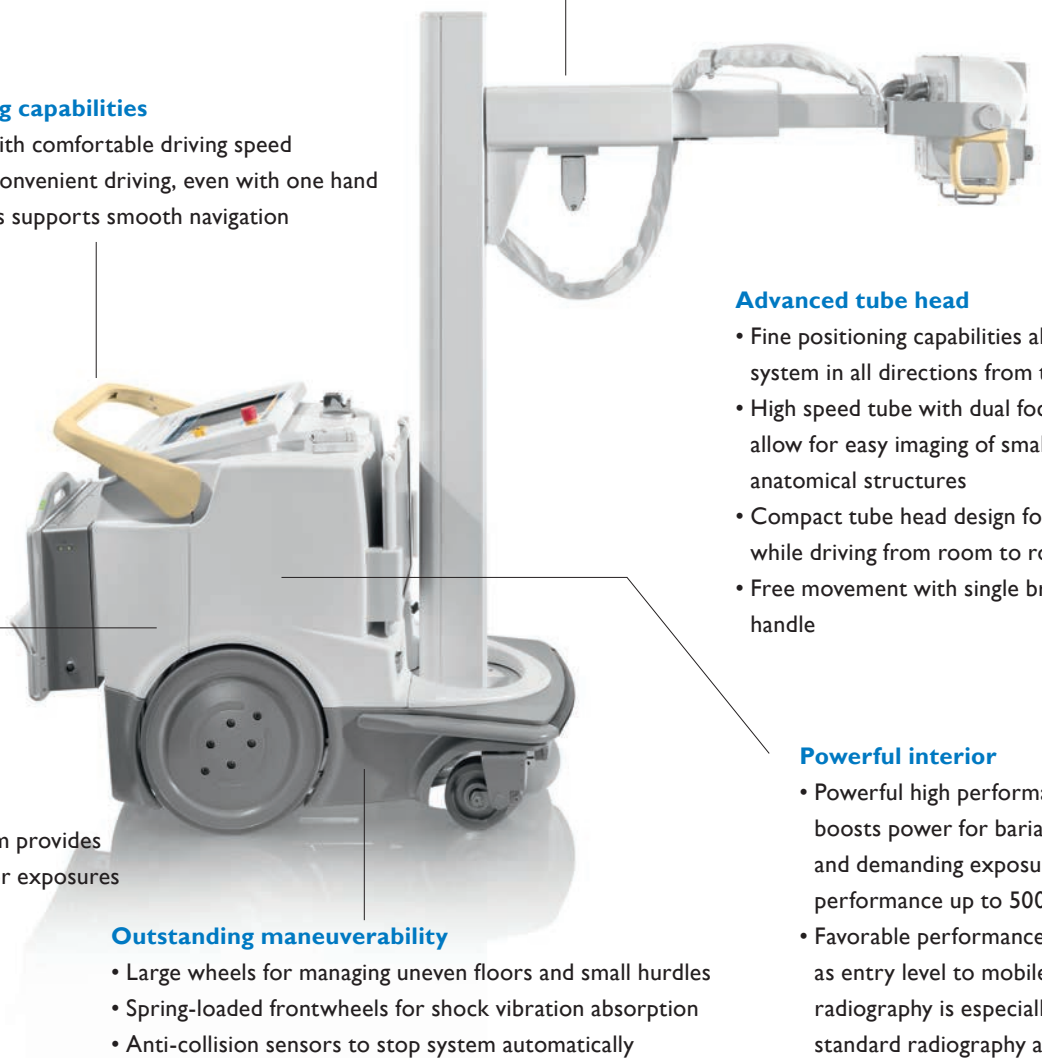
Imagine having the superb quality and full efficiency of Philips' premium digital radiography rooms all packed into a flexible mobile X-ray system. This is exactly what the Philips MobileDiagnost wDR offers you. Benefit from outstanding workflow with rapid availability of premium digital images. Streamlined processes are made possible thanks to the effortless procedures with the Philips wireless portable detector and seamless connection to the hospital network. With the easy to maneuver MobileDiagnost wDR, you'll reach every area of the hospital – and new levels of imaging flexibility.

Key advantages

- Access to all hospital and anatomical areas: Make use of a flexible system especially suited for acute areas
- Access to excellent efficiency and workflow: Perform exams seamlessly with intuitive system handling
- Access to rapid, high-quality images: Get excellent images within seconds to facilitate fast diagnoses

2 System overview

Digital wireless mobility means having your DR room wherever you need it. That's especially advantageous for critical, acute areas where rapid decisions are essential. Gain time through cable-free positioning and rapid image processing. Take the equipment to the patient – because fast diagnoses can make all the difference.



Flexible telescopic tube arm

- Tube arm with long telescopic range easily reaches over patient beds
- Allows flexible positioning with +/- 315° rotation

Convenient driving capabilities

- Robust base unit with comfortable driving speed
- Easy handling and convenient driving, even with one hand
- Small turning radius supports smooth navigation

Advanced tube head

- Fine positioning capabilities allow moving the system in all directions from the tube head
- High speed tube with dual focal spots allow for easy imaging of small and large anatomical structures
- Compact tube head design for high visibility while driving from room to room
- Free movement with single break-release in handle

Smart battery management

- Dual battery system provides dedicated power for exposures and motor drive

Outstanding maneuverability

- Large wheels for managing uneven floors and small hurdles
- Spring-loaded frontwheels for shock vibration absorption
- Anti-collision sensors to stop system automatically

Powerful interior

- Powerful high performance version boosts power for bariatric patients and demanding exposures with peak performance up to 500 mAs
- Favorable performance version as entry level to mobile digital radiography is especially suited for standard radiography applications

Versatile collimator

- Built-in spectral filters and optional DAP meter for X-ray dose management and reporting
- Bright, long-lasting LED light clearly indicates exposure area
- SID laser indicator supports convenient positioning

Intuitive Eleva user interface

- Harmonized and intuitive user interface across X-ray modalities for easy operation
- All parameters are optimized for different types of patients, exams, views, and acquisition
- Immediate image viewing capability on the 17" touch-screen display provides for swift procedures throughout the hospital
- Integrated generator control

Fast connection

- Rapid transfer of images to hospital network via Wi-Fi or LAN connection
- Based on wireless standard technology and additionally equipped with a LAN cable

Multi-resolution UNIQUE image processing

- State-of-the-art image processing that provides all relevant information in one image
- Harmonizes contrast, enhances small details and attains detail accuracy in all areas
- Achieves consistently high image quality

Sturdy wireless portable detector

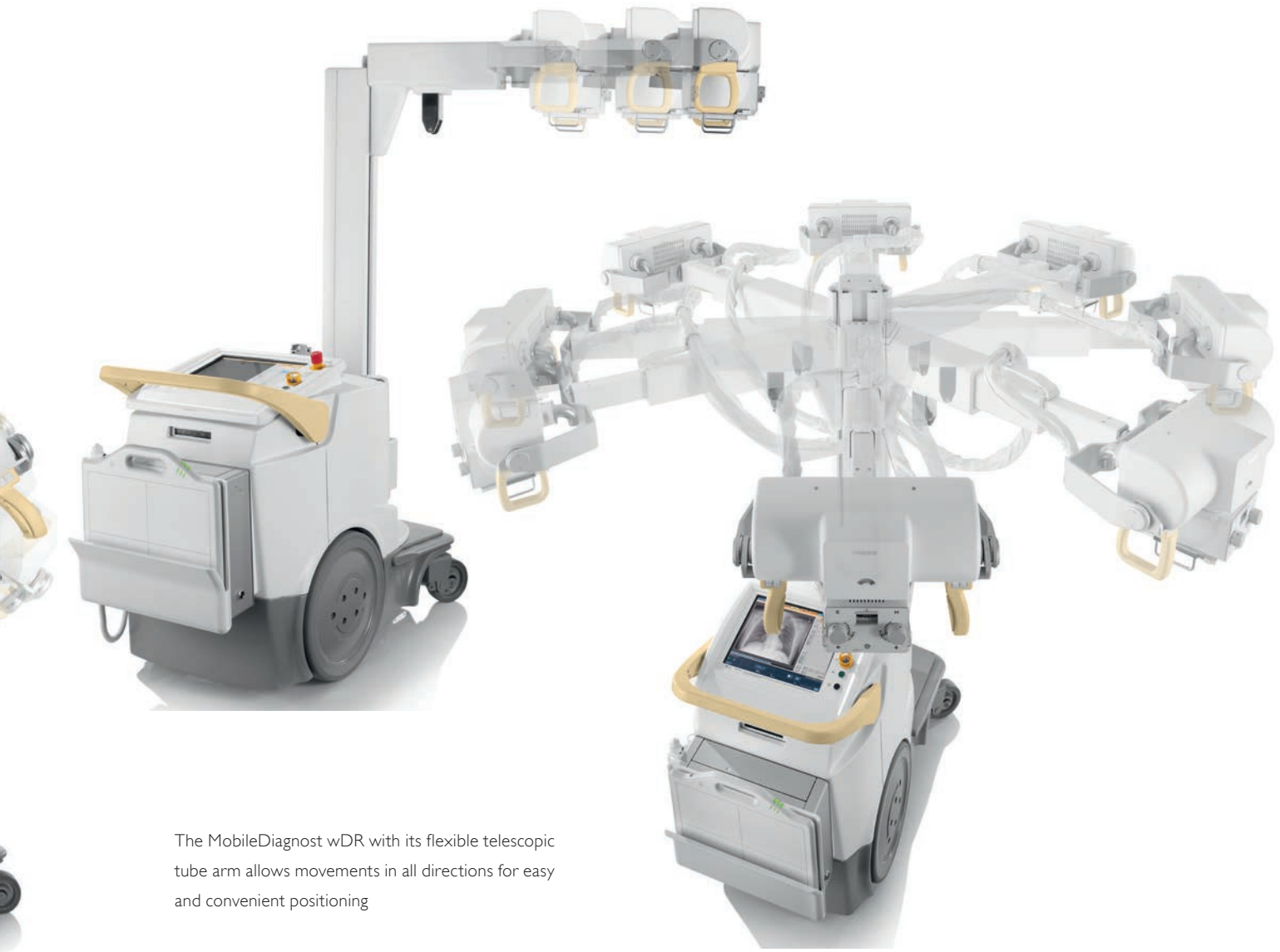
- Comfortable handling with cable-free design
- Suitable detector size to carry-out even the most difficult projections
- Smooth, rounded edges maximize comfort for patients
- Resolution of 144 µm allows for high-quality imaging
- Excellent X-ray dose efficiency with digital CsI detector
- Convenient on-board detector charging and grid storage

3 Geometry

The MobileDiagnost wDR has a strong, robust design making it highly suited to the aggressive demands of busy medical facilities. It may quickly become your hospital hero. No matter what the critical area, the MobileDiagnost wDR zooms to where it's needed, aptly does the job, then quickly departs to the next task. It gets into tight spaces and navigates crowded areas with ease, so you can give your patients premium care and streamline your procedures.

Base Unit	
Type	Mobile X-ray unit with telescopic X-ray tube arm and wireless portable detector
Dimensions (l x w x h)	1375 mm x 670 mm x 1980 mm (54.1" x 26.4" x 78")
Weight	575 kg (1278 lbs)
Wheel base length	600 mm (23.6")
Back wheel size	430 mm (17")
Motorization	5 km/h (3.1 mph) tube in parking position 1.6 km/h (1 mph) tube not in parking position 3.2 km/h (2 mph) backwards
Focal point distance from floor	max: 2020 mm (79.5") min: 550 mm (21.7")
Focal point distance to column	max: 1250 mm (49.2") min: 700 mm (27.5")
Tube column rotation	± 315°
Telescopic arm	yes
Handswitch with release button and collimator light check	yes
Fine positioning from tube head	yes
Anti-collision sensor and brake	yes
Hook for lead apron	yes
Grid storage for click-on grid	yes

Batteries	
Batteries	Separate batteries for drive and generator control
Type of batteries	Lead acid
Low battery indication	yes
Power for charging single phase	230/115 VAC ± 10%; 50/60 Hz
Generator battery power	30 x 15 Ah
Maximum storage	110000 mAs at 80kVp
Time to charge	10 hours from empty to fully charged
Motor battery power	8 x 9 Ah
Typical usage	4 hours of continous movement (approx. 20 km/12.4 mi)
Time to charge	6 hours from empty to fully charged



The MobileDiagnost wDR with its flexible telescopic tube arm allows movements in all directions for easy and convenient positioning

Optional

Wireless remote control for preparation/exposure

The wireless remote control for MobileDiagnost wDR uses infrared technology and allows technologists to keep a larger distance from the X-ray source for ideal radiation protection.

Type	
Type	Infrared; with battery status display
Reachability	10 m (32.8 ft)
Acoustic signal when remote control is not inserted back into the cradle	yes
Collimator light at handswitch	yes

To support a low radiation dose, exposure can be released with optional wireless remote control

4 Detector

Philips wireless portable detector is made of amorphous silicon and cesium iodide scintillator for excellent image quality. The versatile device has a built-in handle, making it easy to carry and position. Smooth rounded edges support excellent patient comfort. The wireless portable detector is recharged automatically when placed in the docking station on the MobileDiagnost wDR.

Wireless portable detector	
Type	Digital CsI (Cesium Iodide) flat detector
Housing material	Magnesium
Sensor protection material	Carbon fiber
Detector size	35 cm x 43 cm (14" x 17")
Active detector area	34.1 cm x 43.2 cm (13.4" x 17")
Image matrix size	3,000 pixel x 2,372 pixel
Detector pixels	7.1 Megapixel
Pixel size	144 µm
Image resolution	up to 3.47 Lp/mm
MTF (%) at 1.0 Lp/mm	60
DQE (%) at 1.0 Lp/mm	51
Energy range (kVp)	40–150
A/D Conversion (bits)	16
Weight	Typical 4.8 kg (10.6 lbs) incl. battery
Maximum patient weight	100 kg (220 lbs) for weight bearing examinations 135 kg (298 lbs) for distributed load, e.g. chest examinations in bed
WLAN network standard	WLAN standard IEE802.11 a or g (configurable)
Encryption	Default WPA2 encryption according to IEE 802.11i

Battery	
Technology	Internal lithium ion battery
Size	43 mm x 50 mm x 14.5 mm (1.7" x 2" x 0.5")
Expected Lifetime	1 year (500 charge / discharge cycles)
Battery charging time	3.5 h for 100 % charge 1.5 h for 80 % charge
Battery operating time	2 hours typical at 100 images/hour

Convenient handling with the wireless portable detector's cable-free design

Optional

Accessories for the wireless portable detector

Detector holder

With Philips well designed detector accessories, like wireless detector holders, procedures become easier, faster and more patient-friendly as they help the technologist to work around the patient. Reach every patient body area and lessen your physical involvement with a moveable holder or bed holder.

Moveable detector holder	Suited for the wireless portable detector, CR or film cassettes
Dimensions (l x w x h)	830 mm x 670 mm x 1500 mm (32.7" x 26.4" x 59.1")
Vertical height adjustment	from 680 mm to 1280 mm (11" x 50.4")
Horizontal position	can be pivoted to any angle from 0° to 90° and swiveled around the lateral axis
Swivel around the vertical axis	±45°
Formats	Supports both landscape and portrait formats
Detector holder patient bed	Suited for the wireless portable detector, CR or film cassettes
Dimensions (w x h)	220 mm x 630 mm (8.7" x 25")
Formats	Supports both landscape and portrait formats

Grid

Choose between click-on grids in portrait or landscape orientation for the wireless detector and transport it directly on the mobile unit. The grids are especially useful for abdomen, chest, axial hip and pelvis applications. Philips advanced gridline-correction algorithm removes the gridlines from the images for excellent image quality.

Type	Click on, fixed grid 40 lines/cm R = 8:1, fo = 1300 mm (4' 3.2")
Weight	1.8 kg (3.9 lbs)
Orientation	Landscape or portrait
Automatic gridline-correction algorithm	yes

To enhance workflow and ease patient positioning, the moveable detector holder is designed to make exceptional use of the wireless portable detector

With the detector holder for patient beds projections can easily be performed without moving the patient

Grids for the wireless portable detector can always be carried in the MobileDiagnost wDR grid holder

5 Detector sharing

Philips detector sharing enables hospitals to share the Philips wireless portable detector between Philips DigitalDiagnost DR rooms, Philips EasyDiagnost Eleva DRF rooms and Philips MobileDiagnost wDR systems. There are plenty of options available that help to increase system and detector utilization. The wireless portable detector can be used for free exams or inserted in a wireless tray in tables or vertical stands in several rooms providing more cost efficiency and flexibility at the same time.

Optional

Main benefits at a glance

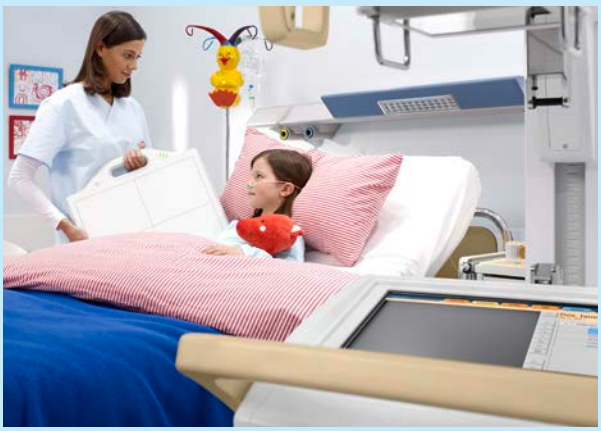
- Low initial investment while assuring a high level of flexibility
- Back-up solution to provide continuous uptime
- Smart starting point for upgrades, i. e. adding additional detectors in the future

Cost efficiency as the driver

- In today's medical world facilities have to be mindful of the budget while maintaining their power to compete
- Wireless portable detector sharing is a convincing answer to financial constraints
- With a fixed expenditure the room utilization can be raised to an even higher degree

Possible scenarios for detector sharing

- If there are times during the day when one wireless portable detector would be enough to cover the workload
- If the hospital is equipped with several digital radiography and fluoroscopy rooms in close proximity which only occasionally need a wireless portable detector
- If the medical facility only needs mobile radiography units at certain times during the day



Increased detector utilization with detector sharing

High level of flexibility with reduced initial investment


DR high performance room
DR flex room
DR value room
DR emergency room
DR chest room
Share it as you like
High performance DR room to go
Performance DR room to go
DRF value room
DRF high performance room
DRF high performance bariatrics room

6 X-ray generation

The MobileDiagnost wDR is available as a performance or high performance solution comprising different generator options. With its robust high performance package, the MobileDiagnost wDR delivers fast exposure times for challenging examinations and critical patients. The generator also boosts power for bariatric patients.

Generator	Performance	High performance
Type	High frequency	High frequency
Power	20 kW	40 kW
kV range	40 – 125 kV in steps of 1 kV	40–150 kV in steps of 1 kV
mA range	10 to 320 mA	10 to 500 mA
mAs range (dependent on the kV range)	0.1 – 500 mAs	0.1–500 mAs
Exposure times	0.001 – 10 s	0.001–10 s
Frequency	50/60 Hz	50/60 Hz

Tube		
Focal spot	0.3 / 1.0	0.7 / 1.3
Anode angle	12°	16°
Anode heat storage capability	100 kJ (140 kHU)	220 kJ (300 kHU)
Maximum voltage	150 kV	150 kV
Low speed rotor drives	3,000 r.p.m.	3,000 r.p.m.
Horizontal angulation of tube head	120°	120°
Active tube head breakes	yes	yes
Tube overload protection	yes	yes

Collimator	
Type	Manual, with LED light field indicator
Rotation	±120°
Filters	Built in filter disk for manual filter selection • No filter • 0,2 Cu + 1 AL • 0,1 Cu + 1 AL • 2 AL
Light indication when filter is selected	yes
SID laser light alignment	SID distance configurable at installation
Manual SID indication	yes

Fine positioning capabilities allow moving the system in all directions from the tube head

SID laser indicator allows convenient positioning

Built-in spectral filters for exceptional X-ray dose management

Optional

Dose Area Product meter

The Dose Area Product meter measures the X-ray dose output at the collimator and reports the measured Dose Area Product (mGy*m^2) to the DICOM header of the image. With this optional DAP meter, technologists can easily check the X-ray dose and perform accurate dose reporting.

Dimensions (l x w x h)	170 mm x 170 mm x 18 mm (6.7" x 6.7" x 0.7")
Active area	147 mm x 147 mm (5.8" x 5.8")
Light transparency	> 70 %

The optional Dose Area Product meter allows users to benefit from integrated dose reporting to PACS

7 Digital workflow

Your filmless workflow will be convenient and fast. The wireless portable detector and the renowned Eleva user interface provide all tools and controls on an intuitive touch-screen display to allow for seamless procedures. Exams can be prepared, performed and completed in just three steps, combining highly efficient operation with rapid results. Pre-programmed automatic exposure parameter settings for different patient types and radiography views will speed up procedures even more.

Eleva workspot	
Hard disk	340 GB
Image storage	Typically 4,000 images
RAM storage capacity	4 GB
Interfaces	• Wi-Fi • Detector interface • LAN cable (Ethernet) • DICOM interface
Start up time	Less than 3 minutes
Monitor	17"-LCD color touch-screen monitor 1280 x 1024 at 60 Hz
Generator control	• integrated into Eleva software • more than 600 pre-programmable APRs
Typical time to preview image	5 seconds
Additional time to full image	7 seconds
Typical cycle time	12 seconds
UNIQUE multi-resolution image processing	yes

Image data	
Data volume	Up to 18 MB/image
Matrix depth	16 bit/pixel

Wireless connection from wireless portable detector to MobileDiagnost wDR	
Network type	Isolated private wireless LAN (Wi-Fi)
Based on IEEE 802.11 a or g	Configurable
Back-up cable	LAN, 7 m (23 ft)
Data encryption	WPA2 encryption (configurable)
Wi-Fi access point	Included in the docking station
Available channels	Selectable at installation / depending on country allowance (can be configured according to hospital preferences)
IP addressing	Static IP-addresses will be set during installation

Rapid image transfer to hospital network via Wi-Fi or LAN connection

Intuitive workflow with Eleva user interface that provides all tools and controls on an intuitive touch-screen display

Wireless connection from MobileDiagnost wDR to the hospital network	
Network type	Standard network connection
Based on IEEE 802.11 g	Configurable
System protection	Anti-virus software and firewall
Backup cable	LAN, 3 m (9.8 ft)
Data encryption	Configurable WPA2 encryption (up to CCMP/AES with PSK)
Available channels	Range of channels 1-11

DICOM

MobileDiagnost wDR is DICOM compatible. This means that you can benefit from all relevant DICOM services offered via this common medical data transfer standard. Storing, retrieving, printing, and other features will improve your workflow.

The complete DICOM package includes:

DICOM WLM (Work List Management) and Classic RIS

DICOM MPPS (Modality Performed Procedure Step)

DICOM Print

DICOM Image Export incl. Storage Commit

8 Image quality

Excellent image quality is the basis for premium patient care. Philips pioneered the use of multi-resolution image processing in digital radiography with the creation of UNIQUE (UNified Image QUality Enhancement). UNIQUE image processing software provides outstanding images for all anatomical areas.

Outstanding images for all anatomical areas

Irrespective of data origin, UNIQUE multi-resolution software automatically delivers excellent images for both viewing and printing. It detects the appropriate region of interest and automatically sets brightness, contrast and detail enhancement, enhanced for each anatomical area and view.

The difference is in the details

UNIQUE is especially suited to those applications where high-definition detail is absolutely essential. Designed for flat detector use and for more efficient workflow, images can be viewed after the exposure in a matter of seconds, fully processed. UNIQUE's design is based on customers' experience. With UNIQUE, images can be customized to the individual preference of the radiologist. Whether sharper (higher contrast) or smoother (lower contrast) images are preferred, UNIQUE adapts to the way the user wants to see them displayed.

UNIQUE main benefits at a glance

- Consistently high image quality
- Harmonized contrast
- Enhanced details

Chest AP

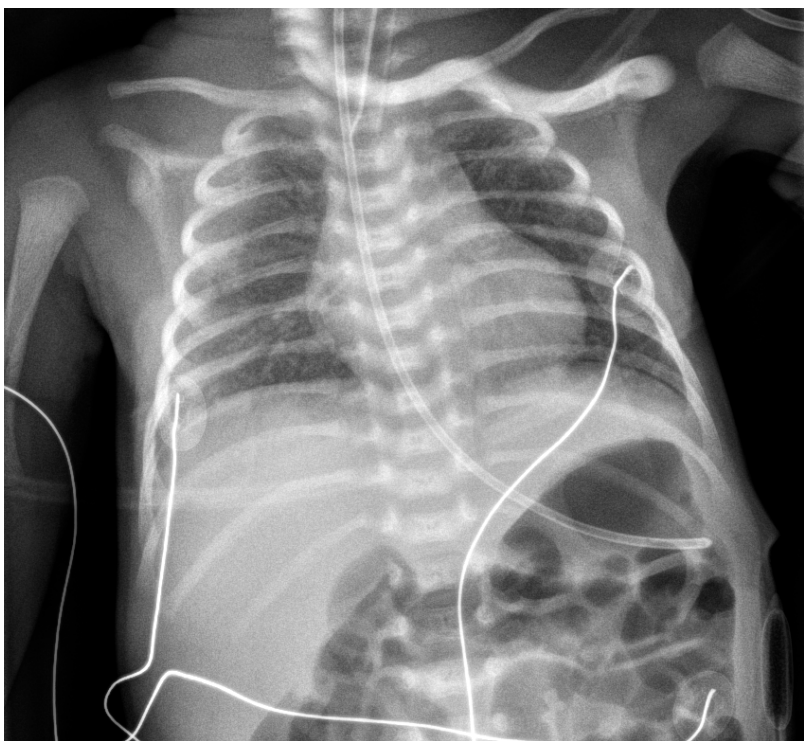
Skull lateral

Hip AP

Shoulder AP

Knee lateral standard processing

Knee lateral adapted processing for soft tissues



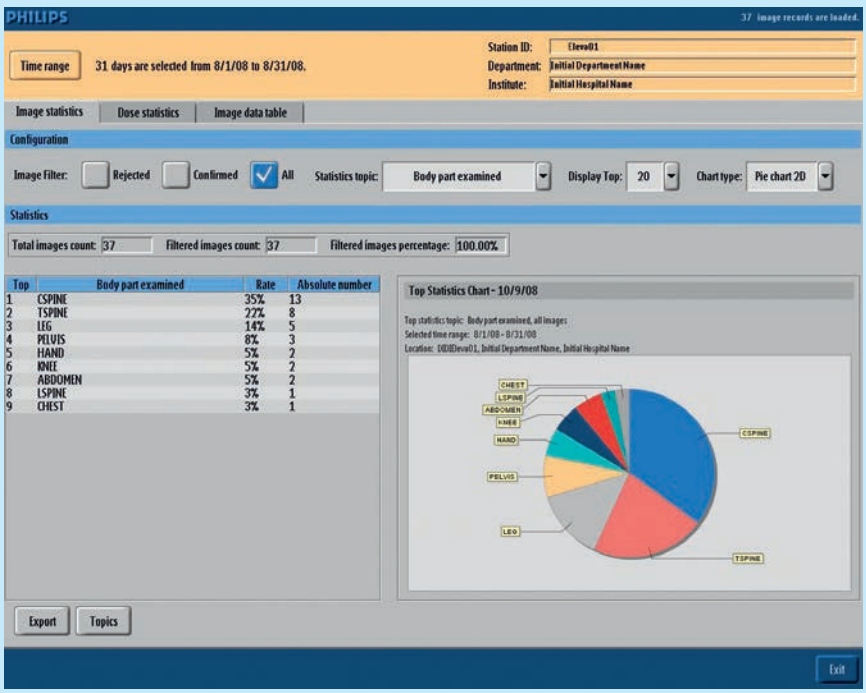
Pediatric chest

9 Clinical QC

The powerful image statistic tool provides the advanced user with functionality to analyze operator rejected images and reasons for rejection. It also serves to monitor an analyze general parameters. Therefore Clinical QC perfectly supports the quality standards of the department and teaching situations.

Optional

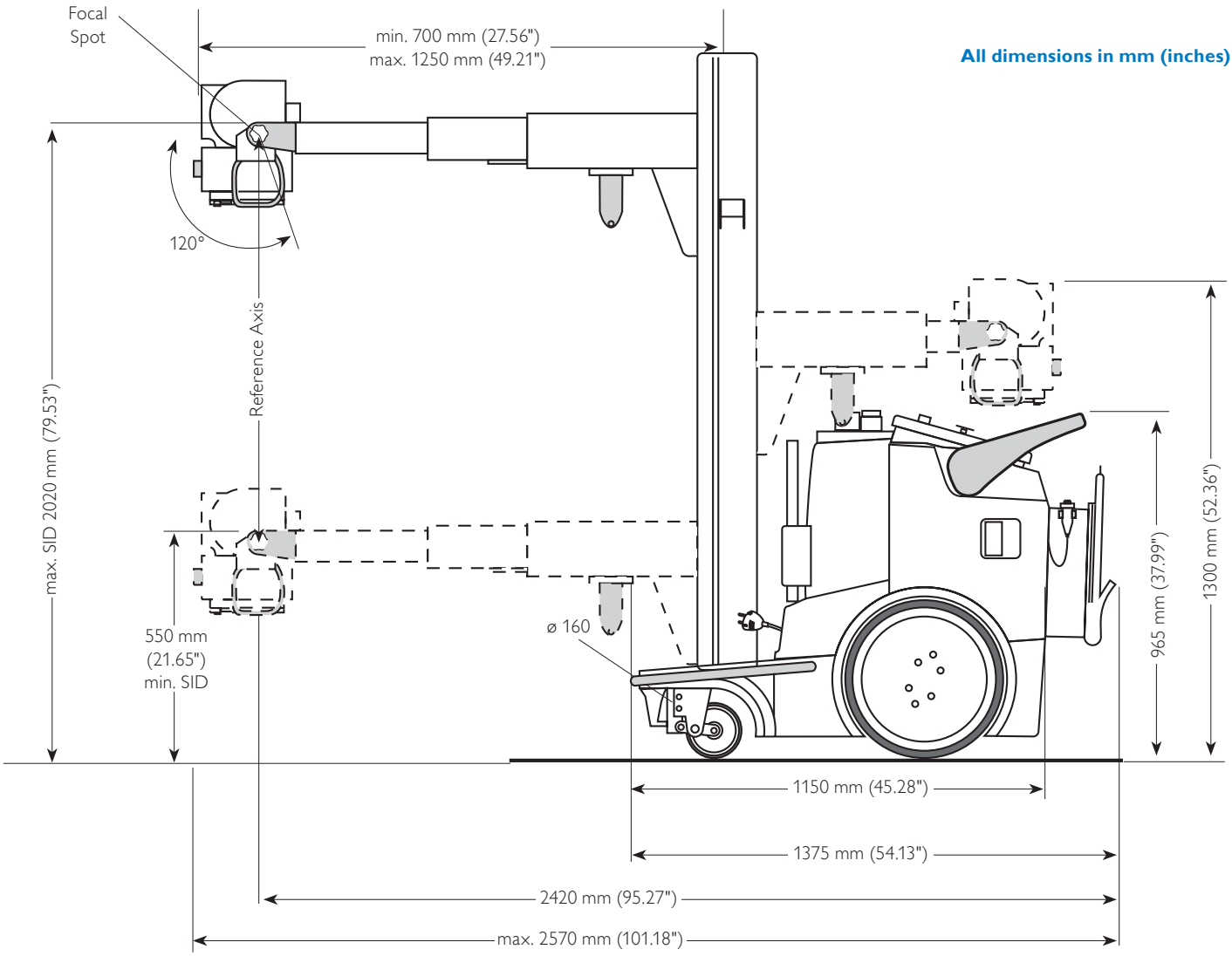
Dose documentation per image and examination
Presets of image rejecting reasons
Time period statistics
Data filtering on rejected and confirmed examinations
Data filtering on body area, operators and dates
Statistic presentation as bar or pie chart at Eleva workspot
Export results in universal csv-format for use with external spreadsheet software
Data storage locally on the system that can be accessed with ftp from any computer connected to the hospital network. This connection is password protected.

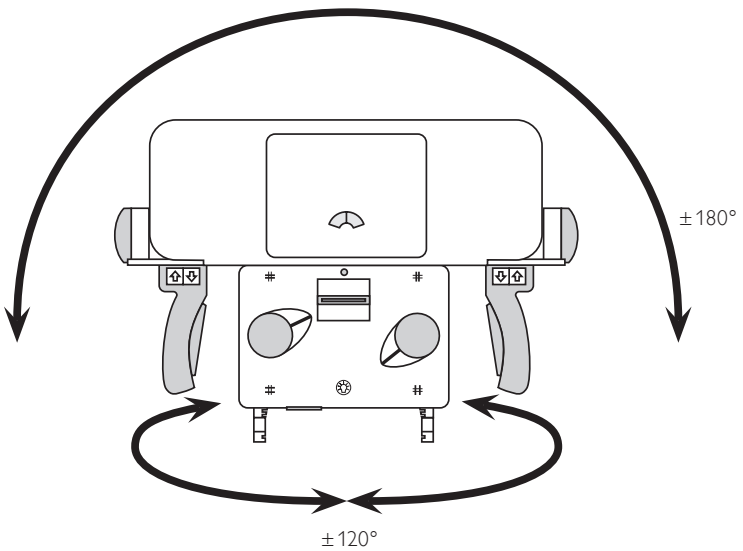


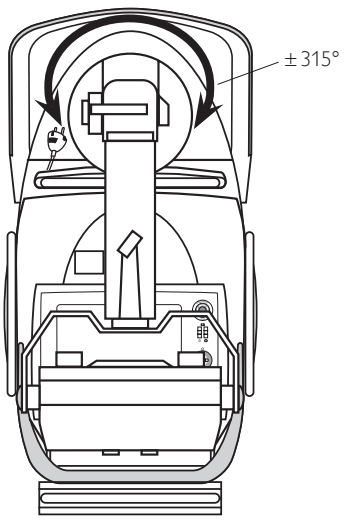
Convenient image statistics with Clinical QC

10 Dimensions

All dimensions in mm (inches)







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