Wireless without worries

Philips wireless DR solutions

PHILIPS

Feel at ease with wireless DR and IT

To enhance efficiency, use SkyPlates – Philips wireless portable detectors – throughout your DR department and beyond. This guide briefly introduces the wireless DR application scope and key SkyPlate advantages. It then focuses on all relevant wireless IT aspects, giving administrators a sound overview of IT topics and presenting detailed technical information for IT specialists.

Explore wireless DR
How does wireless DR detector technology speed up your procedures? By applying and sharing Philips wireless portable detectors – the large and smaller-sized SkyPlates – across the Philips DR portfolio. And by combining the large SkyPlate with SkyFlow technology. If clinicians decide not to choose an anti-scatter grid, SkyFlow delivers grid-like contrast without the added effort of using a grid.

Get the big IT picture
As an administrator, you're likely a part of staff discussions on wireless DR. How reliable is the connection? Will it influence the hospital network? How can you make sure that your high data security requirements are met? Use this guide to gain an IT knowledge base to support your decisions.
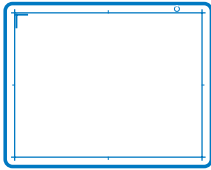
Discover IT details
If you're an IT specialist, you might like to dig deeper into technical specifications for wireless IT. These include supported channels, encryption standards and compliance to specific software versions. You'll find this particular information in specially marked sections at the end of this guide.

Wireless DR key advantages
- SkyPlates promote easy positioning for smooth workflow
- SkyPlate sharing permits a low initial investment while providing a high level of flexibility
- SkyPlate with SkyFlow provides excellent portable chest image quality with grid-like contrast

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SkyPlates wherever you need them

SkyPlate application scope

Which DR set-up matches your clinical environment to your investment strategy? Philips offers a huge DR portfolio for every need and budget. Benefit from more than 20 years of DR experience with over 6,500 installed units. The SkyPlates are an integral part of today's DR solutions and fit to your facility's individual workflow.

DigitalDiagnost DR rooms with SkyPlates

MobileDiagnost wDR systems with SkyPlates

ProGrade DR upgrade with SkyPlates

DuraDiagnost DR rooms with large SkyPlate

DigitalDiagnost DR rooms with SkyPlates

- Philips DigitalDiagnost offers a choice of five premium DR rooms: high performance, flex, value, emergency and chest
- Flexible use of the large SkyPlate in tables and vertical stands or alternative use of large and small SkyPlates for free exams
- Grid-like image contrast for free chest exams with SkyFlow gridless processing
- Cost-efficient SkyPlate sharing possibility

ProGrade DR upgrade with SkyPlates

- Philips ProGrade: The budget-friendly way to upgrade from Philips BuckyDiagnost analog systems to premium DR without geometry replacement
- Simple addition of SkyPlates and the premium Eleva user interface
- Staff training is according to the instructions for use, and little additional training is required due to familiar geometry and intuitive user interface
- Cost-efficient SkyPlate sharing possibility

MobileDiagnost wDR systems with SkyPlates

- Philips MobileDiagnost wDR, the premium DR room to go, comes in three versions: high performance, performance, and with SkyFlow
- Double wireless connectivity suited to acute care areas
- Small-sized SkyPlate is the mobile DR key option for incubators, extremities and emergency situations
- Cost-efficient SkyPlate sharing possibility

DuraDiagnost DR rooms with large SkyPlate

- Philips DuraDiagnost offers three room configurations with the large SkyPlate: efficiency room HP (high performance), value room and value room HAT (height adjustable table)
- Personalized care within a reasonable budget
- Excellent image quality with large SkyPlate
- Cost-efficient sharing with the large SkyPlate possibility

Share it as you like

SkyPlate sharing

For further flexibility and cost efficiency, you can quickly share the SkyPlates between the latest system releases of DigitalDiagnost rooms, MobileDiagnost wDR units, the analog to digital upgrade ProGrade, and DuraDiagnost rooms. There are plenty of sharing options available which can enhance detector, system and room utilization. The smaller-sized SkyPlate is particularly useful for sharing because of its specialized application range.

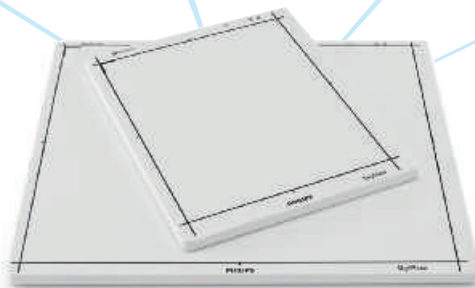**DigitalDiagnost DR rooms**

MobileDiagnost wDR systems

ProGrade DR upgrade

DuraDiagnost DR rooms

Use one SkyPlate with several systems *

SkyPlate sharing key advantages
- Low initial investment while delivering a high level of flexibility
- Back-up solution to provide constant uptime
- Smart starting point for expansion, i.e. adding more SkyPlates to your department in the future

Sharing with ease
- Philips installs a SkyPlate to the system for you and assigns a unique number
- During installation our customer service calibrates the SkyPlate for each system; the calibration data stays in the system
- You can view relevant information such as the next recommended SkyPlate calibration date in every assigned system

- Attach the SkyPlate to a specific system via an intuitive infrared connection before you begin an exam routine
- Then, just insert the SkyPlate in the respective table or vertical stand, or use it for free exams
- Since there is only one common license necessary, you can quickly switch between large and small SkyPlates in a single system
- Rapidly change the SkyPlate from one system to the next

* Small SkyPlate may not be available with all systems

Let your work flow with SkyFlow

SkyPlate with SkyFlow *

Naturally, the clinician always decides whether or not to use a grid. When working without a grid, SkyFlow processing can enhance bedside and trolley chest exam workflow. Philips' scatter correction technology for portable thorax X-rays provides grid-like image contrast without actually using one. By combining the large SkyPlate with SkyFlow, your facility will be able to work quickly and conveniently by avoiding the time and effort of attaching and detaching a grid.

SkyFlow key advantages
- Save time with gridless workflow and benefit from fully automatic image contrast enhancement
- Achieve excellent image quality for all patient types, including bariatric
- Focus fully on the patient with short exam times, and comfortable positioning

Reference image acquired without grid
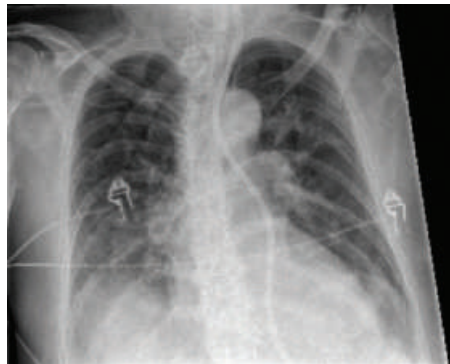
Same exposure, now processed with SkyFlow

Image of same patient acquired on a different day. A grid was used, and X-ray dose was increased by a factor of 1.6

* SkyFlow is available with DigitalDiagnost 4.0 and 4.1 and MobileDiagnost wDR 2.0

Wireless IT wherever you need it
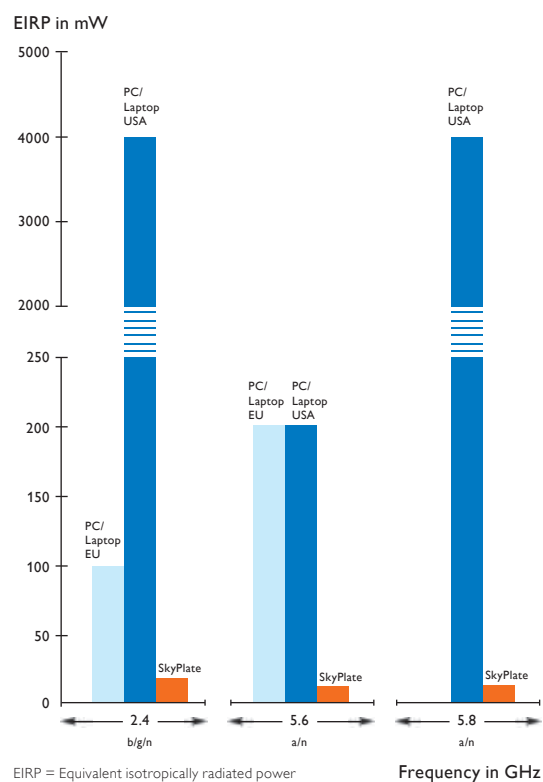
Wireless IT

Philips SkyPlates are equipped with proven IT technology. They feature a wireless connection between the SkyPlates and the related X-ray unit. The MobileDiagnost wDR has an additional WiFi connection to the hospital network. Count on data protection, secure point-to-point connectivity, and low electromagnetic emissions.

Illustrating the connections
- You can compare the connection between the SkyPlates and the system to a laptop with a single dedicated connection to a wireless mouse
- Sending images from the mobile DR unit to the network is similar to sending data from a laptop to a server

Low emissions and no interference
- Thanks to their low radio frequency emissions, the SkyPlates do not interfere with mobile phones, life support devices or pacemakers
- SkyPlate emissions are very low when compared to wireless emissions from PCs and laptops

EIRP in mW

5000 —

| PC/Laptop USA | | | | PC/Laptop USA |

4000 —

3000 —

2000 —

250 —

| | PC/Laptop EU | PC/Laptop USA | |

200 —

150 —

| PC/Laptop EU | | | |

100 —

50 —

| | SkyPlate | SkyPlate | SkyPlate |

0 —

| 2.4 b/g/n | 5.6 a/n | 5.8 a/n |

EIRP = Equivalent isotropically radiated power
Source: www.fcc.gov

Frequency in GHz

The wireless emissions from Philips SkyPlates are a fraction of the maximum power emission limits allowed for PCs and laptops

Key advantages of the wireless SkyPlate connection to the X-ray system
- Wireless design promotes a tangle-free environment
- Easy and flexible positioning for smooth workflow
- Real-time communication between the SkyPlates and the X-ray system is independent of your hospital IT network

Key advantages of the wireless MobileDiagnost wDR connection to the hospital network
- Seamless connection to IT infrastructure from all areas
- Rapid image transfer to PACS to support fast response times
- Image transfer from any location within transmission range since the wireless network does not require plugs

Count on transmission straight to the point

SkyPlate connection to X-ray system

The point-to-point connection between a Philips X-ray system and a SkyPlate provides fast and secure data transmission.

SkyPlate   X-ray system
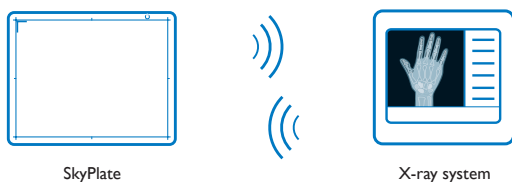
Point-to-point connection
- The SkyPlate uses a dedicated, secure point-to-point connection to the X-ray system independent of the hospital IT infrastructure
- X-ray generation and the SkyPlate are synchronized in real-time

Data security
- Only raw image data is transmitted to the X-ray system – not individually identifiable patient information
- Patient information is assigned automatically at the Eleva workspot of the host system
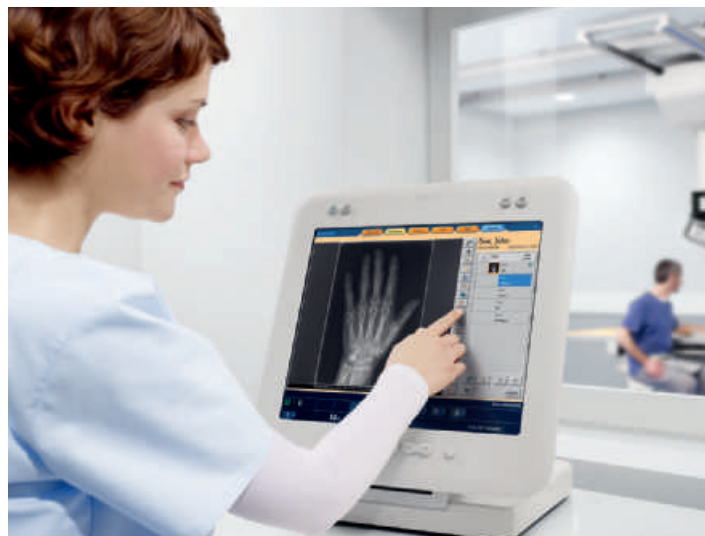
Image data is securely transmitted to the Eleva workspot

Place your trust in securely transferred images

SkyPlate connection to X-ray system

Images taken with a SkyPlate have the same quality standards as X-rays generated with fixed detectors. Certain features are designed to help prevent double exposures and scattered radiation. After you have completed the exam, the SkyPlate images are securely transferred to the Eleva workstation, ready for further analysis.

SkyPlate   X-ray system

Image information
- All image information is available, including dose parameters and exposure settings
- The Dose Area Product per image is displayed at the PACS and reported to the RIS via DICOM Modality Performed Procedure Step (MPPS) or to a dedicated dose management tool using DICOM Structured Reporting format; for MobileDiagnost wDR, as well as ProGrade with non-sensing Bucky units, this functions with an added DAP meter

Image availability
- Every image acquired is always stored in the SkyPlate memory until the data has been transmitted securely to the Eleva workspot; therefore, images can't get lost
- A pre-image is available just 3 seconds after pressing the exposure button
- You can view the full image after several seconds depending on your system

No double exposure
- Thanks to the connection between the generator and the SkyPlate, you can only take an exposure when the SkyPlate is ready; this helps to avoid double exposures

No scattered radiation
- Due to its real-time connection to the system, the SkyPlate is ready to acquire an image just before exposure
- Therefore, the SkyPlate can remain in the DR room because it won't be exposed to scattered radiation from other exams

Find more detailed IT information on the SkyPlate to X-ray system connection on page 14.

View a full image after several seconds

Swiftly access your mobile images on the network

MobileDiagnost wDR connection to hospital network

Philips MobileDiagnost wDR features a second wireless connection using standard wireless to integrate the images into the hospital's IT network. Alternatively, you can leave the images securely stored on the mobile DR unit.

MobileDiagnost wDR   Hospital network

Economic workflow
• The mobile DR unit automatically transmits the images wirelessly to the network
• This permits rapid response times with low user involvement

Data security
• The MobileDiagnost wDR is protected by a firewall that blocks unwanted incoming network traffic and prevents unintended access to patient data
• The network settings of the system are configured locally according to your existing IT infrastructure

Connectivity
• You can update the worklist from the RIS via the wireless connection
• Once you have completed an exam, images are automatically sent wirelessly to the configured PACS and/or the printer
• You can securely store up to 4,000 images on the system
• Upload speed may vary depending on your network settings, layout and traffic
• If the network connection isn't available or the transmission is interrupted, the system automatically resends the images once the connection is re-established
• If you decide to deactivate the wireless mode of the device, the acquired images are sent automatically once you connect the system to the hospital network using the integrated ethernet cable

Find more detailed IT information on the MobileDiagnost wDR to hospital network connection on page 14.

Typical wireless MobileDiagnost wDR range

Ca. 15 m (approx. 49')
Best performance

Access point

Ca. 65 m (approx. 213')
Philips suggested operating range for excellent workflow

Ca. 90 m (approx. 295')
Wireless transmission with limited performance

Work reliably for hours

SkyPlate details

Along with each SkyPlate comes a set of two easily and quickly exchangeable batteries and a dedicated battery charger. Optional spare batteries allow continuous uptime for your SkyPlate.

Battery charging
- When fully charged the battery lasts 3.5 hours or 525 images; this means you can take one image every 20 seconds
- Charging empty batteries takes about 4 hours

Back-up solution with back-up cables
- A 2 m (6' 6") back-up cable is delivered with every SkyPlate system
- The SkyPlate will read out the last image in case the wireless connection drops
- If the wireless connection is disabled, an optional 7 m (23') back-up cable is available for continuous use of the SkyPlate

Image quality
- You'll benefit from consistent image quality with wireless transmission since the wireless standard 802.11 has extensive error detection and correction mechanisms to transmit and receive all data correctly
- Thanks to UNIQUE – Philips' state-of-the-art image processing algorithm – you'll achieve high resolution, harmonized image quality from all image sources

Accident protection agreement
- Medical staff frequently carry SkyPlates between different systems, especially when sharing SkyPlates
- You can sign up for dedicated accident protection to safeguard your SkyPlate investment
- For detailed information please contact your local Philips representative

SkyPlates

Check out these specifications

Do you want to explore more? Find detailed IT information in the following tables and FAQs.

SkyPlate figures

	Small	Large
Type	Digital CsI (Cesium Iodide) flat detector (ISO 4090)	
Housing and sensor protection material	Carbon fiber	
Physical dimensions	26.75 cm x 32.75 cm x 1.50 cm (approx. 10" x 12" x 0.6")	38.35 cm x 45.95 cm x 1.50 cm (approx. 15" x 18" x 0.6")
Detector size	24 cm x 30 cm (approx. 10" x 12")	35 cm x 43 cm (14" x 17")
Active area	22.2 cm x 28.4 cm (approx. 8" x 11")	34.48 cm x 42.12 cm (approx. 13" x 16")
Image matrix size	1500 x 1920 pixel	2330 x 2846 pixel
Detector pixels	2.9 Megapixel	6.6 Megapixel
Pixel size	148 μm	148 μm
Image resolution	up to 3.38 Lp/mm	up to 3.38 Lp/mm
Weight (with battery)	1.6 kg (3.5 lbs)	2.8 kg (6.2 lbs)
Max. patient weight	100 kg (200 lbs) for weight bearing examinations 135 kg (298 lbs) for distributed load, eg. for chest examination in bed	

Wireless connection SkyPlate to X-ray system

SkyPlate   X-ray system

Network type	Isolated private wireless LAN
WiFi network standard	Wireless Standard IEEE 802.11 a,b,g,n (configurable)
Back-up cable	LAN, 7 m (23')
Encryption	Configurable up to CCMP/AES with PSK according to WPA2 (IEEE 802.11i)
WiFi access point	Included in infrastructure kit or in mobile housing
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
Radio frequency power	1-39mW g-band, 1-25mW a-band, power can be configured during installation

Wireless connection MobileDiagnost wDR to hospital network

MobileDiagnost wDR   Hospital network

Network type	Standard wireless connection according to the hospital infrastructure
WiFi network standard	Wireless standard IEEE 802.11 N
System protection	Protection against malware through Application Control (whitelisting technology)
Back-up cable	LAN, 2 m (6' 6")
Encryption	Configurable up to CCMP/AES according to WPA2 (IEEE 802.11i)
Authentication	With PSK or IEEE 802.1x (PEAP, EAP-TLS)

More details for IT specialists

SkyPlate | X-ray system

MobileDiagnost wDR | Hospital network

X-ray system | SkyPlate | MobileDiagnost wDR

Wireless connection SkyPlate to X-ray system

- You can adjust channel and RF transmission power of the SkyPlate and the access point to your hospital's needs, depending on local requirements
- Connectivity of up to 10 m (32' 9") depends on physical proximity (walls, doors, shielding)
- Antenna diversity always helps achieve the optimum transmission
- Connection is based on standard WiFi technology according to IEEE 802.11a (5 GHz) or 11 b/g/n (2.4 GHz)
- Configurable encryption up to CCMP/AES with Pre-Shared Key (PSK) according to WPA2 (IEEE 802.11i)
- No routing, bridging or network address translation (NAT) to/from the hospital network
- MAC filtering is active and allows only the attached SkyPlate to connect
- MAC addresses for the SkyPlate can be read out to define them as friendly devices
- Designed according to IEC 60601-1-2 (electromagnetic compatibility)
- Compliant with life support devices and pacemakers, designed according to IEC (EN) 45502-2-1

Wireless connection MobileDiagnost wDR to hospital network

- The MobileDiagnost wDR workspot acts as a client on the hospital WiFi network based on IEEE 802.11N (2.4 GHz)
- Channels 1 to 11 are supported for worldwide compatibility with regulatory requirements
- Configurable encryption up to CCMP/AES according to WPA2 (IEEE 802.11i)
- Authentication with Pre-Shared Key (PSK)
- Enterprise authentication according to IEEE 802.1x (supported protocols: PEAP, EAP-TLS)
- Multiple wireless configuration profiles are supported
- Ethernet and WiFi connections have independent IP addresses; you can receive DICOM storage-commit on either connection
- IP address assignment: Static or Dynamic Host Configuration Protocol (DHCP)
- Wireless working range (distance to access point) depends on physical proximity (walls, doors, shielding); please refer to Philips suggested operating range on page 11
- Software firewall for wireless and wired hospital network connection at the Eleva workspot

SkyPlate sharing

- System requirements: needs to be equipped with a software release capable of SkyPlate sharing (DigitalDiagnost 4.0, DuraDiagnost 3.0, MobileDiagnost wDR 2.0, ProGrade 1.0, or later)
- A detector needs to be set up for use with one or more systems; this set-up only needs to be done once on a single system to give the detector a unique label number/name
- Before usage you need to attach the SkyPlate to a specific system; during this step, the wireless settings are automatically exchanged between the SkyPlate and the system; this allows each system to have a different wireless set-up (e. g. different channel or different wireless encryption key)

Frequently asked questions

How many SkyPlates can I use with one system?
One SkyPlate at a time will be recognized and supported by each system.

Does SkyPlate sharing influence the image quality?
No, because the SkyPlates and UNIQUE image processing are the same for all systems, you will always benefit from excellent image quality.

Does SkyPlate sharing influence battery function?
No, SkyPlate sharing does not affect the lifetime of the battery.

Will I experience interference with my hospital IT network if I carry SkyPlates around my facility?
No, your Philips IT and Service team configures the systems during installation so that they run smoothly right from the start.

Can I connect wireless portable detectors from other vendors to my Philips room?
No, only Philips SkyPlates are integrated into the Philips Eleva concept which is not supported by other vendors.

What if I don't have a wireless hospital network?
You can still benefit from a SkyPlate because it sends the images within its point-to-point connection. To send images from the mobile DR unit to the PACS, just forward them from an ethernet port.
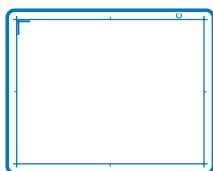
SkyPlate   X-ray system   Hospital network

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