Dentsply
Sirona

Imaging Site Survey
Version 46, December 2024

Table of Contents:

1. Site Survey Scope and Information

Introduction:

This information is only applicable to the following products.

Sidexis 4, Schick 33, AE sensor systems (PC and server specifications)
Orthophos E, S, SL / Ceph
Axeos

The online Site Survey at survey.dentsplysironasupport.com is the only accepted method of performing the site survey for a dental practice.
The online form will return immediate evaluation and distribution to all involved parties.

If you have any questions please call 1 (800) 659 5977

2. Radiation Shielding Plan and Design Review

We strongly advise that you become familiar with state regulations outlining your responsibilities for radiation protection and safety by consulting your state department of public health, bureau of radiation protection , dental section.

A shielding design takes the known radiation emmisions for a specific X-Ray unit and applies those to the existing circumstances in the dental office in question. Depending on the amount of images that will be taken in a timespan and the occupation of rooms in the proximity of the X-Ray system, additional shielding may not be required.
A typical Radiation Plan Review will cost in the range of $300 - $500.

Below you find a statement from "Pro Physics" about the necessity of plan reviews. Dentsply Sirona has successfully used Pro Physics in past 3D site assessments and evaluations.
A Shielding Plan Survey performed by a radiation physicist is mandatory for every 3D installation.

Shielding Designs (Plan Reviews)

Plan reviews are required in about half the states, but as a practical matter are needed in essentially every state to demonstrate compliance with occupational and general public dose limits. Every state has a rule worded exactly as, or similar to, the following (taken from NC rules):

(b) A licensee or registrant shall show compliance with the annual dose limit in Rule .1611 of this Section by: (1) demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed or registered operation does not exceed the annual dose limit;

Many states require a plan review to be completed and approved by the agency prior to installing the equipment. However, any state inspector can request demonstration that the installation meets the applicable dose limits for the occupational and public personnel at any time. Note that the rule above states that this can be demonstrated by calculation. A plan review is a calculation
that, if the facility meets the requirements in the plan review, demonstrates the dose limits will be met.

From a liability standpoint, scattered radiation levels from CBCT and general radiographic equipment can be quite high under many circumstances. A practice owner is wise to ensure that radiation levels are within limits to his/her neighbors and workers lest they be subject to potential litigation should injury from radiation be perceived by an individual or group of individuals.

Rather than guessing and under-shielding or spending too much money and effort on over-shielding, a plan review is a cost-effective way of ensuring a safe operating environment and demonstrating that occupational and public dose limits are met.

Most state agencies maintain lists of persons and companies qualified to provide plan reviews.

https://www.landauer.com/lmp
2 Science Rd.
Glinwood, IL 60425
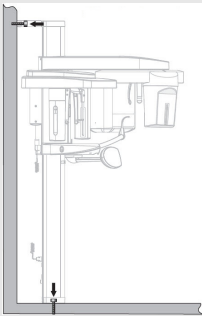Toll Free (800) 835-3615   Phone: (919) 465-2545   Fax: (919) 465-2544
customerservice@landauermp.com

(Landauer is not affiliated with DensplySirona, you may choose any other provider).

3. Mounting options

Please chose one of the following options:
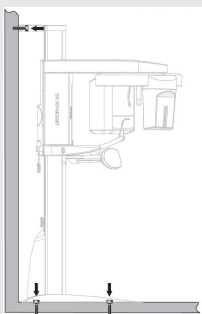

Option 1: Standard

Wall bracket and 2 floor anchor bolts (provided by Dentsply Sirona).
The unit will be bolted to the wall with 1 wall bracket 16 1/2" wide.
The wall needs to be reinforced to hold 160 pounds on each of the two wall bolts at a height of 76 ¾" from floor, incorporated during construction of wall or use a wooden board over multiple studs. There are no specific strength requirements for the floor bolts (provided by Dentsply Sirona).
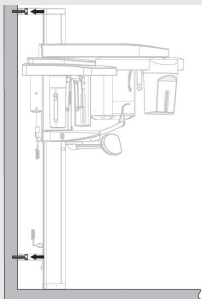
Option 2: 2 Wall Brackets and No Floor Mounts

If no floor bolts can be used, a second wall bracket is necessary and will be mounted at 15 7/8"

* Second wall bracket must be ordered from Dentsply Sirona.
ORTHOPHOS XG3D, S & SL: Part # 5986216 (standard) or # 6216191 (short)
(see additional information about X-ray cabinet on page 17).

Option 3: Floor mounted stand

If a floor mounted stand is desired, it is required to use the standard wall bracket. # 5986216
This wall bracket will be mounted at 78"
*The floor stand must still be bolted to the floor using the provided bolts.

Note: If your wall is already reinforced for an existing pan, make sure that the location of the reinforcement fits the new required location at 76 ¾" for wall bracket mounting height.

Note: If using Option 3, you must still use the upper wall bracket to mount the machine safely. There is no option for installation that does not require an upper wall mount.

4. Electrical Requirements

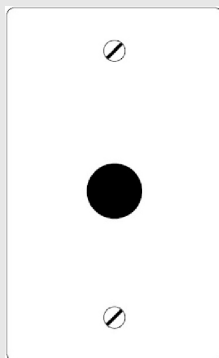⚠️ Electrical work must be completed prior to installation day.

All Pan/Ceph/3D Imaging Systems require:

200V-240V (±10%) , 20 Amp dedicated 2-phase circuit, (2 live, 1 ground wire) hardwired power supply is needed for
the unit. A second protective ground wire (on unit) will have to be attached to a suitable PE connection.
The safe operating range for Dentsply Sirona imaging equipment is 180VAC to 264VAC. Verify that your electrical environment is within this range.

Dentsply Sirona CANNOT recommend any type of plug or receptacle for the unit's main power. Dentsply Sirona recommends only hardwiring the machine and not using any type of plug/receptacle. Some states require a shutdown/safety system because of this.
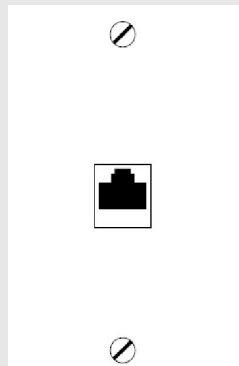
It is recommended to have the following receptacles behind the unit column before installation day.

Coax Plate Remote Cable*	Cat5e Plate Network	Coax Plate (220 VAC)**	Duplex Outlet Plate (110 VAC)
Remote Control For Device	Media Converter	Device must be hard wired.	Media Converter Power Source
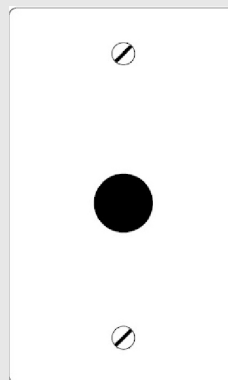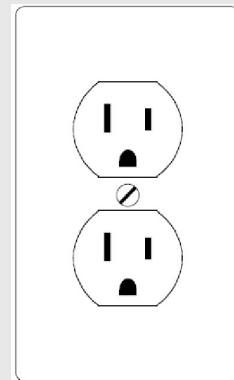
* The remote cable is supplied by Dentsply Sirona and is used for the wall control box. If the cable needs to be run before install day, order part #61 25 319, this cable cannot be adjusted.

** Hard wired mains connection

5. Networking and Ports

All network components that will be involved in 3D imaging are required to be working at 1Gbit/sec.
NO WIRELESS NETWORKS ARE SUPPORTED.
The following ports must be open for the Dentsply Sirona software and hardware to function.
If some ports are closed the unit will not function.

Purpose	Port Number	Purpose	Port Number
SQL Express	1433	Sidexis Rest Service UDP Port	2222, 9050
Sidexis TCP Port	11837	Orthophos S, SL, Axeos	52837
XAB UDP Port	11838	Orthophos E, S, SL, Axeos	12835
PC UDP Port	11839	Orthophos E, S, SL, Axeos	12836
TCP Status Port	12835	Orthophos E, S, SL, Axeos	12837
TCP Service Port	12836	Orthophos E, S, SL, Axeos	12838
TCP Main Port	12837	Orthophos E, S, SL, Axeos	12839
XG Pan UDP Port	12838	Orthophos S, SL, Axeos	12935
XG PC UDP Port	12839	Orthophos S, SL, Axeos	12936
Reconstruction Communication	8080, 8081	Orthophos E, S, SL, Axeos	12937
Acquisition (Axeos)	13835	Acquisition (Axeos)	13837
Acquisition (Axeos)	13838	Orthophos S, SL, Axeos	12938
Sidexis 4 Server	42916	Orthophos S, SL, Axeos	443
Sidexis 4 Server	42927	Sidexis Service	42929
Sidexis 4 Server	42928	Device Mgr (Axeos)	52839
Sidexis 4 Server	42929	Secured Data Service	42930
Patient Webserver	52838	HighSecure APP Service	42931
Multicast Discovery Port	9050	RabbitMQ Notification	42932
Multicast Sirona Server	2222		

It is recommended that both the X-ray unit and the RCU are set to a reserved static IP address outside of the DHCP range.

6. SQL Server Information

Sidexis 4 is now shipped with SQL Server 2017 Express.
If a higher version of SQL is already installed, it may be necessary to manually add a database before installation. Please contact support.

It is highly recommended to temporarily turn off firewalls and anti virus before installing SQL.
Do not stop (disable) the Firewall Service itself.

Sidexis 4 is not compatible with dual database setups. If there is more than one doctor purchasing the machine/software, two completely separate installs would need to be performed on separate networks.
Contact support for more information.

7. File Storage

3D image sizes are typically between 250 and 500 MB or even up to 1.3 GB for S, SL and Axeos

Dentsply Sirona recommends at least 2 Terabyte of storage available to start with.

Note:
For optimal performance Dentsply Sirona recommends to have a storage drive additional to the OS drive. External storage devices such as e-SATA or USB3 are prohibited for PDATA storage and will not function.

Performance of Sidexis 4 is directly affected by hard drive read and write speeds for the main storage folder, PDATA. If slower drives are used, or if there are problems with the drives, Sidexis 4 performance will be adversely affected.

NAS devices are an inexpensive way to extend storage but we have noticed some limitations, slowness or even no functionality with some devices. Because of the big variance in these devices, it is not possible for Dentsply Sirona to recommend any particular brand or model over the other.

Before using a NAS device, verify that the device fully supports the NTFS file system.
There are known compatibility issues with NAS devices that may prevent Sidexis 4 from functioning. Because of this, Dentsply Sirona cannot guarantee functionality when using a NAS device. Also, Dentsply Sirona cannot troubleshoot Linux based systems.

We highly recommend using a RAID system to protect you from data loss due to a simple hard-disk failure.

Backups:

⚠️ It is solely the responsibility of the practice IT personnel to ensure that PDATA is adequately backed up. Dentsply Sirona cannot be held responsible for any lost data.

To protect your data, a reliable backup solution is mandatory. This should be in accordance to your expected storage size. Your IT person should recommend commonly used backup schemes.

Note: RAID is NOT a replacement for a backup system as it will not protect your data from certain hardware failures, user errors, fire, water or electrical storm damage.

8. Reconstruction server

The Orthophos S, SL and Axeos systems are shipped with a Reconstruction Server or RCU. This PC is used to compile the raw data from X-Rays into 3D volumes suitable for medical use.
This RCU can be placed anywhere in the office network, but is usually placed in the server room/closet.
No SQL server or PDATA should be hosted on the RCU for any reason.

RCU Servers supplied by Dentsply Sirona can be used to capture images, with the following provisions.

*

No SQL server or PDATA should be hosted on the RCU for any reason.
No Antivirus or 3rd party Firewalls should be installed on the RCU Server.
Practice management software can be installed on the RCU. - This might affect acquisition times.
The RCU may be re-imaged by Sirona as part of troubleshooting and network diagnosis.

It is required to assign a static IP address or DHCP reservation to the RCU.

9. 3D Workstation Recommendations

If the practice will need to burn CDs/DVDs for referrals, a CD/DVD burner will be needed in at least one of the workstations. No special CD writing software will be needed to perform these actions.

Apple computers have only been tested with BootCamp at this time with limited functionality, Parallels is not supported.
While some Apple computers may meet all requirements, there are many driver related issues.
Please see the complete specifications on page 14.

10. Practice management system integration

Sidexis features a built-in, open source, free of charge interface to communicate with practice management systems. Contact your management system for a link to Sidexis. (A charge might apply).

11. 3D Update Information

There are no 3D updates offered at this time.

12. Graphics Requirements

Graphics are a critical component for the Sidexis software, please read the information below carefully.

Not only is a specific minimum size required i.e.:1GB, a relative strength rating is required in the form of a benchmark score. Passmark© is used for this score.

Minimum Requirements:
For NVIDIA cards (recommended) Passmark score MUST be at least 1000.
For ATI/AMD cards (there are known compatibility issues) Passmark score MUST be at least 4500 (Sidexis <=4.13), Passmark 1500 (Sidexis >= 4.2).
For Intel Onboard cards, Passmark score MUST be at least 540. Intel integrated graphics are not supported for Sicat Suite use!
The selected card must support DirectX 10 compatible or higher! DirectX 11 required for Sicat Suite.
Please be aware that the Intel onboard passmark score is intended to verify compatibility, NOT performance.

Running the test:
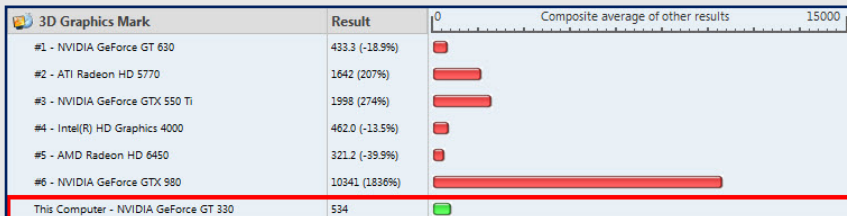Download the benchmark tool from: http://downloads.passmark.com/ftp/petst.exe
Double click the petst.exe and run it. Then click "Run Benchmark".
You will see many things happen on screen, just wait until it is finished. Then you will be shown the PC's scores.
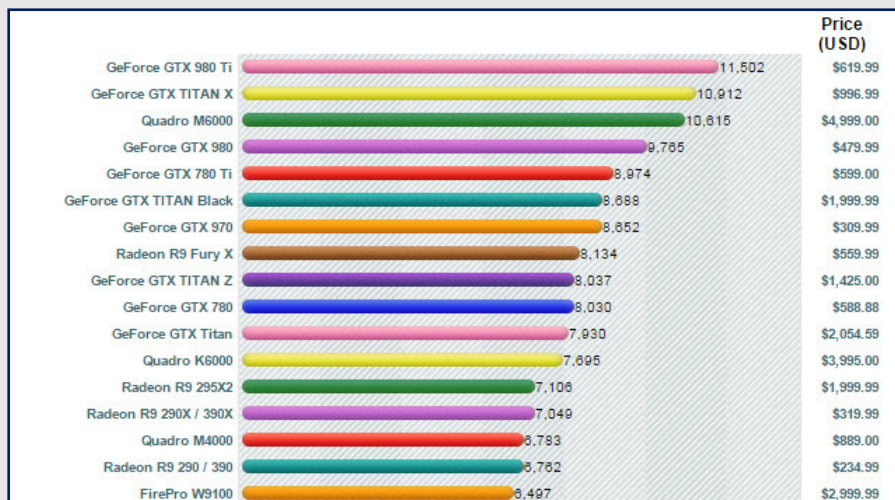Keep in mind, the Passmark benchmark test will give you scores for many things, only the 3D performance score is needed.

This is the initial score given. Do not use this score.

The score needed is "3D-Graphics Mark"

3D Graphics Mark	Result	Composite average of other results (0 — 15000)
#1 - NVIDIA GeForce GT 630	433.3 (-18.9%)	
#2 - ATI Radeon HD 5770	1642 (207%)	
#3 - NVIDIA GeForce GTX 550 Ti	1998 (274%)	
#4 - Intel(R) HD Graphics 4000	462.0 (-13.5%)	
#5 - AMD Radeon HD 6450	321.2 (-39.9%)	
#6 - NVIDIA GeForce GTX 980	10341 (1836%)	
This Computer - NVIDIA GeForce GT 330	534	

Graphics Card	Score	Price (USD)
GeForce GTX 980 Ti	11,502	$619.99
GeForce GTX TITAN X	10,912	$996.99
Quadro M6000	10,615	$4,999.00
GeForce GTX 980	9,765	$479.99
GeForce GTX 780 Ti	8,974	$599.00
GeForce GTX TITAN Black	8,688	$1,999.99
GeForce GTX 970	8,652	$309.99
Radeon R9 Fury X	8,134	$559.99
GeForce GTX TITAN Z	8,037	$1,425.00
GeForce GTX 780	8,030	$588.88
GeForce GTX Titan	7,930	$2,054.59
Quadro K6000	7,695	$3,995.00
Radeon R9 295X2	7,106	$1,999.99
Radeon R9 290X / 390X	7,049	$319.99
Quadro M4000	6,783	$889.00
Radeon R9 290 / 390	6,762	$234.99
FirePro W9100	6,497	$2,999.99

The scores for known graphics cards can be found here:
http://www.videocardbenchmark.net/

This might spare you from testing the cards individually.
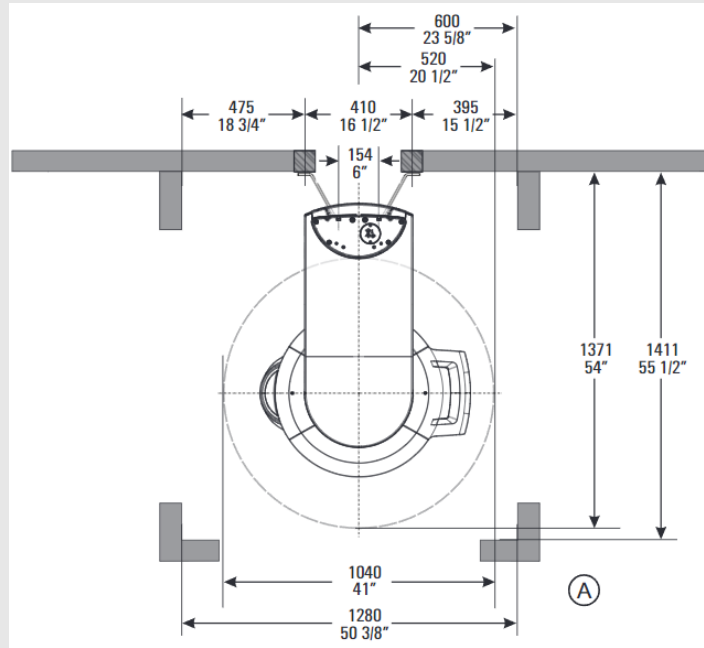
13. Networking and Datapath overview
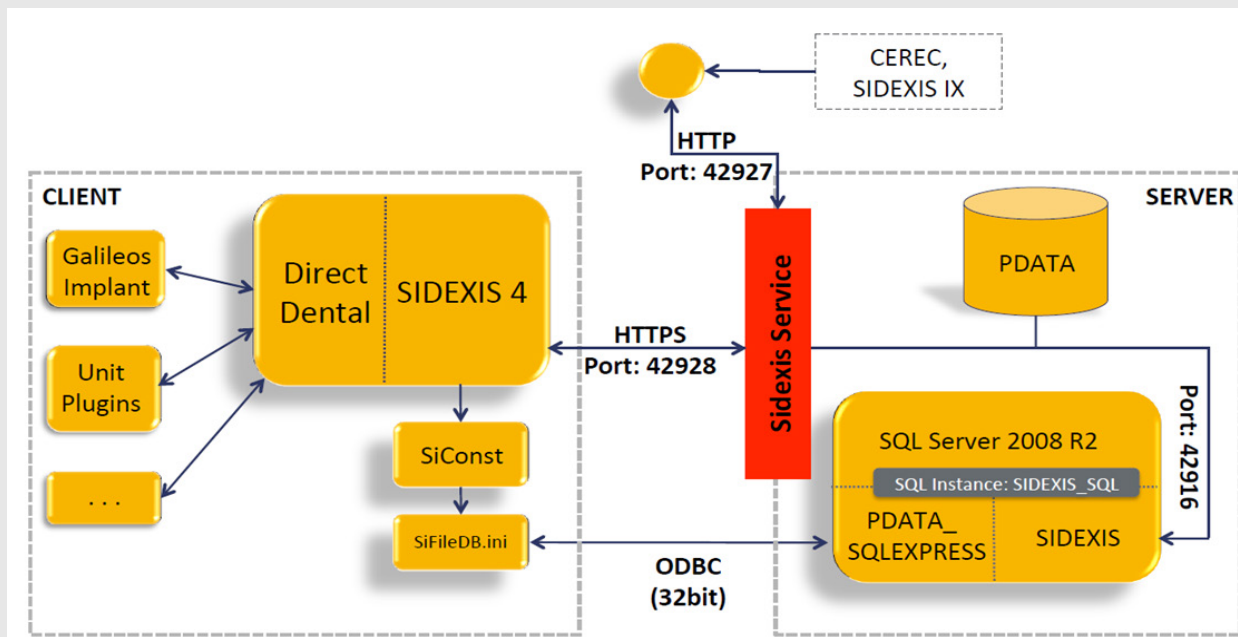
14. Unit dimensions

The unit drawings and dimensions below outline the minimum space requirements for Sirona hardware. These are ABSOLUTE minimum requirements. If the space designated for Sirona equipment is smaller, installation is not possible.
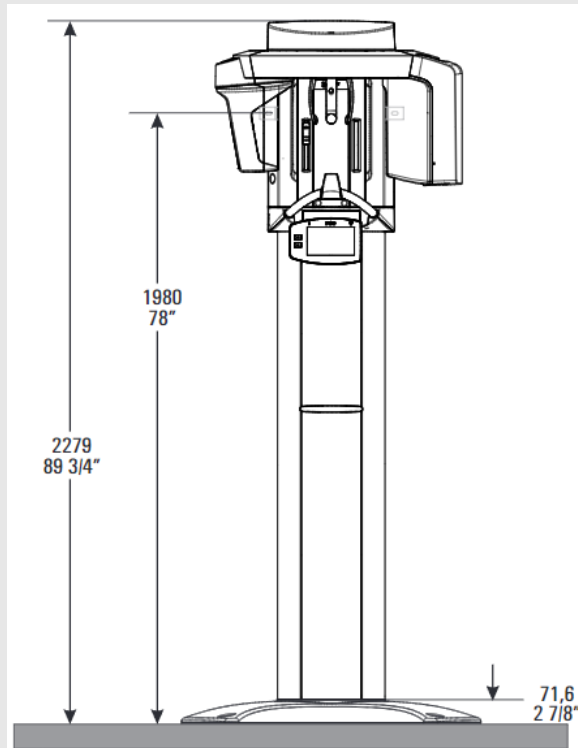
14.1 Orthophos E, S and Axeos
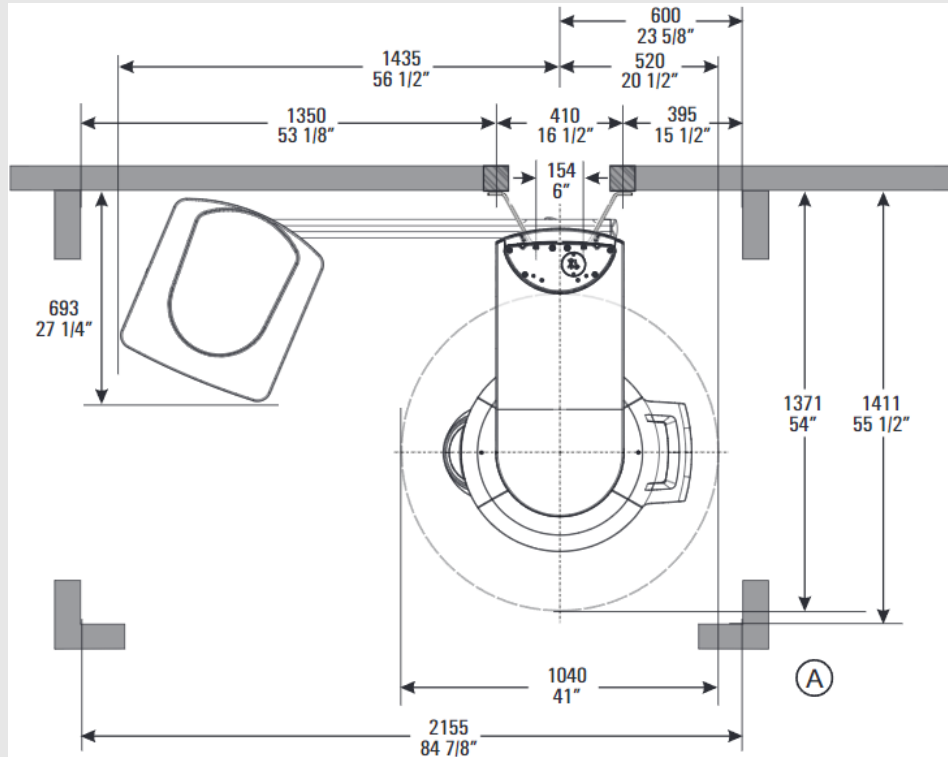
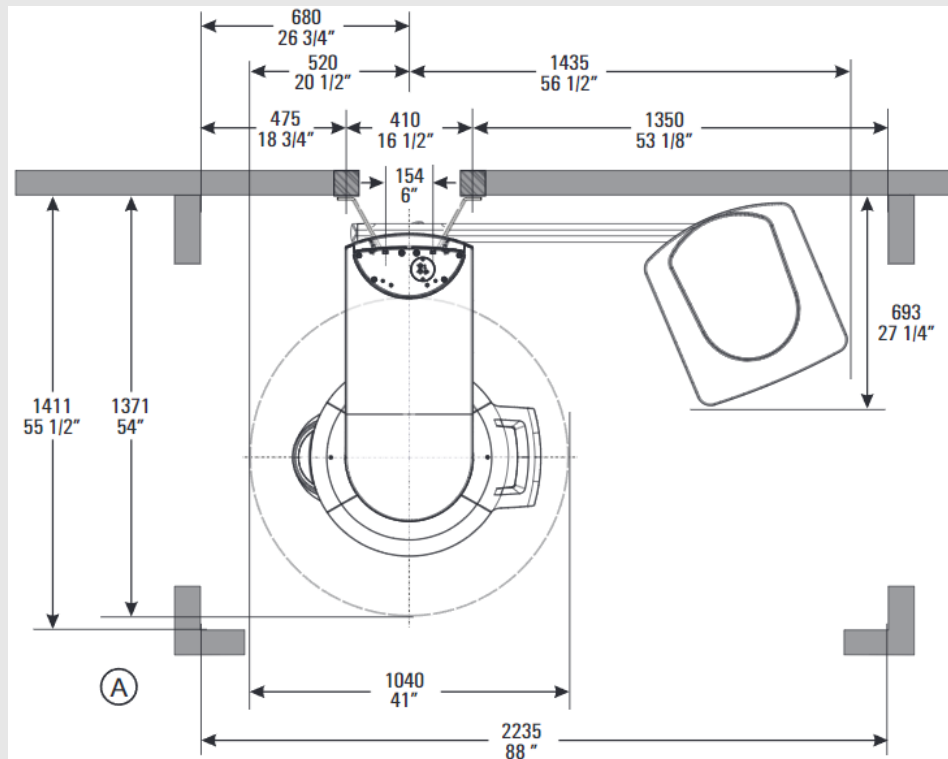Orthophos
E, S, Axeos

Top View

Orthophos
E, S, Axeos

Front View

Dentsply
Sirona

Orthophos
S, Axeos

Ceph Left

Top View

Axeos

Ceph Right

Top View

15. IT specifications

ITEM	MINIMUM	RECOMMENDED	NOTES
Workstation/RCU Server	■ WINDOWS 10/11 Pro, Enterprise (64 bit)	■ WINDOWS 11 Pro, Enterprise (64 bit)	■ 64bit systems are required as of Sidexis 4.4, 32bit is no longer compatible.
	■ ≥ 2.3 GHz Dual Core With SSE3 Support	■ Intel i7 or equivalent	■ For Sidexis 4, workstation processor power DIRECTLY effects imaging performance.
	■ Workstation: 8GB RAM ■ Customer Supplied RCU: 16GB RAM	■ Workstation: 32GB RAM ■ Customer supplied RCU: 32GB RAM	■ RCU Server (Supplied with most systems) requires miniimum of 16GB RAM. ■ This does not account for necessary RAM for 3rd party applications.
	■ 512 MB Graphics card (2D) 1 GB Graphics card (3D) + NVIDIA: 1000 passmark AMD/ATI: 4500 passmark Intel: 540 passmark	■ 2GB Graphics card Direct X 11 capable graphis card is highly recommended	■ See chapter 15
	■ Workstation: 10 GB (Free space) ■ RCU: 1 TB (Supplied with most devices)	■ Workstation: 500GB (Free space) ■ RCU: 1 TB (Supplied with most devices)	
	■ 1Gb/s network speed	■ 1Gb/s network speed	■ Wireless is not supported. High speed internet is required for remote support.
			■ If DVDs and other exports are needed, a DVD burner is recommended on at least one workstation.
	■ 19" monitor, Hight brightness 1280x1920, 1000:1 contrast 16:9 aspect ratio highly recommended	■ 19" monitor, Hight brightness (> 300cd/m²) 1280x1920, 1000:1 contrast 16:9 aspect ratio highly recommended	■ A quality monitor is crucial for image analysis. At least the Dr's workstation or the consult room should be top notch and situated in a darkened room.
SQL server	■ Windows 10/11 Pro/Enterprise ■ Windows Server 2016/2019/2022 ■ 8 GB RAM ■ 1Gb/s network	■ Windows 10/11 Pro/Enterprise ■ Windows Server 2016/2019/2022 ■ 16 GB RAM ■ 1Gb/s network	
Storage server (Can be same as SQL server)	■ Windows 10/11 Pro/Enterprise ■ Windows Server 2016/2019/2022 ■ Linux OS ■ NAS Device ■ 1TB Free Space ■ 1Gb/s network	■ Windows Server 2016/2019/2022 ■ 2 TB Free Space	■ Not all NAS devices are compatbile, see page 8. ■ Available space needed depends on frequency of image captures.
BACKUP	■ External USB-3 Backup (multiple)	■ Professional tape library backup library, or other off-site cold backup.	■ The backup system needs to accomodate the stored data volumes. Online backup is not supported.