AeroDR Implementation Guide:
For In-Room, Stitching, and Portable.

KONICA MINOLTA

Contents

IMPLEMENTATION OVERVIEW

Your AeroDR Implementation has three key activities:

Pre-Site	Installation	Applications

Pre-Site

The purpose of the pre-site is to ensure site readiness on the date of install. This activity entails either an on-site visit or a scheduled conference call. This pre-site meeting is conducted by the Konica Minolta Medical Imaging (KMMI) Field Service Engineer (FSE) and should include key people from your site as defined in the roles and responsibilities section below. The purpose of the pre-site activity is to review the complete system(s) that will be installed, review the physical layout of your x-ray rooms or areas of portable service, and to discuss all necessary data, technical, and physical site requirements that must be completed prior to the installation. Your organization will be contacted by KMMI or our representative to schedule this activity.

Installation

Activities include system shipment to your site location and installation of the equipment in your facilities.

Applications

Activities include system configuration and applications training. The training will be scheduled based on the KMMI system(s) purchased and all training will take place at your site after completion of your installation.

ROLES AND RESPONSIBILITIES

Site Radiology Manager	• Assist in Pre-site Activities • Ensure Site Readiness for Installation • Complete Procedure Code Mapping tool prior to Installation • Assign Super users for Applications Training • Adjust patient schedule during installation and applications • Facilitate Interface with lead personnel for Image Quality approval
Site IT Contact	• Assist in Pre-site Activities • Make decision on networking connectivity • Provide IP Addresses required prior to install • Provide network connectivity during install • Be available during install to assist in network connectivity issues
Site Facilities Manager	• Assist in Pre-site Activities • Install any needed electrical or network outlets prior to install • Perform any construction and changes to physical layout prior to install • Be available during install for any wiring and drilling
Site PACS Administrator	• Assist in Pre-site Activities • Provide information for DICOM Modalities • Be available during install to insure connectivity to PACS/RIS
Konica Minolta Field Service Engineer (FSE)	• Perform Pre-site Activities • Perform Physical Equipment Installation
Konica Minolta Applications Specialist	• Assist Customer in creation of Procedure Codes Mapping File • Perform Training Activities
Konica Minolta Project Coordinator	• Contact Site regarding schedule for all installation activities • Key point of contact for the customer

PRESITE ACTIVITIES OVERVIEW

Equipment Location Considerations

Identifying where you will place your AeroDR system components is important for the optimization of workflow efficiencies. During the pre-site visit, the Konica Minolta Medical Imaging (KMMI) Field Service Engineer (FSE) or dealer representative will review equipment location and workflow. Please ensure the installation site satisfies the conditions listed below:

- Install the device in a location where it is not exposed to water or floor wax.
- Install the device in a location where there is no likelihood of being adversely affected by atmospheric pressure, temperature, humidity, drafts, dust or air containing salt, sulfur, etc.

- Install the device on a flat surface where it is free from physical shock (also avoid physical shocks during transportation).
- Install the device in a location where chemical agents are not stored.
- Install the device in a location where no gas is generated.
- Install the device in a location where there are no electrical noise sources.
- Install all cables in such a way no one will trip. This may require concealing cables in conduit or wiring chase. This depends on your facility's guidelines / requirements.
- Install the devices in a location where the air inlet and outlet are not blocked.

It is suggested that the AeroDR Interface unit and CS-7 system be located as close to the console as possible. A specifically constructed cable for your model of X-ray console is required. This cable's maximum length is 9 foot (3m). See the image below for an example.
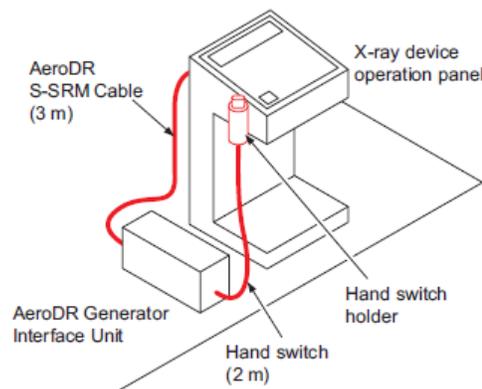
Construction
Depending on the location of the AeroDR system components, numerous wires (network, grounding cables, and power) require routing and controlling. It is the responsibility of the facility to ensure all wiring is positioned within their guidelines, safety requirements, local electrical code, or other requirements not known by KMMI. **Any pre-install construction and any other construction type work required during installation is the responsibility of the site. Any construction or modification to the X-Ray room or control area required to support the installation will need to be completed prior to the first day of the AeroDR system installation.**

Equipment Staging Area
For a more efficient installation, we request the site identify an available area or room to use as a staging area for installation. The space will need to be large enough to unpack all of the boxes. It should also contain multiple power outlets to completely configure the system outside of the x-ray room. This will minimize the downtime impact during installation. For portables, an unused or little-used x-ray area is ideal since this will allow for panel calibrations.

X-Ray Console/Generator Connection

Since the AeroDR system will need to be connected to the X-ray console (unless using AeroSync product), it may be necessary to have a KMMI FSE complete a survey of the console (unless KMMI has interfaced with the console previously). This survey will consist of taking some electrical measurements. Temporary removal of the console's hand switch or exposure button is necessary. This survey takes approximately 1 hour to complete per console.

Sample System Layout

The image below provides an example of where the individual AeroDR components can be located in the imaging suite between the control room (outside of the grey area) and exposure room. The access point in the exposure room should be mounted high on the wall in the x-ray room with direct line of site to all areas where the panel will be located during exposure. An example of the wiring connections for the components can also be seen below:
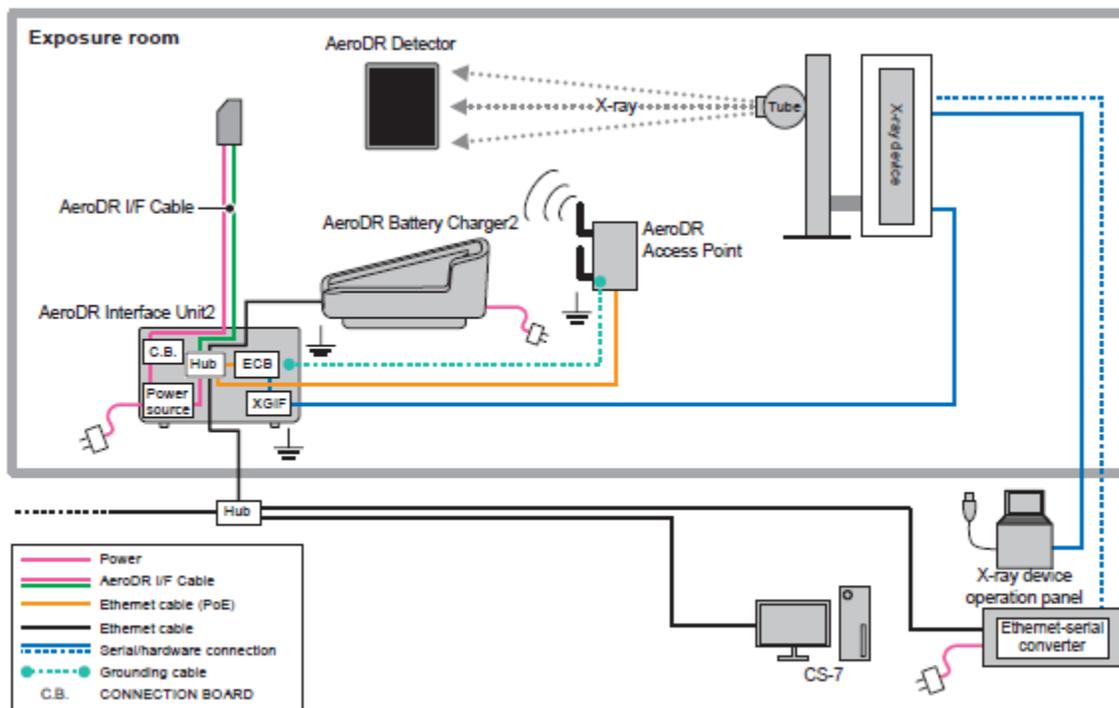
**This Configuration is an example and can vary depending on products purchased.

Summary of Electrical and Networking Requirements

The following charts summarize the IP Address, Network Cable and Electrical Outlet Requirements for the AeroDR In-Room, Portable, and Stitching systems. These requirements are for **each** system that will be installed.

Recommended In-Room Configuration

Equipment	IP Address	Network Drop	Electrical Outlet
Control Station (CS-7) PC & Monitor	1	1 (depending on config)	2
Interface (I/F) Unit 2	1	1	1
Flat Panel Detector (FPD)	2 (wired/wireless)		
Docking Station		1 (depending on config)	1
Wireless Access Point	1	1 (depending on config)	
Each Additional Flat Panel Detector (FPD)	2		

Recommended Portable Configuration

Equipment	IP Address	Network Drop	Electrical Outlet
Control Station (CS-7) PC & Monitor	2 (one wired, one wireless)	1	
Portable Retrofit Unit (I/F, X/G, AP)	2		1
Flat Panel Detector (FPD)	2		
Docking Station		1	1
Portable System			1
Each Additional Flat Panel Detector (FPD)	2		

Stitching

Equipment	IP Address	Network Drop	Electrical Outlet
Stitching Stand	1	1 (if cannot reach IF box)	
Power Unit			1
Barrier Unit			

Electrical Power Requirements

Electrical Safety

Extension cords or power strips should not be utilized. You must plug the power cables of the AeroDR components directly into grounded wall outlets.
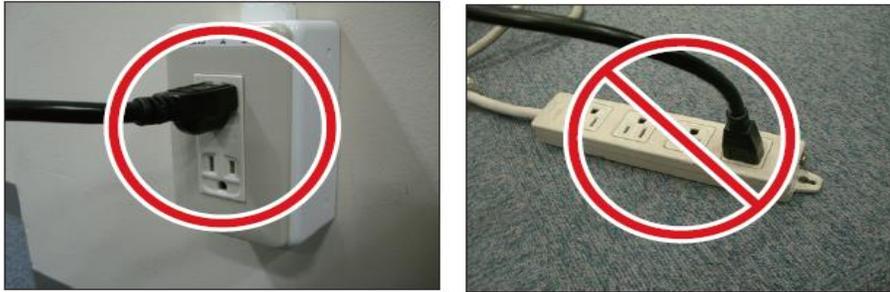
Electrical Site Requirements

Electrical Outlets required for the AeroDR components are outlined above in the section "Summary of Electrical and Networking Requirements." The site will need to ensure the proper number of electrical outlets in the area of AeroDR installation prior to the installation. The location of the current electrical outlets and the need to install new outlets will be covered during the pre-site visit. Depending on the location of the AeroDR system components, numerous wires (network, grounding cables, and power) require routing and controlling.

It is the responsibility of the facility to ensure all wiring is positioned within their guidelines, safety requirements, local electrical code, or other requirements not known by KMMI.

Network Requirements

Wireless Survey

If the wireless communication feature of AeroDR is to be used, KMMI will also complete a wireless frequency investigation. The analysis needs to be completed in the X-ray exposure areas. The survey will determine the optimal position of the wireless access point and which wireless channel will be used. The wireless survey takes approximately 20 minutes per X-ray room.

### In-Room and Stitching Networking Configuration

There are three options on how to configure the AeroDR network for in-room systems. In determining the best option, consider how your facility will allow the AeroDR system to connect to your network and the security policy at your site. During the pre-site visit, a trained FSE will work with you to determine the optimal solution for the site.

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Option #1 – Network all Components through IF Box (shown in most AeroDR drawings)
THIS IS THE RECOMMENDED CONFIGURATION
All component network cables connect to the I/F unit. Only one network cable connects the facility network to the I/F unit.

- **Benefits: Communication between Aero devices quicker; allows for roaming**
- Disadvantages: Requires five (5) IP addresses; does not work if site will not allow multiple MAC addresses on one port. (** only applicable for Generation 1 panels)
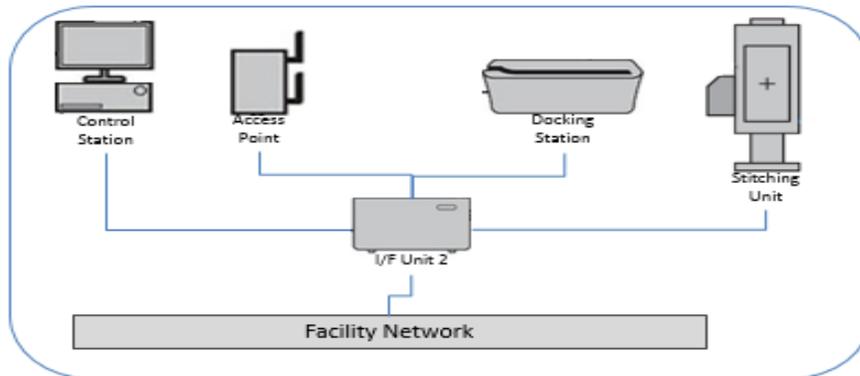
Option #2 – 2nd Network Card

A 2nd network card is added to the Control Station (CS-7). All components go back to the I/F Unit. CS7 goes to the facility network. The 2nd Network card is all your site will see on the network and communicates directly to PACS/RIS.

- Benefits: Quicker Communication; Only requires 1 IP Address; Communication between Aero DR components is on self-contained networking scheme
  - Disadvantages: System may run slower, roaming may not work efficiently, Some optional software (Study sharing, Statistical Analysis) is not fully functional; may not allow remote access (depends on facility if 2nd network card can access internet)
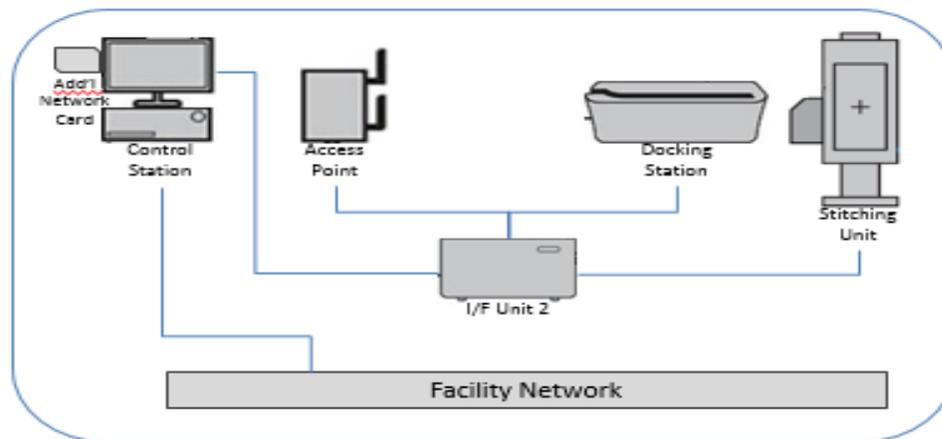
Portable Network Configuration

There are two options to configure the AeroDR network for a portable system based on whether your site wants the portable fully wireless or wired to your network. If your site chooses to go fully wireless and does not open up the radiology wireless network in patient rooms or other areas within the site, there may be locations or rooms in which the portable unit cannot access the network. If the wireless network does not reach PACS/RIS systems, the system user will need to drive the portable back to a wireless access location or use a wired connection to send the images back to PACS/RIS. There is also the option to have both a wired/wireless connection.

Option #1 – Connected to the facility wired network
- Benefits: Allows for roaming; Allows for PACS/RIS communication if the facility wireless network is not functioning; Docking station remains on wired network at all times; Easier for remote access
- Disadvantages: Need six (6) IP addresses

Option #2 – Not connected to the facility wired network
- Benefits: Only need one wireless IP address
- Disadvantages: Does not allow roaming; Unable to connect to PACS/RIS via wired network if needed; Network cable for docking station needs to be plugged directly into portable for upgrades or service (remote or in-person)

Additional System Options

Roaming Panels

Roaming enables the sharing of panels across two or more rooms and/or portable configurations. With our software version 1.20 or greater, panels have the ability to roam over different network segments. The Installer will need to know if you are planning to roam panels in your facility as there is additional setup required.

Wired Panels in Bucky

In an AeroDR configuration where the panel is wired in the bucky, the panel is connected to a cable that communicates back to the CS-7. The wired connection is responsible for communication and charging. The advantage of this type of configuration is that the panel holds a constant charge while the cable is connected and you reduce handling of the panel which can help mitigate drop events and panel damage. The wired connection can be easily removed by the technologist if the need arises for exposures outside of the bucky. If interested in wiring panels in the bucky, you will require 1 to 2 cables depending on your configuration.

DAP

DAP, or Dose Area Product, is a meter that is installed on the collimator of the x-ray device. As the x-ray passes through the meter, dose information is sent back to the CS-7 and is placed as an overlay on the patient image for reference. The DAP meter can be installed on an in-room or portable AeroDR configuration. The DAP Meter is an additional optional purchase that can be installed with the AeroDR System.

AeroSync

AeroSync (AED): Automatically detects X-Ray to make an exposure, eliminating the need for a generator Interface (SRM or S-SRM) and reducing the number of components needed for configuration (Inverter type generators only).

AeroSync offers exposure range from 1ms to 800ms; the X-ray sensor technology can work in a wide range of detectable body thickness and has selectable sensitivity to match patient size.

Keep in mind that the exposure field (collimator) must be at least 4 inches squared. Large anatomies are best captured at the center of the panel. Small body parts like fingers may be exposed at the edges as long as the collimated area is 4 squared inches or more.

AeroSync configurations: Fixed Room

Components
- Controller
- Detector
  - AeroDR 10x12HQ or 14x17 XE
- Access point/FPD charger
- PoE Hub
- AeroDR docking Station 2
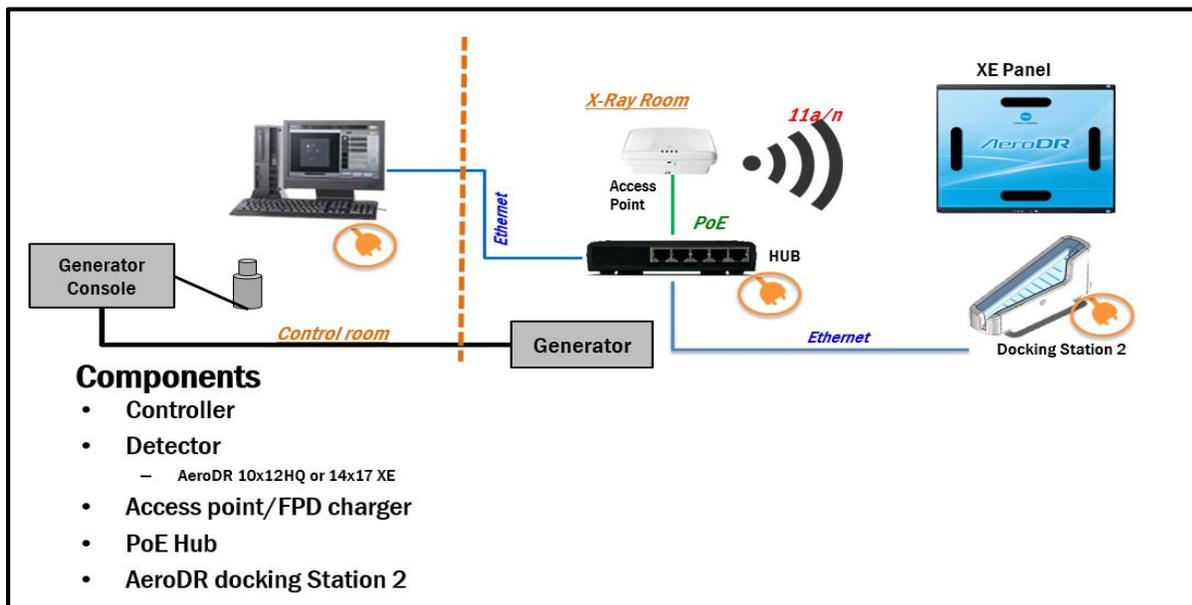
**This Configuration is an example and can vary depending on products purchased.

Remote Maintenance (R3)

Konica Minolta Remote Maintenance System (R3) utilizes a transparent piece of software that is installed on the AeroDR system. R3 provides the Konica Minolta Customer Care Center access to view and troubleshoot your system remotely. Remote access and resolution has the potential to greatly reduce downtime.

R3 requires broadband Internet access to the KMMI system using the https security protocols (the same methods used in online banking). As long as https is authorized, R3 software can communicate with the system. The RMS will connect Konica Minolta Medical Imaging (KMMI) products with our secure data center and TeamViewer Cloud service. For ease of implementation and quality of remote diagnostic service, the preferred method is the Enhanced Remote Maintenance.

Aero DR Stitching

Workflow Considerations

The layout of the stitching components is critical for an efficient workflow during the stitching process. The barrier unit, stitching unit and X-ray will need to be easily accessible by the X-ray room Technician. The Stitching unit should be installed in an open area and should have wheelchair accessibility. The docking station for the AeroDR panel should also be placed close by the unit for easy workflow.

Space Considerations

There is minimum distance required in the room between the x-ray tube and front of the Wall Stand depending on the masking size for the stitching unit to work properly. The below minimum measurements are from between the tube and front of the wall unit. The stitching unit wall stand is 16 inches away from the wall.

Masking	Distance from Tube -Stand	Distance Tube -Wall
2.4	95 Inches / 2.4 M	111 Inches
2.0	79 Inches / 2.0 M	95 Inches
1.5	60 Inches / 1.5 M	76 inches

A visual of the space requirement is also provided below:

Construction Requirements

Drilling is required on floor and/or wall to secure the stitching stand in place. Floor drilling is required to insert guides for the barrier unit. Additional construction may be required for the network and electrical requirements and for a shelf or table for placement of the power unit.

Electrical Requirements

One electrical outlet is required for the stitching unit.

Network Requirements

One additional IP address will be required for the stitching unit. A network jack is also required by the stitching stand.

Existing Equipment Requirements

The crosshair on the collimation lens must be a single crosshair. The Barrier Slit sensors read the light from the collimation and if 2 lines are detected, the Stitching unit may encounter errors. If the collimation lens has a double cross or any other marking besides a single cross hair, this should be changed out in advance of the installation of the stitching unit. Checking the collimation shield should be a visual check.

Please review below pictures below for a clear display of differences.

Cannot use Stitching   Cannot use for Stitching   Correct Collimator Shield, Can use for Stitching.

If your site has the 2-Cross hairs on the X-Ray collimator lens, please have your original equipment manufacturer or dealer involved with Sales or Service change the shield prior to install.

Procedure Code Mapping Overview

Procedure Code Mapping is a workflow enhancement tool based on the unique DICOM tags sent from your Modality Worklist provider. The KMMI Applications Specialist will work with the site a few weeks

prior to the installation to define the mapping requirements and provide a mapping tool to be used by the site for this purpose.

The AeroDR system can accept your Modality Worklist Order information in any of the following DICOM tags consisting of both Group Number and Element Numbers listed below:

1) Schedule Protocol Code Sequence (0040,0008)
2) Coding Scheme Designator (0008,0100)
3) Code Value (0009,0102)
4) Requested Procedure ID (0040,1001)
5) Requested Procedure Description (0032,1060)
6) Requested Procedure Code Sequence (0032,1064)

Additionally, site-specific Departmental Standard Views or Protocols must be provided. Using the Procedure Code Mapping Tool Assistant, your site will list these views in the order that the AeroDR system should populate the study to maximize its workflow advantage. For example, for Chest 2 Views, if your department normally exposes the PA and then the LAT view, please list them in the Mapping Tool with the PA in the first position followed by the LAT view.

CAUTION: Please note the Procedure Code Mapping file created for your unique site is computer code and therefore must match exactly the DICOM tag received from your DICOM Modality Worklist Provider. It is case sensitive, for example if your DICOM Modality Worklist Provider sends the order as "CHEST 2 Views" but you have provided the order as "Chest two views" this will appear as "No Exam, No Exam" on AeroDR worklist. Care should be taken to provide the most current file. (For additional details and file image, please refer to Appendix B)

INSTALLATION OVERVIEW

Shipment of System

Your system will arrive by freight truck the week prior to the installation. Please make sure that you have a loading dock or other capability to receive the equipment and a contact at the site that will accept the shipment and move the equipment to the storage or staging area. A KMMI Implementation Coordinator will contact your site to confirm these details in advance.

If your site requested a pre-call, the carrier will call the site contact provided to advise the timing of the upcoming delivery. The carrier will unload the shipment onto the loading dock and may also move the cartons to the designated area. If the equipment is not in the staging area or by the x-ray room, a cart should be available for the KMMI FSE to use to move the equipment during installation.

Installation of System

During the first few hours or first day of the install (depending on the number of systems), the KMMI FSE will unpack the boxes and begin to assemble and configure the system(s) in the staging area. On average, it will take approximately 4 - 8 hours for this activity for each in-room and portable system.

After the staging is complete, the FSE will need access to the x-ray room for the in-room system for approximately 4 hours per system to physically install the AeroDR components and connect to the existing x-ray generator. For stitching, one (1) day will be required for in-room setup. **During installation, down-time in the x-ray room is required. If wiring and drilling is required during the physical installation, facilities maintenance will need to be available to perform those activities.**

After the physical install, the IT resource at the site will need to work with the FSE to secure the connection to the site network and the PACS/RIS. We will need your AE Title, IP address and Port Number for the PACS and RIS systems. The PACS/RIS administrator will also need to be involved to ensure connectivity to the systems. At times, we require the support of PACS/RIS OEM to resolve connectivity issues.

Room downtime can be reduced by ensuring the necessary resources (IT, PACS/RIS & Facilities) as indicated above during the installation.

Generator AEC Calibration

After the installation, the x-ray generator AEC will need to be calibrated for the new detector. *It is the responsibility of the site to contact the x-ray generator service provider to have them perform AEC calibrations after install.* Preferably, this should be performed after install but prior to the Applications start date. If applications are not scheduled immediately after the installation, you will still be able to use your system in prior configuration within CR mode.

APPLICATIONS OVERVIEW

Configuration

The application specialist will require time initially to confirm the configuration of your unique installation. Site-specific Procedure Code Mapping files, custom exam tags, etc. will be loaded prior to the first full day of application training.

Training

KMMI provides a comprehensive training program for the system(s) you have purchased. Lectures and hands-on training will take place at your facility utilizing your AeroDR system(s).

Clinical Applications Training Guidelines

Applications training will be scheduled to start after your system is installed, fully functional, and ready for clinical use. We also require that all RIS, PACS and printers be installed and fully functional prior to scheduling applications training.

Consistent with industry standards, our applications training is based on a "Train the Trainer" concept. KMMI will train key individuals identified by your facility as your system "Superusers". Your "Superusers" will receive training in the operation and customization of your AeroDR system(s). At the completion of training, they will be proficient in these tasks and will function as your on-site resources for questions and customization requests.

The utilization of on-site "Superusers" allows you to continue training your current staff as well as new departmental technical staff in the future. KMMI believes it is vital to keep training class attendance as small as possible in order to ensure quality training.

Training Schedule

Your applications training will be designed to make maximum effective use of your department staff time. Training is conducted at your site during normal business hours (8:30AM—5:00 PM) using your AeroDR system.

Required Participants

Superuser: Your "Superusers"—two (2) per site—will need training on each piece of the system and for all functions of the system with customizable features. When selecting your "Superusers" please keep in mind that they must attend each of the individual training sessions. All "Superusers" should be excused from their normal daily tasks during scheduled training sessions in order to take full advantage of the training provided.

Radiologist: A Radiologist or other key personnel with the authority to approve final image quality should be available throughout the entire applications training period.

Important Training Information

- **On the first full day of training we recommend a reduced load of patients in order to ensure a smooth training program.**
- The number of training days will vary depending on the product class purchased. Please contact your Territory Manager for more information on the amount of training days your site will be receiving.
- Training is scheduled on site during normal business hours, typically Tuesday through Thursday between the hours of 8:30AM to 5:00PM. A lunch break, one morning and one afternoon break are included. Your training times may differ based on the required travel time for your Trainer to reach your site. Your training days will be confirmed prior to installation by your Applications Trainer.
- Travel to and from your site takes place during the business week (no weekend travel). Training

will not be scheduled on Monday as it will be used for system configuration. Exceptions must be approved in advance by the Professional Service Manager.

- Training is not scheduled on weekends or holidays.
- Training is not scheduled during your "third shift." Special arrangements may be possible for training during your "second shift." Please contact your Professional Services Manager to discuss second shift training arrangements prior to the arrival of your Applications Trainer.
- Exceptions must be mutually agreed upon in writing prior to installation and may result in additional charges.

Duration of Training

The number of hours of training will depend upon your system configuration.

## Additional Training Opportunities

Refresher Training Courses are available for purchase. Please contact your Territory Manager for scheduling information and to arrange for these additional training courses.

APPENDIX A - Technical Specifications

(specifications can change without prior notice.)**

AeroDR Detectors

7.1.1 AeroDR Detector

Item	Description
Product name (model name)	AeroDR 1417HQ (AeroDR P-11) AeroDR 1417S (AeroDR P-12) AeroDR 1717HQ (AeroDR P-21) AeroDR 1012HQ (AeroDR P-31) AeroDR 2 1417HQ (AeroDR P-51) AeroDR 2 1417S (AeroDR P-52)
Detection method	Indirect conversion method
Scintillator	CsI (Cesium Iodide)
External dimensions	AeroDR 1417HQ and AeroDR 1417S 383.7(W)×460.2(D)×15.9(H)mm AeroDR 1717HQ 459.8(W)×460.2(D)×15.9(H)mm AeroDR 1012HQ 281.8(W)×333.0(D)×15.9(H)mm AeroDR 2 1417HQ and AeroDR 2 1417S 383.7(W)×460.2(D)×15.9(H)mm
Weight	AeroDR 1417HQ: 2.9kg AeroDR 1417S : 2.8kg AeroDR 1717HQ: 3.6kg AeroDR 1012HQ: 1.7kg AeroDR 2 1417HQ: 2.6kg AeroDR 2 1417S: 2.5kg
Pixel size	175 um
Image area size	AeroDR 1417HQ and AeroDR 1417S: 348.95×425.25mm (1,994×2,430 pixels) AeroDR 1717HQ: 424.9×424.9mm (2,428×2,428 pixels) AeroDR 1012HQ: 245.7×296.8mm (1,404×1,696 pixels) AeroDR 2 1417HQ and AeroDR 2 1417S: 348.95×425.25mm (1,994×2,430 pixels)
AD conversion	16 bit (65,536 gradients)
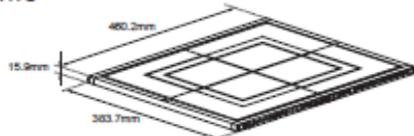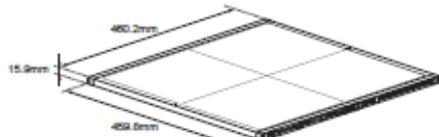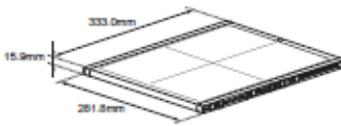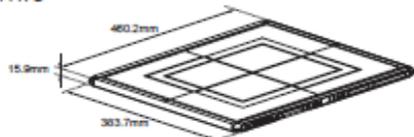
| Item	Description
Usable grid frequency	40lp/cm, 34lp/cm ⌐☞Reference ・ For details, refer to "3.2.3 Precautions for exposure".
Maximum patient weight	Point load: 150kg@Φ40mm Face load: 300kg@effective image area overall ⌐☆ HINT ・ Deadweight, even when loaded on the AeroDR Detector, has no effect on images and the AeroDR Detector. The measurement method is based on KM standards.
Communication	AeroDR 1417HQ, AeroDR 1417S, AeroDR 1717HQ and AeroDR 1012HQ: 　Dedicated wired Ethernet connection / wireless LAN (IEEE802.11a compliant) AeroDR 2 1417HQ and AeroDR 2 1417S: 　Dedicated wired Ethernet connection / wireless LAN (IEEE802.11a/n compliant)
Drive power	Dedicated power cable drive / battery drive
WLAN encryption	Wireless encryption method : AES Authentication method　　　: WPA2-PSK
Patient doses	Patient doses are equivalent to 500-1000 speed film/screen systems.
Required time for wired/wireless switching	Less than 2 seconds
Battery type	Lithium ion capacitor
Battery charging time empty to full	AeroDR 1417HQ, AeroDR 1417S and AeroDR 1717HQ: 　30 minutes or less (When using the AeroDR Battery Charger) 　60 minutes or less (When using the AeroDR Battery Charger2) 　60 minutes or less (When using the dedicated wired cable) AeroDR 1012HQ: 　30 minutes or less (When using the AeroDR Battery Charger2) 　30 minutes or less (When using the dedicated wired cable) AeroDR 2 1417HQ: 　30 minutes or less (When using the AeroDR Battery Charger) 　30 minutes or less (When using the AeroDR Battery Charger2) 　30 minutes or less (When using the dedicated wired cable) AeroDR 2 1417S: 　13 minutes or less (When using the AeroDR Battery Charger2) 　13 minutes or less (When using the dedicated wired cable)
Number of exposable images	AeroDR 1417HQ and AeroDR 1417S: 211 images/5.8 hours AeroDR 1717HQ: 189 images/5.2 hours AeroDR 1012HQ: 146 images/4.0 hours AeroDR 2 1417HQ: 300 images/8.2 hours AeroDR 2 1417S: 150 images/4.1 hours ⌐☆ HINT ・ Under conditions that the interval between studies is five minutes and three images are captured in each study, assuming 20 seconds for each exposure to position a patient (when connected to the CS-7 image processing workstation).
Battery duration in standby status	AeroDR 1417HQ and AeroDR 1417S: Approx. 16 hours AeroDR 1717HQ: Approx. 15 hours AeroDR 1012HQ: Approx. 7.6 hours AeroDR 2 1417HQ: Approx. 20 hours AeroDR 2 1417S: Approx. 10 hours
Battery expected lifetime	Above the AeroDR Detector Service life
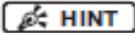
AeroDR Interface Unit (I/F) 2

Item	Description
Product name	AeroDR Interface Unit2
Amount of connectable AeroDR Detectors	Wired connection: Up to 2 Wireless connection: Up to 4 Access point is necessary when operating wireless.
Power requirements	AC 100/110/115/120/200/220/230/240 V ± 10%, single phase 50/60 Hz
Power consumption	With the AeroDR Detector connected : Approx. 160 VA (100-240 V) Without the AeroDR Detector connected: Approx. 33 VA (100-240 V)
External dimensions	460(W)×180(D)×285(H)mm 285mm 460mm 180mm
Weight	12.5kg
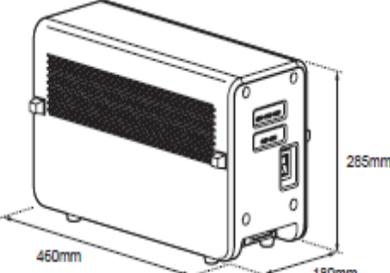
- Amperage = 0.3 amp without panel connected / 2 amps with panel connect via I/F cable

AeroDR Generator Interface Unit2

Item	Description
Product name (model name)	AeroDR Generator Interface Unit2 (AeroDR Generator Interface Unit2)
Power requirements	When using AC adapter: Supplied from the dedicated AC adapter. When using AeroDR Interface Unit: Supplied from the AeroDR Interface Unit through the Ethernet Cable.
Power supply of dedicated AC adapter	AC 100/110/115/120/200/220/230/240V ± 10% single phase, 50/60Hz
Power consumption of dedicated AC adapter	72VA (100 to 240V)
External dimensions	210 (W)×150 (D)×50 (H) mm 50 mm 150 mm 210 mm
Weight	0.9 kg
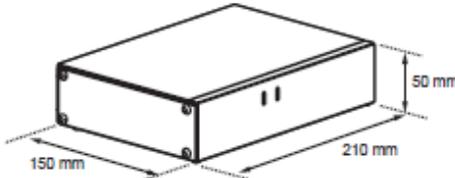
AeroDR Docking Station (14x17 & 17x17 HQ)
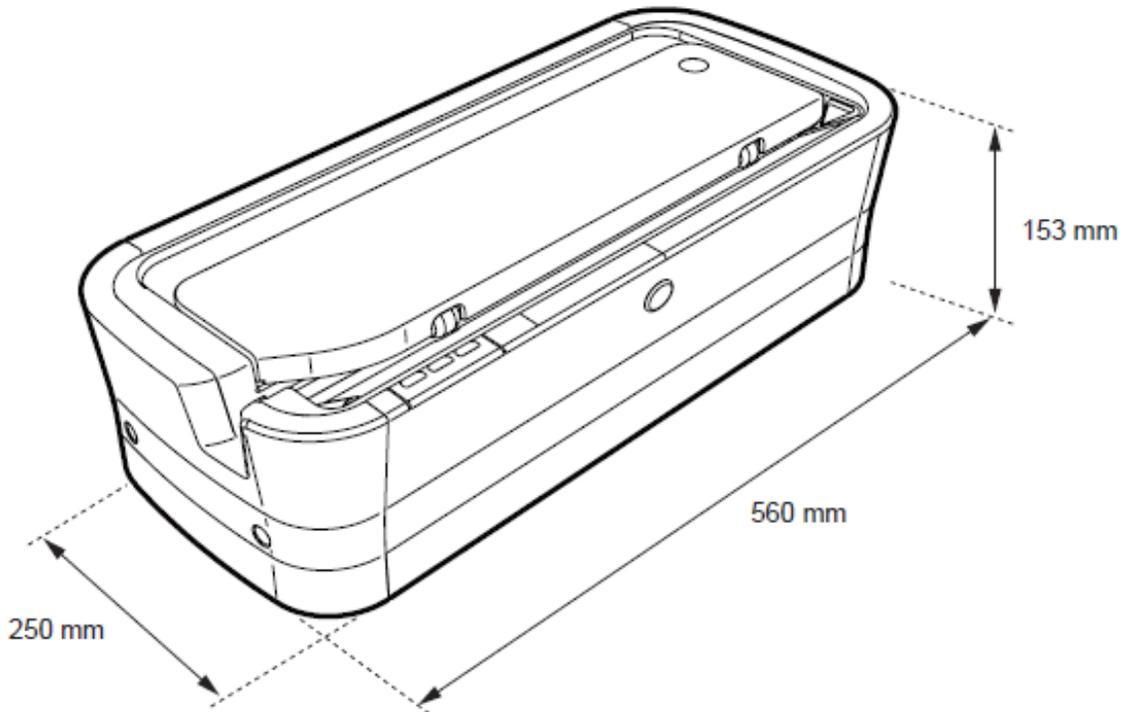
Item	Description
Power Requirements	AC 100/110/115/120/200/220/230/240 V +/- 10%, single phase 50 / 60 Hz
Power Consumption	Charging: approx. 161 VA (100-240 V) Standby: approx. 25 VA (100-240 V)
External Dimensions	560 (W) x 250 (D) x 153 (H) mm 22.0 (W) x 9.8 (D) x 6.0 (H) inches
Weight	7.2 kg 15.8 lbs

- One electrical outlet is required per docking station.
- A network cable will need to run to the site network or IF unit.
- No IP address is needed.

AeroDR Docking Station (10x12, 14x17 & 17x17)

Item	Description
Product name	AeroDR Battery Charger2
Battery charging system	Automatic charging
Power requirements	AC 100/110/115/120/200/220/230/240 V ± 10%, single phase 50/60Hz
Power consumption	Charging: 180VA(100-240V) Standby : 30VA(100-240V)
External dimensions	474.2(W)×200(D)×206.7(H)mm 206.7mm 474.2mm 120mm 200mm
Weight	6kg
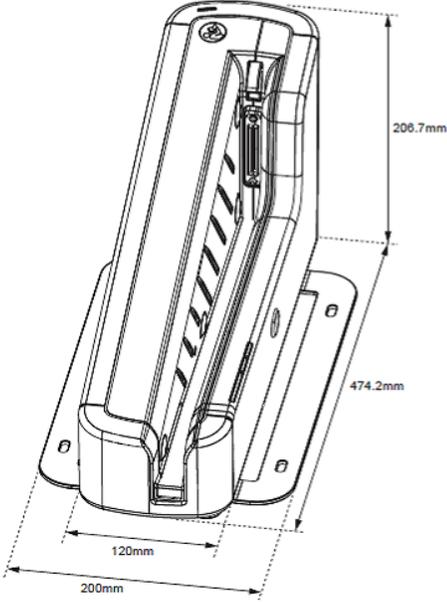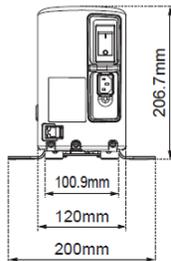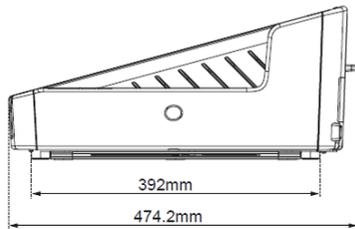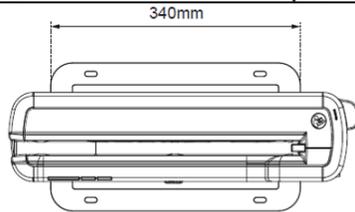
340mm

392mm
474.2mm

100.9mm
120mm
200mm

206.7mm

- One electrical outlet is required per docking station.
- A network cable will need to run to the site network or IF unit.
- No IP address is needed.
- Amperage = 1.6 charging / 0.3 stand by
- 14 x 17 XE Panels and 10 x 12 HQ Panels charge in 30 minutes, all other Panels charge in 60 minutes.

AeroDR Wireless Access Point

Hardware overview

Front view
1: Status Lights (Left to right) Power, Ethernet, Radio 1, Radio 2
2: Cable lock hole
3: Retention screw hole

Back view
4: Antenna connectors (E-MSM466 only),
   Radio 1 right, Radio 2 left
5: Reset button
6: Cable channel
7: AP Bracket tab slot
8: Console port
9: Ethernet port

Item	Description
Supported Standards	IEEE 802.11a (Wireless LAN) IEEE 802.3u 10/100 Base-T(X) (LAN) IEEE 802-3af (Power Over Ethernet)
Power supply	Supplied from the Aero DR Interface unit via Ethernet cable. 48 VDC PoE [IEEE 802.3af complaint]
Power Consumption	With the Aero DR Detector Connected: approx. 80 VA (100-240 V) Without the Aero DR Detector Connected: approx. 33 VA (100-240 V)
External Dimensions (without mounting hardware)	53.6 (W) x 135 (D) x 105 (H) mm 2.1 (W) x 5.3 (D) x 4.1 (H) inches
Weight	850 g 1.87 lbs
WLAN encryption	WPA-PSK (AES)

- One IP address is required.
- No power is required. The unit is powered via power over Ethernet
- This unit is to be wall mounted in the X-ray room in a location determined by KMMI.

AeroDR Small Wireless Access Point

Item	Description
Supported Standards	IEEE 802.11a/b/g/n (Wireless LAN) RNDIS Ethernet over USB (LAN to Controller) IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseTX (LAN)
Power Supply	USB I/F Bus Power 5V±5% USB3.0 900mA or Higher
External Dimensions (without mounting hardware)	W:70mm D:70mm H:23mm
Weight	135g
WLAN encryption	WPA/WPA2

- One IP address is required.
- Unit is powered by USB or by a customer provided 5V±5% USB3.0   900mA or higher power supply.
- This unit will be mounted on a location determined by KMMI.

Control Station Computer

Item	Description
Power Requirements	100—240 50 / 60 Hz
Power Consumption	4 A
External Dimensions	338 (W) x 378.5 (D) x 100 (H) mm 13.3 (W) x 14.9 (D) x 3.9 (H) inches
Weight	7.6 kg 16.7 lbs

- One electrical outlet is required.
- One IP address is required.
- Amperage = 4 amps.
- Network jack is required for up linking to the facilities network.

Convertible Laptop

The convertible laptop hosts a full version of CS-7 and combines the power of a laptop and the convenience of a tablet to maximize the benefits of AeroSync (AED). This lightweight, compact, and long lasting power of the convertible controller makes an ideal companion to AeroDR detectors using AeroSync Technology.

Take AeroDR anywhere when you power the small access point from the USB port of the convertible controller for maximum mobility and flexibility.

- Combines desktop performance and world class connectivity.
- 12.5" Multi-touch screen.
- Unique "Assisted Triple Hinge" Design.
- Hands-free ergonomic strap.
- Prevents drops, Increases convenience.
- 11hr run time/Hot-swappable battery.
- Lightweight- Less than 4lbs.
- Spill-resistant keyboard.

Control Station Monitor
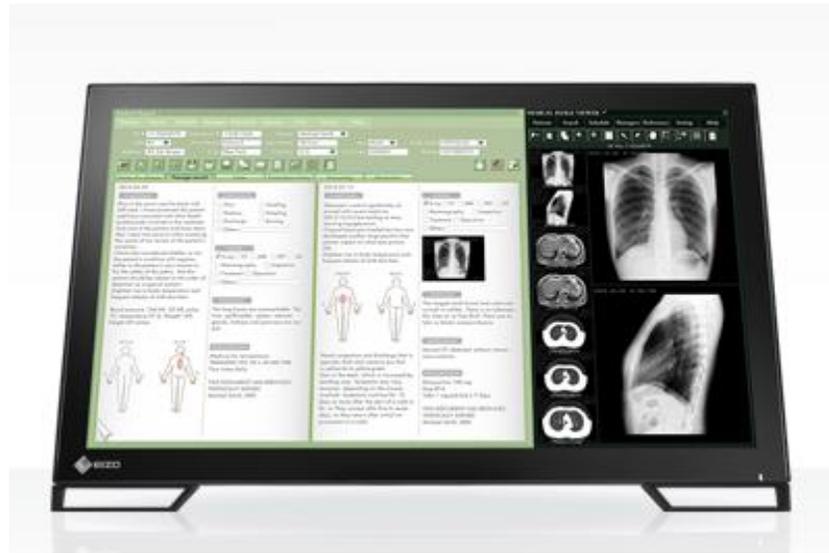
Items	Description
Height Adjustment Range	556.7 (W) x 360.7 (H) x89(D)mm 21.97 (W) x 14.2 (H) x 3.5 (D) inches Tilt angle ~15o
Weight	6.0 kg / 13.2 lbs
Power Requirements	AC 100 - 120 V, 200 - 240 V: 50 / 60 Hz
Native Resolution	1920 x 1080 (16:9 aspect ratio)
Viewable Image Size (H x V)	509.1 x 286.4 mm
Max Power Consumption	56 W
Typical Power Consumption	21 W

- Amperage = 1 amp.
- One electrical outlet is required.

Portable Retrofit Unit
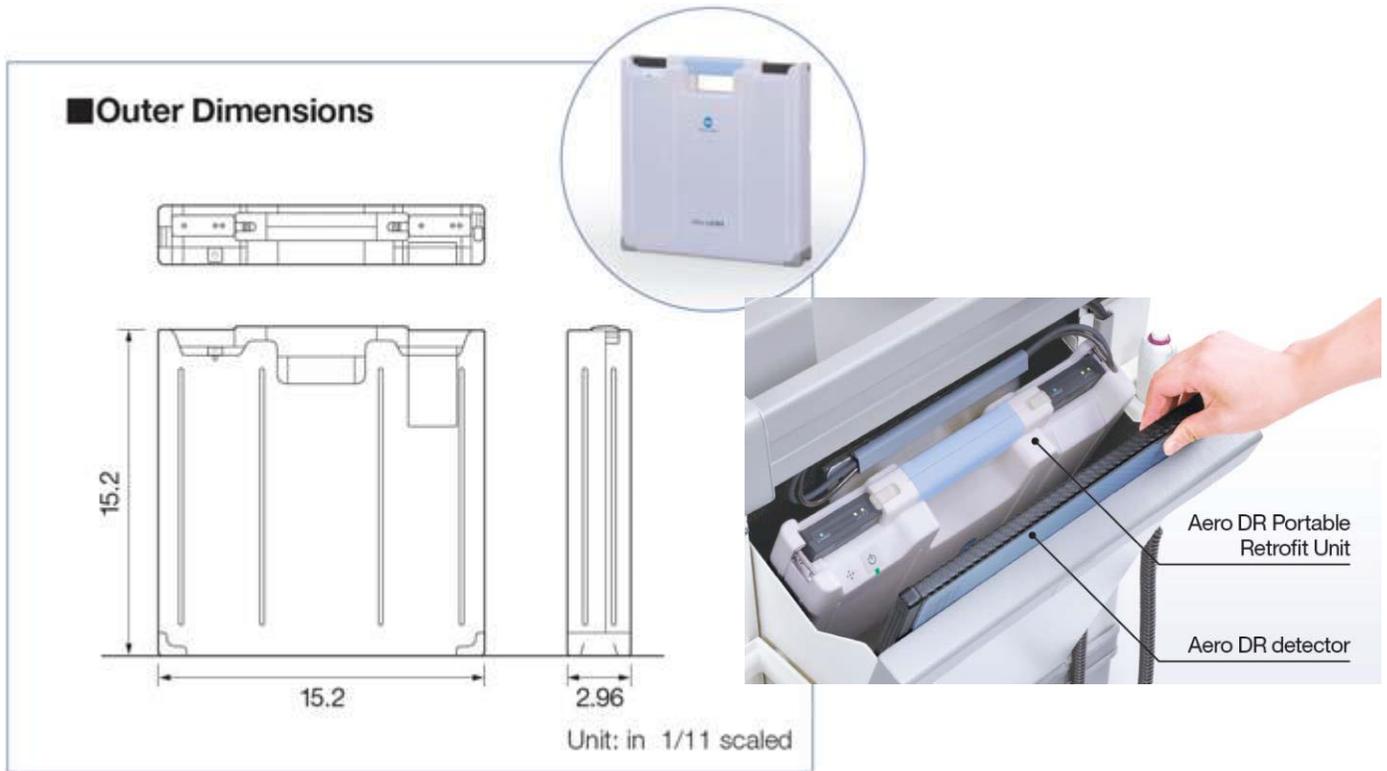
Item	Description
External Dimensions	15.2" x 15.2" x 2.96" (W x H x D)
Weight	6.3 kg 13.9 lbs
Operating time	11 hours from first use
Image Display Speed	< 3 second
Cycle Time	< 17 Seconds
Supported Standards	IEEE 802.11a (Wireless LAN) IEEE 802.3u 10/100 Base-T(X) (LAN)
WLAN encryption	WPA2-PSK (AES)

Portable CS-7 CPU/Monitor

| Model Name		VariPPC 819
Main Spec	CPU	Intel® Core i5 2.5GHz Intel® Core i3 2.2GHz Intel® Mobile Celeron B810 1.6GHz
	Chipset	Intel® HM65
	System Memory	Up to 4GB, 2 x SO-DIMM DDRIII 1333
	Storage	1 x SATA (2.5")HDD / SSD
Display	TFT LCD	19" LED backlight
	Brightness	350 nits
	Max. Resolution	1280x1024
	Max. Colors	16.7M
	Pixel Pitch (mm)	0.294 x 0.294
	View Angle	85/85(H Right/Left) 80/80 (V Upper/Lower)
	Contrast Ratio	1000:1
	Back Light MTBF	50,000 Hours
Projected Capacitive Touch	Transparency	90% ± 3
	Haze rate	<4%
	Activity	35 million times
IO ports	USB Port	6 x USB2.0
	Serial Port	4 x RS-232 w/RI/5V/12V power (COM 1 / 2 : DB-9, COM 3/4 : RJ-48)
	VGA	1 X D-sub VGA
	Audio	1 x Line out / MIC in
	LPT Port	1 x Parallel port
	K/B	1 x PS/2 K/B
Network (LAN)		1 x Gigabit LAN (Support Wake-on-LAN function)
Expansion		1 x Internal Mini Card (full size Mini PCIe)
Speaker		2 x 2W Speakers
Digital IO		4 in 4 out
AC/DC Adapter		12V, 10A 120W adapter
OS Support		Windows 7 Professional for Embedded Systems, Windows Embedded Standard 7, Windows Embedded POSReady 7, Ubuntu 12
Water/Dust Resistance		Front panel IP65, IPX1 enclosure certification
Operating Temperature		0°C ~ 40°C (32°F ~ 104°F)
Vibration Resistance		Random/Operation 1.5G, 5 ~ 500Hz
Shock Resistance		20G Peak Acceleration (11ms. Duration) in operation
EMC / Safety		CE/FCC
Dimensions (W x H x D)		446 x 377 x 70 mm
Net Weight		7.3 KG
VESA Mounting		VESA 100

AeroDR Stitching Unit

Item	Description
Product name	AeroDR Stitching Unit
External dimensions	635(W)×245(D)×1610(H)mm (including adjuster and holder grips)
Weight	About 28kg (excluding the AeroDR Detector and grid)
Applicable AeroDR Detector	AeroDR 1417HQ AeroDR 1417S
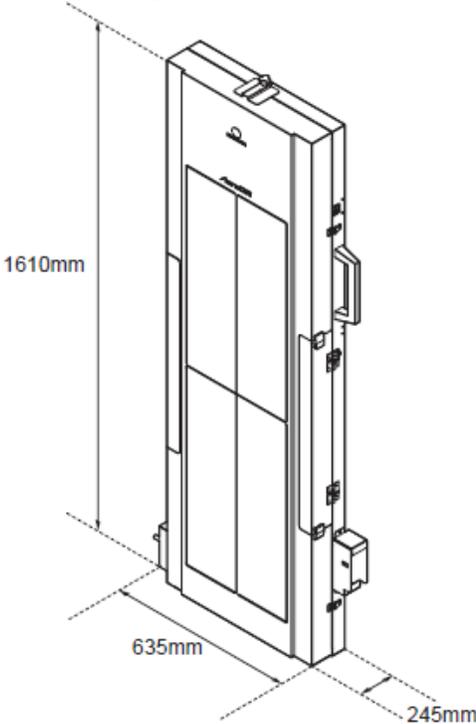
Exposure area (effective image area)	SID 2.4m 47inch
	  1,196.45×349.3mm (6,836×1,996pixels)
	SID 2.0m 39inch
	  997.04×349.3mm (5,697×1,996pixels) *2/2.4=5/6 for double height only
	SID 1.5m 32inch
	  807.69×349.3mm (4,615×1,996pixels)
	
	⚠ IMPORTANT ••
	
	• The exposure area depends on the X-ray tube and the collimator's maximum irradiation field angle; therefore, the ranges above may not be attainable.
	••

Power supply	Power is supplied from the Power Supply Unit via a power cable.
Max. up-and-down stroke	850mm or less

- One IP address is required.
- Network jack is required for up linking to the facilities network.

AeroDR Stitching X-Ray Auto Barrier Unit

Item	Description
Product name	AeroDR Stitching X-ray Auto Barrier Unit
External dimensions	450(W)×400(D)×1800(H)mm (Protruding amount of the mask: 100mm) * Leg area: 400 × 350mm 1800mm 450mm 400mm
Weight	About 38kg

Mask size	For obtaining 1 image Mask hole size
	  86.49 (W) × 90.88 (H)mm (SID 2.4m)
	  99.79 (W) × 105.05 (H)mm (SID 2.0m)
	  126.39 (W) × 133.4 (H)mm (SID 1.5m)
	Dimensions of Mask
	  236 (W) × 1 (D) × 455 (H)mm

Max. up-and-down stroke	1,390mm or less

AeroDR Stitching Power Supply Unit

Item	Description
Product name	Power Supply Unit
External dimensions	350(W)×220(D)×110(H)mm
Weight	About 4kg
Power requirements	AC 100/110/115/120/200/220/230/240V ±10%, single phase 50/60Hz
Power consumption	Maximum value: Approx. 144VA(100-240V)
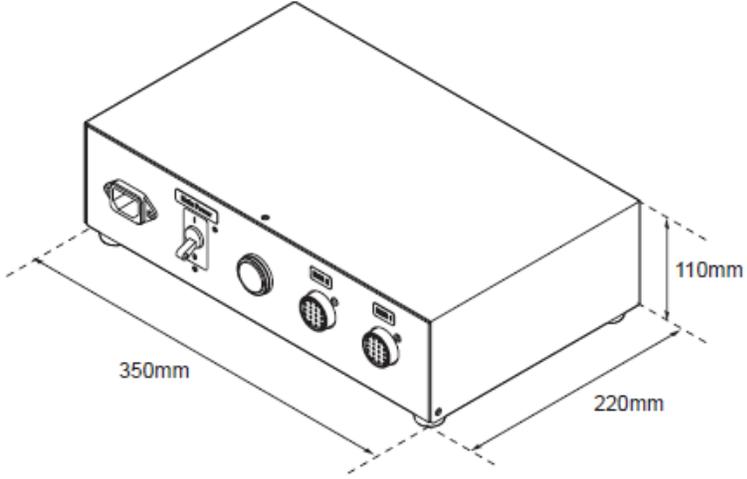
- One electrical outlet is required.

APPENDIX B - Procedure Code Mapping

Procedure Code Mapping is an advanced software function on the CS-7 which enhances workflow. Procedure Code Mapping is generated from a DICOM Modality Worklist. Therefore, once incorporated, Procedure Code Mapping and Modality Worklist will work hand-in-hand. The Modality Worklist provides the ability for the AeroDR to receive patient demographics, e.g. name, birthday, sex, identification number and the requested procedure description. Once the Procedure Code Mapping software is integrated, then customers can also receive pre-selected views for a requested patient study.

The diagrams below present the different ways your Aero DR system can acquire patient information to support Procedure Code Mapping. Determine which path most closely resembles your established workflow.
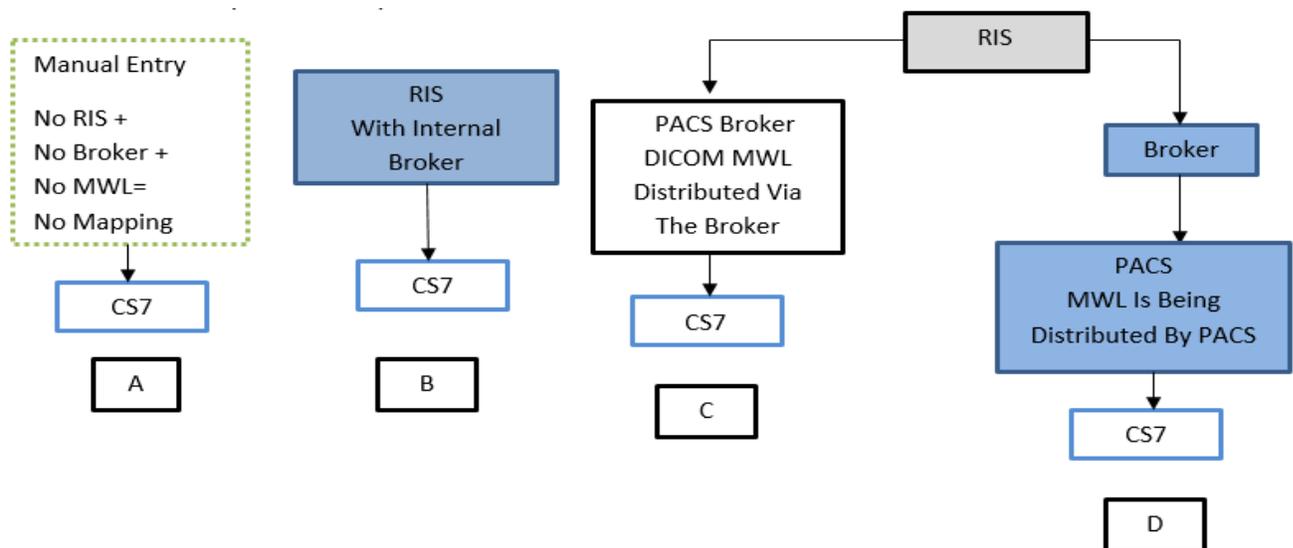
In Path A, you do not have a RIS, a PACS broker or a Modality Worklist. All information is manually entered into the CS-7 by the Technologist. In this scenario, Procedure Code Mapping is not possible.

In Path B, you have a RIS which communicates the Modality Worklist directly to the CS-7. In this scenario, implementing Procedure Code Mapping is possible.

In Path C, you have a RIS and a PACS broker (all in one) which provides the DICOM Modality Worklist to the CS-7. In this scenario, implementing Procedure Code Mapping is possible.

In Path D, you have a RIS that sends information to a Broker that is independent of PACS. The Broker feeds information to the PACS system. Here the Modality Worklist is being generated and sent by PACS to the CS-7. In this scenario, as well, implementing Procedure Code Mapping is possible.

An example of the Procedure Mapping Code File is shown below for reference.

Procedure Code Mapping — Sample File

This is a sample procedure code mapping file for you to reference.

PROCEDURE	DESCRIPTION	CPT	MODALITY	VIEW1	VIEW2	VIEW3	VIEW4	VIEW5	VIEW6	VIEW7	VIEW8	VIEW9	VIEW10
7640001	ABD (2 OR MORE VIEWS)	74020	CR	ERECT AP	SUPINE KUB	SUPINE KUB	PA CHEST						
7640002	ABD COMPLETE DECUBITUS W/CXR	74022	CR	PA CHEST	R DECUB	L DECUB							
7640003	ABD SINGLE AP	74000	CR	SUPINE KUB									
7640004	ABDOMEN DECUBITUS	74000	CR	R DECUB	L DECUB								
7640006	ACROMINOCLAVICULAR JOINT AC JOINT	73050	CR	W WEIGHTED	W/O WEIGHTED								
7640007	AIR CONTRAST UGI	74246	CR	SCOUT									
7640008	AIR CONTRAST UGI W/SM BOWEL ST	74249	CR	SCOUT	SUPINE PA	SUPINE PA	SUPINE PA						
7640009	ARTHROGRAM LT ELBOW	73085	CR	L AP	L								
7640010	ARTHROGRAM LT HIP	73525	CR	L AP	L								
7640011	ARTHROGRAM LT KNEE	73580	CR	L AP	L								
7640012	ARTHROGRAM LT WRIST	73115	CR	L AP	L								
7640013	ARTHROGRAM RT ELBOW	73085	CR	R AP	R LATERAL								
7640014	ARTHROGRAM RT HIP	73525	CR	RT AP	RT LATERAL								
7640015	ARTHROGRAM RT KNEE	73580	CR	RT AP	RT LATERAL								
7640016	ARTHROGRAM RT WRIST	73115	CR	RT AP	RT LATERAL								
7640017	ARTHROGRAM SHOULDER LT	73040	CR	L INTERNAL	L EXTERNAL								
7640018	ARTHROGRAM SHOULDER RT	73040	CR	R AP	R LATERAL								
7640021	BE W/AIR CONTRAST	74280	CR	SCOUT	AP	PA	SIGMOID	R DECUB	L DECUB	RECTUM	EVAC		
7640022	BE W/O AIR CONTRAST	74270	CR	SCOUT	AP	PA	SIGMOID	R OBLIQUE	L OBLIQUE	RECTUM	EVAC		
7640023	BI TM JOINTS CLOSED W/TOMO	70330	CR	R CLOSED	R CLOSED	R CLOSED	L CLOSED	L CLOSED	L CLOSED				
7640024	BIL EYE FB	70030	CR	PA	LAT								
7640025	BIL MASTOIDS	70130	CR	R STENVERS	R LAW	R TOWNES	L STENVERS	L LAW	L TOWNES				
7640026	BIL ORBITS	70200	CR	PA	LATERAL	WATERS	R RHEESE	L RHEESE					
7640027	BIL RIBS	71111	CR	PA CHEST	AP	AP OBLIQUE	PA OBLIQUE						
7640028	BIL TM JOINTS OPEN W/TOMO	70330	CR	R OPEN	R OPEN	R OPEN	L OPEN	L OPEN	L OPEN				
7640029	BIL HIP	73520	CR	R AP	R LATERAL	L AP	L LATERAL						
7640030	BONE AGE STUDY	76020	CR	PA LEFT HAND									
7640035	BONE SURVEY COMPLETE	76062	CR	PA SKULL	LAT SKULL	AP CHEST	LAT CHEST	LAT C-SPINE	LAT T-SPINE	LAT L-SPINE	PELVIS	R AP HUMEROUS	L AP HUMEROUS
7640036	BOTH KNEES STANDING AP	73565	CR	AP	R LATERAL	L LATERAL							
7640038	CERVICAL SPINE (3 VIEW)	72040	CR	AP	LATERAL	ODONTOID	SWIMMERS						
7640039	CERVICAL SPINE (4 OR MORE VIEWS)	72050	CR	AP	LATERAL	R OBLIQUE	L OBLIQUE	ODONTOID	SWIMMERS				
7640040	CHEST AP PORTABLE	71010	CR	AP PORTABLE									