



FUSION Equine DR[®] II

User Manual

Supports the Canon AX B2735W or B3543W panel

Non-integrated with x-ray generator



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Notices

The FUSION EQUINE DR® II digital x-ray imaging system is a high resolution digital imaging system intended to replace conventional film techniques, or existing digital systems, in multipurpose or dedicated applications.

Reasonable precautions have been taken in the preparation of this book, but Sound™ assumes no responsibility for errors or omissions or for damage resulting from the use of the information contained herein. For improvement of product performance, supplementation, or follow-up of information, the contents of this manual are subject to change without notice.

Standards and compliance

CE for Low Voltage Directive 2006/95/EC, EMC Directive 2004/108/EC
TUV Lab Tested
CAN/CSA-C22.2 No. 60601-1 & 61010-1
IEC 60601-1, 60601-1-2, 61010-1
AAMI ES60601-1

It is the responsibility of the system integrator to ensure detectors are CE marked for use in the European Union.

This product conforms to the necessary IEC standards for patient safety & isolation as-shipped from the factory. The end user and/or the installer is responsible to insure that when connected, as a system with other devices, this product meets all the rules of IEC 60601-1 Clause 16.

Statement of Intended Use

The FUSION EQUINE DR® II digital x-ray imaging system is a high resolution digital imaging system intended to replace conventional film techniques, or existing digital systems, in multipurpose or dedicated applications specified below. The digital x-ray imaging system enables an operator to acquire, display, process, export images to portable media and send images over a network for long-term storage. Image processing algorithms enable the operator to bring out diagnostic details difficult to see using conventional imaging techniques. Images can be stored locally for temporary storage. The product has the ability to interface with a variety of flat panel image receptors. The major system components include an image receptor, computer, monitor and imaging software.

The digital x-ray imaging system is intended for use by a veterinary technologist or other trained person under the supervision of a veterinarian. The target population will be equine, canine, feline, (small) mammal, primate, avian, and reptile undergoing medical diagnostic imaging for reasons that were judged to be medically necessary by a competent veterinary practitioner.



Warning: Do not modify this equipment without authorization by Sound Technologies, Inc.



Warning: Ne pas modifier cet équipement sans l'autorisation de Sound Technologies, Inc.

Operating principle

The essential performance of the FUSION EQUINE DR® II system is to synchronize the image acquisition of the digital receptor with the X-ray beam of the host X-ray system to capture, display and archive quality images of the intended anatomy, with reasonable patient exposure to X-rays.

The FUSION EQUINE DR® II digital imaging system uses a solid-state X-ray detector to capture digital images of anatomy penetrated by an incident X-ray beam. A host X-ray system generates the X-ray beam, which passes through a patient and strikes the detector of FUSION EQUINE DR® II. The detector converts the X-ray energy to digital image data that is then passed to the FUSION EQUINE DR® II computer. The computer processes the image data, displays the image to the user, and provides temporary storage for image data and associated patient information, which can be imported from a worklist or entered manually. When the user has finished applying processing, annotation, and measurement features of Sound SmartDR™ Premier software, the images can be archived or printed to appropriate DICOM-compliant devices.

Intended User Profile

The digital x-ray system is intended for use in general radiographic examinations and applications (excluding fluoroscopy) by a veterinary technologist or other trained person under the supervision of a veterinarian.

There are no user-serviceable parts inside the digital x-ray system or subsystem components. Refer all repair needs to a service organization that has been trained and authorized by Sound Technologies, Inc.

Intended Patient Population

The target population is equine, canine, feline, (small) mammal, primate, avian, and reptile undergoing medical diagnostic imaging for reasons that were judged to be medically necessary by a competent veterinary practitioner. The x-ray system is intended for veterinary applications only and is not for use on humans.

Intended Anatomy

The x-ray system may be used to image any part or area of the target population's anatomy that can be imaged with x-ray radiation, with or without a contrast agent.

Maintenance and cleaning

See Chapter 9. Cleaning the X-ray System on page 110, for information about maintaining and cleaning the system components.

Trademarks

Sound™ and Sound SmartDR™ Premier are trademarks and FUSION EQUINE DR® II is a registered trademark of Sound Technologies, Inc. The Intel Core™ i5 Processor is a trademark of Intel, Santa Clara, Calif. The Dual Band Wireless-AC 7260 is a product of Intel. Windows is a registered trademark of Microsoft Corporation in the United States and other countries; AX-B2735W and AX-B3543W panels, Canon name and Canon logo are trademarks or brand names of Canon Inc; All other trademarks are properties of their respective companies.

Related and Supplemental Information

The following documents are part of the product library or provide supplemental information on this product.

Table 1: Related and supplemental information

Title	Description	Part number
<i>FUSION EQUINE DR® II User Manual</i>	This manual together with Sound Technologies, Inc. training gives radiologic technologists the step-by-step instructions that they need to acquire, review, and store images with the x-ray system.	UM0005
<i>FUSION EQUINE DR® II Service Manual</i>	This manual, combined with manufacturer-provided training classes, supplies the information that a service technician requires to set up, configure, calibrate, and diagnose a Sound Technologies, Inc. x-ray system.	SM0005
<i>Sound SmartDR™ Premier online help</i>	See the online help/training for videos and text that describes the most common tasks in the user interface. The help is context sensitive and can be launched from the digital radiography system software user interface by clicking the hamburger menu in the main tool bar of the screen to access the SmartDR Premier Apps.	Not applicable. The online help is installed with the product.

Revision History

The following table shows when this document has been revised and a description of the major updates for each revision.

Table 2: Document revisions

Revision letter	Issue date	ECO number	Changes made
A	12/29/2021		Initial release.

Information symbols

Informational symbols are used in the Sound Technologies, Inc. imaging system documentation and on some labeling.

Table 3: Informative markings: Documents and equipment

Symbol	Title/Meaning	Standard/Reference
	Notice. An important aspect of Sound Technologies, Inc. imaging system operation is presented.	N/A. Used in operator and service manuals to note important information
	Caution. On product, indicates need to consult instructions for use for important cautionary information.	ISO 15223-1:2012/5.4.4

Symbol	Title/Meaning	Standard/Reference
	Warning. General warning.	IEC 60601-1:2012/Table D.2 No. 2
	Read accompanying documents or instructions for use.	IEC 60601-1:2005/Table D.2, No. 10
	The date of manufacture is adjacent to this symbol.	ISO 15223-1:2012/5.1.3
	The manufacturer's serial number is displayed with this symbol.	ISO 15223-1:2012/5.1.7
	The procedure requires making X-ray exposures and producing radiation. Follow safety precautions when operating the X-ray system.	Warning: IEC 60601-1:2012/Table D.2 No. 2; Ionizing Radiation: IEC TR 60878, No. ISO 361; ISO 7010-W003
	Earthing terminal Grounding terminal	IEC 60417-5019; IEC 60601-1/7219
	Warning. Warning, electricity	IEC-60601-1:2012, Table D-2, No. 3; IEC 60601-1/7.2.14, 7.3.2
	Dangerous voltage. Indicates hazard from dangerous voltages.	IEC 60417-5036
	Non-ionizing electromagnetic radiation. Indicates elevated or potentially hazardous levels on non-ionizing electromagnetic radiation.	IEC 60417-5140
	The manufacturer's catalog number (model number) is displayed with this symbol.	ISO 15223-1:2012/5.1.6
	The name and address of the manufacturer is displayed with this symbol. The date of manufacture may also be included with this information.	ISO 15223-1:2012/5.1.1

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Chapter

1

System Overview

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- *System storage accessories on page 25*

This chapter provides a high-level overview of the x-ray system to orient you to the more detailed tasks involved in using and maintaining the system. Your FUSION EQUINE DR® II uses Sound SmartDR Premier Software.

Hardware Part Numbers

The FUSION EQUINE DR® II system includes the following hardware components. Depending on the system, it may have different part.

Table 4: Supported hardware

Hardware components	Details	Part number
Sound 14" Tablet PC	Includes Windows 10 Enterprise, SmartDR Premier Software, SmartPACS Software, Digital Pen, AC/DC Power adapter and AC cord.	20-900
Canon AX-2735W Csl panel detector	The panel comes with 2 batteries	91-444
Canon AX-3543W Csl panel detector	The panel comes with 2 batteries.	91-445
Canon dual-bay battery charger		10-137
Canon Flat battery charger		10-499
I/R detector check-in for Canon with ready indicator		10-426
Sound FUSION DR Recovery Media Kit	Recovery media (thumb drive) and case	70-880
FUSION Equine DR II Accessory Kit		74-875
FUSION Equine DR II PLUS Accessory Kit		74-882
FUSION Equine DR II Lite Accessory Kit		74-871
FUSION Equine DR II Lite PLUS Accessory Kit		70-870

Table 5: FUSION EQUINE DR Storage Options

Item	Details	Part Number
FUSION Equine DR II Complete Case Assembly	Hard-side carrying case	34-907
Sound Equine Backpack	Protective Backpack for storage of the Sound 14" Tablet, AX-B2735W panel detector, panel batteries, and accessories.	70-798
Sound Equine 1417 Bag	Protective bag for storage of the AX-B3543W panel detector, panel batteries, and accessories.	70-801
Neoprene panel cover for 11x14 panel	Accommodates AX-B2735W panel.	70-805
Neoprene panel cover for 14x17 panel	Accommodates AX-B3543W panel.	70-882
Panel 11x14 detector tunnel	Accommodates AX-B2735W with podoblock.	70-586
Panel 14x17 detector tunnel	Accommodates AX-B3543W with podoblock.	70-556

SOUND 14" Tablet

The SOUND 14" tablet provides a rugged platform for the FUSION EQUINE DR® II and the Sound SmartDR™ Premier software. The tablet PC contains the following components:

- Intel® 8th Generation Core™ i5-8250U quad-core 1.6 GHz processor
- 1TB solid state drive (SSD)
- 8GB RAM
- Built-in Wi-Fi (Intel AC-8265) and Bluetooth
- 1920 x 1080 pixels, 1000 nits high-brightness capacitive touch display
- 2 60W battery packs
- Micro-SD Card Slot

Figure 1: SOUND 14" Tablet



SOUND 14" Tablet technical specifications

Table 6: SOUND 14" technical specifications

Parameter	Description
CPU	Intel® 8th Generation Core™ i5-8250U quad-core 1.6 GHz processor
RAM	8GB
Storage	1TB solid state drive (SSD)
Display	14" LED-backlight, high-brightness (1,000 nits) screen with capacitive multi-touch, outdoor viewable
Display resolution	1920 x 1080 pixels
WLAN	Wi-Fi 802.11ac, 2.4GHz/ 5GHz dual band
Bluetooth	Bluetooth 4.0 LE
Ports	HDMI (1), USB 3.0 (1), USB 2.0 (2), RJ-45 for Ethernet
AC/DC adapter	Input: 100-240VAC Output: 19VDC, 6.31A
Battery packs	2, 60W
Enclosure	ABS + PC plastics and magnesium-aluminum alloy
Dimensions (H x W x D)	9.6in x 13.8in x 1.16 in (244mm x 244mm x 29.5mm)
Weight	6.38lbs/ 2.9kg
Vibration and Shock Resistance	MIL-STD-810G
EMI and EMC Tolerance	MIL-STD-461F
Water and Dust Resistance	IP65
Regulatory	FCC Class B, CE, RoHS compliant, Prop 65
Temperature	Operating: -20°C to 60°C (-4°F to 140°F) ¹ Storage: -55°C to 70°C (-67°F to 158°
Humidity	0% – 90% non-condensing

¹ For best performance and safety, recommended usage temperature is 5°C to 35°C (41°F to 95°F).

Sound 14” Tablet controls and Connectors

Figure 2: Sound 14” Tablet controls, indicators, and connectors



Table 7: SOUND 14” TABLET controls, indicators, and connectors

Item	Description
1	Ethernet port (RJ-45)
2	USB 3.0 port
3	HDMI output
4	Audio jack
5	Power LED Blue: battery is 25-100% charged Blinking blue: battery is charging Orange: battery is 11-25% charged Blinking orange: battery is below 10% charged
6	Power button. Press to power the tablet on or off.
7	Programmable buttons
8	USB 3.0 ports
9	DC input. Connect to AC-DC power adaptor to charge or power the tablet. Use only the adaptor shipped with the tablet.
10	Smart Card Reader (not used)

Figure 3: SOUND 14" Tablet and AC-DC adaptor



Connect the AC-DC adaptor to the tablet (at the DC input) and to a wall outlet to power tablet or charge the tablet's batteries.

Figure 4: Battery latch locations on SOUND 14" Tablet



To remove the battery, push the switch on the latch to unlock it. Then, slide the latch to remove the battery.

Wireless keyboard and mouse

A foldable Bluetooth keyboard and mouse are supplied as part of the Sound accessory kit.

About the Bluetooth keyboard and mouse

Figure 5: Bluetooth keyboard and mouse



Table 8: Bluetooth keyboard specifications

Parameter	Description
Dimensions	158mm x 101mm x 13mm (folded) 320.06mm x 101.99mm x 5.8mm (unfolded)
Weight	176g
Battery	Rechargeable lithium ion battery
Battery life	40 hours of uninterrupted work (continuous typing) 30 days in standby mode
Connections	Micro USB charging cable (included) Bluetooth 3.0 (backward, forward compatible) Operating distance: 10 m (32 ft)
Indicators	Power LED (green) Pairing LED (blue) Low battery LED (red)

Canon AX-B2735W Detector Specifications

The FUSION EQUINE DR® II x-ray system can include the AX-B2735W panel. The x-ray panel comes with the following components:

- 2 batteries
- battery charger
- ready indicator

The AX-B2735W is a light weight, wireless flat panel detector designed for digital radiographic x-ray systems. The AX-B2735W is small, rugged, and easy to use in hand-held and mobile applications. The AX-B2735W supports a number of connection methods, simplifying the integration challenge of going wireless. It can connect to a Multi-Box, a commercial access point or directly to a tablet or PC, and can work with RAD acquisition or auto-trigger.



Figure 6: AX-B2735W physical dimensions

AX-B2735W Detector

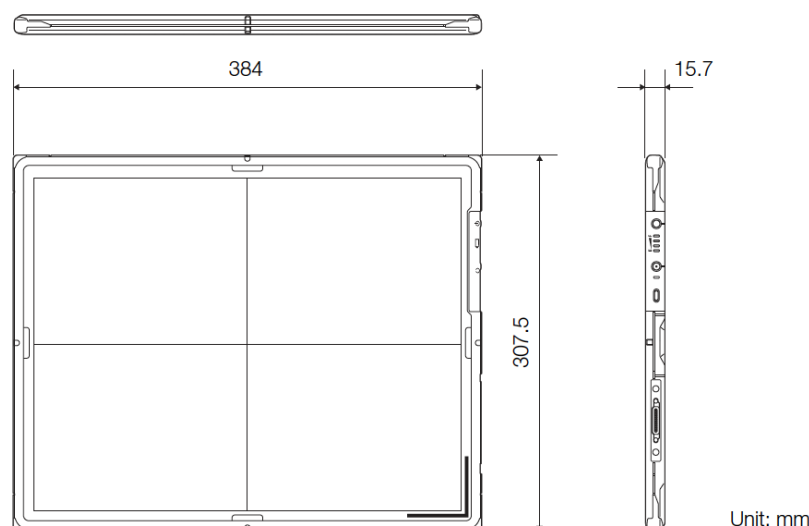


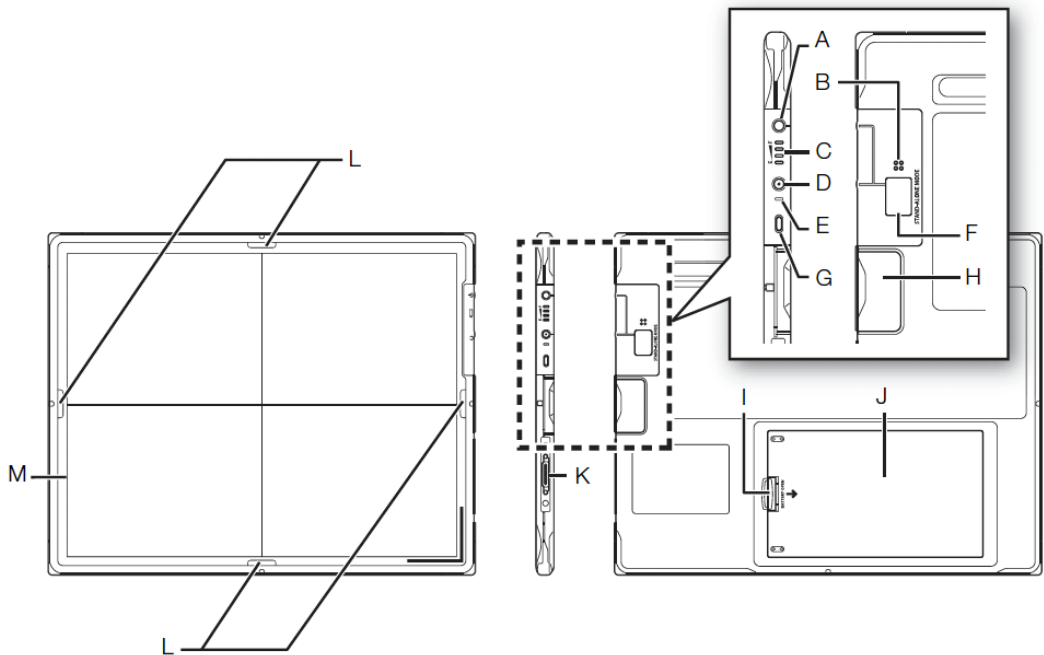
Figure 7: AX-B2735W technical specifications

AX-B2735W Detector

Pixel pitch:	125 µm
Scintillator:	CsI (Cesium iodide)
Effective imaging area:	350 x 274 mm
Gray scale:	65536 gradations (A/D: 16 bit)
Attenuation equivalent of the detector front panel:	Max. 0.21 mmAl
Load capacity	
Uniform load (Over the whole area of the detector surface)	310 kg or less
Uniform load (Effective imaging area)	150 kg or less
Local load (On an area 40 mm in diameter)	100 kg or less
Environmental requirements:	
Operation	
Temperature:	5°C to 35°C
Humidity:	30% to 80% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Storage (unpacked)	
Temperature:	5°C to 40°C
Humidity:	30% to 85% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Transportation (in packages at point of purchase)	
Temperature:	–30°C to 50°C
Humidity:	10% to 95% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Applicable grid:	34, 40*, 52*, 60* lp/cm (* recommended) (34 and 40 lp/cm have restrictions.)
Wireless LAN:	Compliant with IEEE 802.11a/b/g/n
Rated power supply:	9 to 12 V DC, 2.00 A
Wireless:	Powered by the battery pack
Dimensions and mass:	Approx. 384 x 307.5 x 15.7 mm Approx. 1.8 kg (incl. battery pack)

Figure 8: AX-Series Panel part names and functions

The detector is designed to capture radiographic images.



A	POWER switch	When the detector is off, press the POWER switch (for at least 0.5 seconds) to turn on the detector. When the detector is on, press and hold the POWER switch (for at least 3 seconds) to turn off the detector, or press and hold the POWER switch (for 1 second or less) to establish the communication link.
B	Speaker	
C	Power LED	Lights up when the detector turns on. Shows the remaining battery pack charge.
D	READY switch	
E	READY LED	This LED lamp flashes while the detector is transitioning to exposure ready status, and lights up when the detector enters exposure ready status. Also flashes (approx. 3 seconds) when detector linkage is initiated. Flashes in the case of errors.
F	Error code display	If errors occur, an error code is displayed.
G	IR data port	Communication port for the detector link (registration/connection)
H	Wireless module	Transmits image data with wireless communication (IEEE 802.11a/b/g/n).
I	Battery cover lock	Locks or unlocks the battery cover.

J	Battery cover	Holds the battery pack. Removing the battery cover enables to attach or remove the battery pack (detector's battery for wireless configuration).
K	Cable connector	Accepts the wiring cable.
L	Colored label locations (4 places)	Affix accessory colored labels at the specified locations on the detector in order to distinguish it from other detectors. Affix colored labels that match the colors of the icons shown on the protocol selected on the Examination screen. The labels come in four colors: green, light blue, purple, and orange. The colored labels can also be affixed to locations at the top and sides of the detector as reminder markings to distinguish the top and bottom and left and right sides of the detector.
M	Effective imaging area border	Indicates the effective imaging area and center position.

Figure 9: AX-Series Wireless Communications

Wireless connection is established between the internal wireless module of this product and a laptop computer or a wireless access point. This product supports IEEE 802.11a/b/g/n (Frequency band: 2.4 GHz/5 GHz). The available frequency band and channel vary depending on the system requirements and the radio frequency regulations in the country or region where you purchased the device.

 Important

Note that the radio frequency channel configured for indoor use may not be usable in outdoor areas, depending on local radio frequency regulations.

 Important

When configuring other wireless LAN equipment, do not use the same radio frequency (channel) that is selected for this product. Otherwise, an interference between the two pieces of equipment may occur and may result in a decline in transmission speed and other troubles.

 Important

Before introducing other wireless equipment to the same environment where this product is set up, consult with the equipment system engineer.

 Important

Do not cover the wireless module on the detector with your hands or place obstacles in the way of the wireless access point. Otherwise, the properties of wireless communication, such as the throughput and operable distance, may decrease.

Canon AX-Series Battery Specifications

Figure 10: AX-Series Panel Battery Specifications

Specifications

Product name (model number):

BATTERY PACK LB-4A

Type: Lithium ion battery

Operation temperature:

5°C to 35°C

Operation humidity:

85% Rh or less

Rated voltage: 11.1 V DC

Capacity: Typ. 1660 mAh / Min. 1600 mAh

Charging current: 1.6 A

Charging time: Approx. 150 minutes* (full discharge to full charge)**

Cycle life: Approx. 300 cycle (full discharge to full charge)

Dimensions and mass:

Approx. 93 x 162 x 7 mm

(excluding projecting parts)

Approx. 160 g

* When charging the battery pack using the Battery Charger BC-1A

** When the battery pack is charged fully (full discharge to full charge) at an ambient temperature of 25°C

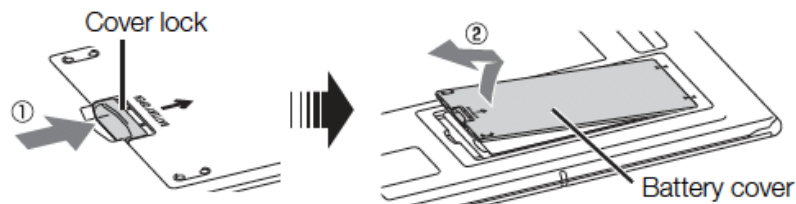
- All specifications above are based on Canon's testing standards.
- The specifications and exterior are subject to change without notice.

Figure 11: Attaching and removing the battery pack for the AX-Series

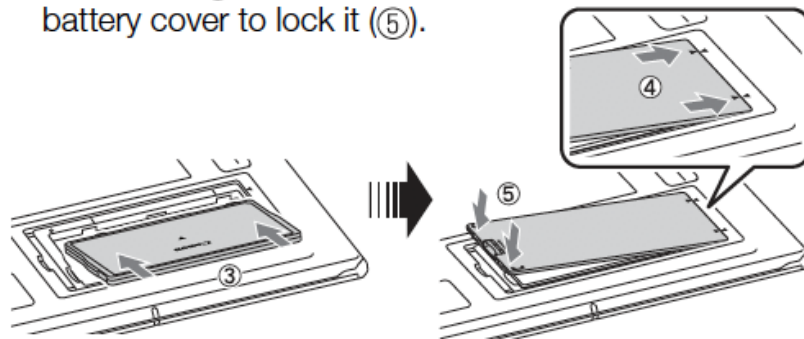
Attaching or removing the battery pack

Attaching the battery pack

Press and hold the battery cover lock (①) to release the lock, then lift up and pull out the battery cover (②).



Insert the battery pack fully (③). Insert the battery cover fully (④) and press down on the front of the battery cover to lock it (⑤).



Removing the battery pack

For details on how to remove the battery cover, refer to “Attaching the battery pack.”

To remove the battery pack, pull the edge to remove the battery pack (⑥).

- For details, refer to the User’s Manual for the CXDI detector.

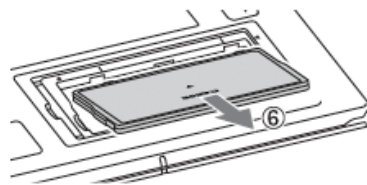
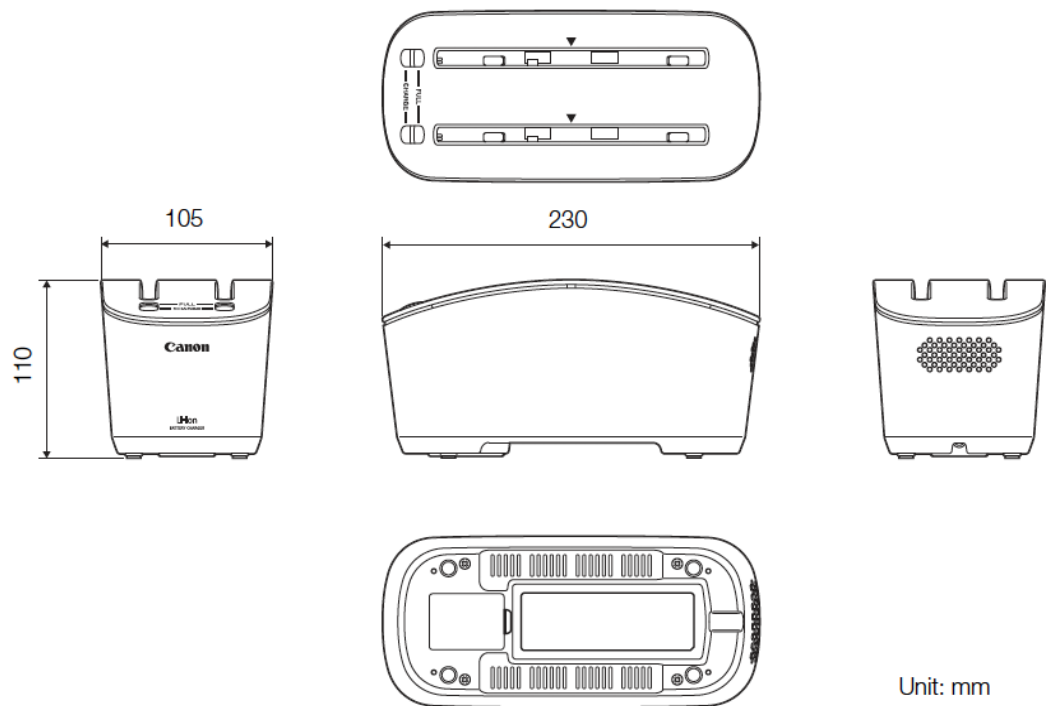


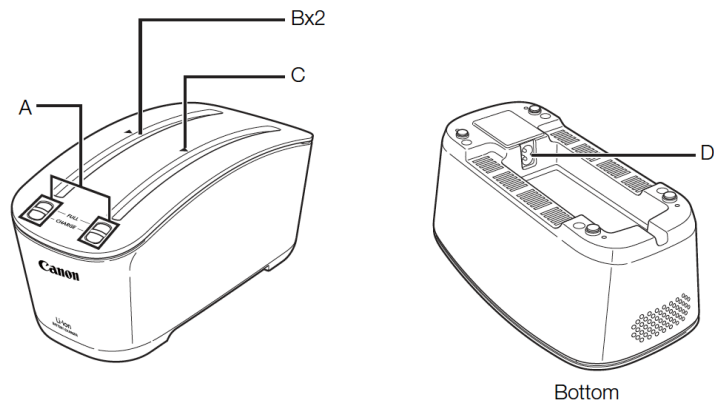
Figure 12: AX Series battery charger dimensions



- All specifications above are based on Canon’s testing standards.
- The specifications and exterior are subject to change without notice.

Table 9: AX Series battery charger part name and functions

Battery charger



A	Charge status lamps FULL CHARGE	Light up when the batteries are fully charged. Light up when the batteries are being charged. i Information See Charge status (→ page 12) for confirmation of other statuses.
B	Battery insertion slot	Accepts the Battery Pack LB-1A.
C	Direction marker	Serves as an index mark for inserting the batteries correctly to the slot.
D	Power cord socket	Accepts the supplied power cord.

Table 10: AX Series battery charger technical specifications

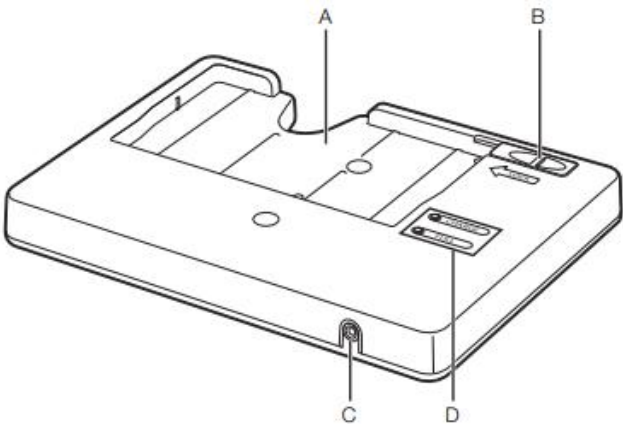
Specifications

Main specifications

Usage:	Dedicated battery charger for the Battery Pack LB-1A*
Battery charging slot:	2 slots (two battery packs can be charged at one time)
Rated input:	100-240 V AC, 50/60 Hz, 0.7-0.37 A, 70-90 VA
Rated output:	12.33 V DC/1.2 A
Charging time:	Approx. 3 hours (full discharge to full charge)**
Operation temperature and humidity range:	5 to 35°C / 20 to 85% RH
Storage temperature and humidity range:	-30 to 60°C / 10 to 85% RH
Dimensions and mass:	Approx. 105 x 230 x 110 mm Approx. 780 g (excl. power cord)
* Battery Pack LB-1A:	Lithium ion Capacity: Typ. 2490 mAh / Min. 2400 mAh
** When the battery pack is charged fully (full discharge to full charge) at an ambient temperature of 25°C.	

Table 11: AX Series single bay battery charger part names and functions

Battery adaptor



A	Battery bay	Accepts the Battery Pack LB-4A.
B	Battery lock	Locks or unlocks the battery pack.
C	DC IN jack	Accepts the cable of the dedicated AC adaptor.
D	Charge status lamps CHARGE FULL	Light up when the battery pack is being charged. Light up when the battery pack is fully charged. i Information See Charge status (→ page 10) for confirmation of other statuses.

Table 12: Canon AX Series battery charger technical specifications

Main specifications

Battery adaptor

Usage:	Dedicated battery charger for the Battery Pack LB-4A*
Power supply rating	INPUT: 12 V DC, 1.2 A (supplied from AC adaptor) OUTPUT: 12.33 V DC, 1.0 A
Charging time:	Approximately 2.5 hours (full discharge to full charge)**
Operating environment	Temperature: 5°C to 35°C Humidity: 20% to 85% RH (without condensation) Atmospheric pressure: 700 to 1060 hPa
Transportation and storage environment (in packages at point of purchase)	Temperature: -30°C to 50°C Humidity: 10% to 95% RH (without condensation) Atmospheric pressure: 613 to 1060 hPa
Dimensions and mass:	Approximately 240 x 180 x 25 mm Approximately 395 ± 20 g
* Battery Pack LB-4A:	Lithium ion Capacity: Typ. 1660 mAh / Min. 1600 mAh
** When the battery pack is charged fully (full discharge to full charge) at a room temperature of 25°C.	

AC adaptor

Model No.:	MPU16A-105
Power supply rating	INPUT: 100-240 V AC, 47-63 Hz, 0.33-0.18 A OUTPUT: 12 V DC, 1.25 A max
Dimensions and mass:	Approximately 104 x 42 x 31 mm Approximately 160 g

Figure 13: Ready Indicator part names and functions

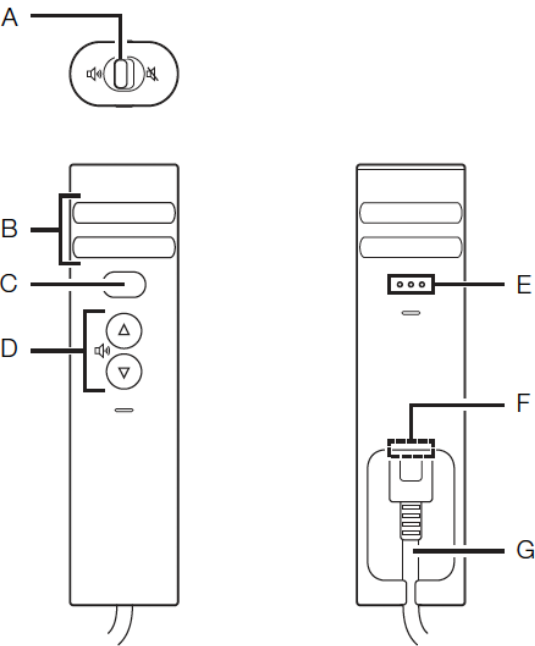
The ready indicator is connected to the image-capture computer via USB and is attached using the hook-and-loop fastener in a place where it can be easily seen.

The LED lamps on the detector light up when the detector is in exposure ready status. As the available image-capturing time (maximum 10 minutes) after the detector is changed to exposure ready status, is reduced to 5 minutes remaining, 1 minute remaining and 10 seconds remaining, or when the X-rays are received by the detector, the detector beeps, or the LED lamps on the detector light up or flash. The volume can be controlled or set to mute.

This unit is used as an interface of the image-capture computer for infrared communication with the detector, which registers the detector to the laptop computer.

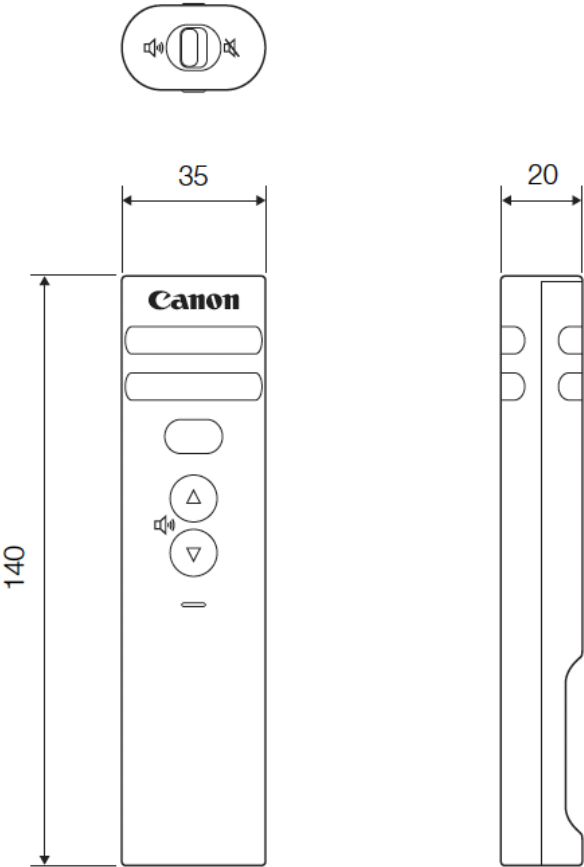
Important

Do not install the ready indicator such a position that its IR data port faces the monitor, reflector, or other IR data communication equipment, except for the detector.



A	Mute switch	Slide to  to enable the mute function, and to  to disable the mute function.
B	LED status indicator	Lights up or flashes to indicate detector status, detector registration, and connection status.
C	IR data port	Communication port for the detector link (registration/connection)
D	Volume button	Click  to turn up the volume, and  to turn down the volume.
E	Speaker	A beeping sound is emitted from the speaker openings.
F	Micro USB connector	Connector for the micro USB cable (Micro B type)
G	Micro USB cable	Connect to the image-capture computer.

Figure 14: Ready Indicator dimensions



Unit: mm

Canon AX-B3543W detector specifications

Review the specifications for the detector before installing, configuring, or using the detector.

Figure 15: AX-B3543W detector



Figure 16: AX-B3543W X-ray detector physical dimensions

AX-B3543W Detector

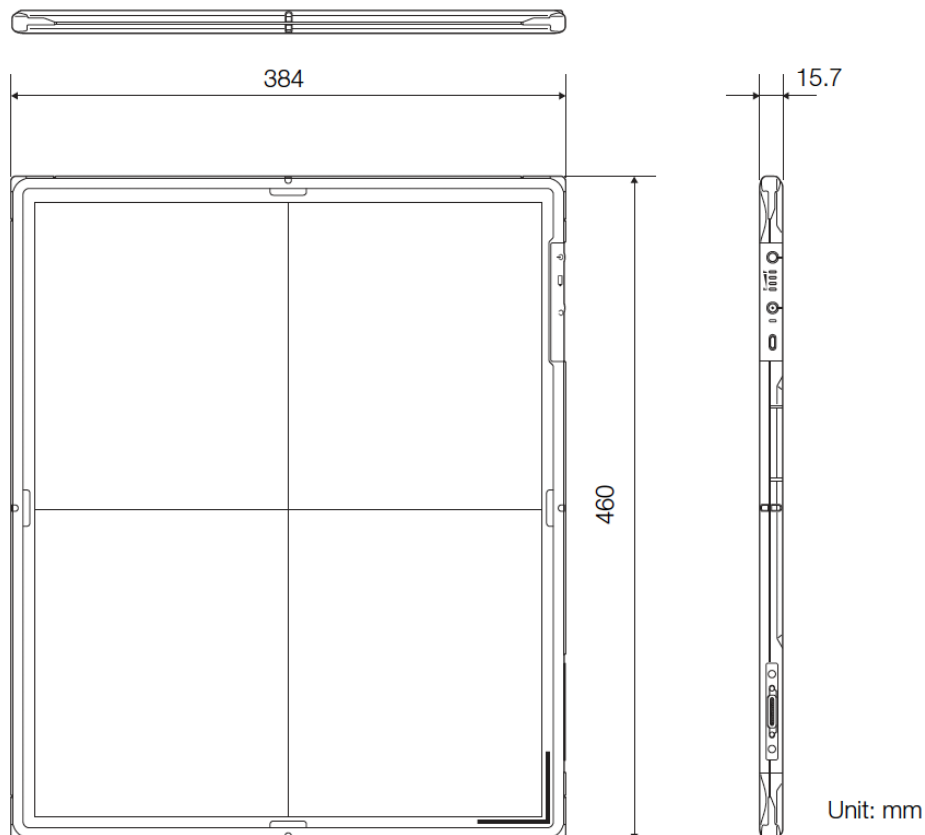


Figure 17: Canon AX-B3543W Panel technical specifications

AX-B3543W Detector

Pixel pitch:	125 µm
Scintillator:	CsI (Cesium iodide)
Effective imaging area:	350 x 426 mm
Gray scale:	65536 gradations (A/D: 16 bit)
Attenuation equivalent of the detector front panel:	Max. 0.21 mmAl
Load capacity	
Uniform load (Over the whole area of the detector surface)	310 kg or less
Uniform load (Effective imaging area)	150 kg or less
Local load (On an area 40 mm in diameter)	100 kg or less
Environmental requirements:	
Operation	
Temperature:	5°C to 35°C
Humidity:	30% to 80% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Storage (unpacked)	
Temperature:	5°C to 40°C
Humidity:	30% to 85% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Transportation (in packages at point of purchase)	
Temperature:	-30°C to 50°C
Humidity:	10% to 95% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Applicable grid:	34, 40*, 52*, 60* lp/cm (* recommended) (34 and 40 lp/cm have restrictions.)
Wireless LAN:	Compliant with IEEE 802.11a/b/g/n
Rated power supply:	9 to 12 V DC, 2.00 A
Wireless:	Powered by the battery pack
Dimensions and mass:	Approx. 384 x 460 x 15.7 mm Approx. 2.3 kg (incl. battery pack)

Table 13: AX-B3543W RF transmitter specifications

Frequency band	Wireless LAN standard IEEE 802.		Frequency band (MHz)	Modulation	Data rate (Mbps)	Effective radiation power (dBm)
2.4 GHz	11b		2412-2472	DSSS	11	Max.+12.48
	11g			OFDM	54	
	11n	HT20			75	
		HT40		2422-2462		150
5 GHz	11a		5180-5320	OFDM	54	Max.+17.35
	11n	HT20	5500-5700		75	
			5745-5825			
		HT40			5190-5310 5510-5670 5755-5795	

System Restore Thumb Drive

The system backup thumb drive is used to create a ghost backup of the system after it has been configured with the site's settings. It can then be used to restore a system to the desired settings when necessary.

Figure 18: FUSION DR Recovery media - Sound™ tablet PC

Software

The following software is supported for use with this x-ray system.

- Windows 10 Enterprise IoT
- Sound SmartDR™ Premier 2.0
- Sound Smart PACS™ 1.7
- MusicaVet

Carrying Cases

You may choose to store the Sound™ system in the carrying cases described in this section. The hard side carrying case accommodates Sound 14" Tablet, AX-B2735W and two batteries for the panel with Canon Flat Battery charger. Sound Equine Backpack accommodates the Sound 14" Tablet, the AX-B2735W and AX-B3543W panel detectors, and two batteries for the AX-Series panel detector.

Sound Equine Hard-Side Carrying Case

You may choose to store the Sound™ system in the hard case described in this section. The hard case accommodates the Sound 14" Tablet, the AX-B2735W panel detector, and two batteries for the AX-Series panel detector.

Figure 19: FUSION EQUINE DR® II Hard-Side Carrying Case



The Backpack accommodates:

- Sound 14" Tablet
- AX-B2735W Panel
- Two panel batteries
- Power supply and cable for tablet
- Extra accessories

Sound Equine Backpack

You may choose to store the Sound™ system in the backpack described in this section. The backpack accommodates the Sound 14" Tablet, the AX-B2735W and AX-B3543W panel detectors, and two batteries for the AX-Series panel detectors.

Figure 20: FUSION EQUINE DR® II Backpack



The Backpack accommodates:

- Sound 14" Tablet
- AX-B2735W or AX-B3543W Panels
- Two panel batteries
- Power supply and cable for tablet
- Extra accessories

Sound Equine 14x17 Bag

You may choose to store the Sound™ system in the 14x17 Bag described in this section. The attached accommodates the Sound 14" Tablet, the AX-B2735W and AX-B3543W panel detectors, and two batteries for the AX-Series panel detectors.

Figure 21: Sound Equine 14x17 Bag showing panel (1) and battery (2) storage areas



Figure 22: The FUSION 1417 bag, panel storage area



System storage accessories

In addition to the system storage case and the attaché, you may choose to include one or more of the accessories described in this section to store FUSION EQUINE DR® II system components.

Neoprene Panel Cover

The neoprene panel cover protects the panel detector.

Figure 23: Neoprene Panel Cover for AX-B2735W Panel



Figure 24: Neoprene Panel Cover for AX-B3543W Panel



Sound Panel Frame and Handle

Figure 25: Sound custom frame for the AX-B3543W Panel



Figure 26: AX-B3543W Frame Side View



Figure 27: AX-B3543W Frame Top View



Detector Tunnel Podoblock

The Detector Tunnel Podoblock for the AX-Series offers another storage option.

Figure 28: Detector Tunnel Podoblock for the AX-B2735W panel



Figure 29: Detector Tunnel Podoblock for the AX-B3543W panel



Tablet Rotation

The new/improved tablet cradle release/locking feature provides the user to quickly & easily release the top lid tablet cradle assembly to position the tablet height and use the rotation feature of the cradle assembly so it can be used in landscape and/or portrait mode.

Figure 30: Cradle Release Label and Tablet Rotation



Chapter

2

Safety, Warranty, and Licensing Information

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- *Pre-installation Site Survey* on page 29
- *Service Technician Training* on page 29
- *Electromagnetic compatibility* on page 30
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- *Effective Isotropic Radiated Power for mobile tablet - 2.4G WIFI* on page 33
- *Effective Isotropic Radiated Power for mobile tablet - 5.2G WIFI* on page 35
- *Effective Isotropic Radiated Power for mobile tablet - 5.8G WIFI* on page 37
- *Equipment Classification* on page 39
- *Inspecting Components* on page 39
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Your FUSION EQUINE DR® II x-ray system uses the Sound SmartDR™ Premier software. All information and instructions contained in this document are intended to promote safe and effective installation, service and maintenance of the x-ray system. Observe all warnings provided in documentation and labeling, and follow all instructions precisely to avoid potential injury to users, patients, or other personnel, malfunction of the equipment, or damage to the x-ray system components.

All components of the x-ray system are designed and suitable for use in close proximity to patients. The system and associated components are commonly placed and in use within 6 feet (1.8m) of the patient.

Do not connect any other equipment or parts to the x-ray system without the express authorization of the manufacturer.



Caution: Federal law restricts this device to sale by or on the order of a licensed veterinarian.



Caution: La loi fédérale restreint vente de cet appareil par ou sur l'ordre d'un vétérinaire agréé.

Pre-installation Site Survey

Ensure that this survey is completed and submitted before the day of installation.

Sound Technologies, Inc. requires that dealers of our products assess the facilities into which the x-ray system will be installed. We give them a short form, the Pre-installation Site Survey, to complete. They submit the survey to Sound Technologies, Inc., and it helps us to send the correct equipment and configuration. This survey is helpful to the installer of the system, too. Therefore, if you do not have the completed version of the Pre-installation Site Survey, check with the administrator of the organization that purchased the x-ray system. If necessary, contact Sound Technologies, Inc. to see if a copy was submitted or if you have any questions or problems.

If you require a blank copy of the Pre-installation Site Survey, it is available, with password protection, on the Sound Technologies, Inc. website. Select the Pre-installation Site Survey that matches Sound Technologies, Inc..

Service Technician Training

All service technicians conducting installation, service, and maintenance of the x-ray system must be properly trained and certified through a Sound Technologies, Inc.-authorized program.

All service technicians conducting installation, service, and maintenance of the x-ray system, system must be properly trained and certified through a Sound Technologies, Inc.-authorized program. Failure to meet these obligations may result in charges for phone support and voiding of warranties. Service technicians may be required to substantiate their training at time of call or warranty base request.

Electromagnetic compatibility

The system complies with EN 60601-1-2 fourth edition (2014) Section 5. Prevent the potential risk of electromagnetic interference between this equipment and other devices.

The system is intended for use in the electromagnetic environment in which radiated disturbances are controlled. The customer or user of the system can help to prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment and the system as recommended below, according to the maximum output power of the communications equipment.

The system has been tested for electromagnetic compatibility (EMC) compliance, but interference can still occur in an electromagnetically noisy environment. Maintain a suitable distance between electrical devices to prevent cross-interference. The PC cabinet should be placed as far as possible from any device that generates large amounts of electromagnetic disturbance.



Caution: Medical electrical equipment requires special precautions to maintain electromagnetic compatibility. The system must be installed and put into service according to the EMC information provided in this document. Portable and mobile RF communications equipment can affect medical electrical equipment.



Caution: Les appareils électromédicaux requièrent des précautions particulières pour maintenir la compatibilité électromagnétique. Le système doit être installé et mis en service conformément aux informations EMC fournies dans ce document. Les équipements de communication RF portables et mobiles peuvent affecter les équipements électromédicaux.



Caution: Failure to avoid RF interference while operating Sound FUSION DR™ may cause failure of the digital imaging system to capture or store images.



Caution: Défaut d'éviter les interférences RF lors de l'utilisation Sound FUSION DR peut provoquer une défaillance du système d'imagerie numérique pour capturer ou stocker des images.



Warning: Use of accessories, transducers, and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.



Warning: L'utilisation d'accessoires, de transducteurs et de câbles autres que ceux spécifiés ou fournis par le fabricant de cet équipement pourrait entraîner une augmentation des émissions électromagnétiques ou une diminution de l'immunité électromagnétique de cet équipement et entraîner une mauvaise opération.

Emissions, immunity, and separation distances

The tables in this topic provide guidance for emissions, immunity, and separation distances. Follow these guidelines when installing and maintaining the X-ray system.



Warning: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Sound FUSION DR™ system, including cables specified by the manufacturer.

Use the following guidance tables for emissions and separation distances:

Table 14: Emissions — FUSION EQUINE DR® II equipment and systems

Emissions test	Compliance	Electromagnetic environment guidance
RF emissions CISPR 11	Group 1	FUSION EQUINE DR® II uses RF energy only for its internal function; therefore, its RF emissions are very low and unlikely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A or B	Class A
Harmonics IEC 61000-3-2	Class A, B, C, D or NA	Class A
Flicker IEC 61000-3-3	Complies or NA	Complies
		FUSION EQUINE DR® II is suitable for use in all establishments other than domestic and those directly connected to public low-voltage power supply network that supplies buildings used for domestic purposes.

Table 15: Electromagnetic Immunity — All equipment and systems not life-supporting

Immunity test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
ESD EN/IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are synthetic, relative humidity should be at least 30%.
EFT EN/IEC 61000-4-4	±2 kV mains ±1 kV I/Os	±2 kV mains ±1 kV I/Os	Mains power quality should be that of a typical commercial or hospital environment

Immunity test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
Surge EN/IEC 61000-4-5	±1 kV differential ±2 kV common	±1 kV differential ±2 kV common	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips/dropout EN/IEC 61000-4-11	>100% drop for 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°: 100% dip for 1 cycle 30% dip for 25/30 cycles >100% dip for 5 s	>100% drop for 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°: 100% dip for 1 cycle 30% dip for 25/30 cycles >100% dip for 5 s	Mains power quality should be that of a typical commercial or hospital environment If the user of the system requires continued operation during power mains interruptions, it is recommended that the system be powered from an uninterruptible power supply or battery.
Power frequency 50/60 Hz magnetic field EN/IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

Table 16: Immunity — All equipment and systems not life-supporting

Emissions test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
Conducted RF EN/IEC 61000-4-6	3 Vrms 150 kHz – 80 MHz	(V1)=3Vrms	$D=(3.5/V1)(\sqrt{P})$
Radiated RF EN/IEC 61000-4-3	3 V/m 80 MHz – 2.5 GHz	(E1)=3V/m	$D=(3.5/E1)(\sqrt{P})$ 80 to 800 MHz
			$D=(7/E1)(\sqrt{P})$ 800 MHz to 2.5 GHz Where P = max power in watts and D = recommended separation distance in meters. Field strengths from fixed transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels (V1 and E1). Interference may occur in the vicinity of equipment containing a transmitter.

Emissions test	EN/IEC 60601 test level	Compliance level	Electromagnetic environment — guidance
Note: Portable and mobile communications equipment should be separated from the system by no less than the distances calculated or listed in Table 18: Immunity — All equipment and systems not life-supporting on page 25.			

Table 17: Separation — Equipment not life-supporting

Max output power (watts)	Separation (m) at specified frequencies:		
	Separation (m) 150 kHz to 80 MHz $D=(3.5/V1)(\sqrt{P})$	Separation (m) 80 to 800 MHz $D=(3.5/E1)(\sqrt{P})$	Separation (m) 800 MHz to 2.5.0 GHz $D=(7/E1)(\sqrt{P})$
0.01	0.11667	0.11667	0.23333
0.1	0.36894	0.36894	0.73785
1.	1.1667	1.1667	2.3333
10.	3.6894	3.6894	7.3785
100.	11.667	11.667	23.3333

Effective Isotropic Radiated Power for mobile tablet - 2.4G WIFI

These Effective Isotropic Radiated Power (EIRP) values apply to the mobile tablet. EIRP is the maximum radiated power of the transmitter and its antenna.

Table 18: EIRP (802.11b) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)		Limit
-20	11.4		ANT1	ANT2	20
		2412	12.33	12.36	
		2442	12.60	12.78	
		2472	13.20	13.22	
25	11.4	2412	12.21	12.26	
		2442	12.49	12.42	
		2472	12.68	13.03	

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)		Limit
45	11.4	2412	12.32	12.38	
		2442	12.59	12.58	
		2472	12.68	13.05	

Table 19: EIRP (802.11g) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)		Limit
-20	11.4		ANT1	ANT2	20
		2412	12.34	12.28	
		2442	12.53	12.69	
		2472	13.00	12.82	
25	11.4	2412	12.25	12.37	
		2442	12.56	12.78	
		2472	12.76	12.60	
45	11.4	2412	12.24	12.23	
		2442	12.73	12.75	
		2472	12.70	12.82	

Table 20: EIRP (802.11n[20MHz]) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)			Limit
-20	11.4		ANT1	ANT2	ANT1+ANT2	20
		2412	12.38	12.34	15.37	
		2442	12.59	12.70	15.66	
		2472	12.65	13.04	15.86	
25	11.4	2412	12.30	12.30	15.31	
		2442	12.62	12.56	15.60	
		2472	12.94	13.19	16.08	
45	11.4	2412	12.31	12.27	15.30	
		2442	12.74	12.54	15.65	

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)			Limit
		2472	12.82	12.81	15.83	

Table 21: EIRP (802.11n[40MHz]) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Frequency (MHz)	RF Output Power EIRP (dBm)			Limit
-20	11.4		ANT1	ANT2	ANT1+ANT2	20
		2422	11.21	11.31	14.27	
		2442	11.52	11.46	14.50	
		2462	12.03	11.73	14.89	
25	11.4	2422	11.28	11.34	14.32	
		2442	11.52	11.52	14.53	
		2462	12.00	11.78	14.90	
45	11.4	2422	11.34	11.44	14.40	
		2442	11.60	11.59	14.61	
		2462	12.08	11.74	14.92	

Effective Isotropic Radiated Power for mobile tablet - 5.2G WIFI

These Effective Isotropic Radiated Power (EIRP) values apply to the mobile tablet. EIRP is the maximum radiated power of the transmitter and its antenna.

RF Output Power, 5180MHz 802.11a, 5.2G WIFI

Table 22: RF Output Power, 5180MHz 802.11a

Temperature (°C)	Voltage (Vdc)	RF Output Power EIRP (dBm)		Limit (dBm)
		ANT1	ANT2	23
-20	10.3	12.38	12.32	
	11.4	12.77	12.53	
	12.5	12.92	12.85	
25	10.3	12.27	12.32	

Temperature (°C)	Voltage (Vdc)	RF Output Power EIRP (dBm)		Limit (dBm)
45	11.4	12.55	12.47	
	12.5	12.95	13.08	
	10.3	12.36	12.33	
	11.4	12.52	12.51	
	12.5	13.10	13.15	

Table 23: RF Output Power, 5180MHz 802.11n (20MHz)

Temperature (°C)	Voltage (Vdc)	RF Output Power EIRP (dBm)			Limit (dBm)
		ANT1	ANT2	ANT1+ANT2	23
-20	10.3	11.39	11.39	14.40	
	11.4	11.59	11.54	14.58	
	12.5	12.20	11.83	15.03	
25	10.3	11.41	11.30	14.37	
	11.4	11.65	11.54	14.61	
	12.5	12.18	11.81	15.01	
45	10.3	11.39	11.35	14.38	
	11.4	11.51	11.55	14.54	
	12.5	12.18	11.91	15.06	

Table 24: RF Output Power, 5190MHz 802.11n (40MHz)

Temperature (°C)	Voltage (Vdc)	RF Output Power EIRP (dBm)			Limit (dBm)
		ANT1	ANT2	ANT1+ANT2	23
-20	10.3	10.26	10.25	13.27	
	11.4	10.70	10.64	13.68	
	12.5	11.13	10.85	14.00	
25	10.3	10.21	10.28	13.26	
	11.4	10.68	10.66	13.68	
	12.5	11.03	10.86	13.96	
45	10.3	10.17	10.25	13.22	
	11.4	10.64	10.62	13.64	
	12.5	11.17	10.80	14.00	

Table 25: RF Output Power, 5210MHz 802.11ac (80MHz)

Temperature (°C)	Voltage (Vdc)	RF Output Power EIRP (dBm)			Limit (dBm)
		ANT1	ANT2	ANT1+ANT2	23
-20	10.3	9.25	9.31	12.29	
	11.4	9.76	9.73	12.76	
	12.5	10.02	10.13	13.09	
25	10.3	9.33	9.33	12.34	
	11.4	9.83	9.79	12.82	
	12.5	9.99	10.09	13.05	
45	10.3	9.24	9.37	12.32	
	11.4	9.80	9.78	12.80	
	12.5	10.05	10.14	13.11	

Effective Isotropic Radiated Power for mobile tablet - 5.8G WIFI

These Effective Isotropic Radiated Power (EIRP) values apply to the mobile tablet. EIRP is the maximum radiated power of the transmitter and its antenna.

Table 26: EIRP (802.11a) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Test Result (EIRP, dBm)						Limit
		Channel 149		Channel 157		Channel 165		14
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	
-20	10.3	10.21	10.31	10.23	10.27	10.22	10.28	
	11.4	10.51	10.72	10.70	10.61	10.74	10.73	
	12.5	11.01	11.00	10.98	10.71	10.86	10.86	
25	10.3	10.25	10.31	10.34	10.23	10.22	10.21	
	11.4	10.54	10.75	10.60	10.73	10.49	10.68	
	12.5	10.81	11.19	10.97	10.67	10.64	10.88	
45	10.3	10.4	10.26	10.38	10.30	10.28	10.21	
	11.4	10.53	10.55	10.40	10.72	10.73	10.55	
	12.5	11.13	10.62	10.70	10.78	10.67	10.73	

Table 27: EIRP (802.11n20) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Test Result (EIRP, dBm)									Limit
		Channel 149			Channel 157			Channel 165			
		ANT1	ANT2	ANT1+	ANT1	ANT2	ANT1+	ANT1	ANT2	ANT1+	
-20	10.3	9.28	9.37	12.34	9.23	9.28	12.27	9.36	9.30	12.34	14
	11.4	9.62	9.72	12.68	9.71	9.69	12.71	9.46	9.71	12.60	
	12.5	9.75	9.83	12.80	9.75	10.14	12.96	9.76	9.96	12.87	
25	10.3	9.21	9.36	12.30	9.24	9.29	12.28	9.42	9.36	12.40	
	11.4	9.54	9.71	12.64	9.67	9.72	12.71	9.48	9.77	12.64	
	12.5	9.73	9.77	12.76	9.67	10.19	12.95	9.74	9.96	12.86	
45	10.3	9.19	9.46	12.34	9.23	9.35	12.30	9.40	9.39	12.41	
	11.4	9.56	9.80	12.69	9.79	9.73	12.77	9.49	9.62	12.57	
	12.5	9.85	9.85	12.86	9.65	10.07	12.88	9.78	10.00	12.90	

Table 28: EIRP (802.11n40) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Test Result (EIRP, dBm)						Limit
		Channel 151			Channel 159			
		ANT1	ANT2	ANT1+ANT2	ANT1	ANT2	ANT1+ANT2	
-20	10.3	8.36	8.39	11.39	8.28	8.22	11.26	14
	11.4	8.59	8.77	11.69	8.57	8.46	11.53	
	12.5	8.62	8.89	11.77	8.93	9.11	12.03	
25	10.3	8.45	8.35	11.41	8.30	8.30	11.31	
	11.4	8.68	8.77	11.74	8.66	8.44	11.56	
	12.5	8.55	8.84	11.71	8.97	9.04	12.02	
45	10.3	8.39	8.44	11.43	8.37	8.13	11.26	
	11.4	8.55	8.71	11.64	8.53	8.44	11.50	
	12.5	8.69	8.88	11.80	8.94	9.04	12.00	

Table 29: EIRP (802.11ac80) - Transmitter

Temp. (°C)	Power Supplied (VDC)	Test Result (EIRP, dBm)			Limit
		Channel 155			14
		ANT1	ANT2	ANT1+ANT2	
-20	10.3	7.35	7.27	10.32	
	11.4	7.79	7.76	10.79	
	12.5	7.78	8.18	10.99	
25	10.3	7.34	7.23	10.30	
	11.4	7.77	7.69	10.74	
	12.5	7.77	8.27	11.04	
45	10.3	7.30	7.28	10.30	
	11.4	7.81	7.79	10.81	
	12.5	7.76	8.28	11.04	

Equipment Classification

The x-ray system has the following equipment classification.

- Protection against electric shock - class I
- Degree of protection against electric shock - type B
- Degree of protection against ingress of water - Ordinary
- Mode of operation - Continuous

Inspecting Components

Ensure that the system components are received in good condition.

About this task

The Digital Radiology system may be shipped in several boxes. The Digital Radiology system is composed of sensitive electronic devices; keep the boxes upright at all times and follow the caution stickers regarding proper handling.

Procedure

1. Upon receipt of your shipment from Sound Technologies, Inc., inspect the packaging.

A packing list is attached to the outside of one of the boxes. Check this packing list when you first receive the shipment or if the items have been removed from the packaging when they are delivered to the x-ray room. If you need another copy of the packing list or if any of the packaging is damaged, call technical support. See [Technical Support](#) for contact information.



Note: Sound Technologies, Inc. ships the components selected by the customer. For example, if multiple receptors are discussed in this manual, a customer may have chosen only one of them for their site.

2. Open each box and check the components for damage.

Don't discard any packaging, and leave all electronic components in their original antistatic bags and foam cushioning until they are ready to be installed.

Do not proceed if any components or cables are missing or damaged. If anything in the x-ray system appears to be damaged, contact [Technical Support](#) immediately.

3. Check cable connectors for bent or damaged pins.
4. Allow equipment to acclimatize appropriately.

Flat panel detectors are sensitive and often require special handling including extensive acclimatization times. Review the information about the detector in the pertinent chapter of this manual and the documentation that accompanies the detector.

What to do next

After installation, take extra precautions to verify the normal operation of the configuration used at the site.

Mechanical Safety

Use only cabling and mounting hardware included with the Digital Radiology system. Do not install x-ray system components with hardware, such as extensions, shelves, or brackets, obtained from retail or other third-party sources.

Where the display monitor is to be mounted to a mobile surface or structure, such as a wheeled cart, wall-mounted armature, or overhead support, use only the mounting brackets provided or specifically approved by the manufacturer.

Verify that all signal and power cabling is appropriately secured. Provide sufficient strain relief to avoid damage due to unnecessary stress or movement of cabling. Ensure that securing mechanisms and structures are of sufficient strength to support the weight of cabling.

Cables must be routed such that they do not present trip or fall hazards to personnel or patients walking near the equipment. Do not route cabling across the floor in traffic areas such as hallways or doors.

Where wheeled devices are used, ensure that cabling on or near the floor is properly secured out of the path of wheels and is protected from crush damage where appropriate.

Ensure that all mounting and fastening hardware is tightened properly, and that all securing mechanisms on connectors and covers are properly latched.

Inspect all cabling, mounting, and securing mechanisms during each Preventive Maintenance (PM) cycle to ensure that electrical connections and other hardware do not become loose over time.

Some components of the x-ray system are of significant size and weight. Observe appropriate lifting and handling techniques when moving heavy equipment or components. Obtain assistance when necessary to avoid injury to persons or damage to equipment.

Electrical Safety

Electrical power sufficient to cause injury or death is present inside many of the x-ray system components whenever they are connected to AC power. Take appropriate safety precautions, use safety disconnects (such as fuses or breakers) wherever possible, and disconnect AC supply cables from components prior to removing covers for maintenance or service.



Caution: Internal power supplies contain capacitors that may remain charged for a period of time after the power source is removed. Before performing work inside any of the enclosures of x-ray system components, wait at least 60 seconds after removing the AC supply cable for complete discharge.

Alimentations internes contiennent des condensateurs qui peuvent rester chargés pour une période de temps après que la source d'alimentation est débranché. Avant d'effectuer tout travail à l'intérieur des enceintes de composants du système x-ray, attendez au moins 60 secondes après avoir retiré le câble d'alimentation CA pour une décharge complète.

Components inside enclosures of the x-ray system are sensitive to electrostatic discharge (ESD). Personnel servicing components of the x-ray system must take appropriate ESD prevention measures to minimize the risk of damage to system hardware.

Do not block or restrict airflow into or out of the computer or the enclosure around the detector, if applicable. Adequate air cooling is required to prevent overheating the components inside these enclosures.

Apply measures to prevent liquids, particularly toxic or hazardous fluids, from coming into contact with the x-ray system components and equipment. When cleaning the x-ray system equipment, do not spray or pour fluid directly onto equipment surfaces. Use a soft cloth, dampened lightly with a cleaning solution, and gently wipe system components.

When electrical components must be replaced, use only components that are appropriately rated for the application. Replace fuses, switches, or connectors only with components of the same type and rating as the original equipment.

To avoid electric shock, the x-ray system must be powered from an AC supply circuit that includes an adequate earth ground. Connect the x-ray system components only to receptacles labeled or marked as medical grade.



Warning: The x-ray system and its components are designed to be connected to a properly grounded AC supply sufficient to support system operation. Using power strips or other multiple-socket outlets

that are not specifically approved for use with the x-ray system may compromise safety grounding or present other power-related safety hazards. When a power strip must be used to provide power to any component of the x-ray system, refer to the IEC60601-1 standard for guidance in selecting a power strip of appropriate type and rating.

Le système à rayons X et de ses composants sont conçus pour être relié à une alimentation CA mise à terre suffisante pour soutenir le fonctionnement du système. En utilisant des bandes de puissance ou d'autres points de vente multi-socket qui ne sont pas spécifiquement approuvés pour une utilisation avec le système x-ray peut compromettre la terre de sécurité ou présentent d'autres risques de sécurité liés à l'alimentation. Quand une bande de puissance doit être utilisé pour fournir de l'énergie à tout composant du système x-ray, reportez-vous à la norme CEI 60601-1 pour les guider dans la sélection d'une bande de puissance de type et le calibre approprié.

All components of the x-ray system must be powered off before connecting any cables.

All electrical and grounding connections to the x-ray system must be inspected during each preventive maintenance (PM) cycle. Replace or repair faulty connections prior to returning the system to service. Failure to adequately ensure safety grounding may result in injury to users or patients, or fire or other damage to equipment.

Software Safety and Use

Do not install any software that is not explicitly approved by Sound Technologies, Inc.. Unauthorized software may disrupt the processes or resources required by the x-ray system software and result in abnormal system operation.

Do not add or remove any component of the host operating system unless specifically directed to do so by Sound Technologies, Inc.. Note that Windows Updates have been known to change behaviors of the operating system and should be installed or removed only at the explicit direction of Sound Technologies, Inc..

Perform system calibration using only the processes prescribed in this manual. Any other calibration method may result in abnormal system operation or poor image quality.

After the system is operational, only properly trained and authorized personnel can access patient records on the system.

Information about operating the x-ray system is located in the *User Manual*. In addition, Sound Technologies, Inc. provides training for operators and service technicians to help them properly operate the system and obtain acceptable image quality.

Operator Safety

Only authorized and trained personnel may access patient records stored on the x-ray system or use the x-ray system for clinical imaging of patients. Proper operation and care are critical to maintaining system performance and optimal image quality. On-site training is available and may be scheduled by contacting Sound Technologies, Inc..

The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system. Observe all cautions and warnings in this manual and in the User Manual. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

The x-ray system must be installed and operated such that no direct patient contact with any part of the system is possible.

Do not attempt to perform service or troubleshooting on the x-ray system in the presence of patients or unauthorized personnel. Do not remove protective covers or otherwise disable safety devices while in the presence of patients.

The x-ray system is designed for use in conjunction with equipment that generates ionizing x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.

Do not bypass or otherwise disable safety mechanisms provided by the x-ray generator. Take all available and appropriate measures to prevent unnecessary or unintentional radiation exposure.

Observe all cautions and warnings in this manual and in the *User Manual*. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Service Safety

Only trained personnel are authorized to service or maintain the x-ray system and related equipment. Failure to obtain training prior to servicing the x-ray system may result in support charges, voiding of product warranty, abnormal system behavior, or any of a number of potential risks to the safety of patients, users, or service engineers. Contact the manufacturer to arrange for appropriate training prior to servicing or maintaining the x-ray system.

The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system.

Do not attempt to perform service or troubleshooting on the x-ray system in the presence of patients or unauthorized personnel. Do not remove protective covers or otherwise disable safety devices while in the presence of patients.

The x-ray system is designed for use in conjunction with equipment that generates ionizing x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.

Do not bypass or otherwise disable safety mechanisms provided by the x-ray generator. Take all available and appropriate measures to prevent unnecessary or unintentional radiation exposure.

Some components of the x-ray system are of significant size and weight. Observe appropriate lifting and handling techniques when moving heavy equipment or components. Obtain assistance when necessary to avoid injury to persons or damage to equipment.

Some components of the x-ray system may have sharp edges by design, or may develop sharp edges due to impact or other improper handling. Use caution and wear appropriate protective equipment when handling any component of the system.

Take appropriate measures to prevent the spilling of liquids or bodily fluids on or into the components of the x-ray system.

Observe all cautions and warnings in this manual. Failure to abide by the instructions and precautions provided may result in unnecessary risk to patients, users, or equipment.

Environmental Safety

All components of the x-ray system must be stored, transported, installed, and operated in accordance with the environmental conditions provided in this manual.

The x-ray system is designed for use in conjunction with equipment that generates x-ray radiation. Observe appropriate precautions and wear protective equipment when the x-ray equipment is in use.

Take appropriate measures to prevent the spilling of liquids or bodily fluids on or into the components of the x-ray system.

Do not block or restrict the airflow into or out of the computer, the detector control unit (CP2), or the enclosure around the detector, if applicable. Adequate air cooling is required to prevent overheating of the components inside these enclosures.

The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system. Observe all cautions and warnings in this manual and in the User Manual. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Transport, store, and operate the electronic components of the x-ray system within recommended parameters.

Table 30: Environmental parameters for transportation storage, and operation of computer and peripherals

Action	Temperature	Humidity	Air pressure
Transportation and storage	-22 – 122°F (-30 – 50°C)	10 – 95% w/o condensation	613 to 1060hPa

Action	Temperature	Humidity	Air pressure
Operation	41 – 95°F (5 – 35°C)	30 – 80% RH w/o condensing	613 to 1060hPa

At the end of service life of any component of the x-ray system, dispose of the component safely and in accordance with local regulations for the disposal of electronic components.

Licensing

This application is a collection of several special functions. In the unlikely event that the license for one of the functions is unavailable, the software alerts you. The alert asks if you want to enter a license key, ignore the matter for this instance, or ignore always.

We recommend that you notify a supervisor who has the authority to contact Sound Technologies, Inc. so that the pertinent licenses can be secured to provide you with the full functionality of the product.

Warranty

Any of the following actions voids the manufacturer's warranty:

- Modification, abuse, misuse, or operation of FUSION EQUINE DR® II's equipment at ambient temperatures below 41°F or above 95°F (5°C, 35°C) or at other abnormal conditions. Ambient operating temperature for the isolation transformer, if used, is 32–113°F (0–45°C). Consult later chapters in this manual or other manufacturers' documents for operating conditions of imaging devices.
- Use of any software other than that supplied or approved by seller
- Use of supplied software and hardware outside seller's or FDA, CSA, and VDE guidelines or applicable standards
- Misuse, negligence, or accident or unauthorized repair or alteration of the product
- Use for purposes for which the product was not designed.



Warning: Make no attempt to connect any other equipment or parts to the FUSION EQUINE DR® II system without authorization by the seller.

Faire aucune tentative pour connecter d'autres équipements ou de pièces de FUSION EQUINE DR® II système sans autorisation par le vendeur.

Safety

Apply the directions in this chapter precisely to avoid damage to the x-ray system or its components, yourself, or others; loss of data; or corruption of files. Sound Technologies, Inc. assumes no liability for failure to comply.



Caution: Federal law restricts this device to sale by or on the order of a licensed veterinarian.

La loi fédérale restreint vente de cet appareil par ou sur l'ordre d'un vétérinaire agréé.



Warning: Connect only items that have been specified as part of the x-ray system or that have been specified as being compatible with the imaging system.

Connectez uniquement les éléments qui ont été spécifiés dans le cadre du système Sound Technologies, Inc. ou qui ont été compatibles avec le système d'imagerie.

All parts of the x-ray system are suitable for use within patient environment. However, in a typical clinical installation, the host PC and the primary monitor of the system are installed outside the patient exam room, which can be more than 6 ft (2 m) away from the patient. The other parts of the system are sometimes placed within 6 ft (2 m) of the patient.



Warning: Make no attempt to connect any other equipment or parts to the x-ray system without authorization by the seller.

Faire aucune tentative pour raccorder tout autre appareil ou des parties du système Sound Technologies, Inc. sans autorisation par le vendeur.

Environmental safety

All components of the x-ray system must be stored, transported, installed, and operated in accordance with the environmental conditions provided in this manual.

- At the end of its useful life, this equipment and its accessories must be disposed of safely and in accordance with government regulations.
- Be aware that disposed electronics release materials such as lead, mercury, or cadmium into the soil, ground water, and atmosphere, thus having a negative impact on the environment.
- Follow procedures with regard to electromagnetic compatibility.

General safety

Transport, store, and operate the electronic components of the x-ray system within recommended parameters.

Table 31: Environmental parameters for transportation, storage, and operation of computer and peripherals

Action	Temperature	Humidity	Air pressure
Transportation and storage	-4 – 131°F (-20 – 55°C)	10 – 95% noncondensing	700 hPa – 1060 hPa (10 – 5 lb/in2, 0.7 – 1.0 atm)

Action	Temperature	Humidity	Air pressure
Operation	50 – 90°F (10 – 32C°)	30 – 75% noncondensing	700 hPa – 1060 hPa (10 – 15 lb/in2, 0.7 - 1.0 atm)

Chapter

3

Operating Procedure

Contents

- [*General Workflow on page 48*](#)
- [*Preparing to use the detector on page 48*](#)
- [*Connection Diagram for the AX-B2735W on page 52*](#)
- [*Connection Diagram for the AX-B3543W on page 53*](#)
- [*Non-integrated X-Ray Generator on page 53*](#)
- [*Power-up the System on page 54*](#)
- [*Operating the detector on page 59*](#)
- [*Shutting Down the PC on page 59*](#)
- [*Ending use of the detector on page 62*](#)

General Workflow

The following workflow indicates the procedures after startup of the Sound SmartDR™ Premier Software and other system equipment.

Preparing to use the detector



CAUTION

Be sure to use only the dedicated battery pack for this product.

1 Charge the battery pack.

Charge the battery on the day of examination or on the previous day by inserting the battery pack into the battery charger.

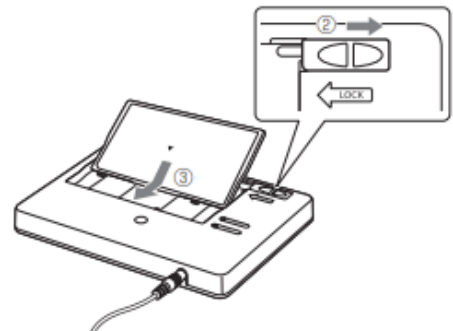
i Information

Battery slowly discharges even if not in use. The battery pack may have expired if it discharges immediately after being fully charged. You can purchase an optional battery pack to replace an exhausted one.

2 Attach the battery pack into the battery charger.

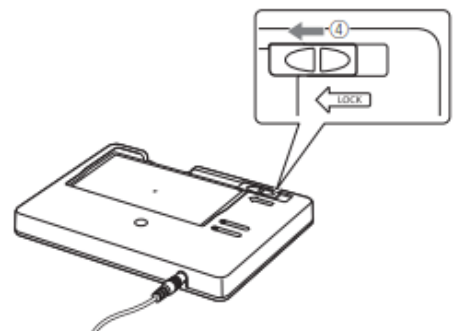
Charge the battery pack.

Unlock the battery lock (②), check the orientation (▼) of the battery pack, and insert the battery pack diagonally from above (③).



With the battery pack inserted firmly all the way, slide the battery lock to the LOCK side to secure the battery pack (④).

Insert the battery pack correctly and charging begins automatically. The CHARGE lamp lights blue when the battery is being charged. After the battery charge is completed, the FULL lamp lights green.

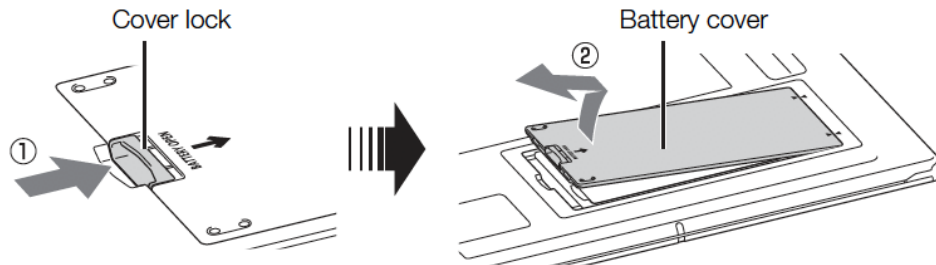


i) Information

Place the detector on a flat surface before commencing the steps below. Otherwise the battery pack may fall out while it is being attached.

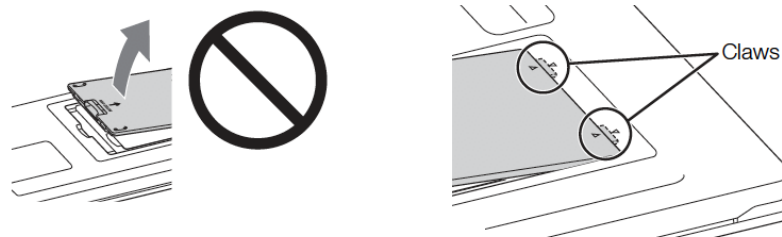
i) Remove the battery cover.

- Press and hold the battery cover lock (①) to release the lock, then lift up and pull out the battery cover (②).



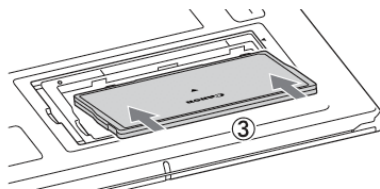
i) Information

Do not lift the cover more than approximately 60° while the claws are inserted in the grooves.



ii) Attach the battery pack.

- Insert the battery pack fully (③).



Important

Check the orientation of the battery pack before inserting it.

Important

Attach the battery pack carefully.

Important

Make sure that the battery pack is correctly attached.

i) Information

Make sure that the battery pack is inserted fully.

iii) Attach the battery cover.

- Check that there are no foreign objects on the rubber inside the battery cover.
- Check that the rubber is free of kinks, cracks, and other damage.

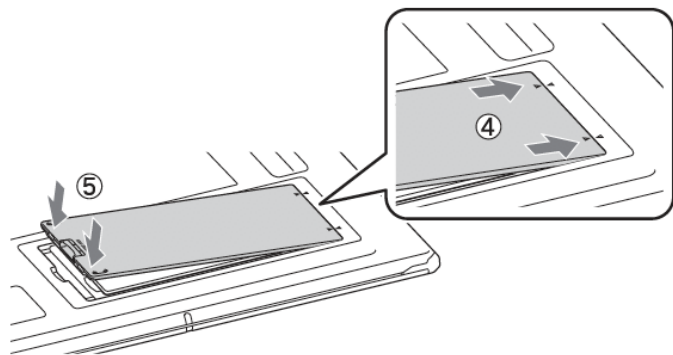
i Information

If foreign objects are found on the rubber, wipe them off.

i Information

If there are kinks in the rubber, fix them by hand.

- Insert the battery cover fully (④) and press down on the front of the battery cover to lock it (⑤).



Important

When inserting the battery cover, make sure it does not have a bulge in the middle. If there is a bulge, water resistance will deteriorate. Check the shape of the battery cover, and if the inside of the cover has warped into a curved shape, replace it with a new battery cover.

i Information

Make sure that the battery cover is inserted fully.

i Information

Make sure that the battery cover is locked securely.

i Information

The remaining battery pack charge is indicated by the Power LED lamps of the detector when the detector is turned on.

Power LED					
Remaining battery charge	76% to 100%	51% to 75%	26% to 50%	5% to 25%	0% to 4%*

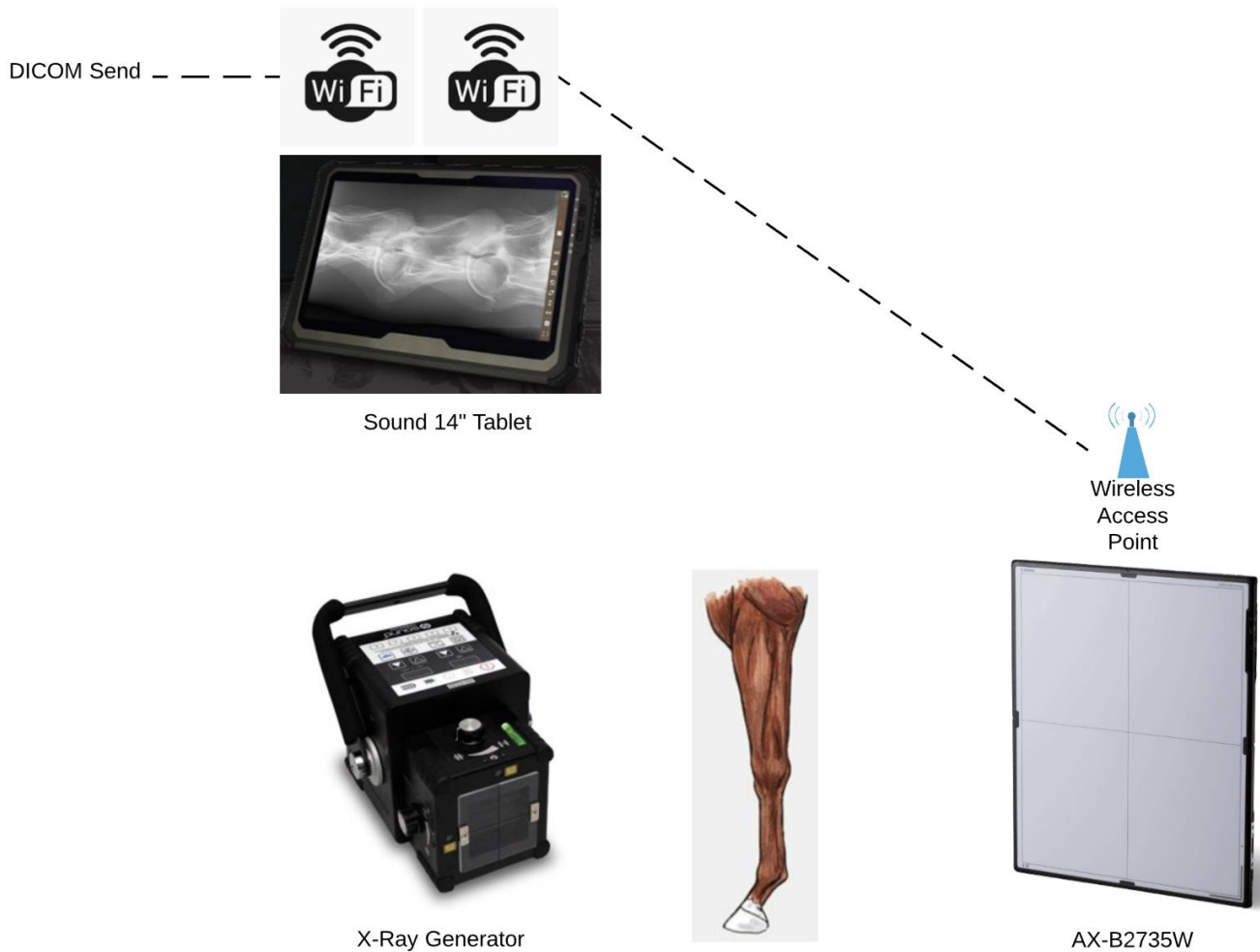
(: Lighted up, : Flashing (1 sec. cycles), : Off)

* Exposure is not possible when the remaining battery level is 0% to 4%, as indicated by flashing.

Connection diagram for the AX-B2735W panel

The following diagram shows the connections between the main components of the x-ray system.

Figure 31: Connection diagram: AX-B2735W panel

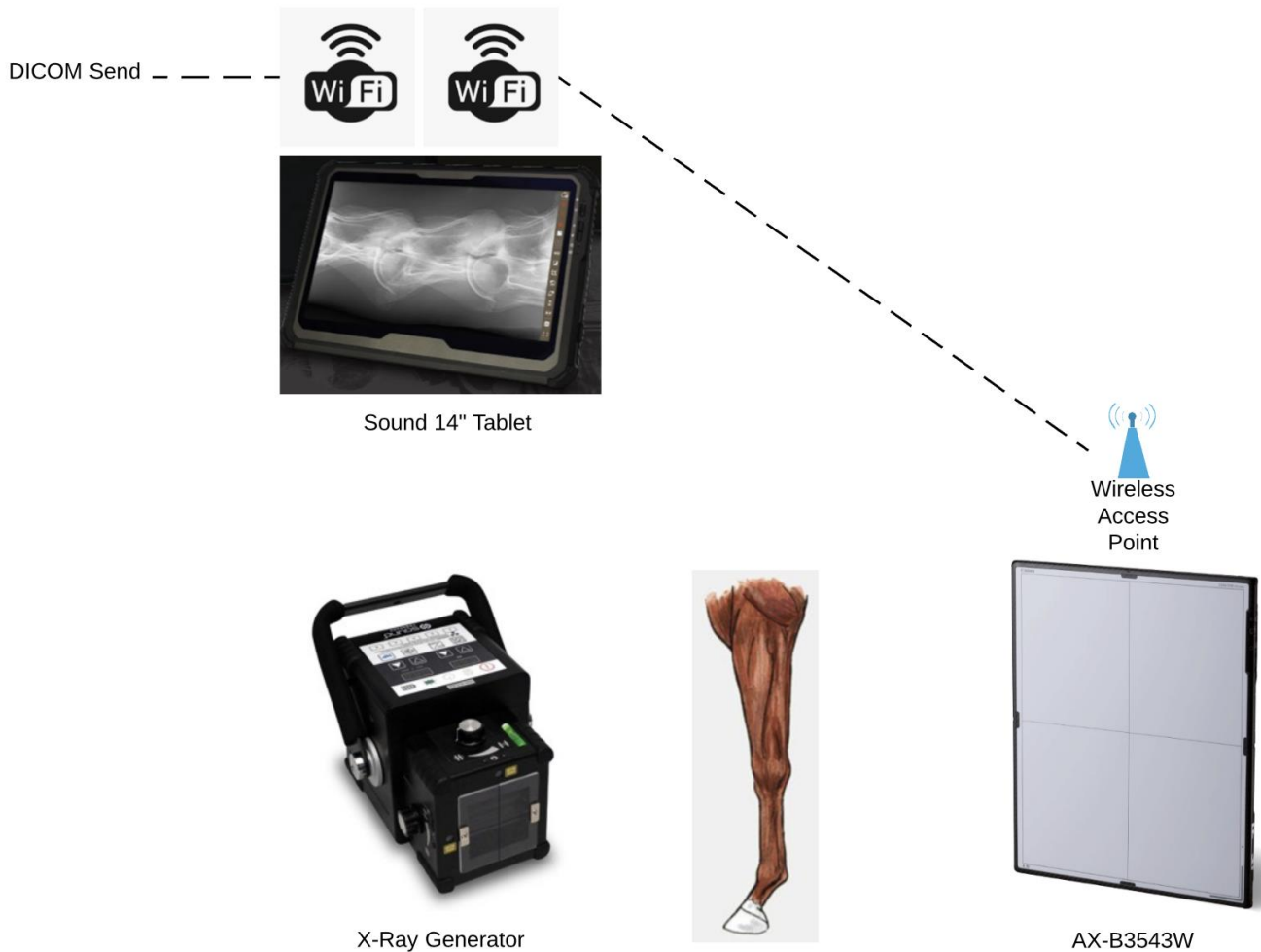


- Sound 14" Tablet and AX-B2735W Panel connected through WiFi
- Sound 14" Tablet and DICOM Send (PACS) connected through WiFi

Connection diagram for the AX-B3543W Panel

The following diagram shows the connections between the main components of the x-ray system.

Figure 32: Connection diagram, AX-B3543W panel



- Sound 14\"/>

Non-integrated X-ray Generator

The detector, itself, detects X-ray exposure and automatically starts capturing images. There is no need to connect the X-ray generator and imaging system.

Power-up the System

After you have connected all of the system components, you can power-up the system and verify the connections.

About this task



Danger: The x-ray system must not be powered up or used in the presence of a flammable or explosive atmosphere, including certain gases used for anesthesia. Electric motors and other electrical equipment within or related to the x-ray system can ignite flammable or explosive gases or vapors, resulting in injury, death, or damage. Consult the site documentation or personnel to determine the presence of and hazards posed by gases in the vicinity of the x-ray system. Observe all cautions and warnings in this manual and in the User Manual. Failure to abide by the instructions and precautions provided in this manual may result in unnecessary risk to patients, users, or equipment.

Le système à rayons X ne doit pas être mis sous tension ou utilisé en présence d'une atmosphère inflammable ou explosive, y compris certains gaz utilisés pour l'anesthésie. Les moteurs électriques et autres équipements électriques dans ou liés au système à rayons X peuvent enflammer des gaz ou des vapeurs inflammables ou explosifs, entraînant des blessures, la mort ou des dommages. Consulter la documentation du site ou le personnel pour déterminer la présence et les dangers des gaz à proximité du système à rayons X. Respectez toutes les mises en garde et les avertissements de ce manuel et du manuel de l'utilisateur. Le non-respect des instructions et des précautions fournies dans ce manuel peut entraîner des risques inutiles pour les patients, les utilisateurs ou l'équipement.

Procedure

1. Verify that the PC, panel, and x-ray generator have sufficient battery power to remain active during the configuration process. If it is possible to plug in a component to power it, then you may do so.
2. Turn on the x-ray generator.
3. Turn on the Tablet, keyboard (if used), and mouse (if used).
The power button is on the upper-right edge of the casing. The Tablet automatically logs in to the Sound account.
4. Turn on the panel.
The power button is on the upper-right side of the panel.
The system is now installed and ready for configuration.

Logging in to the Sound User Account

The Sound user account for the digital radiography system is pre-configured at the manufacturing site, and the credentials are provided in this manual for reference purposes. When you start or restart the PC, the system logs into the Sound account automatically.

About this task

If you need to log in to the Windows Administrator account, you must switch users after the PC logs into the Sound account. See the topic, Logging into the Windows Administrator Account, for instructions. See the topic, Logging into the Windows Administrator Account in the *Service Manual*, for instructions.

Procedure

1. Power-on or restart the PC.
2. The PC automatically logs in to the Sound account and starts the SOUND SMARTDR™ PREMIER software.

Logging in to the Windows Administrator Account

The Windows Administrator account provides full access to the operating system and is useful for some service-related tasks.

Procedure

1. If the PC is not already on, power it up, and allow it to log into the Sound account and start the software.
2. Press **Ctrl+Esc** to bring up the Windows taskbar.
3. Right-click the Windows **Start** button, and select **Shut down or sign out > Sign out**.
4. Select the **Administrator** account from the list of accounts.
5. In the password field, enter password.

The password is case-sensitive. The PC logs in as the Windows Administrator.

Logging Out of the SOUND SMARTDR™ PREMIER Software

Sometimes, in order to maintenance on the PC using the Windows operating system, it is necessary to log off of the SOUND SmartDR™ PREMIER software without shutting down the PC.

About this task

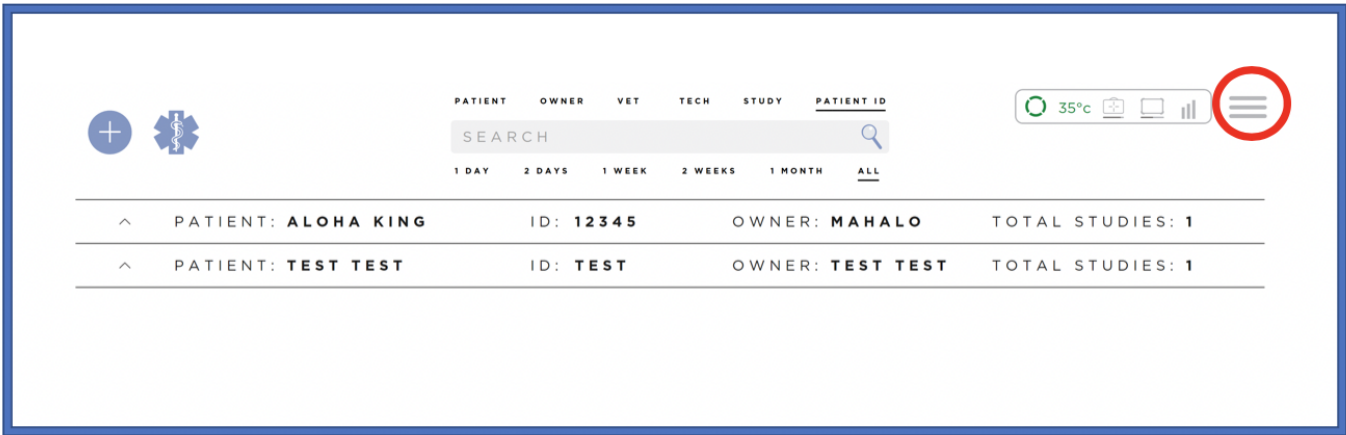


Note: If system updates are available, but have not been installed, you must complete this process twice to log off of the system.

Procedure

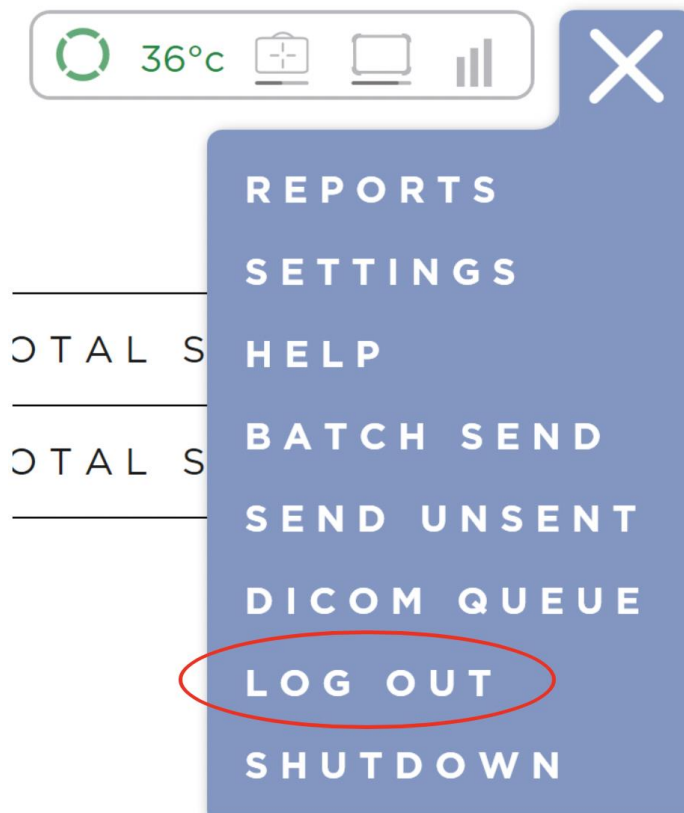
- 1. From the Home Screen, click on the hamburger menu located on the upper right corner.

Figure 33: Sound SmartDR™ Premier Software Home Screen



- 2. Select **Log Out** from the drop- down list.

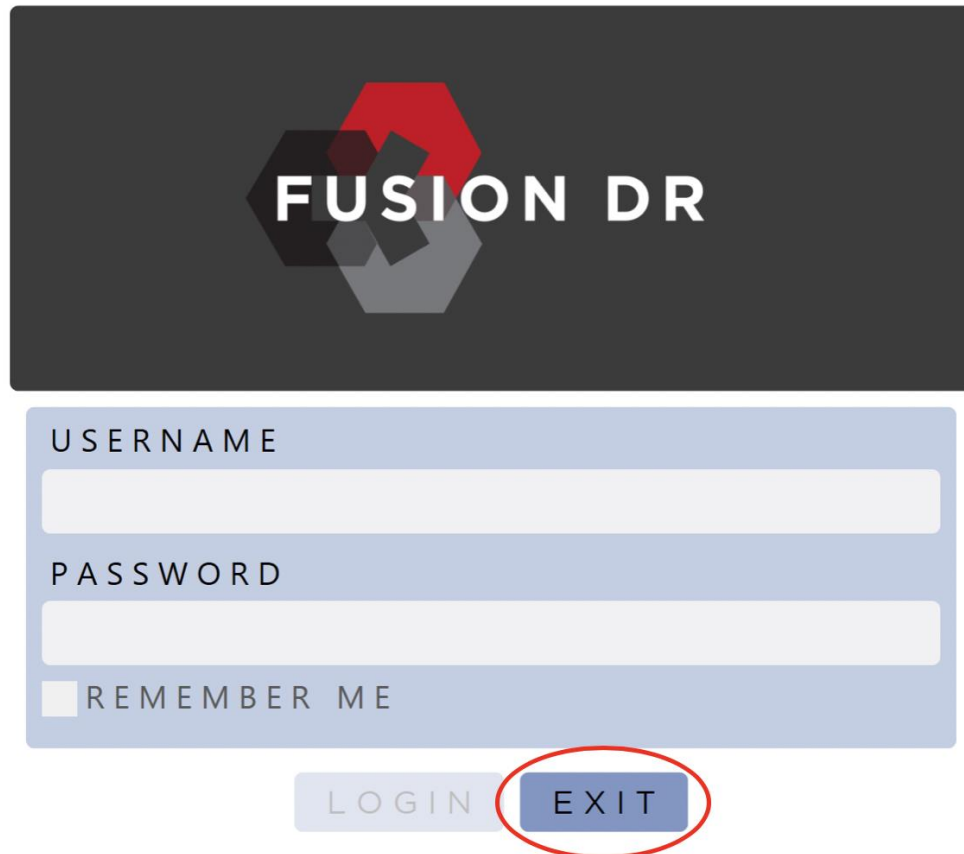
Figure 34: Sound SmartDR™ Premier Software drop-down menu



3. Click on OK to Log Out.



4. Click on EXIT to close the FUSION DR screen.



The image shows a login screen for 'FUSION DR'. At the top, there is a dark grey header with the 'FUSION DR' logo, which consists of a red hexagon and a grey hexagon. Below the header is a light blue login form. The form contains two text input fields labeled 'USERNAME' and 'PASSWORD'. Below these fields is a checkbox labeled 'REMEMBER ME'. At the bottom of the form are two buttons: 'LOGIN' and 'EXIT'. The 'EXIT' button is circled in red.

5. The following messages are displayed before the software closes to display the Windows desktop. **IMPORTANT!** The Sound SmartDR™ Premier software automatically backup the database if you log off or shutdown the software.

**BACKUP IN
PROGRESS...**

BACKUP COMPLETE.

CLOSING.

Operating the detector

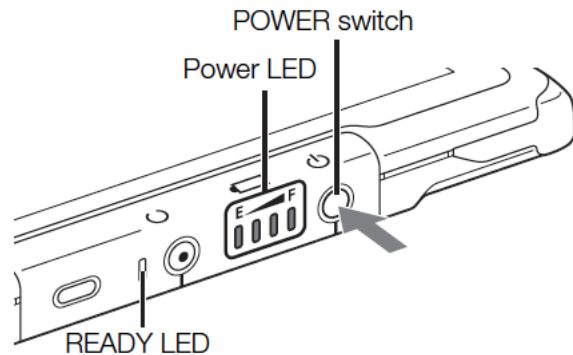
1 Turn on the detector

IMPORTANT:

Before operating the detector, power up the SOUND 14" Tablet and start up the FUSION DR software.

Press and hold the POWER switch (for at least 0.5 seconds).

Power LED lights up.



-Connection-

Communication link is automatically established between the internal wireless access point of the detector and the wireless module of the control system.

Shutting Down the Tablet

If desired, the Tablet can be shut down automatically on logging off of the Tablet

About this task

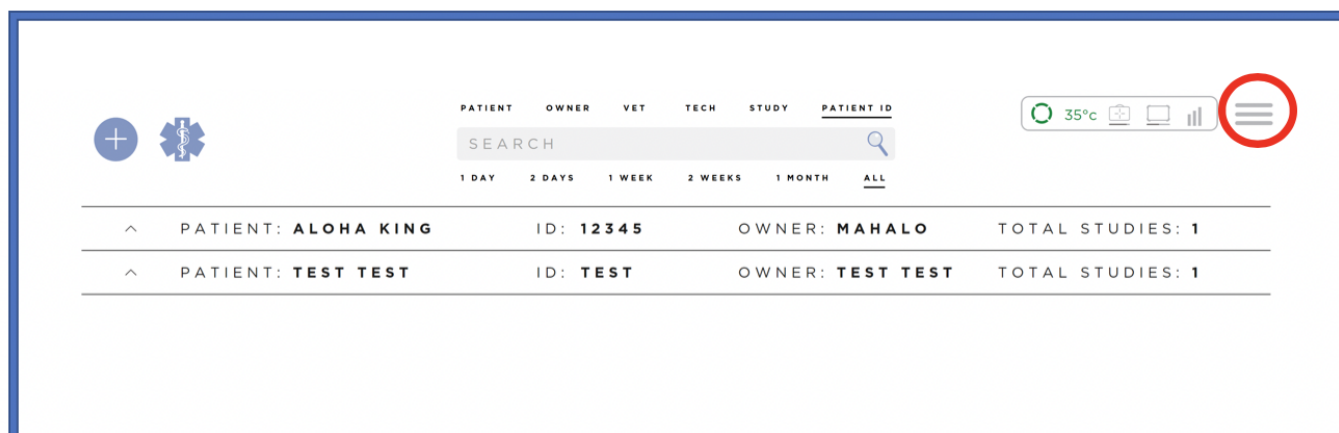


Note: If system updates are available, but have not been installed, you must complete this process twice to shut down the system.

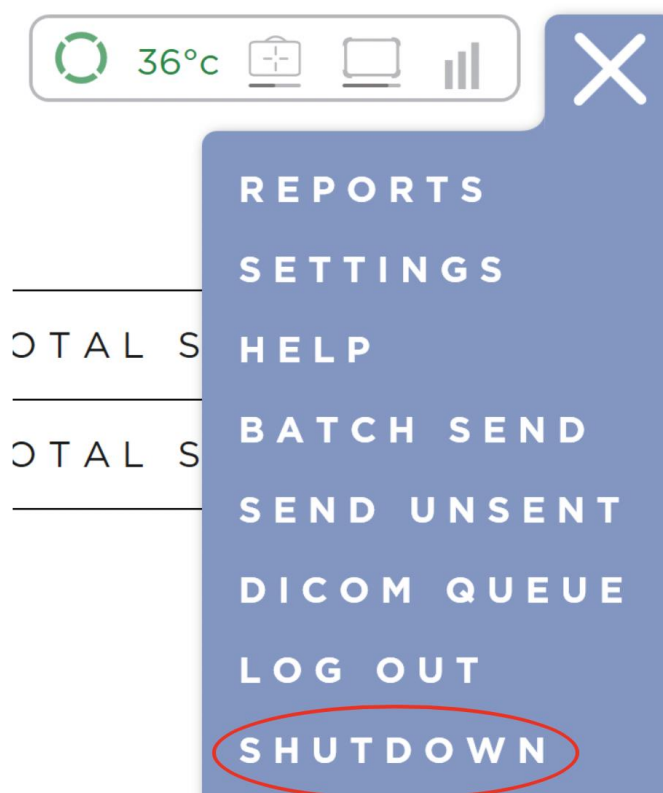
Procedure

1. From the Home Screen, click on the hamburger menu located on the upper right corner.

2. Safety, Warranty, and Licensing Information

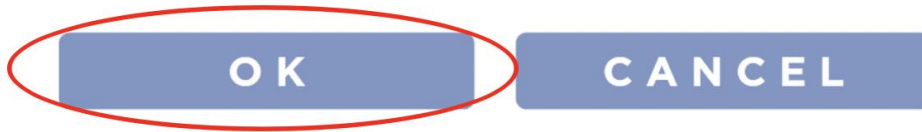


2. From the drop-down menu click on SHUTDOWN.



3. At the prompt, click on OK to shut down the system.

ARE YOU SURE YOU WANT TO
SHUT DOWN?



4. The following messages are displayed before the software closes to display the Windows desktop. **IMPORTANT!** *Sound SmartDR™ Premier software automatically backup the database if you log off or shutdown the software.*

BACKUP IN
PROGRESS...

BACKUP COMPLETE.

CLOSING.

Ending use of the detector

i) Information

When the detector will not be used for some time, remove the battery pack. Otherwise, overdischarge may occur, leading to a shorter battery life.

1 Turn off the detector

Press and hold the POWER switch (approx.. 3 seconds).
The Power LED is off.

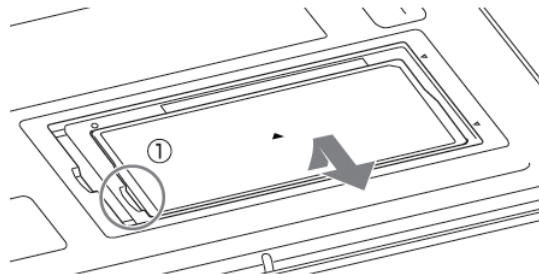
2 Remove the battery pack

i) Remove the battery cover.

ii) Remove the battery pack.

- Insert your fingers into the slot of the battery pack bay to grip the battery pack edge, and then pull the edge to remove the battery pack (①).

iii) Attach the battery cover.



Chapter 4

Troubleshooting

Figure 35: Panel error codes

Error codes on the error code display

Error code	Cause	Required actions
02	Internal error	Restart the detector.
03		
04		
12		
15		
16		
24		
25		
33		
47	It is time to replace the detector's internal memory. Exposure is not possible.	The internal memory must be replaced. Contact your sales representative.
48	A problem has occurred with the detector's internal memory.	Contact your sales representative.
99	Insufficient space in the detector's internal memory is preventing exposure.	Transfer images to the control computer.

Chapter 5

Patients

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- *Create an Emergency Patient* on page 65
- *Edit Patient Information* on page 66
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- *Add a Study to an Existing Patient* on page 67
- *Patient Tile Controls* on page 67
- *Study Tile Controls* on page 68
- *Patient Search — Local* on page 68

Main Patient Screen

This is the first screen you will see when the application is launched. From this screen you can add new patients, create emergency patients and search for existing patients. Search results are displayed in the main body of the screen in vertically stacked tiles, as seen in the image above, which offer various functions that can be applied at both the patient and study levels.

In addition to these primary functions, you can load the Reporting screen, the Management screen or the Help files. Additionally, you can initiate batch send exports using the controls in the upper right corner of the screen.

Create a New Patient

To create a new patient, simply tap the **Add Patient** icon, which looks like an encircled plus sign in the upper left corner of the screen, to open the Add Patient form.

Fill in all of the required fields (shown with a red border) and any other fields as desired. The Species field automatically displays the default value set on the **Management** screen. You can update this field if needed. The units assigned to the Weight field, KGs or LBS, is also set on the **Management** screen.

If enabled on the **Management** screen, you can enter an accession number. Once you have completed the form, click the **Next** arrow in the lower right corner of the screen; this will open the **Shot List** screen where you will select the anatomies and views to be acquired for the study.

Create an Emergency Patient

To create an emergency patient, simply tap the **Emergency Patient** icon (which looks like a Caduceus or Rod of Hermes - commonly seen on paramedic badges and ambulances) in the upper left corner of the screen.

Ensure that the Species field is correct as it will auto-populate with the default species that is configured in the management screen. Fill in the **Weight** and tap the **Save** button control. This will open the **Shot List** screen where the user will select the anatomies and views to be acquired for the study.

Edit Patient Information

You can edit patient information while remaining in the **Shot List** screen using the Edit Patient Information control, found above the Study Description in the upper right corner of the screen.

Tapping the **Edit Patient Information** control (which looks like a pencil) opens the **Edit Patient Information** form, which is basically the same as the **Add Patient** form which is accessed from the **Main Patient Screen**. The form opens on top of and partially covers the **Shot List** screen. Once open, simply make changes to the desired fields and then tap the **Save** icon in the lower right corner of the form. If enabled on the **Management** screen, this form also includes a field for accession number. This will close the form revealing all of the **Shot List** screen again.

Create a New Study

On entering the **Shot List** screen, you will need to select an anatomical region from the Select Region list, which will populate the Select Anatomy list with options specific to that anatomical region.

You will then select the desired anatomy from the Select Anatomy list, which will populate the Select Shots list with shots specific to the chosen anatomy. The selected shots will be displayed in the shot-list on the right side of the screen.

You can enter a study description or allow the application to provide a default value for that DICOM Tag.

You can add **Slang Terms** to the clinical names for any shot. These slang terms will only display in the **Sound SmartDR™ Premier software** user interface. They are never inserted into **DICOM Tags**.

There are two locations where you can enter slang terms, one in the **Management** screen and the other in the **Shot List** screen. To enter a slang term, simply tap and hold the tile. Then, type the name in the field that appears.

To begin acquiring images, simply tap the right arrow in the lower right corner of the screen and the **Acquire** screen is displayed.

Add a Study to an Existing Patient

Add a Study to an Existing Patient To add a new study to an existing patient, simply tap the patient tile for the desired patient and then tap the **New Study** control found in the upper left corner of the patient tile.

The next action depends on the configuration. If configured, tapping the new study control opens an **Add Study Information** form, where you will enter a **Study Description**, weight value and sex. If configured on the **Management** screen, this form also includes a field for accession number. Tapping the **Save** control will take you to the **Shot Selection** screen where you can select individual shots and shot protocols, make study description changes, edit patient information, and initiate image acquisition.

The system can also be configured to skip the **Add Study Information** form. In this case, tapping the New Study control adds a study populated with the same values as the last study added to the patient tile. Tap the Shot list control to open the **Shot Selection** screen and make changes as needed. If no previous study exists, the **Add Study Information** form displays.

Patient Tile Controls

Patient Level Export Control - You can export one or more studies for any patient directly from that **Patient Tile**. To export a single study, simply tap the study tile, which will highlight the study to show that it has been selected, and then tap the export control in the upper right corner of the **Patient Tile**. This will open the **Export** form, where you can select between **Local** or **Network** export options, which are covered in the **Export Studies and Images** section of these **Help Files**.

Delete Patient - You can delete the patient and its studies by tapping the **Delete** icon in the **Patient Tile**.

Study Tiles - Each study that exists under a patient is represented by a **Study Tile** in the expanded **Patient Tile**. Each of the **Study Tiles** consists of the **Study Description**, **Study Date**, **Send Status** and five controls, which are covered in the next section, **Study Tile Controls**.

Study Tiles - To edit patient information, simply tap the **Edit Patient** icon, which looks like a pencil, in the upper right corner of the **Patient Tile**.

Study Tile Controls

Resume Study Control - To resume a study that has been closed, simply tap the Resume Study control, found in the lower left corner of the Study Tile.

Move Study Control - To move a study to a selected patient or owner, tap the Move Study control, found on the study tile to the right of the Resume Study control. In the selection window, search for a patient record to which you wish to add this study. Search options include: patient, owner, and patient ID. Click the Search icon. In the list of studies that display, tap the desired record. The study moves to the selected record and no longer appears on the previous record.

Add Shots Control - To add shots to a study simply tap the Add Shots control, found on the study tile to the right of the Move Study control. This will take you to the Shot List screen, where you can add individual shots or protocols to the study.

AIS (Antech Imaging Services) Control - To submit a consult to AIS for this study, simply tap the AIS control. This will initiate a DICOM send of the images to the configured AIS DICOM device, while launching a browser and taking you to the AIS Consultation Submission page.



Note: This control will appear inactive if there is no AIS device configured or if the selected study has no images.

Delete Study Control - To delete any study, simply tap the Delete icon on that Study Tile

Patient Search — Local

You can search for existing patients in the local database from the **Main Patient** screen. This is accomplished using the search field in the top center of the **Main Patient** screen.

First select the search options that fit the search criteria which will be entered in the search field. You can search by Patient, Owner, Vet, Tech, Study, Patient ID either alone or in combination.

Next select a range of dates within which to search; 1 Day, 2 Days, 1 Week, 2 Weeks, 1 month or the entire data base can be searched by selecting All.

Once all of the options have been selected tap the Local Search icon (a magnifying glass in front of a monitor) located on the right side of the search field.

The results of the search will be displayed in horizontal Patient Tiles beneath the search field and criteria.

Chapter

6

Image Acquire/Review Screen

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- *Edit an Image* on page 73
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- *Shot List Screen* on page 78
- *Add Shots to the Study* on page 79
- *Pause a Study* on page 79
- *Create a Protocol* on page 80
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- *Image Manipulation Controls* on page 84
- *Calendar Controls* on page 85
- *Re-ordering Various Application Lists* on page 85
- *Navigation Form Controls* on page 86

This is the **Acquire/Review** screen, where you will acquire, view and edit images. A number of image manipulation tools are available for editing the images and the screen has a number of additional controls which provide various functions and feedback information.

The main body of the screen is devoted to viewing images and appears as a large black area to either the right or left of the control column, depending on the configuration of the system. The control column itself is made up of several subsections which we will go over now.

Running from the top to the bottom of the screen, on the image viewing side of the control column, are the **Image Manipulation** tools. The individual functions are covered in the **Edit Images** section of the **Acquire & Review Screen** help files.

At the top of the inside portion of the column are the **Plate Connectivity** and **Plate Temperature** controls.

Directly beneath these controls is the **Patient Information** subsection, containing information specific to that patient, a link to the help files and an **Edit Patient Information** control like the one in the **Shot List Screen**. Beneath this section are the **Vet** and **Tech** fields followed by the shot-list.

At the bottom of the column are the **Pause Study**, **Email Study**, **Emergency Send**, and **Close Study** controls.

Acquire an Image

Selecting Vet & Tech - You can select both the vet and tech that will be working on the study from the two dropdown fields located above the shot-list. If you have selected a default vet or tech in your user profile, it will already be displayed in the field when you enter the **Acquire** screen, although the value can be changed as desired. In addition, if you have a long list of doctors or technicians, you will be able to scroll through the list with a simple flick of your finger.

Position Guide - To assist you in determining the proper positioning for your patient, based on the selected shot, we have included a **Position Guide** image with the most common views.

To access the **Position Guide** image for a shot, tap the small icon to the left of the view name on the shot-list. The shot tile will expand to reveal an image of an animal oriented in the proper position for the shot, with a highlighted target reticle centered on the correct anatomical area (as seen in the image below).

SELECT SHOTS



Plate Connection Icon - On entering the **Acquisition/Review** screen, the first shot in the shot-list will be highlighted for acquisition. In systems configured for dual panel operation, select the Plate in the upper right corner of the screen verify that the **Plate Connectivity Status** icon has a **green** circle, which indicates the plate is connected and ready for use. If the plate connection icon has a **red** circle it means that the plate is not connected.



Panel Connected



Panel Disconnected

Tap the Status Bar. The window will display the following information:



Panel Connection Status

Note: *Panel Connection Status indicator pulses when the panel is sleeping*

29°C

Panel Temperature



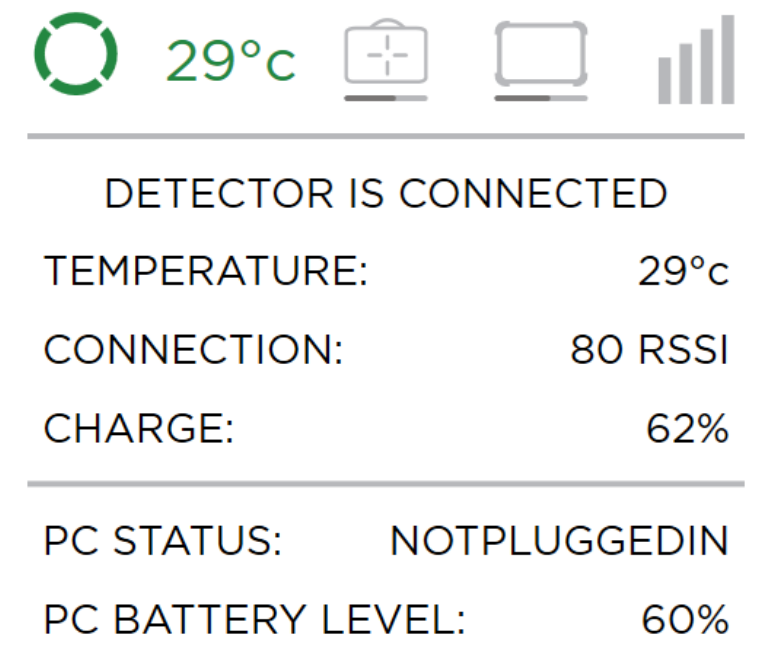
Panel Battery Percentage



Tablet Battery Percentage



WiFi Connection Status



Tap Close to close the window.

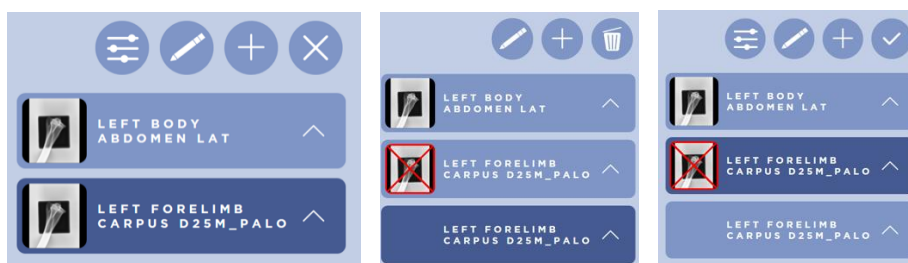
Following the acquisition, the panel connection icon will remain **green** to indicate the plate is ready for the next acquisition. If configured on the **Management** screen, the system will beep when it is ready to acquire an image. You can set the number of beeps from none to five.

Reject an Image

You have the ability to reject an acquired image. This is accomplished by highlighting the shot for the image to be rejected and tapping the "X" next to the **Add Shots** icon.

This will place a large red "X" over the rejected image and add another instance of the same shot to the shot-list, placing it next in the order of acquisition (as seen in the images below).

A rejected image may be recalled by tapping the check mark next to the **Add Shots** icon. This check mark is only displayed if you have selected a rejected shot.



Edit an Image

The user is provided with a variety of tools to edit and manipulate the image once it has been acquired.

Primary Tools —

There are three primary tools which are active by default. They are available once an image is displayed in the viewing pane.

1. Window Level
2. Zoom
3. Pan



Display Tool —

Available to change the display.

1. Overlays



Manipulation Tools

— There are a number of tools available to modify the image.

1. **Region of Interest**
2. **Invert**
3. **Crop**
4. **Rotate 90 Degrees Left**
5. **Rotate 90 Degrees Right**
6. **Flip**
7. **Reverse**



Revert — The **Revert** tool allows you to return the displayed image to its original state, prior to any modifications you have made to the image.

You can apply the **Revert** tool to selected images in Two-Up mode.



Note: This function will not undo changes that have been saved by leaving the screen.

Annotation & Measurement Tools

— Click the Annotation Tools icon to display the annotation toolbar. This toolbar provides access to annotation and measurement tools.



Full Screen — The Full Screen tool allows you to use most of the screen to view images.



Full Screen Mode

We have added a function which allows you to view images using almost all of the available screen area.

To view images in **Full Screen** mode, simply tap the **Full Screen** icon which is located after the **Marker Tools** in the **Image Manipulation Toolbar**. This will slide the toolbar to the edge of the screen, hiding the **Shot List Column** and its various controls, leaving only the **Image Manipulation Toolbar** and the image itself visible.

MusicaVET Tuning Bench

We have added a tool which allows you to adjust the processing of specific shots to suit your personal preferences regarding the "Taste" properties of the MusicaVET processing algorithms.

To use the **MusicaVET Tuning Bench** simply tap its icon, which is found above the **Shot List**, and the **MusicaVET Tuning Bench** controls will slide down revealing sliders for each "Taste" property. These "Taste" properties, **Sharpness**, **Control** and **Brightness**, are adjusted to higher or lower levels by moving the slider control for each property towards either the "plus" or "minus" sign for that control.

Crop Function

The **Crop** function allows you to trim away extraneous image elements from the actively displayed image.

To select this function tap the **Crop** icon in the **Image Manipulation Toolbar**. To apply the crop to the active image, simply touch and drag your finger across the screen over the area of the image that you wish to isolate, lifting your finger to initiate the crop.

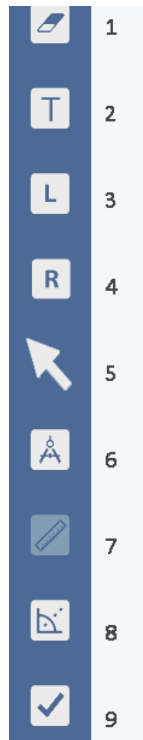
This function offers a configurable option, which allows you to choose between retaining the original size of the cropped area of the image or enlarging it to fill the display area of the **Acquire view** screen.

Annotations, Markers, and Measurement Tools

We have added several annotation tools to the Sound SmartDR™ Premier software, allowing you to perform markups on your images without leaving the application.

To access the annotation controls, simply tap the **Annotation** icon, found near the bottom of the **Image Manipulation Toolbar**. This will place the system into **Annotation Mode**, which interrupts the auto-sense process wherein the system continually scans the panel for radiation, while displaying the annotation controls over the standard **Image Manipulation Toolbar**.

To select a particular annotation, simply tap the correlating icon. To apply the annotation to an image, touch and drag your finger across the area of the image to which you want to apply the annotation, lifting your finger from the screen when you are done.



Tools available on the Annotation toolbar include:

1. Clear all annotations
2. Free text
3. Left marker
4. Right marker
5. Pointer arrow
6. Calibration tool
7. Linear measurement
8. Angle tool
9. Cobb angle
10. Copy image
11. Close

See the following paragraphs for a description of each tool.

1. **Clear all annotations** - Remove all annotations on the image.
2. **Free text** — This tool will allow you to place text notations anywhere on the image. To add a **Free text** annotation, tap the icon. The words **New Text** appear on the image. You can drag the text and drop it anywhere on the image. To edit the text, hold your finger on the text for about a second. The **Modify Free Text Annotation** form displays. Use this form to modify the text and change the size of the font. Tap **Save** to apply your changes.
3. **Left marker** - Place the left marker on the image to indicate the left patient orientation.
4. **Right marker** - Place the right marker on the image to indicate the right patient orientation.
5. **Pointer arrow** — To add a pointer arrow to the image, tap the arrow icon. The arrow displays on the image. To move it, touch the center of the arrow and drag it. Touch and hold the either end of the arrow to resize or re-orient the arrow.
6. **Calibration** tool — The Calibration button allows you to calibrate line measurements for that image to a known length. To use the tool, tap the button and draw a line on the screen. You can move or change this line by moving it or one of its endpoints.
 - Each image accepts only one calibration.
 - The calibration line remains on screen after calibration is complete.
 - Initially the line length displays in pixels. Right-click or press and hold anywhere on the line to display a pop-up you can use to enter the number of centimeters or millimeters the line represents. The units that display is selected in Settings mode.
 - The line retains its calibration value despite changes to its length or position.
7. **Linear measurement** tool — Using this tool you will be able to draw a line to measure portions of the displayed image in CM. You can resize the line by dragging either endpoint of the line to another location on the image. You can also move the line by dragging it from between the endpoints.
 - If you draw a line before adding a calibration line, the system displays a warning and the length using the detector pixel size and the number of detector pixels and the units selected in Service Mode configuration.

- If you modify the calibration line, other lines on the image adjust to reflect the change.
 - Deleting a calibration line deletes the other lines on the image.
- 8. Angle tool** — This tool allows you to draw angles on the image. To use the control, tap the button and draw the angle on the screen. Once you draw both legs of the angle, a label displays indicating the angle between the legs. You can drag the entire angle by a line or drag the endpoints to modify the measurement.
 - 9. Cobb angle tool**— This tool allows you to draw two lines on the image and display the angle between the two lines or line extensions.
 - 10. Copy image tool** — This tool creates a copy of an image containing annotations, places the copy in the shotlist, and removes annotations from the original image. The copy is identified by the prefix: Copy of. The tool is disabled until you place annotations on an image.
 - 11. Close** - Close the annotation tool bar.

In addition, the following markers and tools are also available.

Automatic Orientation Marker— You can configure your system to place a small orientation marker in the upper left corner of your images on acquisition. To enable this feature, go to the **Management** screen, select the **Intermediate Options** tab, set the **Apply Orientation Marker** field to True, and tap **Save**.

MusicaVET Tuning Bench

We have added a tool which allows you to adjust the processing of specific shots to suit your personal preferences regarding the "Taste" properties of the MusicaVET processing algorithms. To use the MusicaVET Tuning Bench simply tap its icon, which is found above the Shot List, and the MusicaVET Tuning Bench controls will slide down revealing sliders for each "Taste" property. These "Taste" properties, Sharpness, Control and Brightness, are adjusted to higher or lower levels by moving the slider control for each property toward the higher or lower value. You can also use the << or >> on each side of the property to increase or decrease the value. The current numeric value for the property appears in the center.

Position Guide

To ensure that technicians are getting the image they want the first time, we have included a Position Guide. To view the proper animal placement position for a particular shot, the user simply taps the arrow found on the left side of each of the shot tiles. This will expand the tile, revealing the Position Guide image with the collimator light illuminating the appropriate viewing area. Tapping the arrow a second time will collapse the tile, hiding the image again.

The shot tile **Position Guide** can be accessed via the shot tile wherever it is found; in the **Select Shots** column and shot-list in the **Shot List Screen** as well as the shot-list in the **Acquire Screen**.

Orientation Tool

There may be times when you will prefer an orientation that differs from the default orientation in Sound SmartDR™ Premier Software. To address this possibility we have provided an **Orientation Tool** which allows you to save changes you have made to the orientation of a shot, and apply those changes as the default orientation for that shot in future acquisitions.

To save orientation changes, orient the image as you wish to see it displayed and tap the Orientation Tool icon, found above the Shot List. This will display the **Orientation Tool** form; to save the new.

orientation tap the **Save Changes** button. Tapping the **Cancel** button will close the form without saving the current orientation as the new default.

Shot List Screen

This is the **Shot List** screen, which can be displayed from a number of locations; **Creating a New Patient**, **Resuming a Study** with no images and **Adding Shots to an Existing Study**. To help streamline your workflow, the **Shot List** screen automatically scrolls as you add shots to the list in the **Shot Selection** screen and as you acquire images in the **Acquire/Review** screen.

The primary purpose of this screen is to assemble the shot-list for the currently selected study. This is done by selecting a region, an anatomy and shots for that anatomy. As the shots are selected they are displayed in a list on the right side of the screen. Shots can be deleted from the shot-list at any time using the Delete control located near the top of the shot list.

You can also add your own slang terms to the clinical names for any shot. These slang terms only display in the Sound SmartDR™ Premier software user interface. They are never inserted into DICOM tags. To enter a name, tap and hold the tile, then type the name in the field that appears.

You can create protocols on this screen. Simply tap the **Save** control found at the top of the shot-list. This will prompt the user to provide a protocol name and click **Save**, at which time a protocol tile will be added to the horizontally stacked Protocols list in the upper left corner of the screen. Tapping this protocol tile will add those shots to the shot-list of any current study.

Additionally, you can apply a user-defined study description, edit patient information, launch help files specific to this screen, and view **Position Guide** images for most common sho

Add Shots to the Study

You can add shots to the study from the Acquire screen.



Tapping the **Add Shots** icon located on top of the shot-list will slide out the **Shot List** screen's selection columns, allowing you to select additional shots from any region and anatomy or from any existing protocols. To help streamline your workflow, the **Shot List** screen automatically scrolls as you add shots to the list in the **Shot Selection** screen and as you acquire images in the **Acquire/Review** screen.

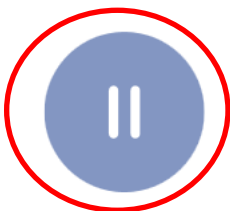
Once you have selected additional shots, tapping the right arrow icon in the lower right corner of the screen will close the shot selection columns, revealing the image display screen and image manipulation controls.



Note: If you have elected to place the shot column on the left side of the screen the arrow will face left rather than right.

Pause a Study

We have provided an additional control in the **Acquire Review** screen, which allows you to **Pause**, rather than **End** your study.



This control enables you to leave the **Acquire Review** screen without ending the study and triggering the auto route function. When you return to the **Acquire Review** screen and finish capturing images for the study, you can then use the familiar **“End Study”** control to exit the screen and initiate the auto- route process at that time.

Create a Protocol

In the Shot List screen you can create shot list protocols, which are used to quickly add groups of shots to any study.

To create a protocol, first select the **Region** and **Anatomy** with the shots that are to be added to the protocol. To add shots to the shot-list, simply tap each of the shots you want to add. You can change the order of the shots by dragging a shot tile up or down to the desired location in the list. The other shots will spread out, illustrating the position in which the shot will be placed when you release the shot tile.

Once all of the shots are in the list and ordered as desired, tap the Save icon located near the top of the shot-list. This will open a dialog box wherein you will be prompted to provide a name for the protocol. Once the name is entered in the field, tap the Save icon to create the protocol. A new protocol tile with the provided name will be added to the **Protocols** list in the upper left corner of the screen.

To add the shots in this protocol to a study, simply tap the protocol tile and the shots will be added to the shot-list in the order they were saved.

Equine Technique Chart

The following equine technique charts provide recommended values for use with the x-ray system.

Study	View	SID	kVp	mAs	Time
Navicular					
	65 Degree Navicular	22	80	1.0	0.06
	65 Degree P-3	22	80	1.0	0.06
	DP	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Skyline	22	80	1.0	0.06
	Navicular Obliques	26	80	1.0	0.06
	65 P-3 Obliques	22	80	1.0	0.06
P-3					
	Lateral	26	80	1.0	0.06
	65 Degree P-3	22	80	1.0	0.06
	65 Degree Obliques	22	80	1.0	0.06
Pastern					
	DP	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Medial Oblique	26	80	1.0	0.06
	Lateral Oblique	26	80	1.0	0.06
Fetlock					
	DP	26	80	1.0	0.06
	Medial Oblique	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Lateral Oblique	26	80	1.0	0.06
	Flexed Lateral	26	80	1.0	0.06
	Special Palmar	26	80	1.0	0.06
Metacarpus/Metatarsus					
	DP	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Medial Oblique	26	80	1.0	0.06
	Lateral Oblique	26	80	1.0	0.06
Carpus					
	DP	26	80	1.0	0.06
	Medial Oblique	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Lateral Oblique	26	80	1.0	0.06
	Flexed Lateral	26	80	1.0	0.06
	Distal Rad. Sky	22	80	1.0	0.06
	Distal Row Sky	22	80	1.0	0.06
	Prox. Row Sky	22	80	1.0	0.06

Study	View	SID	kVp	mAs	Time
Tarsus					
	DP	26	80	1.0	0.06
	Medial Oblique	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Lateral Oblique	26	80	1.0	0.06
	Flexed DP	26	80	1.0	0.06
	Calcaneal Skyline	26	80	1.0	0.06
Skull (TMJ & Bullae)					
	DV	26	80	4.0	0.06
	Lateral	26	80	2.0	0.06
	Right Oblique	26	80	2.0	0.06
	Left Oblique	26	80	2.0	0.06
Sinus/Dental					
	DV	26	80	4.0	0.06
	Lateral	26	80	1.0	0.06
	Right Oblique	26	80	1.0	0.06
	Left Oblique	26	80	1.0	0.06
Cervical Spine					
	Cranial (Lateral)	26	80	2.0	0.12
	Middle (Lateral)	26	80	3.0	0.16
	Caudal (Lateral)	26	80	4.0	0.24
Pharynx	Lateral	26	80	1.0	0.06
Shoulder	Lateral	26	80	4.0	0.24
Elbow					
	Cran->Caud	26	80	2.0	0.12
	Medio-Lateral	26	80	1.0	0.06
Radius					
	Cran->Caud	26	80	1.0	0.06
	Lateral	26	80	1.0	0.06
	Obliques	26	80	1.0	0.06
Stifle					
	Caud->Cran	26	80	4.0	0.24
	Lateral	26	80	2.5	0.14
	Lateral Oblique	26	80	2.5	0.14
	Patellar Skyline	26	80	2.0	0.12
Tibia					
	Caud->Cran	26	80	3.0	0.16
	Lateral	26	80	1.0	0.06
	Obliques	26	80	1.0	0.06
Withers	Lateral	26	80	1.0	0.06

Rename Shot Function

In the event that an image has been captured with the wrong shot information, we have provided a function which allows you to rename the shot to match the view that was actually acquired.

To initiate this function, simply tap the **Rename** icon, located directly above the **Shot List**. This will display the **Shot Selection Columns** in the **Image Display Area**.

Select the correct **Region**, **Anatomy** and then the **Shot** which matches the acquired image.

Once you have selected the new Shot, a form will slide up in the **Shot List** showing the current shot and the new shot, asking if you want to replace one with the other. Tap the **Continue** button to make the change or the **Cancel** button to leave the original **Shot** intact.

To rename additional shots, simply select another shot by tapping it in the **Shot List** and then repeat the above process to rename the shot.

Once all shots have been renamed, simply tap the **Right Arrow** icon in the lower right corner of the screen to restore the standard image display.

Touch Fundamentals

The touch interface control gestures, which replace the familiar mouse/cursor desktop interface, will be new to many of you. We have included this tutorial to help smooth your transition to a primarily touch environment.

Tap

Similar to the click of a mouse, the **Tap** gesture will replace the left-click for selecting objects on the screen. As the name suggests, simply tap the item you wish to select in situations where you would have clicked using the mouse.

Drag

The **Drag** gesture is now as simple as touching an object, sliding your finger across the screen and lifting your finger, rather than clicking and holding down the mouse button as you move the mouse to drag an object.

Two-Finger Drag

The **Two Finger Drag** gesture, as the name suggests, is a variation of the **Drag** function which is actuated by touching two fingers to the screen and dragging them across it.

Flick

The **Flick** gesture allows the user to scroll through a list by simply flicking a finger on the screen in the direction you wish to scroll, rather than clicking and holding on an arrow, or dragging a scroll bar with the mouse.

Pinch and Unpinch

The **Pinch** and **Unpinch** gestures allow the user to zoom an image in and out, without the need to click a control and then hold down a mouse button while dragging the cursor across the screen.

Image Manipulation Controls

Primary Image Controls

The functions for these controls are active by default when an image is displayed in the **Acquire/ Review** screen.

Win/Level

The **Window/Level** operation is performed using the **Two Finger Drag** function. Simply touch two fingers to the screen over the image display area and drag those fingers across the screen to adjust the window level values of the image. Lift the fingers from the screen to stop using the function.

Zoom

The **Zoom** operation is performed using the **Pinch** and **Unpinch** gestures. To begin, touch the thumb and index finger to the screen; move the two away from each other to enlarge the image and move them towards each other to shrink the image. Note: to move quickly through the entire zoom range, simply touch one finger from each hand to the screen and slide them away from or toward each other.

Pan

The pan operation is performed using the **Drag** gesture. On any zoomed image, touch the screen and drag your finger in any direction to move the image in that direction. Lift the finger to stop using the function.

Secondary Image Controls

The functions for these controls must be activated by tapping the control icon for the function.

ROI

The **ROI** operation is performed using the **Drag** gesture. Tap the ROI control to activate the function, then touch the screen and drag your finger diagonally across the screen to draw a box around the region of interest. Lift your finger from the screen and the Window Level value of the image will be adjusted based on the values in the selected area.

Crop

The **Crop** operation is also performed using the **Drag** gesture. Tap the **Crop** control to activate the function, then touch and drag your finger diagonally across the screen to draw a box around the cropped area. Lift your finger from the screen perform the crop.

Marker Placement

Marker placement can be performed using either the **Tap** or the **Drag** gesture. Tap the marker and then tap the image where you would like to place the marker or, drag the marker to the screen. To remove the marker, either drag it off the screen or flick it off the screen.

Calendar Controls

There are several calendar controls located throughout the application; in the **Add Patient** form, the **Edit Patient** form, the **Reporting** screen, the **Batch Send** form and the **Calibration History** screen.

When only a single date selection is required there will be a single control, but where the user will enter a date range, two of the controls will be located together.

To open the calendar control, simply tap the icon that resembles a desktop calendar. On opening, the title bar in the top portion of the calendar will display the current month and year, in addition to back and forward arrow controls while the main body of the form will display the days of the month up to the current day.

Tapping the title bar will change the displayed value from the current month and year to the current year only, with the main body of the form now showing the months for the current year, up to and including the current month.

Tapping the title bar again will change the displayed value from the current year to a range of 10 years, with the main body of the form now showing the years of the range up to the current year.

Tapping the arrow controls for any of the various title bar values will move the values backward and forward in increments that are dictated by the type of data displayed in the title bar.

Tapping any values in the main body of the form will select that value and take the user up one level with that value selected in the title bar. Once the user has determined the year and month and selected a day, the calendar control will close.

To select a range, simply pick the first date of the range using the left calendar control and pick the last date of the range using the right calendar control.

Re-ordering Various Application Lists

You can change the order of the various lists found throughout the application at any time.

To change the order of a list, simply drag one of the list items from one position and drop it in another. As you move the selected item, the remaining items will slide apart to reveal the position in which the selected item will be placed when your finger is lifted from the screen.

Navigation Form Controls

There are several navigation form controls located throughout the application; in the **Local Export** form, the **Reporting** screen and throughout the **Management** screen. When the user taps one of these controls, a touch optimized navigation form is opened which allows the user to select a folder on the local system, a thumb drive or an accessible network location.

The layout of the form is typical, with a folder tree in the left pane and the contents of the selected folder in the right pane. There are forward and back controls in the upper left corner of the screen and a navigation bar showing the data path of the currently selected folder.

Chapter

7

Export

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- [*Patient Tile Export*](#) on page 88
- [*Batch Send Export*](#) on page 89
- [*AIS Export*](#) on page 90
- [*Auto-Route Export*](#) on page 90

Emergency Export

You can send all of the images which have been acquired to the application's default server; typically the site storage server. This can be done directly from within the **Acquisition/Review** screen using the **Emergency Send** control (which looks like the **Emergency Patient** icon with an arrow curving upwards in the foreground) found in the lower right corner of the screen.

1. This control is inactive until an image has been acquired.



2. Once an image has been acquired, tapping the **Emergency Send** icon will automatically send all acquired images.
3. You will see a Send Status value displayed on the screen as the images are sent to the storage server and once the send is complete the message will reflect that status.

The **Emergency Export** function also recognizes which images you sent previously and ignores them, sending only the newly acquired images. If you wish to resend an entire study, you can use the export controls from the **Main Patient** screen.

Patient Tile Export

You can manually export single or multiple studies for each patient to storage servers or local media from an open Patient Tile in the **Main Patient Screen**.

To send a single study or multiple studies, simply tap the desired study(ies) and then tap the **Export Study** icon in the upper right corner of that Patient Tile.

This will display the **Export Form**, seen below. Select either the **Local** or **Network** function by tapping the appropriate button at the top of either section of the form.



EXPORT

LOCAL **NETWORK**

LOCATION

C:\Users\slee\Desktop

☐ ANONYMIZE PATIENT DATA

☐ EXPORT FRAMES AS JPEG

☒ BURN IN OVERLAYS

☒ INCLUDE DICOM VIEWER

SEND

For **Local** exports you will be able to select an export location and choose between the following export options: Anonymize, Export as JPG, Burn in Overlays and Include DICOM Viewer.

For **Server** exports, you may select from a list of available servers that have been configured in the Management screen.

When the export process has begun you will see a status indicator near the bottom of the form. When the send process completes, the **Export Form** will close automatically.

Batch Send Export

To simplify the export process, we have included a Batch Send function which allows you to send batches of studies based on selectable criteria.



To send all of the studies within a certain date range, you can use the list of pre-defined date ranges in the drop down field, or you can choose a specific date range using the calendar controls.

BATCH SEND

1 DAY

01/02/20 01/02/20

SmartPACS

SEND

Once you have selected your date range, choose the destination server from the drop down field, and then tap the **Send** icon.

- To send all of the unsent studies on the system, regardless of date, simply tap the **Send All Unsent Studies** button. An export status bar also displays to provide you with some feedback on the status of batch exports jobs.
- If all studies have already been sent to the selected server you will be presented with a notification stating that there are no eligible studies found.
- A status bar indicates the progress of the export process.

AIS Export

You can export studies and images to the Antech Imaging Services website and submit a consultation for those images on the AIS website using the **AIS Export** control, found on each **Study Tile** in an expanded **Patient Tile**.



This process is initiated by tapping the **AIS Export control**, seen to the left. This will begin the DICOM Send of the images for that study in the background while a browser window will open to the **AIS New Consultation** page.

Once you have submitted the consultation, closing the browser window returns the system to the **Main Patient** screen of the application.

Auto-Route Export

The system can be set up to select a server to which each study will be auto-routed when a user closes a study, returning to the **Main Patient** screen. Setting up an auto-route server is done in the **Management** screen and can only be performed using the built-in administrator account.

In the **DICOM/Storage** screen, the administrator simply selects the desired server and taps the **Supports Auto Send** checkbox to identify the server as the auto-route destination.

Once configured, each study will be auto-routed to the selected default server when the user ends a study and returns to the **Main Patient** screen.

Chapter

8

Reporting

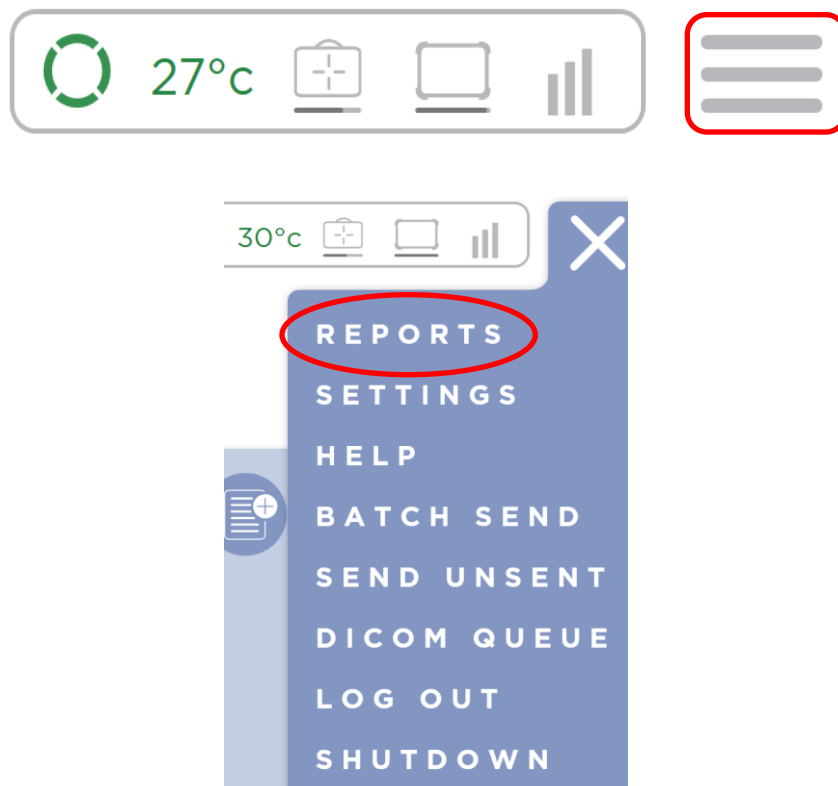
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- *Add a User* on page 94
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- *DICOM Tag Editor* on page 100

6. Reporting

You can generate and export AAHA, Billing, and Study reports. The reports can be generated in both PDF and Excel formats and exported to folders on the local system, on a network, or on a thumb drive.

The **Reporting** Screen is reached by tapping the Hamburger menu, seen to the right, in the upper right corner of the Main Patient Screen.



Generating a Report - Once in the Reporting Screen, select the type of report you wish to generate. This is done by tapping one of the two options in the upper left corner of the screen. By default the Billing Report is selected. Next, select the date range to be covered in the report using the Start Date and End Date calendar controls located next to the Report Type selection options in the upper left corner of the screen. When you select the options, the results are automatically displayed in the main body of the screen.

The screenshot shows the Reporting screen layout. On the left is a vertical list of report types: AAHA REPORT, BILLING REPORT, STUDY REPORT, REJECT REPORT, and ADV. BILLING REPORT. To the right of this list are two calendar icons for 'START DATE' and 'END DATE', both showing 4/29/2020. Further right is a 'DESTINATION' field with the path 'C:\Users\Jackson Cupp\Desktop' and a search icon. To the right of the destination field are two buttons: 'PDF' and 'EXCEL'. To the far right is a large 'SAVE REPORT' button. At the bottom of the screen is a table header with the following columns: STUDY DATE, PATIENT NAME, PATIENT ID, OWNER LASTNAME, ANATOMY, VIEW, EXPOSURE TIME, KVP, MAS, MA, VET, TECH, THICKNESS OF AREA, GRID, and LEVEL OF SEDATION.

Exporting a Report - To export the generated report, select a location to which the report will be exported using the **Destination** search field. If the destination data path is known it can be entered into the **Destination** field, if not, tap the Destination Search icon to open a folder navigation window. Next, select either PDF or Excel from the Export As options in the upper right corner of the screen. Tap the **Save** control to finish the export process.



The AAHA report contains the AAHA required fields of Area, Grid, and Level of Sedation in the report. These fields are populated with information that you provide during the acquisition process using the AAHA Study Info form, which you can access tapping the Reports icon on the Acquisition screen. Fill out the fields and tap the **Save** button. The selected information will be included in your **AAHA Radiology Report**.

Add a Server – Storage

In the Sound SmartDR™ Premier software, you can configure multiple storage servers for DICOM Export.

To add a DICOM Storage server, navigate to the **Management** screen, tap the **DICOM** header and then the **Storage** tab. Tap the **Add** control to open the **DICOM Storage** configuration form.

Enter the **Name, IP Address, AE Title and Port Number** of the storage server. There are two checkboxes which, when selected, designate the server as an AIS Server and/or configure the system to auto route studies to the server.

If there is more than one server, you can designate one as the default server by tapping the **Default** control while that server is selected.

Once all of the server's demographics have been entered, tap the **Save** control to create the server.

The application has two verification controls for each server, which you can use to confirm connectivity to the server itself and to the **DICOM Listener**, using a standard ping or a **DICOM C-Echo**, respectively.

Add a User

The administrator is able to add users to the system.

To add a user to the system, first tap the **Users** header to load the **Users** screen. Tap the **Add** control to open the **User Information and Preferences** form.

The active field displays a blue border and all required fields display a red border. Note: The **Username** field displays a blue border since it is active by default when the form opens, but this is a required field, which can be seen by tapping into a different field, revealing the red border.

In the **User Information** subsection, enter the user's information in all of the required fields and in the optional fields as desired. Specify whether the new user will be a vet or a tech by tapping the appropriate control.

In the **Preferences** subsection there is a default user drop down, which will reflect either Vet or Tech information, depending on which type of user has been selected. You will also be able to assign default **Search** and **Display** preferences which apply to those options on the **Main Patient Screen**.

When all of the user information and options have been entered and selected, tap the **Save** button to create the user.

Customizing Overlays

Using the Overlay Editor, Vet and Sound users can customize image overlay to display the DICOM tags that they want to display.

About this task

The Overlay Editor consists of two main parts; the DICOM Tag List and the Layout Grid, both of which are displayed to the right.

The Grid is made up of nine (9) boxes, each of which represent an area of the image display screen.

Procedure

Open the **Management** screen by tapping the Hamburger menu, seen to the right, in the upper right corner of the Main Patient Screen.

1. Select **Overlay Editor**.

The overlay data elements and grid are displayed.

Figure 36: Overlay Editor

TAP TO MOVE ITEMS FROM LIST BELOW TO DESIRED LOCATION:

0010,0010
PATIENT NAME

0010,0020
PATIENT ID

0010,0030
PATIENT DOB

0010,2201
PATIENT SPECIES DESCRIPTION

0010,2292
PATIENT BREED DESCRIPTION

0010,1030
PATIENT WEIGHT

0010,0040
PATIENT SEX

0010,2203
PATIENT SEX NEUTERED

0010,2297
RESPONSIBLE PERSON

0008,0090
REFERRING PHYSICIAN

0008,0102
CODE VALUE

0008,0104
CODE MEANING

0018,5101
VIEW POSITION

0020,000d
STUDY INSTANCE UID

0008,1030
STUDY DESCRIPTION

0008,0020

Upper Left

Upper Middle

Upper Right

Middle Left

Center

Middle Right

Lower Left

Lower Middle

Lower Right

REMOVE ALL

PR

- A. Overlay data elements.
- B. Overlay grid.

2. Select the overlay data and click on the desired area of the grid.

You can select as much or as little data onto the grid as you choose. For example, the following image shows the Patient Breed Description, Patient Orientation, Referring Physician, and Responsible Person data points have been added to the grid.

Figure 37: Overlay with data

<

CONFIGURATION

DICOM

GENERATOR

DIAGNOSTICS

CALIBRATION

ACQ PROFILES

USERS

LOGS

SYSTEM

OVERLAY EDITOR

TAP TO MOVE ITEMS FROM LIST BELOW TO DESIRED LOCATION:

KVP

0018,1153

EXPOSURE IN UAS

0018,8150

EXPOSURE TIME IN US

0018,8151

XRAY TUBE CURRENT IN UA

0020,0062

IMAGE LATERALITY

0028,0002

SAMPLES PER PIXEL

0028,0100

BITS ALLOCATED

0028,0101

BITS STORED

0028,0102

HIGH BIT

0028,1050

WINDOW CENTER

0028,1051

WINDOW WIDTH

0028,1052

RESCALE INTERCEPT

0028,1053

RESCALE SLOPE

0028,2110

LOSSY IMAGE COMPRESSION

0018,1020

SOFTWARE VERSIONS

0010,1000

SECONDARY PATIENT ID

Upper Left

PATIENT NAME

PATIENT BREED DESCRIPTION

Upper Middle

PATIENT ORIENTATION

Upper Right

REFERRING PHYSICIAN

RESPONSIBLE PERSON

Middle Left

Center

Middle Right

Lower Left

Lower Middle

Lower Right

REMOVE ALL

PREVIEW

SAVE

3. Once you have the desired overlay data inserted, click on the Preview button to verify location of the data.

Figure 38: Overlay preview with data, Landscape



Figure 39: Overlay preview with data, Portrait



4. To customize the attributes of the overlay data items, select a data item, and edit the attributes as

desired.

5. In the attribute window, click **Save**.
6. When you are done customizing the overlay and overlay data elements, click **Save** in the Overlay Editor.

The value for the selected tags will be displayed in the Acquire/Review screen when the user selects the **Overlay** icon in that screen's tool bar:



Deleting overlay data elements

Overlay data elements can be deleted from overlays by Vet and Sound users.

Procedure

1. Open the **Management** screen by tapping the Hamburger menu, seen to the right, in the upper right corner of the Main Patient Screen.
2. Click **Overlay Editor**.
3. Click the data element that you want to remove from the overlay grid.

The data attribute window opens.

PATIENT BREED DESCRIPTION ✕

CUSTOM DESCRIPTION:

FONT SIZE:

34 ▼

BLACK BACKGROUND ☐

 **DEFAULT** 

4. In the data attribute window, click **Delete**.



5. In the Overlay Editor, click **Save**.



DICOM Tag Editor

You are able to customize the look of your image overlays, using the **DICOM Tag Editor**. To open the **DICOM Tag Editor**, simply tap a DICOM Tag description in the Overlay Editor's 3x3 display grid. The tag editor has a top and a bottom section.

The top section offers you a few controls which affect the selected tag's display. You can add a custom description, which is shown in the overlays in front of the tag. The opacity of the tag can be modified to allow you to see the image behind the tag. You can also apply a black background to enhance the view of the tag.

The bottom section allows you to customize the tag's font. In the font family section, the user can select from a wide range of fonts. The **Style-Weight** section allows you to determine if you want the font to be regular, bold, italic, etc. In the **Size** section you can determine how large or small you want to make the font size and in the final section you can select from various font colors.

Once you have selected the desired options, simply tap the **Save** control to lock in the changes. To close the **Tag Editor** without saving any changes, tap the **Cancel** button and to remove the tag from grid and return it to the list, tap the **Delete** control.

Chapter

9

Cleaning the X-ray System

Contents

- [Approved Disinfection Agents on page 102](#)
- [Cautions on page 102](#)
- [Removing Dust from fans and heatsinks on page 103](#)

About this task

The x-ray system is designed and suitable for use in typical clinical environments. During use, the system, all peripherals, and the detector should be adequately protected against spilled or splashed fluids and should therefore not require disinfection beyond routine cleaning as part of preventive maintenance of the equipment.

Cleaning performed during preventative maintenance requires only compressed air and a mild soap and water solution. If disinfection is desired or becomes necessary, a disinfectant solution may be used in place of soap and water to clean the x-ray system equipment. In either case, prepare the solution in accordance with instructions provided by the manufacturer of the cleaning agent.



Warning: Do not pour or spray liquid directly onto any component of the x-ray system. Apply the cleaning agent to a clean cloth and gently wipe the equipment to clean.



Warning: Ne pas verser ou vaporiser de liquide directement sur l'un des composants du système x-ray. Appliquer l'agent de nettoyage sur un chiffon propre et essuyez doucement l'équipement à nettoyer.

Procedure

Review the information in the following topics, and perform cleaning and maintenance tasks in accordance with the information provided. Cleaning and preventative maintenance should be performed approximately every six months or as required by the site.

- [Approved Disinfection Agents](#) on page 74
- [Cautions](#) on page 74
- [Removing Dust From Fans and Heatsinks](#) on page 75

Approved Disinfection Agents

Any EPA-registered agent classified as a low- or intermediate-level product for hard, non-porous surfaces and equipment may be used. Prepare and use disinfectants in accordance with manufacturer's instructions.

Cautions

The system must be out-of-service for the duration of cleaning. Cleaning should therefore be performed during scheduled maintenance unless made necessary by contamination. Do not use the x-ray system for patient imaging when cleaning the equipment.

- All system components, including the table and x-ray generator must be powered down prior to cleaning the equipment. Covers are removed and, typically, a cleaning liquid is used. The removal of power is required to protect service personnel and the equipment against injury or damage caused by unintentional or excessive application of liquid to electrical components of the system.
- Allow 15 minutes after cleaning before turning equipment back on. This period allows any residual cleaning fluid to evaporate before power is re-applied to the equipment.
- After turning equipment back on, allow at least 15 minutes for the detector subsystem to initialize before attempting to use the x-ray system for imaging or calibration.

Removing Dust from Fans and Heatsinks

Even in a clinical environment, dust and other contaminants accumulate around fans and heatsinks inside the x-ray system computer. Special attention must be paid to these areas so that the airflow that cools the electronics can pass freely through the computer case and heatsinks. Surfaces inside the computer are typically very dry and can be blown clean with compressed air available at most retail stores that sell electronics.

Observing ESD precautions, use the compressed air to carefully remove all dust, hair, and other impediments from the openings in the front and rear of the computer case, from in and around the CPU heatsink and fan, and from the fan in the bottom of the power supply.

Do not use a cloth, with or without cleaning solution, to clean internal components of the computer. Cloth may be used, dampened with cleaning solution as desired, only to clean external surfaces of the c

Appendix

A

Technical Support

Contents

- [*Locating the System Serial Number*](#) on page 105

Use the following information for contacting customer support.

Office hours Weekdays 8:00 A.M. -
5:00 P.M. Pacific time.
Emergency 24-hour
support is available.

Main Office 800-268-5354

Support 800-819-5538

Shipping address

Sound Technologies, Inc.
3200 Lionshead Ave
Suite 100
Carlsbad, CA 92010
USA

Website

<http://www.soundvet.com/>

Locating the System Serial Number

When you contact technical support, you must provide the serial number of the system for which you are requesting assistance.

Procedure

- Open the **Management** screen, select **Config > Site Information**.
The system serial number is located in the **Model Information** section.
- On the side of the FUSION Equine DR II case, there is a label with the serial number.



Appendix

B

Applicable Regulations:

ACMA Radio Regulations Radiocommunications Equipment (General) Rules 2021 Edition

Description:

Report (technical file) update due to updated EMF standard (stored at CINC, no distribution)

Compliance – applicable standards and other supporting documents

Evidence of compliance with applicable standards may be demonstrated by test reports, endorsed/accredited test reports, certification/competent body statements.

Having had regard to these documents, I am satisfied the above mentioned product complies with the requirements of the relevant ACMA Standards made under the *Radiocommunications Act 1992* and the *Telecommunications Act 1997*.

List the details of the documents the above statement was made, including the standard title, number and, if applicable, number of the test report/endorsed test report or certification/competent body statement

Radio: Radiocommunications (Short Range Devices) Standard 2014
Test Report No. 11355752S-T, 13307242S-A, 12812923S-A-R2, 13307242S-C-R1, 113555752S-P-R4
Test Report No. 11355752S-T
EMC: Radiocommunications (Electromagnetic Compatibility) Standard 2017
Test Report No. 12773836S-B-R2, 12773836S-F-R2
EME: Radiocommunications Equipment (General) Rules 2021
Test Report No. 12812927S-D, 14525282S-G

Sound Technical Support

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