DIRECT DIGITIZER

AeroDR SYSTEM

AeroDR Portable UF Unit

Manufacturer:
KONICA MINOLTA, INC.
1 Sakura-machi, Hino-shi, Tokyo, 191-8511, Japan
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Introduction
Introduction

The Direct Digitizer AeroDR System picks up an X-ray image of human body using the X-ray planar detector, and enters digital output signals into the image processing device. The system then acquires this image as diagnostic image data using the digital image acquisition device, and transfers the image data to the filing system, the printer, the image display unit and others. Especially, the AeroDR Portable UF Unit can be combined with a X-ray device, and used as a portable radiography unit anywhere inside hospital facilities.

Note that the Direct Digitizer AeroDR System can be used for radiography diagnosis, but not for mammography.

The AeroDR Detector, AeroDR Interface Unit, AeroDR Battery Charger, and the DIRECT DIGITIZER CS-7 or Image-Pilot (hereafter referred to as the image processing controller), which controls the receiving, processing, and output of image data of this device, are required for the operation of AeroDR Portable UF Unit. For the operation of the image processing controller, refer to the “Operation Manual” of the image processing controller.

This Operation Manual describes the basic functions of AeroDR Portable UF Unit so that you or the operator of this unit can understand the basic unit functions. When you use the AeroDR Portable UF Unit for the first time, be sure to read this manual and start the actual operation. Also, after you have read this manual, keep this manual close to the AeroDR Portable UF Unit and use it as a guidebook to operate the AeroDR Portable UF Unit in the best conditions.

* If the pages of the operation manual are smudged or illegible, replace it with a new one (Charged).
* Illustrations of X-ray device included in this manual are an example.

---

**CAUTION**

- The AeroDR Portable UF Unit can be used together with the AeroDR SYSTEM and AeroDR SYSTEM 2.

- This manual collectively refers to both the AeroDR SYSTEM and AeroDR SYSTEM 2 as the "AeroDR SYSTEM".

- Before using the AeroDR Portable UF Unit, carefully read the AeroDR System/AeroDR SYSTEM 2 Operation Manual and the image processing controller Operation Manual, and refer to the operation manuals for the AeroDR Access Point and any optional devices.

- In this manual, the AeroDR Interface Unit and the AeroDR Battery Charger are used in the examples. Replace the device names with the devices to be used.
Introduction

Summary of usability specifications (for IEC/EN 60601-1-6, IEC/EN 62366)

1) Medical purposes
   - Provision and reading of disease and injury diagnostic images.
2) Patient groups
   - No patient population exists who uses the device.
   - Patient population for the X-ray images read is not specified.
3) Parts of body or organizations to which the device is mounted or that interact with the device.
   - The AeroDR Portable UF Unit comes in contact with the skin of an operator.
4) Operating principle
   - The AeroDR Portable UF Unit is used together with the X-ray device which takes radiography. The built-in AeroDR Access Point (wireless communication device) communicates with the AeroDR Detector and image processing controller.
   - AeroDR Detector forms the still images according to the X-ray energy passing through human and animal bodies; after digitizing the exposed image, it is transmitted to the image processing controller console via the AeroDR Portable UF Unit by wireless communication.
   - Connect the AeroDR Interface Unit to the AeroDR Detector using the AeroDR I/F Cable in order to recharge the AeroDR Detector and to register the AeroDR Detector used for the X-ray device.
   - The AeroDR Battery Charger is used to recharge the AeroDR Detector and to register the AeroDR Detector used for the X-ray device.
   - The image processing controller processes the image data into the diagnostic image, and then stores and outputs the images along with relevant patient information.
   - The AeroDR Portable UF Unit connects to the AeroDR via the Panel Charge Cable and charges the AeroDR Detector while using the AeroDR Portable UF Detector Charger Kit.
5) Significant physical characteristics
   - Refer to "7.1 Specifications".
6) Significant performance characteristics
   - Refer to "2.1 Overview of the AeroDR Portable UF Unit".
7) User of this device
   - No special training is required to use this device. The intended users of this device are as follows.
     A professional in good health with specialist knowledge/qualifications who has fully understood the content of this document. (Such as a doctor or radiological technologist)

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(9) Konica Minolta, Inc. is not responsible for any claims for malfunction or damage caused by using this device for any purpose other than that specified for this device.
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Term description

The meanings of terms used in this operation manual are as follows:

<table>
<thead>
<tr>
<th>Terms</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AeroDR Detector</td>
<td>Collective term indicating AeroDR 1417HQ, AeroDR 1717HQ, AeroDR 1012HQ, AeroDR 2 1417HQ and AeroDR 2 1417S.</td>
</tr>
<tr>
<td>AeroDR Interface Unit</td>
<td>It supplies the electric power to the AeroDR Detector when the AeroDR I/F Cable is used. Also, it has the hub function.</td>
</tr>
<tr>
<td>AeroDR Battery Charger</td>
<td>It recharges the AeroDR Detector. Also, it has the registration function of AeroDR Detector.</td>
</tr>
<tr>
<td>AeroDR I/F Cable</td>
<td>It connects between the AeroDR Detector and AeroDR Interface Unit. Also, it has the charging and registration functions of the AeroDR Detector.</td>
</tr>
<tr>
<td>Image processing controller</td>
<td>The image processing workstation (CS-7 or ImagePilot) is referred to as the image processing controller.</td>
</tr>
</tbody>
</table>
### Structure of pages

#### Example of page structure

<table>
<thead>
<tr>
<th>Number</th>
<th>Item</th>
<th>Description</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Item heading</td>
<td>Describes the titles of described content.</td>
<td>-</td>
</tr>
<tr>
<td>(2)</td>
<td>Operation procedure</td>
<td>The operating procedure is described in sequential numerical steps.</td>
<td>-</td>
</tr>
<tr>
<td>(3)</td>
<td>Hint</td>
<td>Describes important information.</td>
<td><img src="example.png" alt="HINT" /></td>
</tr>
<tr>
<td>(4)</td>
<td>Reference</td>
<td>Describes reference items. Refer to these as necessary.</td>
<td><img src="example.png" alt="Reference" /></td>
</tr>
<tr>
<td>(5)</td>
<td>Important items</td>
<td>Describes the important items for operation. Be sure to read them.</td>
<td><img src="example.png" alt="IMPORTANT" /></td>
</tr>
</tbody>
</table>
Chapter 1

Safety Precautions & Warnings

This chapter describes precautions and warnings to ensure safe use of the AeroDR Portable UF Unit.
1.1 Symbols relating to safety

1.1.1 Safety alert symbol

This is a "safety alert symbol". This symbol alerts you to matters and/or operation potentially hazardous to yourself and other people. Read these messages and follow the instructions carefully.

1.1.2 Warning notice (signal words)

Signal words indicate the degree of potential hazards in the use of the product. Signal words include the following three types, which are used according to risk of damage caused by danger and the severity of damage.

⚠️ DANGER
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ CAUTION
Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to indicate hazardous situation where only physical damage is likely to occur.

1.1.3 Description of graphic symbols

- Indicates the Power On or Standby position.
- Indicates that it is necessary to read the Operation Manual before use or operation of this device.
- Indicates devices including radio frequency transmitters.
- Indicates possibility of squeezing fingers in the moving part of the monitor fixture.
- Indicates possibility of squeezing fingers in the moving part of the monitor fixture.
- Indicates possibility of squeezing fingers in the moving part of the monitor fixture.
- Indicates possibility of squeezing fingers.
- Indicates that a load should not be placed on this device.
- Indicates that items should not be placed on this device.

This CE mark on this product indicates that this product is in conformity with the applicable requirements set out in the Directive 93/42/EEC (Medical Device Directive) and in Directive 2011/65/EU (RoHS Directive). EC Directive 93/42/EEC does not cover animal use.
1.2 • Warning labels

Various warning labels are attached to the AeroDR Portable UF Unit and mount kits in locations shown below. Do not remove these labels from the AeroDR Portable UF Unit and mount kits. Warning labels are there to make sure that the user recognizes potential hazards when operating the AeroDR Portable UF Unit and mount kits.

* If a warning label is too dirty or damaged to read, contact Konica Minolta technical representatives to have a new warning label attached, and redisplay by parts replacement. (There is a fee for this service.)

1.2.1 AeroDR Portable UF Unit
1.2 Warning labels

### 1.2.2 Mount kits

- **AeroDR Portable CS7 12P Mount Kit Sh1**
- **AeroDR Portable CS7P Mount Kit G1**
- **AeroDR Portable CS7_17P Mount Kit Si1D**
1.3 • Safety precautions

Read all safety precautions thoroughly before using the AeroDR Portable UF Unit. Be sure to observe the safety precautions described in this section.

1.3.1 Precautions before usage

**CAUTION**

Before using the AeroDR Portable UF Unit, read the "Safety Warnings and Cautions" of the AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual and be familiar with the unit handling precautions.

1.3.2 Precautions for usage

**WARNING**

- Take note of the following when using the AeroDR Portable UF Unit:
  - Do not subject the unit to strong shocks or excessive loads by dropping and others.
  - Do not disassemble or modify the unit.
  - Do not attach a third-party device (except for those purchased from Konica Minolta) to this unit.
  - Do not turn the Power switch Off or unplug the power cable from the receptacle when the system is operating.
  - Take care not to drop the unit on the human body.
  - Do not use the unit when it is being charged or when the power cable is connected.

The AeroDR I/F Cable and AeroDR UF Cable are connected to the AeroDR Detector using magnetic force. When moving the AeroDR Detector, do not hold onto the cable, and always hold on the AeroDR Detector. Also, do not grasp and pull the AeroDR Detector forcefully.

- If a smoke, smell, or noise is found on the unit, immediately turn the Power switch Off and unplug the power cable from the receptacle. Then, contact Konica Minolta technical representatives.

- Take note of the following to prevent a fire, electric shock, and electrical leakage:
  - Use the specified cables such as the power cable only.
  - Plug the power cable into the receptacle having the specified ratings.
  - Make sure that the power cable is plugged into receptacle correctly and securely.
  - Use the power supply having the ground (GND) terminal.
  - Unplug the power cable from the receptacle if you do not use the unit for a long time.

- The power cable and recharger unit contained in the accessory pack can be used for the AeroDR Portable UF Unit only. Do not use them for another purpose.
  - Take care not to drop the water and other liquids in the unit.

This symbol means: Do not dispose of this product together with your household waste!

Please refer to the information of your local community or contact our dealers regarding the proper handling of end-of-life electric and electronic equipments.

Recycling of this product will help to conserve natural resources and prevent potential negative consequences for the environment and human health caused by inappropriate waste handling.

This symbol means: Warning! This product contains a lithium battery, please refer to the information of your local community or contact our dealers regarding the proper handling of waste batteries.
### 1.3 Safety precautions

**WARNING**
- Take care not to drop or insert foreign materials such as metals and wires in the unit.
- Do not allow any metal or conductive objects to come into contact with the spring connector of the Panel Charge Cable.
- Do not handle the power plug with wet hands.
- Take care to avoid contaminating the power plug and Panel Charge Cable with dust and others.
- Do not use extension cables.
- Do not use the star-burst connection of power cables.
- Take care not to damage the power cable and Panel Charge Cable. Also, do not use the power cable if it is damaged.
- Do not connect a metal wire or other conductors to the terminal of AeroDR Portable Unit Batteries.
- Do not carry or store the AeroDR Portable Unit Batteries together with metallic items such as necklaces, hairpins, coins and keys.
- If the housing is deformed or cracked, stop using the unit immediately and contact Konica Minolta technical representatives.
- Register the AeroDR Detector using the AeroDR Battery Charger, AeroDR Battery Charger2, AeroDR Interface Unit, or AeroDR Interface Unit2 which supports the image processing controller to be used and the AeroDR Portable UF Unit. If an incorrect device is registered, the AeroDR Detector may be selected from another CS-7.
- If the buzzer of AeroDR Portable UF Unit sounds (and the orange Power LED blinks), immediately stop the radiography and recharge the AeroDR Portable Unit Batteries.
- Do not leave the AeroDR Portable Unit Batteries in a high temperature such as direct sunlight or a vehicle parking under the hot sun. If done, the battery fluid may leak.
- The AeroDR Portable Unit Batteries are consumable parts. If the operation time of AeroDR Portable UF Unit has been shortened, replace the AeroDR Portable Unit Batteries with new ones.
- Take note of the following to prevent an overheating, an explosion, and a fire of AeroDR Portable Unit Batteries:
  - Keep the batteries away from a heat source such as a space heater.
  - Do not give a strong shock to the batteries by dropping them from height or others. Also, do not throw the batteries.
  - Do not point a nail into batteries, do not hammer the batteries, and do not step on the batteries.
  - Recharge the specified rechargeable batteries only.

**CAUTION**
- Take note of the following when using the AeroDR Portable UF Unit:
  - Do not use devices that emit electromagnetic waves such as high-frequency therapy equipment, mobile phones, or pocket pagers, close to this unit.
  - Take note of the reception status for radios and TVs near this unit, since an interference may occur in them when this unit is in use.
  - Use under the specified environmental conditions. Failure to do so may result in degradation of performance or malfunction of this unit.
  - Do not recharge the AeroDR Detector using the AeroDR Portable UF Detector Charger Kit when an exposure is being carried out.
- When using the Panel Charge Cable, observe the following:
  - Remove the cable by holding the connector housing.
  - Do not let the cable get pinched by doors and do not place heavy objects on it.
  - Do not bend or pull the cable excessively.
  - Make sure that the cable is properly connected to the AeroDR Detector without wobbling.
  - Do not connect the connector housing backwards.
- When the AeroDR Portable UF Unit is being charged while stored in the X-ray device, do not move the X-ray device to another place.
- Take note of the following when handling the mount kit of the image processing controller:
  - When moving the base, check to see that no person is around and move the base quietly.
  - When moving the X-ray device, retract and secure the arm of the mount kit of the image processing controller.
  - Take care not to bump your head and body to the arm.
  - Take care as the mount kit of the image processing controller also moves when you move the arm of X-ray device.
  - Do not lean on the device, and do not press it with force.
  - Take care that your fingers and cables are not caught in the arm of the mount kit of the image processing controller.
1.3.3 Precautions regarding electromagnetic waves

**EMC Statement**

The AeroDR Portable UF Unit (called This Device) has been tested and found to comply with the IEC 60601-1-2: 2007 Standard.

These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. The device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in its vicinity. However, there is no guarantee that interference will not occur in a particular installation.

Whether this device does cause harmful interference to other devices can be determined by turning this device off and on. If it causes harmful interference, the user is encouraged to try to correct the interference by 1 or more of the following measures:

- Reorient or relocate the receiving device.
- Increase the separation between the devices.
- Connect this device into a wall outlet on a circuit different from that to which the other devices are connected.
- Contact Konica Minolta technical representatives.

**Supplementary information regarding IEC 60601-1-2: 2007**

1. Take precautions against this device especially regarding EMC. Install and put into service according to the electromagnetic compatibility (EMC) information provided in the manual (Table 1 - Table 4).

2. Do not use mobile phones or pocket pagers in the vicinity of this device. Use of mobile phones or pocket pagers near this device can cause errors in operation due to electromagnetic wave interference, so such devices should be turned off in the vicinity of this device.

3. **Cable list**
   - Power cable (1.8 m/3-Wire/Without shield; included in the recharger unit package)
   - Ethernet cable (max 20 m/With shield)
   - Panel Charge Cable (1.5m; included in the AeroDR Portable UF Detector Charger Kit)

4. The use of accessories, transducers and cables other than those sold by Konica Minolta, Inc. as internal components, may result in increased emissions or decreased electromagnetic immunity of this device.

5. Do not use this device adjacent to or stacked with other devices. If adjacent or stacked use is necessary, confirm normal operation in the configuration in which this device will be used. Normal operation has been checked when mounted on the X-ray device. For applicable X-ray devices, contact Konica Minolta technical representatives.

6. **Specifications regarding RF transmitters frequency:**
   - Frequency: 5150 to 5350 MHz, 5470 to 5850 MHz
   - Modulation: OFDM
   - Maximum effective radiation power: +15 dBm
   - This device may be interfered with by other devices that conform to CISPR emission requirements.
## Table 1

### Guidelines and manufacturer’s declaration - electromagnetic emissions

This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emissions test</th>
<th>Compliance</th>
<th>Electromagnetic environment - guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions</td>
<td>Group 1</td>
<td>The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>RF emissions</td>
<td>Class B</td>
<td>This device is suitable for use in all establishments including the following: Domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings for domestic purposes.</td>
</tr>
<tr>
<td>Harmonic emissions</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations/</td>
<td>Complies</td>
<td></td>
</tr>
<tr>
<td>flicker emissions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

### Guidelines and manufacturer’s declaration - electromagnetic immunity

This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>IEC 60601 test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment - guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>± 6 kV contact</td>
<td>± 6 kV contact</td>
<td>Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%. Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-2</td>
<td>± 8 kV air</td>
<td>± 8 kV air</td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/</td>
<td>± 2 kV for power</td>
<td>± 2 kV for power</td>
<td></td>
</tr>
<tr>
<td>burst</td>
<td>supply lines</td>
<td>supply lines</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-4-4</td>
<td>± 1 kV for input/output lines</td>
<td>± 1 kV for input/output lines</td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>± 1 kV differential mode</td>
<td>± 1 kV differential mode</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-5</td>
<td>± 2 kV common mode</td>
<td>± 2 kV common mode</td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions and</td>
<td>&lt;5% (U_t) (&lt;95% dip in (U_t)) for 0.5 cycle</td>
<td>&lt;5% (U_t) (&lt;95% dip in (U_t)) for 0.5 cycle</td>
<td>Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterrupted power supply or a battery.</td>
</tr>
<tr>
<td>voltage variations on power supply</td>
<td>40% (U_t) (60% dip in (U_t)) for 5 cycles</td>
<td>40% (U_t) (60% dip in (U_t)) for 5 cycles</td>
<td></td>
</tr>
<tr>
<td>input lines</td>
<td>70% (U_t) (30% dip in (U_t)) for 25 cycles</td>
<td>70% (U_t) (30% dip in (U_t)) for 25 cycles</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-4-11</td>
<td>&lt;5% (U_t) (&lt;95% dip in (U_t)) for 5 sec</td>
<td>&lt;5% (U_t) (&lt;95% dip in (U_t)) for 5 sec</td>
<td></td>
</tr>
<tr>
<td>Power frequency</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>(50/60 Hz) magnetic field</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEC 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[NOTE] \(U_t\) is the AC mains voltage prior to application of the test level.
## 1.3 Safety precautions

### Table 3

**Guidelines and manufacturer's declaration - electromagnetic immunity**

This device is intended for use in the electromagnetic environment specified below. The customer or the user of this device should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>IEC 60601 test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment - guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6</td>
<td>3 Vrms 150 kHz</td>
<td>Portable and mobile RF communications equipment should be used no closer to any part of this device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</td>
</tr>
<tr>
<td></td>
<td>to 80 MHz</td>
<td>[3] V</td>
<td>Recommended separation distance $d=\frac{1.2}{\sqrt{P}}$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and $d$ is the recommended separation distance in meters (m).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Interference may occur in the vicinity of equipment marked with the following symbol:</td>
</tr>
<tr>
<td>Radiated RF</td>
<td>IEC 61000-4-3</td>
<td>3 V/m 80 MHz</td>
<td>$d=\frac{2.3}{\sqrt{P}}$ 80 MHz to 2.5 GHz</td>
</tr>
<tr>
<td></td>
<td>to 2.5 GHz</td>
<td>[3] V/m</td>
<td></td>
</tr>
</tbody>
</table>

[NOTE] At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

[NOTE] These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which this device is used exceeds the applicable RF compliance level above, this device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating this device.

b Over the frequency range 150 kHz to 80 MHz, field strength should be less than [3] V/m.
Table 4

<table>
<thead>
<tr>
<th>Rated maximum output power of the transmitter W</th>
<th>Separation distance according to frequency of transmitter m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 kHz to 80 MHz d=[1.2] \sqrt{P}</td>
</tr>
<tr>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>0.1</td>
<td>0.38</td>
</tr>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>100</td>
<td>12</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

[NOTE] At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

[NOTE] These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
1.3 Safety precautions

1.3.4 Precautions regarding wireless communication

**CAUTION**
- The AeroDR Portable UF Unit has the built-in wireless LAN communication functions. You must follow the applicable laws and regulations of your country when using the AeroDR Portable UF Unit.
- Inappropriate use may interfere with the wireless communication. Also, if you modify the AeroDR Portable UF Unit, the approval by local radio law and the warranty become invalid.
- Do not use this unit in an aircraft as it may influence on the aviation system.
- As the AeroDR Portable UF Unit may affect the surrounding, turn the power supply of this unit Off when moving the X-ray device.

1.3.5 Precautions for installing, moving, and storing

**CAUTION**
- Contact Konica Minolta or dealers specified by Konica Minolta to install or move the AeroDR Portable UF Unit.
- Take note of the following when installing or storing the AeroDR Portable UF Unit:
  - Do not install or store in a location where it may be adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, salt-air, or air containing sulfur.
  - Do not install or store in a location where it is not stable, ventilation is insufficient, the difference in light-dark is great, electromagnetic waves are generated, or where is subject to vibration or shock.
  - Do not install or store in a location where chemical agents are used or stored.
  - Do not install this device facing up or upside down.

1.3.6 Precautions regarding maintenance

**WARNING**
- Perform the maintenance and inspection periodically. In addition to the user periodical maintenance that needs to be performed, periodical maintenance by a service engineer is also required.
- If there are stains such as body fluids, clean and disinfect.

**CAUTION**
- Based on the warranty, the exchange of parts which have past (one year) for a term of a guarantee becomes handled as payment.
- Before cleaning or inspecting the AeroDR Portable UF Unit, always turn the Power switch Off and unplug the power cable from the receptacle.
- After you have finished the cleaning or inspection of this unit, plug the power cable into receptacle securely.
- Take note of the following when disinfecting the AeroDR Portable UF Unit:
  - Use ethanol for disinfection, isopropanol for disinfection, or commercial chlorine bleach, or 0.5% hypochlorite (10-fold dilution of household bleach) when disinfecting. However, bleach and hypochlorite are corrosive, so wash the bleach off well to avoid corrosion.
  - Dampen a lint-free, soft cloth with disinfecting solution, and use after wringing it thoroughly. Do not apply disinfecting solution onto cable connectors and LEDs when cleaning.
  - Disinfecting solution is a chemical agent, so follow the precautions of the manufacturer.
- Periodically check the mounting screws of the mount kit of the image processing controller for looseness. Retighten the screws if loose. Also, if you are hard to hold the PC in the intended position due to the malfunction of the mount kit of the image processing controller, contact Konica Minolta technical representatives.
- When installing the CS-7 on the mount kit of the image processing controller, secure the CS-7 using a security wire. Also, make sure that the CS-7 has been secured to the mount kit of the image processing controller.
- If you do not use the AeroDR Portable UF Unit for a long time, remove the AeroDR Portable Unit Batteries from the unit.
1.3.7 Precautions on service life

<table>
<thead>
<tr>
<th>Name</th>
<th>Service life</th>
</tr>
</thead>
<tbody>
<tr>
<td>AeroDR Portable UF Unit</td>
<td>6 years</td>
</tr>
</tbody>
</table>

- The above service life is valid only if the product has been properly operated while following the precautions for use and performing the specified maintenance. (By self certification <our data>)
- The service life may differ depending on usage conditions and environment.
- Some component parts of this device are commercially available parts that have a short cycle of model changes; therefore, it might not be possible to supply service parts even within the service life. In addition, related component parts may need to be replaced to maintain compatibility at the time of model change.
Chapter 2

Product Overview

This chapter describes the overview of the AeroDR Portable UF Unit.
2.1 • Overview of the AeroDR Portable UF Unit

This section describes the functions of AeroDR Portable UF Unit and its system configuration.

2.1.1 Functions

The AeroDR Portable UF Unit allows X-ray radiography in any facility by combination of AeroDR Detector, image processing controller configuration, and X-ray device. Also, this unit receives an image data sent from the AeroDR Detector by using the built-in AeroDR Access Point and transfers it to the image processing controller. Also, this unit can be stored in the X-ray device and easily be transported.

By using the AeroDR Portable UF Detector Charger Kit, you can recharge the AeroDR Detector while moving the Unit.

2.1.2 System configuration

The following shows the system configuration, cabling and operation examples.

● Basic configuration example

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>AeroDR Portable UF Unit</td>
<td>Receives an image data from the AeroDR Detector and transfers it to the image processing controller.</td>
</tr>
<tr>
<td>(2)</td>
<td>AeroDR Portable Unit Battery</td>
<td>This is the battery for the AeroDR Portable UF Unit. To use the AeroDR Portable UF Detector Charger Kit, two AeroDR Portable Unit Batteries are required.</td>
</tr>
<tr>
<td>(3)</td>
<td>Mount kit *1</td>
<td>• This is the mounting shelf to store AeroDR Detector, AeroDR Portable UF Unit and others in the storage of X-ray device. • This kit mounts the image processing controller or 17-inch monitor on the X-ray device.</td>
</tr>
<tr>
<td>(4)</td>
<td>AeroDR Portable UF Detector Charger Kit*1</td>
<td>Charges the AeroDR Detector while moving the Unit.</td>
</tr>
</tbody>
</table>

*1 Optional product.

Reference

- For functions of the AeroDR Detector, AeroDR Interface Unit and others, refer to the "AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual".
2.1 Overview of the AeroDR Portable UF Unit

- System cabling example of AeroDR Portable UF Unit

- Operation example of AeroDR Portable UF Unit

---

**HINT**

- The wired connection may be used in the AeroDR Portable UF Unit and image processing controller by preparing X-ray device side hub.
- When the mount kit of the image processing controller is used, attach the image processing controller to the mount kit of the image processing controller.
- If the AeroDR Portable UF Detector Charger Kit is not used, do not use the AeroDR Portable Unit Battery on the LAN port.
2.2 Component names and functions

2.2.1 AeroDR Portable UF Unit

The component names and functions of the AeroDR Portable UF Unit are as follows.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Battery insertion port</td>
<td>AeroDR Portable Unit Battery loading port.</td>
</tr>
<tr>
<td>(2)</td>
<td>Battery stopper</td>
<td>Locks and prevents the AeroDR Portable Unit Battery from falling.</td>
</tr>
<tr>
<td>(3)</td>
<td>Holder grip</td>
<td>This grip is used to carry the AeroDR Portable UF Unit.</td>
</tr>
<tr>
<td>(4)</td>
<td>LAN cable cover</td>
<td>This is the Ethernet cable connector cover.</td>
</tr>
<tr>
<td>(5)</td>
<td>LAN port</td>
<td>The port for connecting the image processing controller through a wired connection.</td>
</tr>
<tr>
<td>(6)</td>
<td>Power switch</td>
<td>Turns the power supply of AeroDR Portable UF Unit on and off.</td>
</tr>
<tr>
<td>(7)</td>
<td>Power LED light</td>
<td>Displays the Power On/Off status and the battery alarm of AeroDR Portable Unit Batteries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For the display patterns and status of the LEDs, refer to &quot;Chapter 4 Status (LED) Display&quot;.</td>
</tr>
<tr>
<td>(8)</td>
<td>System front view</td>
<td>Protects the internal parts.</td>
</tr>
<tr>
<td>(9)</td>
<td>System rear view</td>
<td>Protects the internal parts.</td>
</tr>
<tr>
<td>(10)</td>
<td>Power cable cover</td>
<td>This is the cover of the power cable connector.</td>
</tr>
<tr>
<td>(11)</td>
<td>Power cable socket</td>
<td>This is the socket of the power cable connector.</td>
</tr>
<tr>
<td>(12)</td>
<td>Power cable connector</td>
<td>Plugs into the power cable socket of AeroDR Portable UF Unit.</td>
</tr>
<tr>
<td>(13)</td>
<td>Recharger unit</td>
<td>Used to recharge the AeroDR Portable Unit Batteries.</td>
</tr>
<tr>
<td>(14)</td>
<td>Power cable</td>
<td></td>
</tr>
</tbody>
</table>
2.2 Component names and functions

### 2.2.2 AeroDR Portable Unit Battery

The component names and functions of the AeroDR Portable Unit Battery are as follows.

![Battery connector](image)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Battery connector</td>
<td>The connector port to AeroDR Portable UF Unit</td>
</tr>
<tr>
<td>(2)</td>
<td>Charging LED light</td>
<td>Indicates the AeroDR Portable Unit Battery recharging status.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Reference" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For the display patterns and status of the LEDs, see &quot;Chapter 4 Status (LED) Display&quot;.</td>
</tr>
<tr>
<td>(3)</td>
<td>Battery level LED indicator</td>
<td>Indicates the voltage level of AeroDR Portable Unit Batteries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Reference" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For the display patterns and status of the LEDs, see &quot;Chapter 4 Status (LED) Display&quot;.</td>
</tr>
</tbody>
</table>

**HINT**

- To use the AeroDR Portable UF Detector Charger Kit, two AeroDR Portable Unit Batteries are required.

---

![Diagram of battery components](image)
### 2.2.3 AeroDR Portable UF Detector Charger Kit

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Battery stopper</td>
<td>Locks and prevents the AeroDR Portable Unit Battery from falling.</td>
</tr>
<tr>
<td>(2)</td>
<td>Battery insertion port</td>
<td>AeroDR Portable Unit Battery loading port.</td>
</tr>
<tr>
<td>(3)</td>
<td>Panel Charge port</td>
<td>The connector port to the Panel Charge Cable.</td>
</tr>
<tr>
<td>(4)</td>
<td>Panel Charge Cable</td>
<td>Use to recharge the AeroDR Detector.</td>
</tr>
<tr>
<td>(5)</td>
<td>Power cable socket</td>
<td>This is the socket of the power cable connector.</td>
</tr>
<tr>
<td>(6)</td>
<td>Power cable cover</td>
<td>This is the cover of the power cable connector.</td>
</tr>
<tr>
<td>(7)</td>
<td>Power cable connector</td>
<td>Plugs into the power cable socket of AeroDR Portable UF Unit.</td>
</tr>
<tr>
<td>(8)</td>
<td>Recharger unit</td>
<td></td>
</tr>
<tr>
<td>(9)</td>
<td>Power cable</td>
<td>Used to recharge the AeroDR Portable Unit Batteries.</td>
</tr>
</tbody>
</table>
Chapter 3

General Operations

This chapter describes general operation methods of the AeroDR Portable UF Unit.
3.1 • Startup and shutdown

Start up and shut down each system unit by the following operations.

Reference

- Refer to the “Operation Manual” of the image processing controller regarding on/off for the image processing controller.

3.1.1 Startup of each system device

Start each system unit in the following procedure.

1 Start the AeroDR Portable UF Unit.
   - Confirm that the AeroDR Portable Unit Battery is mounted.
   - Turn on the power switch of the AeroDR Portable UF Unit, and confirm that the Power LED (green) lights.

   IMPORTANT

   - If you restart the image processing controller, also restart the AeroDR Portable UF Unit.

2 Start the AeroDR Interface Unit or AeroDR Battery Charger.
   - Turn the power switch of the AeroDR Interface Unit on, and confirm that the LED (green) lights.

3 Start the image processing controller.
   - Start the image processing controller by turning the power switch of the image processing controller on.

4 Start the AeroDR Detector.
   - If mounted on the AeroDR Battery Charger, remove the AeroDR Detector.
   - Next, press the power switch of the AeroDR Detector for 2 seconds and turn it on, and confirm that the LED (green) is slowly flashing or lit.

5 Make sure that the Power switch of X-ray device is On.

6 Confirm that the AeroDR Detector is ready for use on the image processing controller.
3.1.2 Shutdown of each system device

Shut down each system unit in the following procedure.

1 Shut down the AeroDR Detector.
   • Press the power switch of the AeroDR Detector for 5 seconds to turn it off, and confirm that the LED (green) is turned off.

2 Shut down the image processing controller.

3 Shut down the AeroDR Portable UF Unit.
   • Turn off the power switch of the AeroDR Portable UF Unit, and confirm that the Power LED (green/orange) is turned off.

4 Shut down the AeroDR Interface Unit or AeroDR Battery Charger.
   • Turn the power switch of the AeroDR Interface Unit off, and confirm that the LED (green) is turned off.
   • When the power cable is removed from the wall outlet, the power of the AeroDR Battery Charger is turned off and the LED (green) is turned off.

5 Make sure that the Power switch of X-ray device is Off.
3.2 • Operations on the AeroDR Portable UF Unit

3.2.1 Preparation to take radiography

Prepare the AeroDR Portable UF Unit to take radiography according to the following procedure.

1 Register the AeroDR Detector on the image processing controller to be used for the X-ray device.

**IMPORTANT**
- Before performing exposure, confirm that the AeroDR Detector can use Aero Sync mode.

**Reference**
- For the operation of the AeroDR Detector, see “AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual”.

2 Register X-ray examination information on the image processing controller to be used for the X-ray device.

**Reference**
- Regarding the operation of the image processing controller, refer to the "Operation Manual" of the image processing controller.

3 While the AeroDR Portable UF Unit and image processing controller are being recharged, disconnect the power cable from the receptacle and confirm that the AeroDR Portable UF Unit stops.
   - Disconnect the power cables of the AeroDR Portable UF Unit and image processing controller from the receptacles.
   - Disconnect the power cable connector from the power cable socket of the AeroDR Portable UF Unit.
   - Confirm that the Power LED (green/orange) of the AeroDR Portable UF Unit is OFF.

**HINT**
- While the AeroDR Portable UF Unit is being recharged inside the X-ray device, disconnect the power cable from the receptacle and store it in the storage compartment of the X-ray device.
- The AeroDR Detector and the image processing controller may be left turned ON.
3.2 Operations on the AeroDR Portable UF Unit

4. Remove the Ethernet cable that is connected to the AeroDR Detector registration side hub from the image processing controller.

   ![Image of Ethernet cable connection]

   **HINT**
   - When the AeroDR Portable UF Unit and image processing controller use a wired connection, disconnect the Ethernet cable that is connected to the AeroDR Detector registration side hub from the X-ray device side hub.

5. Set the AeroDR Detector, AeroDR Portable UF Unit and image processing controller on the X-ray device, and move them to the exposure area.

   ![Diagram of AeroDR Detector, UF Unit, and controller]

   **HINT**
   - When the mount kit of the image processing controller is used, attach the image processing controller to the mount kit of the image processing controller.

3.2.2 Exposure

Carry out radiography using the AeroDR Portable UF Unit according to the following procedure.

**IMPORTANT**
- Do not recharge the AeroDR Portable Unit Battery during exposure.

1. When the car arrives at the destination, take the AeroDR Detector and image processing controller out.

2. Turn the power switch of each equipment ON.

   **IMPORTANT**
   - After the AeroDR Portable UF Unit is turned ON, it may require approximately 1 minute for wireless connection.

   **Reference**
   - For the startup of each system, refer to "3.1 Startup and shutdown".

3. Check that each unit is ready to operate, and prepare to take radiography.

4. Press the exposure switch of the X-ray device and perform exposure.
   - When the exposure is completed, images are stored in the AeroDR Detector, and sequentially converted to digital data and sent to the image processing controller.
3.2 Operations on the AeroDR Portable UF Unit

5 Check that the exposed image is displayed on the image processing controller.

**IMPORTANT**
- The AeroDR detector is precision equipment, and therefore impact or vibration during radiography or image transfer may affect the image quality. Be careful when handling the AeroDR detector during and just after radiography.

**HINT**
- If the AeroDR Detector remains unused for a long time (time can be set), it transitions to the sleep mode.
- When the image processing controller is ready to expose, it recovers from the sleep mode.

**Reference**
- Regarding the operation of image processing controller, refer to the "Operation Manual" of the image processing controller.

6 When moving the AeroDR Portable UF Unit, turn the unit OFF because its wireless communication may affect the surrounding.
- Use the power switch to turn OFF the AeroDR Portable UF Unit and confirm that the Power LED (green/orange) is turned OFF.

3.2.3 Operations after radiography

After you finish taking radiography, follow the procedures below.

1 After you finish taking radiography, store the AeroDR Detector and image processing controller in the X-ray device.

2 Shut down the AeroDR Portable UF Unit.
   - Turn the AeroDR Portable UF Unit OFF and confirm that the Power LED (green/orange) is turned OFF.

**HINT**
- The AeroDR Detector and the image processing controller may be left turned ON.

**Reference**
- For the shutdown of the AeroDR Portable UF Unit, refer to "3.1 Startup and shutdown".

3 Move the X-ray device.

4 Connect the Ethernet cable that is connected to the AeroDR Detector registration side hub to the image processing controller.

**HINT**
- When a wired connection is used between the AeroDR Portable UF Unit and image processing controller, connect the Ethernet cable that is connected to the AeroDR Detector registration side hub to the X-ray device side hub.

5 Output taken images from the image processing controller used for the X-ray device.

**Reference**
- Regarding the operation of image processing controller, refer to the "Operation Manual" of the image processing controller.
6 Plug the power cables in a receptacle to recharge the AeroDR Portable UF Unit and the image processing controller.

7 Recharge the AeroDR Detector and the X-ray device.

Reference

- For the operation of the AeroDR Detector, see "AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual".

3.2.4 Mounting or dismounting the AeroDR Portable Unit Battery

- Mounting

1 Slide the battery stopper using the corner of the AeroDR Portable Unit Battery.

2 Carefully but fully insert the AeroDR Portable Unit Battery into the battery slot.
3.2 Operations on the AeroDR Portable UF Unit

3 Make sure that the AeroDR Portable Unit Battery is locked and secured by the battery stopper.

• Dismounting

1 Slide the battery stopper to release it.

2 Pull out the AeroDR Portable Unit Battery from the battery slot.

HINT

• The AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side is inserted or removed in the same way.
3.2 Operations on the AeroDR Portable UF Unit

3.2.5 Operating the mount kit

**IMPORTANT**
- Do not forcefully spin the mount kit of the image processing controller.
- Be careful not to pinch your fingers during operation.

- **When the AeroDR Portable CS7-17P Mount Kit Sh1D is used**
  - Grasp the handle, release the lock, and then pull out the mount kit.
  - Close the mount kit by firmly pressing the handle area.

- **When the AeroDR Portable CS7 12P Mount Kit Sh1 is used**
  - If the image processing controller is locked to the column of an X-ray device, pull the handle to release the lock before rotating the image processing controller.
3.2.6 Precautions of operations

**IMPORTANT**
- Do not rotate the mount kit of the image processing controller swiftly.

**When transporting the X-ray device**

**IMPORTANT**
- Turn off the AeroDR Portable UF Unit when transporting the X-ray device because it may affect the surroundings with radio transmissions.

- When the AeroDR Portable CS7P Mount Kit G1 is used
  - When transporting the X-ray device, fix the shaft to the hook.

- When the AeroDR Portable CS7_17P Mount Kit Si1D is used
  - When transporting the X-ray device, close the mount kit and fasten it while it is locked into place.
  - When transporting the X-ray device, close the LCD of the image processing controller to the PC stopper position.

- When the AeroDR Portable CS7P Mount Kit Sh1/Sh2 is used
  - When transporting the X-ray device, rotate and set the image processing controller to the right of the column of the X-ray device.
When taking radiography

- **When the AeroDR Portable CS7_17P Mount Kit Si1D is used**
  - When taking radiography, pull the mount kit all the way toward you, and fasten it while it is locked into place.
  - Use the LCD of the image processing controller by opening it so that the rear touches the 2 cushions.

Protecting the image processing controller against theft

- Protect the image processing controller against theft using a commercial security lock.

- **When the AeroDR Portable CS7P Mount Kit G1 is used**

- **When the AeroDR Portable CS7P Mount Kit Sh1/Sh2 is used**

- **When the AeroDR Portable CS7_17P Mount Kit Si1D is used**
3.2 Operations on the AeroDR Portable UF Unit

- When the AeroDR Portable CS7 12P Mount Kit Sh1 is used

![Diagram of mount kit with labels](image)

**Consumables**

- Refer to each device’s manual for information about periodic replacement parts and consumables for the image processing controller, etc.
- In particular, continued use of the battery may result in degradation and wear, and it may no longer exhibit proper functioning capabilities. For extended, safe use, it is necessary to replace parts which have become worn or degraded.
3.3 • Recharging of the AeroDR Portable Unit Battery

3.3.1 Recharging

Recharge the AeroDR Portable UF Unit in the following procedure.

1 Turn OFF the AeroDR Portable UF Unit and confirm that the Power LED (green/orange) is out.

2 Plug the power cable connector into the power cable socket of the AeroDR Portable UF Unit.

3 Plug the power cable into the receptacle.
   • When battery recharging starts, the CHARGE LED (blue) on the top of the AeroDR Portable Unit Battery blinks.

4 When the battery is fully recharged, the CHARGE LED (blue) lights up solidly.

5 Disconnect the power cable from the receptacle.
3.3 Recharging of the AeroDR Portable Unit Battery

### 3.3.2 When recharging the battery with the AeroDR Portable UF Unit inserted in the X-ray device

To recharge the battery with the AeroDR Portable UF Unit inserted in the X-ray device, follow the steps below.

1. **Turn OFF the AeroDR Portable UF Unit and confirm that the Power LED (green/orange) is turned OFF.**

2. **Take out the power cable stored in the X-ray device.**

3. **Plug the power cable into a receptacle.**
   - When battery recharging starts, the CHARGE LED (blue) on the top of the AeroDR Portable Unit Battery blinks.

4. **When the battery is fully recharged, the CHARGE LED (blue) lights up solidly.**

5. **Disconnect the power cable from the receptacle and store it in the X-ray device.**
3.3.3 Charging time guide

It takes approximately 5 hours to fully charge up AeroDR Portable Unit Batteries if they have been fully discharged.

**HINT**

- The charging time of AeroDR Portable Unit Batteries vary depending on the battery application environment and frequency of usage.

3.3.4 Charging indication

The battery level LED indicator (green) changes according to the current level of the AeroDR Portable Unit Battery.

<table>
<thead>
<tr>
<th>Battery level</th>
<th>LED display</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% to 100% battery level</td>
<td>Two LEDs light up.</td>
</tr>
<tr>
<td>10% to 30% battery level</td>
<td>One LED lights up.</td>
</tr>
<tr>
<td>0% to 10% battery level</td>
<td>LED goes out.</td>
</tr>
</tbody>
</table>

**IMPORTANT**

- When the AeroDR Portable Unit Batteries drop below the 10% voltage level, the buzzer sounds. At the same time, the orange Power LED starts to blink on the AeroDR Portable UF Unit.
- When you remove the AeroDR Portable Unit Batteries, the green battery level LED goes out.
By using the AeroDR Portable UF Detector Charger Kit, you can recharge the AeroDR Detector while moving the Unit.

**IMPORTANT**
- Do not recharge the AeroDR Detector using the AeroDR Portable UF Detector Charger Kit when an exposure is being carried out.
- The battery level LED of the AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side remains lit even when the AeroDR Portable UF Unit power switch is turned off.
- Even when the battery level of the AeroDR Portable Unit Batteries on the AeroDR Portable UF Detector Charger Kit side drops below the 10% voltage level, the buzzer will not activate. In addition, the orange Power LED will not start to blink.

**3.4.1 Preparation**

Prepare the AeroDR Portable UF Detector Charger Kit according to the following procedure.

1. **If the AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side is being recharged, finish recharging it.**
   - Disconnect the power cable of the AeroDR Portable Unit Battery from the receptacle.
   - Disconnect the power cable connector from the power cable socket of the AeroDR Portable UF Unit.

2. **If the Panel Charge Cable has been removed, connect it to the AeroDR Portable UF Unit.**
   - Remove the LAN cable cover.
   - Connect the Panel Charge Cable to the Panel Charge port.
3.4 Operations on the AeroDR Portable UF Detector Charger Kit

3.4.2 Recharging of the AeroDR Detector

While the Unit is being moved, the procedure to recharge the AeroDR Detector using the AeroDR Portable UF Detector Charger Kit is as follows.

**IMPORTANT**

- Do not recharge the AeroDR Detector using the AeroDR Portable UF Detector Charger Kit when an exposure is being carried out.
- Do not recharge the AeroDR Detector while recharging the AeroDR Portable Unit Battery.

**HINT**

- The effect of charging is the same as that achieved when using the AeroDR I/F Cable.

1. Securely connect the Panel Charge Cable to the wired connector of the AeroDR Detector. Once it is connected, the AeroDR Detector will be charged.

**IMPORTANT**

- To check the charge condition of the AeroDR Detector, use the image processing controller.
- Note that the connection direction is the reverse of the connection direction used with the AeroDR I/F Cable.

3.4.3 Operations after recharging the AeroDR Detector

After recharging the AeroDR Detector, follow the procedures below.

**IMPORTANT**

- Do not recharge the AeroDR Detector while recharging the AeroDR Portable Unit Battery.

1. **Recharge the AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side.**
   - Plug the power cable connector into the power cable socket of the AeroDR Portable UF Unit.
   - Plug the power cable of the AeroDR Portable Unit Battery into the receptacle.
3.4.4 Storing Panel Charge Cable

When fixing the Panel Charge Cable to the X-ray device using the Rubber Magnet and Connector Plate, store the Panel Charge Cable by following the procedure below.

1 Affix the Connector Plate of the Panel Charge Cable to the X-ray device with the Rubber Magnet.

2 When a commercially available hook is affixed to the X-ray device, store the Panel Charge Cable as shown in the figure below.

---

**IMPORTANT**

• When moving the X-ray device, store the Panel Charge Cable so that it does not drag.

**HINT**

• The illustration merely shows an example.
Chapter 4

Status (LED) Display

This chapter describes the LED display patterns and the status of the respective devices.
Status of the respective devices can be confirmed with LEDs. Check the status of the respective devices, referring to the "LED display pattern".

**LED display pattern**

<table>
<thead>
<tr>
<th>Notation</th>
<th>Display pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
</tr>
<tr>
<td></td>
<td>On</td>
</tr>
</tbody>
</table>

### 4.1.1 AeroDR Portable UF Unit

Power LED light

**Power LED (green/orange)**

<table>
<thead>
<tr>
<th>Display pattern</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shutdown condition</td>
</tr>
<tr>
<td></td>
<td>The level of AeroDR Portable Unit Batteries is lower than 10% (and the orange LED blinks).</td>
</tr>
<tr>
<td></td>
<td>The system is operating or the level of AeroDR Portable Unit Batteries is 10% to 100% (and the green LED lights).</td>
</tr>
</tbody>
</table>

### 4.1.2 AeroDR Portable Unit Battery

**CHARGE : CHARGE LED (blue)**

<table>
<thead>
<tr>
<th>Display pattern</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shutdown condition</td>
</tr>
<tr>
<td></td>
<td>The battery is being charged.</td>
</tr>
<tr>
<td></td>
<td>The battery has been charged.</td>
</tr>
</tbody>
</table>

**Battery level LED (green)**

<table>
<thead>
<tr>
<th>Display pattern</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The battery level is lower than 10 %, or no battery charge remaining.</td>
</tr>
<tr>
<td></td>
<td>When two LEDs light up, the battery is 30% to 100% charged.</td>
</tr>
<tr>
<td></td>
<td>When one LED lights up, the battery is 10% to 30% charged.</td>
</tr>
</tbody>
</table>
Chapter 5

Troubleshooting

This chapter describes problems that may occur and error codes that may be displayed, and how to resolve each of them.
5.1 Various problems and countermeasures

If the following problems occur in the AeroDR Portable UF Unit, consult the respective references for countermeasures.

**IMPORTANT**
- After performing countermeasures, if the problem does not go away, contact Konica Minolta technical representatives.

**HINT**
- When an error message has been displayed in the image processing controller, check the error description and countermeasures listed in the "Operation Manual" of the image processing controller.

### 5.1.1 AeroDR Portable UF Unit

<table>
<thead>
<tr>
<th>Status</th>
<th>Error description</th>
<th>Corrective actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power LED (green/orange) does not light.</td>
<td>AeroDR Portable Unit Batteries are not mounted.</td>
<td>Mount the fully charged AeroDR Portable Unit Batteries correctly.</td>
</tr>
<tr>
<td></td>
<td>AeroDR Portable Unit Batteries are not mounted correctly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AeroDR Portable Unit Batteries are fully discharged.</td>
<td></td>
</tr>
<tr>
<td>Power LED (orange) is blinking. The buzzer continues to sound.</td>
<td>Battery voltage has dropped below 10% level.</td>
<td>Recharge the AeroDR Portable Unit Batteries.</td>
</tr>
<tr>
<td>Communication is not established between the image processing controller and AeroDR Detector.</td>
<td>No Ethernet cable is connected when the image processing controller is used in wired connection.</td>
<td>Make sure that the Ethernet cable is connected correctly.</td>
</tr>
<tr>
<td></td>
<td>The image processing controller wire/wireless switch is not turned On.</td>
<td>Turn the image processing controller wire/wireless switch On.</td>
</tr>
<tr>
<td></td>
<td>The power switch of AeroDR Portable UF Unit is not turned On.</td>
<td>Make sure that the power switch of AeroDR Portable UF Unit is On.</td>
</tr>
<tr>
<td></td>
<td>An error occurred in the AeroDR Detector.</td>
<td>Restart the AeroDR Detector by referring to the &quot;AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual&quot;.</td>
</tr>
<tr>
<td></td>
<td>Battery level of AeroDR Detector is insufficient.</td>
<td>Recharge the battery of AeroDR Detector by referring to the &quot;AeroDR SYSTEM/AeroDR SYSTEM 2 Operation Manual&quot;.</td>
</tr>
<tr>
<td>Battery recharging does not start.</td>
<td>AeroDR Portable Unit Batteries are not mounted correctly.</td>
<td>Mount the AeroDR Portable Unit Batteries correctly.</td>
</tr>
<tr>
<td>Battery drops quickly even if AeroDR Portable Unit Batteries are recharged.</td>
<td>AeroDR Portable Unit Battery life is exhausted.</td>
<td>Replace the AeroDR Portable Unit Batteries with new ones.</td>
</tr>
<tr>
<td>Image display of the image processing controller is slow.</td>
<td>Wireless communication environment is poor if the image processing controller is used in wireless connection.</td>
<td>Improve the wireless communication environment by slightly enlarging the opening of X-ray device toward you or others during radiography. Or use the image processing controller in the wire connection.</td>
</tr>
</tbody>
</table>
## 5.1 Various problems and countermeasures

### 5.1.2 AeroDR Portable UF Detector Charger Kit

<table>
<thead>
<tr>
<th>Status</th>
<th>Error description</th>
<th>Corrective actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Panel Charge Cable cannot be connected to the AeroDR Detector.</td>
<td>Part of the wired connection connector of the AeroDR Detector is deformed.</td>
<td>Contact Konica Minolta technical representatives.</td>
</tr>
<tr>
<td></td>
<td>The spring connector of the Panel Charge Cable is deformed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foreign material is in the wired connection connector of the AeroDR Detector.</td>
<td>Refer to &quot;6.1.2 Cleaning&quot; and remove the foreign material.</td>
</tr>
<tr>
<td></td>
<td>Foreign material is in the spring connector of the Panel Charge Cable.</td>
<td></td>
</tr>
<tr>
<td>Charging of the AeroDR Detector does not start.</td>
<td>The connector of the Panel Charge Cable is not connected properly.</td>
<td>Correctly connect the connector of the Panel Charge Cable and the AeroDR Detector.</td>
</tr>
<tr>
<td></td>
<td>The Panel Charge Cable is not connected to the Panel Charge port properly.</td>
<td>Correctly connect the Panel Charge Cable to the Panel Charge port.</td>
</tr>
<tr>
<td></td>
<td>There is insufficient power remaining in the AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side.</td>
<td>Recharge the AeroDR Portable Unit Battery on the AeroDR Portable UF Detector Charger Kit side.</td>
</tr>
<tr>
<td></td>
<td>The Panel Charge Cable may be disconnected.</td>
<td>Contact Konica Minolta technical representatives.</td>
</tr>
</tbody>
</table>
Chapter 6

Maintenance

This chapter describes the items that require periodic maintenance.
6.1 • Maintenance and inspection items

This chapter describes the inspections and cleaning required in order to maintain the use of the AeroDR Portable UF Unit in an optimum condition.

6.1.1 Maintenance schedule

The maintenance and inspection items that the user should perform are as follows.

<table>
<thead>
<tr>
<th>Maintenance task</th>
<th>Maintenance interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking and cleaning the surface of the AeroDR Portable UF Unit</td>
<td>Weekly</td>
</tr>
<tr>
<td>Checking for external damage to the AeroDR Portable UF Unit</td>
<td>Weekly</td>
</tr>
<tr>
<td>Full charge of the AeroDR Portable Unit Battery</td>
<td>Monthly</td>
</tr>
<tr>
<td>Cleaning the spring connector of the Panel Charge Cable</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

IMPORTANT

• To ensure optimum use of the AeroDR Portable UF Unit, be sure to perform periodic maintenance.
• The above task intervals are estimates and vary according to usage.

6.1.2 Cleaning

• AeroDR Portable UF Unit
  Clean dust on the insert table of the AeroDR Portable UF Unit with a soft cloth moistened with anhydrous alcohol or water.

• Spring connector
  If foreign material has adhered to the spring connector of the Panel Charge Cable, remove it with a commercial plastic brush.

IMPORTANT

• Be careful not to apply any cleaning chemical or liquid onto the Power LED, LAN port, power cable socket and Panel Charge port.
• Do not clean with sharp or hard metal objects. If you cannot remove stains, contact Konica Minolta technical representatives.
6.1.3 Periodical replacement parts

The approximate battery replacement cycle is follows.

<table>
<thead>
<tr>
<th>Replacement parts</th>
<th>Estimated replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AeroDR Portable Unit Battery</td>
<td>2 years</td>
</tr>
</tbody>
</table>

**IMPORTANT**

- The replacement cycle depends on the frequency of battery operation and conditions.
- Refer to each device’s manual for information about periodic replacement parts and consumables for the image processing controller, etc.
- In particular, continued use of the battery may result in degradation and wear, and it may no longer exhibit proper functioning capabilities. For extended, safe use, it is necessary to replace parts which have become worn or degraded.
Chapter 7

Specifications

This chapter describes the specifications of each system device.
### 7.1 Specifications

#### 7.1.1 AeroDR Portable UF Unit

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>AeroDR Portable UF Unit</td>
</tr>
<tr>
<td>Power requirements</td>
<td>Normal operation: DC24.6±0.3V 2.0A direct current</td>
</tr>
<tr>
<td></td>
<td>During charging: AC 100/110/115/120/200/220/230/240 VAC ±10%, single phase, 50/60 Hz</td>
</tr>
<tr>
<td>External dimensions</td>
<td>386(W)×72(D)×386(H)mm</td>
</tr>
<tr>
<td>Weight</td>
<td>5.0 kg (Including one AeroDR Portable Unit Battery)</td>
</tr>
<tr>
<td>Battery operating time</td>
<td>Approx. 11 hours</td>
</tr>
<tr>
<td>Battery Charger</td>
<td>Product Name: Battery Charger (Product Number: RPC Co.MDA10125202000)</td>
</tr>
<tr>
<td></td>
<td>Dimensions: 140×62×35 mm (excluding cables)</td>
</tr>
<tr>
<td></td>
<td>Weight: 300 g</td>
</tr>
<tr>
<td></td>
<td>Safety Standards: UL1310, EN60355</td>
</tr>
<tr>
<td></td>
<td>INPUT: AC100 to 240 V 1.8 A(MAX.) 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>OUTPUT: DC24.6V(MIN.) 2.0A</td>
</tr>
</tbody>
</table>

- The described performance may change depending on the environment and frequency of use. (This is not a guarantee of performance.)
- The described battery performance is the performance after being fully charged.
# 7.1 Specifications

## 7.1.2 AeroDR Portable Unit Battery

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>AeroDR Portable Unit Battery</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Approx. 60VA</td>
</tr>
<tr>
<td>External dimensions</td>
<td>75(W)×320(D)×23(H)mm</td>
</tr>
<tr>
<td>Weight</td>
<td>760 g</td>
</tr>
<tr>
<td>Battery type</td>
<td>Lithium-ion batteries</td>
</tr>
</tbody>
</table>

- To use the AeroDR Portable UF Detector Charger Kit, two AeroDR Portable Unit Batteries are required.

## 7.1.3 AeroDR Portable UF Detector Charger Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Panel Charge Cable</td>
</tr>
<tr>
<td>Cable length</td>
<td>1.5m</td>
</tr>
<tr>
<td>External dimensions</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 kg (not including the main unit and the AeroDR Portable Unit Battery)</td>
</tr>
</tbody>
</table>
7.1.4 General AeroDR Portable UF Unit

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended storage and usage environment conditions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>When operating</strong></td>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td></td>
<td>10 to 30°C</td>
</tr>
<tr>
<td><strong>When not operating</strong></td>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td></td>
<td>–10 to 40°C</td>
</tr>
<tr>
<td><strong>In storage/transport</strong></td>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td></td>
<td>–20 to 60°C*1</td>
</tr>
</tbody>
</table>

*1 However, performance warranty period when storing at 60°C is 6 months after packing.

Classification: Safety IEC60601-1 internal power supply

7.1.5 Product configuration

This device must be configured as shown below.

- **EU and EFTA countries and Turkey**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Component name in this manual</th>
<th>Component name in Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>AeroDR Portable</td>
<td>AeroDR Portable UF Unit</td>
<td>AeroDR Portable UF Unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AeroDR Portable Unit Battery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AeroDR Portable UF Detector Charger KIT</td>
</tr>
</tbody>
</table>