

Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System

Site Preparation Guide

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Preface

How to Use This Guide

Purpose of This Guide

The *Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Site Preparation Guide* provides the information you need to fully prepare your site for the arrival and installation of the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System.

Audience

This guide is intended for the personnel who will schedule, manage, and perform the tasks required to prepare your site for installation of the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System.

User Attention Words

Two user-attention words appear in Applied Biosystems user documentation. Each word implies a particular level of observation or action, as described below:

Definitions

Note: Provides information that may be of interest or help but is not critical to the use of the product.

IMPORTANT! Provides information that is necessary for proper instrument operation, accurate chemistry kit use, or safe use of a chemical.

Examples

Note: Each time you receive a new MSDS, be sure to replace the appropriate MSDS in your files.

IMPORTANT! A safety representative from your facility must ensure that all applicable safety devices and equipment are available.

Safety Alert Words

Safety alert words also appear in user documentation. For more information, see [“Safety Alert Words”](#) on [page viii](#).

Text Conventions

Italic text indicates new or important words and is also used for emphasis.

For example:

Before analyzing, *always* prepare fresh matrix.

How to Obtain More Information

Related Documentation

The following related documents are shipped with the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR Systems:

- *Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Installation and Maintenance Guide* (PN 4347828) – Describes the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System hardware and provides information on preparing, maintaining, and troubleshooting the system.
- *Applied Biosystems 7500/7500 Fast Real-Time PCR System: User Guide for the 21 CFR Part 11 Module in SDS Software v1.4* (PN 4374432) – Provides information on using the 21CFR11 module with the Applied Biosystems 7300/7500/7500 Fast SDS Software.
- *Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Online Help* – Describes the Applied Biosystems 7300/7500/7500 Fast SDS Software, and provides procedures for common tasks. Access the Online Help feature by clicking the **Help** button on the tool bar and selecting the **Contents and Index** menu.
- *Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Getting Started Guides* – Describe procedures for Absolute Quantitation, Relative Quantitation, Allelic Discrimination, and Plus-Minus Detection using the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System and the Applied Biosystems 7300/7500/7500 Fast SDS Software.

Portable document format (PDF) versions of this guide and the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Installation Guide, Online Help, and Getting Started Guides are also available on the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System software installation CD.

Send Us Your Comments

Applied Biosystems welcomes your comments and suggestions for improving its user documents. You can e-mail your comments to:

techpubs@appliedbiosystems.com

How to Obtain Services and Support

For the latest services and support information for all locations, go to <http://www.appliedbiosystems.com>, then click the link for **Support**.

At the Support page, you can:

- Search through frequently asked questions (FAQs)
- Submit a question directly to Technical Support
- Order Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents
- Download PDF documents
- Obtain information about customer training
- Download software updates and patches

In addition, the Support page provides access to worldwide telephone and fax numbers to contact Applied Biosystems Technical Support and Sales facilities.

Safety and EMC Compliance Information

This section includes the following topics:

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Safety Conventions Used in This Document

Safety Alert Words

Four safety alert words appear in Applied Biosystems user documentation at points in the document where you need to be aware of relevant hazards. Each alert word—**IMPORTANT**, **CAUTION**, **WARNING**, **DANGER**—implies a particular level of observation or action, as defined below:

Definitions

IMPORTANT! – Indicates information that is necessary for proper instrument operation, accurate chemistry kit use, or safe use of a chemical.

 **CAUTION** – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

 **WARNING** – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

 **DANGER** – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Except for **IMPORTANT**s, each safety alert word in an Applied Biosystems document appears with an open triangle figure that contains a hazard symbol. *These hazard symbols are identical to the hazard icons that are affixed to Applied Biosystems instruments* (see “[Safety Symbols](#)” on [page ix](#)).

Examples

The following examples show the use of safety alert words:

IMPORTANT! You must create a separate a Sample Entry Spreadsheet for each 96-well microtiter plate.

 **CAUTION** The lamp is extremely hot. Do not touch the lamp until it has cooled to room temperature.

 **WARNING** **CHEMICAL HAZARD. Formamide.** Exposure causes eye, skin, and respiratory tract irritation. It is a possible developmental and birth defect hazard. Read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

 **DANGER** **ELECTRICAL HAZARD.** Failure to ground the instrument properly can lead to an electrical shock. Ground the instrument according to the provided instructions.

Symbols on Instruments

Electrical Symbols on Instruments

The following table describes the electrical symbols that may be displayed on Applied Biosystems instruments.

Symbol	Description
	Indicates the On position of the main power switch.
	Indicates the Off position of the main power switch.
	Indicates the On/Off position of a push-push main power switch.
	Indicates a terminal that may be connected to the signal ground reference of another instrument. This is not a protected ground terminal.
	Indicates a protective grounding terminal that must be connected to earth ground before any other electrical connections are made to the instrument.
	Indicates a terminal that can receive or supply alternating current or voltage.
	Indicates a terminal that can receive or supply alternating or direct current or voltage.

Safety Symbols

The following table describes the safety symbols that may be displayed on Applied Biosystems instruments. Each symbol may appear by itself or in combination with text that explains the relevant hazard (see [“Safety Labels on Instruments”](#) on [page x](#)). These safety symbols may also appear next to DANGERS, WARNINGS, and CAUTIONS that occur in the text of this and other product-support documents.

Symbol	Description
	Indicates that you should consult the manual for further information and to proceed with appropriate caution.
	Indicates the presence of an electrical shock hazard and to proceed with appropriate caution.
	Indicates the presence of a hot surface or other high-temperature hazard and to proceed with appropriate caution.

Symbol	Description
	Indicates the presence of a laser inside the instrument and to proceed with appropriate caution.
	Indicates the presence of moving parts and to proceed with appropriate caution.

Environmental Symbols on Instruments

The following symbol applies to all Applied Biosystems electrical and electronic products placed on the European market after August 13, 2005.

Symbol	Description
	Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE). European Union customers: Call your local Applied Biosystems Customer Service office for equipment pick-up and recycling. See http://www.appliedbiosystems.com for a list of customer service offices in the European Union.

Safety Labels on Instruments

The following CAUTION, WARNING, and DANGER statements may be displayed on Applied Biosystems instruments in combination with the safety symbols described in the preceding section.

English	Francais
CAUTION Hazardous chemicals. Read the Material Safety Data Sheets (MSDSs) before handling.	ATTENTION Produits chimiques dangereux. Lire les fiches techniques de sûreté de matériels avant la manipulation des produits.
CAUTION Hazardous waste. Refer to MSDS(s) and local regulations for handling and disposal.	ATTENTION Déchets dangereux. Lire les fiches techniques de sûreté de matériels et la réglementation locale associées à la manipulation et l'élimination des déchets.
WARNING Hot lamp.	AVERTISSEMENT Lampe brûlante.
WARNING This instrument is designed for 12V, 75W Halogen lamps only.	AVERTISSEMENT Cet instrument est conçu pour des lampes d'halogène de 12V et 75W seulement.
CAUTION Hot surface.	ATTENTION Surface brûlante.
DANGER High voltage.	DANGER Haute tension.

English	Francais
WARNING To reduce the chance of electrical shock, do not remove covers that require tool access. No user-serviceable parts are inside. Refer servicing to Applied Biosystems qualified service personnel.	AVERTISSEMENT Pour éviter les risques d'électrocution, ne pas retirer les capots dont l'ouverture nécessite l'utilisation d'outils. L'instrument ne contient aucune pièce réparable par l'utilisateur. Toute intervention doit être effectuée par le personnel de service qualifié de Applied Biosystems.
CAUTION Moving parts.	ATTENTION Parties mobiles.

General Instrument Safety

Moving and Lifting the Instrument



CAUTION PHYSICAL INJURY HAZARD. The instrument is to be moved and positioned only by the personnel or vendor specified in the applicable site preparation guide. If you decide to lift or move the instrument after it has been installed, do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more persons.

Moving and Lifting Stand-Alone Computers and Monitors



WARNING Do not attempt to lift or move the computer or the monitor without the assistance of others. Depending on the weight of the computer and/or the monitor, moving them may require two or more people.

Things to consider before lifting the computer and/or the monitor:

- Make sure that you have a secure, comfortable grip on the computer or the monitor when lifting.
- Make sure that the path from where the object is to where it is being moved is clear of obstructions.
- Do not lift an object and twist your torso at the same time.
- Keep your spine in a good neutral position while lifting with your legs.
- Participants should coordinate lift and move intentions with each other before lifting and carrying.
- Instead of lifting the object from the packing box, carefully tilt the box on its side and hold it stationary while someone slides the contents out of the box.

Operating the Instrument

Ensure that anyone who operates the instrument has:

- Received instructions in both general safety practices for laboratories and specific safety practices for the instrument.
- Read and understood all applicable Material Safety Data Sheets (MSDSs). See [“About MSDSs”](#) on [page xiii](#).



WARNING PHYSICAL INJURY HAZARD. Use this instrument as specified by Applied Biosystems. Using this instrument in a manner not specified by Applied Biosystems may result in personal injury or damage to the instrument.

Cleaning or Decontaminating the Instrument



CAUTION Before using a cleaning or decontamination method other than those recommended by the manufacturer, verify with the manufacturer that the proposed method will not damage the equipment.

Chemical Safety

Chemical Hazard Warning



WARNING CHEMICAL HAZARD. Before handling any chemicals, refer to the Material Safety Data Sheet (MSDS) provided by the manufacturer, and observe all relevant precautions.



WARNING CHEMICAL HAZARD. All chemicals in the instrument, including liquid in the lines, are potentially hazardous. Always determine what chemicals have been used in the instrument before changing reagents or instrument components. Wear appropriate eyewear, protective clothing, and gloves when working on the instrument.



WARNING CHEMICAL STORAGE HAZARD. Never collect or store waste in a glass container because of the risk of breaking or shattering. Reagent and waste bottles can crack and leak. Each waste bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.

About MSDSs

Chemical manufacturers supply current Material Safety Data Sheets (MSDSs) with shipments of hazardous chemicals to *new* customers. They also provide MSDSs with the first shipment of a hazardous chemical to a customer after an MSDS has been updated. MSDSs provide the safety information you need to store, handle, transport, and dispose of the chemicals safely.

Each time you receive a new MSDS packaged with a hazardous chemical, be sure to replace the appropriate MSDS in your files.

Obtaining MSDSs

You can obtain from Applied Biosystems the MSDS for any chemical supplied by Applied Biosystems. This service is free and available 24 hours a day.

To obtain MSDSs:

1. Go to **<https://docs.appliedbiosystems.com/msdssearch.html>**
2. In the Search field, type in the chemical name, part number, or other information that appears in the MSDS of interest. Select the language of your choice, then click **Search**.
3. Find the document of interest, right-click the document title, then select any of the following:
 - **Open** – To view the document
 - **Print Target** – To print the document
 - **Save Target As** – To download a PDF version of the document to a destination that you choose
4. To have a copy of a document sent by fax or e-mail, select **Fax** or **Email** to the left of the document title in the Search Results page, then click **RETRIEVE DOCUMENTS** at the end of the document list.
5. After you enter the required information, click **View/Deliver Selected Documents Now**.

Chemical Safety Guidelines

To minimize the hazards of chemicals:

- Read and understand the Material Safety Data Sheets (MSDS) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. (See “About MSDSs” on [page xiii](#).)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the MSDS.
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer’s cleanup procedures as recommended on the MSDS.
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.

Chemical Waste Safety

Chemical Waste Hazard



CAUTION HAZARDOUS WASTE. Refer to Material Safety Data Sheets and local regulations for handling and disposal.



WARNING CHEMICAL WASTE HAZARD. Wastes produced by Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death.



WARNING CHEMICAL STORAGE HAZARD. Never collect or store waste in a glass container because of the risk of breaking or shattering. Reagent and waste bottles can crack and leak. Each waste bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.

Chemical Waste Safety Guidelines

To minimize the hazards of chemical waste:

- Read and understand the Material Safety Data Sheets (MSDSs) provided by the manufacturers of the chemicals in the waste container before you store, handle, or dispose of chemical waste.
- Provide primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the MSDS.
- Handle chemical wastes in a fume hood.
- After emptying the waste container, seal it with the cap provided.

- Dispose of the contents of the waste tray and waste bottle in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

Waste Disposal

If potentially hazardous waste is generated when you operate the instrument, you must:

- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure the health and safety of all personnel in your laboratory.
- Ensure that the instrument waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.

IMPORTANT! Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Electrical Safety



DANGER

ELECTRICAL SHOCK HAZARD. Severe electrical shock can result from operating the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System without its instrument panels in place. Do not remove instrument panels. High-voltage contacts are exposed when instrument panels are removed from the instrument.

Fuses



DANGER

FIRE HAZARD. Improper fuses or high-voltage supply can damage the instrument wiring system and cause a fire. Before turning on the instrument, verify that the fuses are properly installed and that the instrument voltage matches the power supply in your laboratory.



WARNING

FIRE HAZARD. For continued protection against the risk of fire, replace fuses only with fuses of the type and rating specified for the instrument.

Power



DANGER

ELECTRICAL HAZARD. Grounding circuit continuity is vital for the safe operation of equipment. Never operate equipment with the grounding conductor disconnected.



DANGER

ELECTRICAL HAZARD. Use properly configured and approved line cords for the voltage supply in your facility.



DANGER

ELECTRICAL HAZARD. Plug the system into a properly grounded receptacle with adequate current capacity.

Overvoltage Rating

The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System has an installation (overvoltage) category of II and is classified as portable equipment.

Physical Hazard Safety

Moving Parts



WARNING PHYSICAL INJURY HAZARD. Moving parts can crush and cut. Keep hands clear of moving parts while operating the instrument. Disconnect power before servicing the instrument.



DANGER PHYSICAL INJURY HAZARD. Do not operate the instrument with its door open. Keep hands out of the sample block area when the instrument is running.

Lamp



WARNING PHYSICAL INJURY HAZARD. The lamp can become very hot while in use. Allow sufficient time for the lamp to cool, and put on protective gloves before handling it.

Ultraviolet Light



WARNING ULTRAVIOLET LIGHT HAZARD. Looking directly at a UV light source can cause serious eye damage. Never look directly at a UV light source and always prevent others from UV exposure. Follow the manufacturer's recommendations for appropriate protective eyewear and clothing.

Biological Hazard Safety

General Biohazard



WARNING BIOHAZARD. Biological samples such as tissues, body fluids, and blood of humans and other animals have the potential to transmit infectious diseases. Follow all applicable local, state/provincial, and/or national regulations. Wear appropriate protective eyewear, clothing, and gloves. Read and follow the guidelines in these publications:

- U.S. Department of Health and Human Services guidelines published in *Biosafety in Microbiological and Biomedical Laboratories* (stock no. 017-040-00547-4; <http://bmbi.od.nih.gov>)
- Occupational Safety and Health Standards, Bloodborne Pathogens (29 CFR§1910.1030; http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1910a_01.html).

Additional information about biohazard guidelines is available at:

<http://www.cdc.gov>

Workstation Safety

Correct ergonomic configuration of your workstation can reduce or prevent effects such as fatigue, pain, and strain. Minimize or eliminate these effects by configuring your workstation to promote neutral or relaxed working positions.



CAUTION MUSCULOSKELETAL AND REPETITIVE MOTION

HAZARD. These hazards are caused by potential risk factors that include but are not limited to repetitive motion, awkward posture, forceful exertion, holding static unhealthy positions, contact pressure, and other workstation environmental factors.

To minimize musculoskeletal and repetitive motion risks:

- Use equipment that comfortably supports you in neutral working positions and allows adequate accessibility to the keyboard, monitor, and mouse.
- Position the keyboard, mouse, and monitor to promote relaxed body and head postures.

Safety and Electromagnetic Compatibility (EMC) Standards

This section provides information on:

- [U.S. and Canadian Safety Standards](#)
- [Canadian EMC Standard](#)
- [European Safety and EMC Standards](#)
- [Australian EMC Standards](#)

U.S. and Canadian Safety Standards



This instrument has been tested to and complies with standard:

- UL 61010A-1/CSA C22.2 No. 61010-1 CSA 1010.1, “Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements.”
- UL 61010A-2-010, “Particular Requirements for Laboratory Equipment for the Heating of Materials.”

Canadian EMC Standard

This instrument has been tested to and complies with ICES-001, Issue 3: Industrial, Scientific, and Medical Radio Frequency Generators.

European Safety and EMC Standards



Safety

This instrument meets European requirements for safety (Low Voltage Directive 73/23/EEC). This instrument has been tested to and complies with standards EN 61010-1:2001, “Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements” and EN 61010-2-010, “Particular Requirements for Laboratory Equipment for the Heating of Materials.”

EMC

This instrument meets European requirements for emission and immunity (EMC Directive 89/336/EEC). This instrument has been tested to and complies with standard EN 61326 (Group 1, Class B), “Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements.”

Australian EMC Standards



This instrument has been tested to and complies with standard AS/NZS 2064, “Limits and Methods Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical (ISM) Radio-frequency Equipment.”

Site Preparation Tasks

This chapter includes the following sections:

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Overview

Before you install the 7300/7500/7500 Fast system, you need to fully prepare your site for the installation according to the instructions in this chapter. To ensure that you complete all site preparation tasks, checklists are provided in [Chapter 2, “Checklists.”](#)

IMPORTANT! If site preparation tasks are not complete when the Applied Biosystems service representative arrives, the scheduled installation may be postponed.



Figure 1-1 Applied Biosystems 7300 Real-Time PCR System

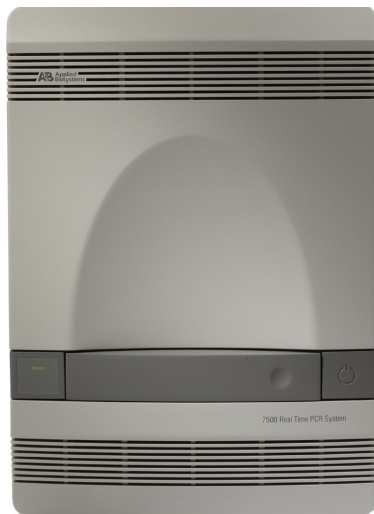


Figure 1-2 Applied Biosystems 7500 Real-Time PCR System



Figure 1-3 Applied Biosystems 7500 Fast Real-Time PCR System

Site Preparation Schedule

To minimize the time between the shipment arrival and system installation:

1. Complete the site preparation tasks ([Chapter 1](#)).
2. Fill out the corresponding checklists ([Chapter 2](#)).
3. Verify that:
 - All checklists are complete.
 - The purchase order is complete.
 - You have considered all components and options in preparing the site.

Site Preparation Process

The general site preparation tasks and a suggested sequence for completing the tasks are summarized in [Figure 1-4](#). The sequence can vary, but always:

- Review this guide first.
- Unpack and store the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System Installation Chemistry Kit as soon as you receive it.

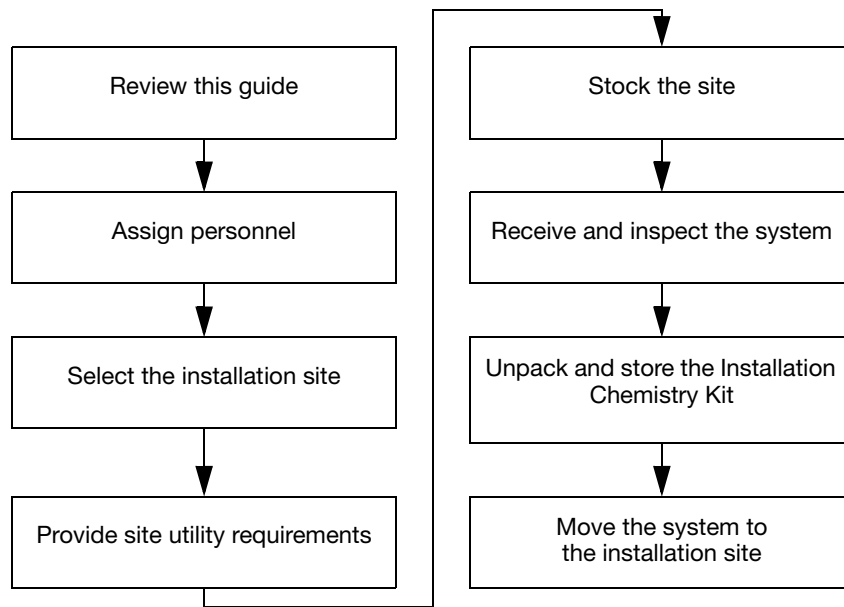


Figure 1-4 Site preparation tasks and their suggested sequence

Assigning Personnel

Laboratory Safety Representative

Applied Biosystems requests that a representative from your laboratory be in the vicinity and available to the Applied Biosystems service representative at all times while the service representative is at your facility. The laboratory safety representative should be familiar with laboratory safety procedures and know the location of all the safety equipment.

Tasks and Personnel

[Table 1-1](#) summarizes specific site-preparation tasks and suggests the personnel to accomplish the tasks. Use the table to help schedule and manage the site-preparation process.

Table 1-1 Suggested personnel tasks

Personnel	Tasks
Site Preparation/ Installation Coordinator	• Reviews the site preparation guide for safety information and system requirements. • Coordinates personnel and tasks. • Orders required materials. • Chooses the site. • Reviews checklists with applicable personnel, then with the Applied Biosystems service representative to verify that the site is properly prepared. • Receives and inspects the system. • Stores the Installation Chemistry Kit. • Schedules the installation and informs personnel of the installation date. • Ensures that the site is clear of unnecessary material on the installation day. • Is available throughout installation.
Laboratory Safety Representative	• Reviews the site preparation guide for safety information. • Ensures that the required safety practices and equipment are in place. • Is available throughout unpacking and setup.
Laboratory Personnel	• Review safety information. • Ensure that all customer-provided materials for installation are present at the site.
Facilities Personnel	• Ensure that installation requirements are met for: – Space at the installation site – Building clearances – Temperature and humidity – Ventilation and waste collection – Electrical supply – Computer – Safety and installation materials • If possible, move the crated system to the site before the installation date. • Are available throughout installation. • Ensure that at least 2 people are available to help move and position the system.

Selecting the Site

When deciding where to install the instrument, you need to consider the following requirements:

- **Space** – See [“Space Requirements” on page 1-7](#).
- **Environmental** – See [“Environmental Requirements” on page 1-10](#).
 - **Altitude** – See [“Environmental Requirements” on page 1-10](#).
 - **Pollution rating** – See [“Environmental Requirements” on page 1-10](#).
 - **Temperature and humidity** – See [“Temperature and Humidity Requirements” on page 1-10](#).
- **Ventilation** – See [“Ventilation and Waste Collection Requirements” on page 1-10](#).
- **Electrical power quick disconnect** – See [“Electrical Requirements” on page 1-11](#).
- **Computer** – Printer Access – See [“Printer Requirements” on page 1-12](#).
- **Safety and materials** – See [“Stocking the Site” on page 1-12](#).

IMPORTANT! The site must not be designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4). Applied Biosystems does not install, service, or repair Applied Biosystems instruments in areas designated BSL-3 or BSL-4.

Space Requirements

System Components

The 7300/7500/7500 Fast Real-Time PCR System ([Figure 1-4](#)) includes the:

- Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System
- CPU
- Monitor
- Keyboard
- Connector cables

Layout Requirements

A typical layout and some basic layout considerations for the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System are shown in [Figure 1-5](#). For details on the 7300/7500/7500 Fast system space requirements, see [Figure 1-6 on page 1-9](#).

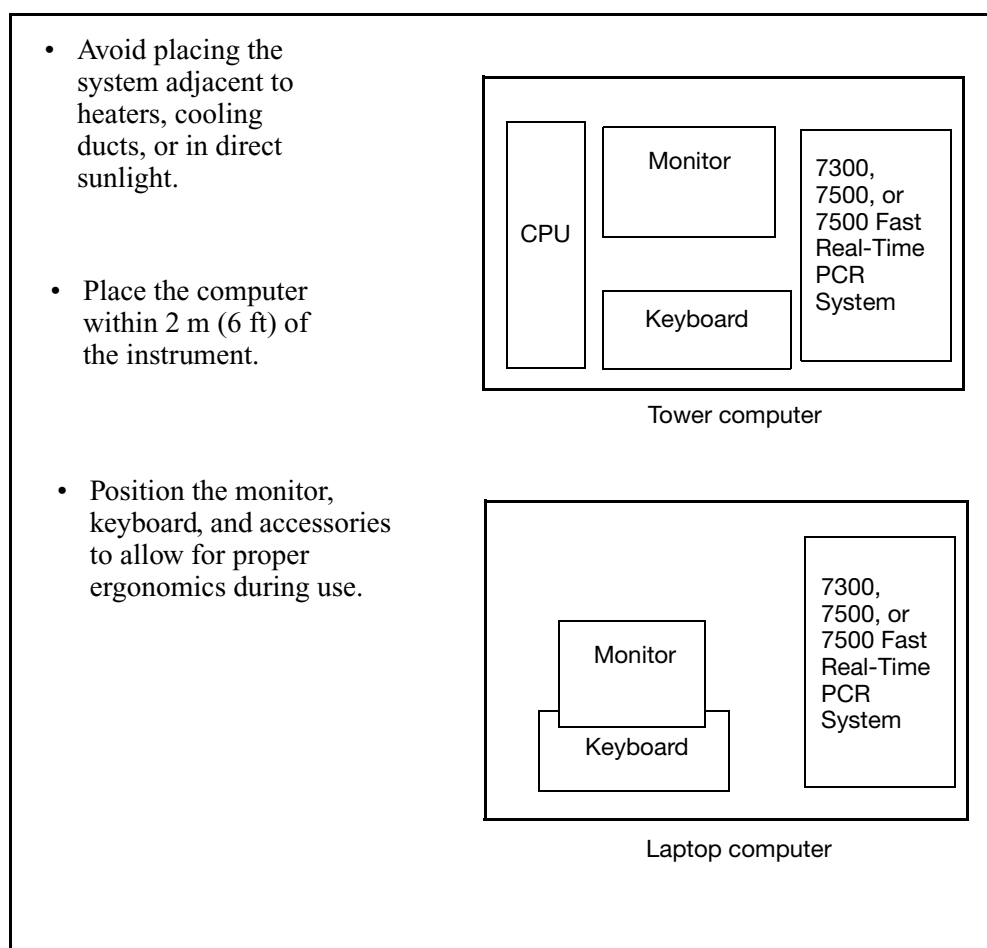


Figure 1-5 Layout requirements (*not to scale*)

Dimensions and Weights

The dimensions and weights of the system components are indicated below. Ensure that the installation site (floor space and/or bench space) can accommodate the dimensions and is able to support the weights.

Component	Width (7300, 7500, & 7500 Fast)	Depth (7300, 7500, & 7500 Fast)	Height (7300, 7500, & 7500 Fast)	Weight (7300/7500/7500 Fast unless shown separately)
Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System	34 cm (13.4 in)	45 cm (17.8 in)	49 cm (19.3 in)	7300 ≈ 29.1 kg (64.0 lbs) 7500 ≈ 34.1 kg (75.0 lbs) 7500 Fast ≈ 34.1 kg (75.0 lbs)
Computer (laptop)	31.5 cm (12.4 in)	25.7 cm (10.1 in)	28.7 cm (11.3 in)	2.27 kg (5 lbs)
Computer (desktop)	19.1 cm (7.5 in)	42.7 cm (16.8 in)	45.0 cm (17.7 in)	6.8 kg (15.0 lbs)
Monitor	43.2 cm (17 in)	25.4 cm (10 in)	45.7 cm (18 in)	6.8 kg (15.0 lbs)
Keyboard	45.7 cm (18 in)	17.8 cm (7 in)	5.1 cm (2 in)	0.9 kg (2.0 lbs)

Clearances

Required clearances for the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR Systems are summarized and illustrated in [Figure 1-6 on page 1-9](#).

- **Clearance on all sides** – At least **15.2** cm (**6** in) of clearance for ventilation, service access, and cable routing. Allow space for the Applied Biosystems service representative to move the instrument for easy access to the back and sides.
- **Vertical clearance** – At least **30.5** cm (**12** in) of unobstructed vertical clearance above the top of the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System to allow the top to be lifted during service.

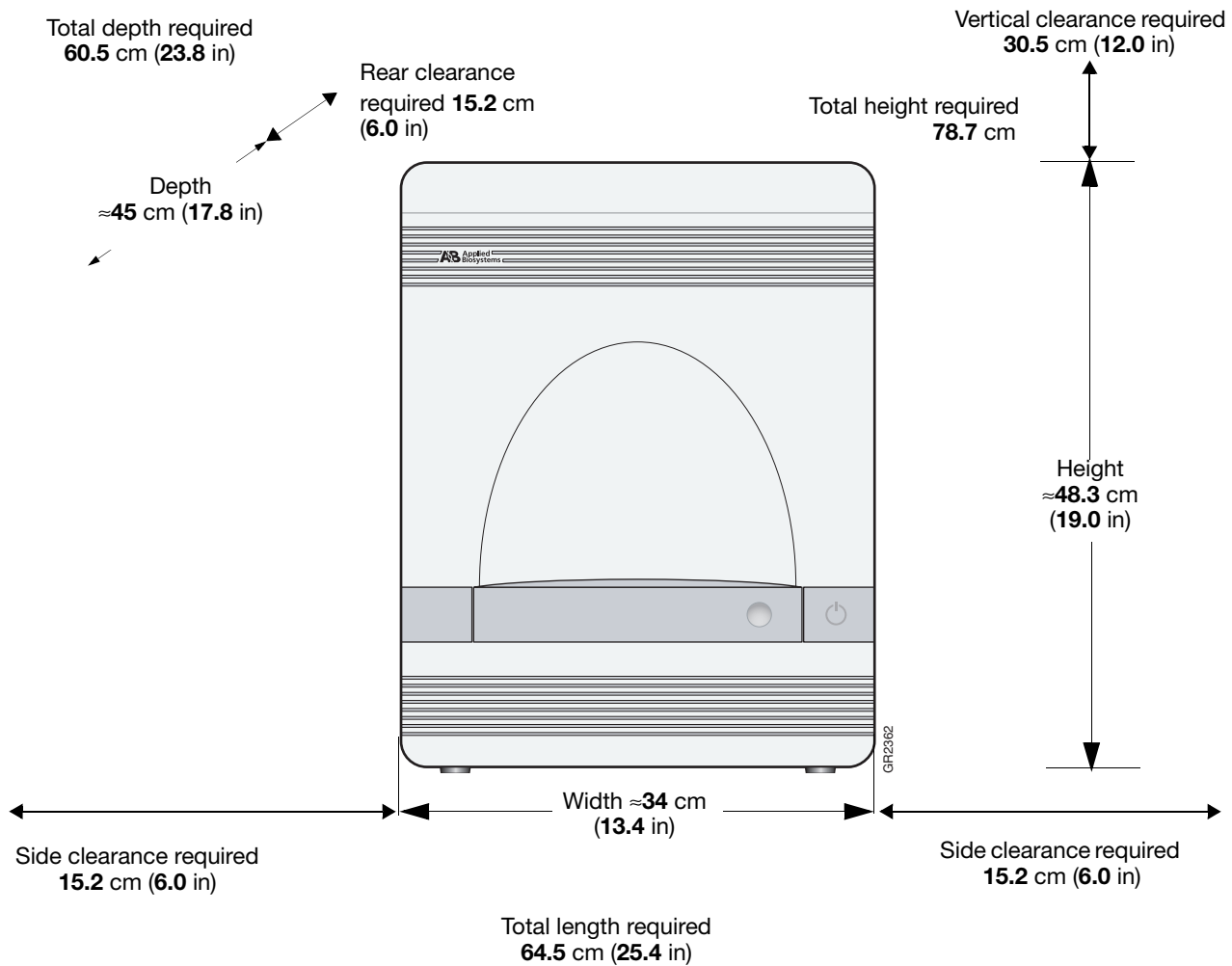


Figure 1-6 Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System clearance requirements (*not to scale*)

Environmental Requirements

Altitude This Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System is for indoor use only and for altitudes not exceeding 2000 m (6500 ft) above sea level.

Temperature and Humidity Requirements Ensure that the installation site is maintained under the following conditions:

Condition	Acceptable Range
Temperature	15 to 30 °C (50 to 95 °F) Maximum change of less than 15 °C (59 °F) per 24 hours
Humidity	20 to 80% relative humidity, noncondensing

Avoid placing the system adjacent to heaters, cooling ducts, or in direct sunlight. Fluctuations between day and night temperatures can cause system instability.

Pollution The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System has a pollution degree rating of II and may be installed in an environment that has nonconductive pollutants (dust, wood chips, etc.) only. Typical environments with Pollution Degree II ratings are laboratory, sales, and commercial areas.

Ventilation and Waste Collection Requirements

Venting Hot-Air-Only Exhaust Hot-air exhaust is vented from the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System through the hot-air waste port on the rear panel. The hot-air exhaust is designed to dissipate heat produced by the instrument. The maximum thermal output of the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System instrument is 3241.5 Btu/h (950 W). Consult your facilities department to determine if the laboratory ventilation system can maintain room temperature with this level of thermal output. If it can maintain room temperature during instrument operation, the hot-air exhaust port can be vented directly to room air.

Electrical Requirements

Disconnecting Power

In case of emergency, you must be able to immediately disconnect the main power supply to the instrument.

Power Connectors and Receptacles

The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System is shipped to customers with up to three power connectors. These connectors require standard 15A wall receptacles with proper grounding. Do not use extension cords.

System Electrical Requirements

The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System can be configured for operating voltages between 100 and 240 VAC at 50 or 60 Hz. The system is equipped with a universal power supply.

[Table 1-2](#) provides electrical specifications for the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System. For all indicated input voltages, a 15 A circuit is required.

Table 1-2 Electrical specifications

Location	Input Voltage (VAC)	Frequency (Hz)	Nominal Current Draw (A)	Power (W)
Japan	100	60	9	950
		50	9	950
USA/Canada	120	60	8	950
		50	8	950
EC	220	60	4	950
		50	4	950
UK/Australia	240	60	4	950
		50	4	950

At 110 V, the computer monitor has a nominal current draw of 0.9 A; at 240 V, the current draw is 0.4 A.

Power Line Regulator

In areas where the supplied power is subject to voltage fluctuations exceeding $\pm 10\%$ of the nominal value, a power line regulator may be required. High or low voltages can adversely affect the electronic components of the instrument.

Halogen Lamp

The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System is shipped with a halogen lamp.



WARNING

This instrument is designed for 12V, 75W Halogen lamps only.

Computer Requirements

Minimum Applied Biosystems recommends the following minimum requirements for your computer system:

- 500 MHz Pentium III processor
- USB port
- 10.0 GB hard disk storage
- 256 MB of RAM
- Windows® XP

Network Cables The computer is factory configured for the TCP/IP protocol, and includes a fast Ethernet® adapter (10/100baseT) with an RJ45-type connector. Applied Biosystems recommends you use a USB 1.1 connector from the instrument to the PC.

IMPORTANT! Do not use the 7300/7500/7500 Fast Real-Time PCR System on a wireless network. A wireless network may interfere with data collection, resulting in data loss.

Printer Requirements The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System can use a network or dedicated printer.

Stocking the Site

Safety Practices and Equipment **IMPORTANT!** The site must not be designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4). Applied Biosystems does not install, service, or repair Applied Biosystems instruments in areas designated BSL-3 or BSL-4.

IMPORTANT! A safety representative from your facility must ensure that:

- All applicable safety practices and policies to protect laboratory personnel from potential hazards are established and are followed by personnel
- All applicable safety devices and equipment are available

Required Safety Equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Applied Biosystems expects that you will follow all applicable safety-related procedures at all times.

The following safety protection and equipment must be available at the installation site:

- Protection from any sources of hazardous chemicals, radiation (for example, lasers, radioisotopes, radioactive wastes, and contaminated equipment), and potentially infectious biological material that may be present in the area where the Applied Biosystems service representative will work.
- Appropriate fire extinguisher:
 - You are responsible for providing an appropriate fire extinguisher for use on or near Applied Biosystems equipment.
 - The types and sizes of fire extinguishers shall be suitable for use on electrical and chemical fires as specified in current codes, regulations, and/or standards, and with approval of the Fire Marshall or other authority having jurisdiction.
 - The installation of appropriate fire extinguishers shall be in addition to other fire-protection systems and not as a substitute or alternative to them.
- Eyewash.
- Safety shower.
- Eye and hand protection.
- Adequate ventilation, including vent line/fume hood, if applicable.
- Biohazard waste container, if applicable.
- First-aid equipment.
- Spill cleanup equipment.
- Applicable MSDSs.

Materials for Installation

You need to provide the following materials for the installation:

- Safety glasses, lab coats, chemical-resistant, disposable gloves (powder-free)
- Lint-free tissues
- Ethanol, HPLC-grade or better
- 10% Bleach solution
- Water, Milli-Q[®] grade
- Three sizes of micropipettors and tips
 - 1- to 10- μ L
 - 10- to 100- μ L
 - 100- to 1,000- μ L
- Mini vortexer, centrifuge (equipped to accept reaction plates), and sample tubes

Materials for Routine Operation

Additional supplies and consumables are necessary for routine operation of the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System. Before the system is installed, contact the Applied Biosystems sales representative to order these additional supplies.

Receiving and Inspecting the System

Shipped Contents

The Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System shipment includes the:

- Applied Biosystems 7300/7500/7500 Fast Real-Time PCR Instrument(s)
- Accessories
- Chemical Installation Kit
- Software Kit

The following are included:

- Computer tower
- Monitor
- Keyboard and mouse

OR

- Laptop and mouse

Shipping List

Verify that the items shown on the shipping list are the same items that were ordered.

Inspecting Crates for Damage

Carefully inspect the boxes and report any damage to the Applied Biosystems service representative or your local technical support group if you are conducting a self-installation.

Unpacking and Storing the Chemical Installation Kit

The Chemical Installation Kit is boxed separately from the instrument components. When you receive the shipment, unpack the Chemical Installation Kit immediately. Store the components as specified in the instructions included with the kit.



WARNING CHEMICAL HAZARD. Some chemicals used with Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death. Read and understand the Material Safety Data Sheets (MSDSs) provided by the chemical manufacturer before you store, handle, work with, or dispose of any chemicals or hazardous materials.

Moving the Crated Instrument to the Laboratory

Moving Schedule Before the date of installation:

- Clear the installation site of all unnecessary materials.
- If possible, move the crated Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System from the receiving area to the installation site.
- If possible, move the other crated and boxed equipment from the shipping area to the installation site.

Required Building Clearances The largest crate included with the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System shipment contains the 7300, 7500, or the 7500 Fast instrument. To move the crate to the installation site, verify that the building clearances allow passage of the following crate dimensions:

Crate Dimension	Minimum Building Clearance
Height	88.9 cm (35.0 in)
Length	86.4 cm (34.0 in)
Depth	50.8 cm (20.0 in)

Instrument Weight The Applied Biosystems 7300 Real-Time PCR System weighs approximately 30 kg (65 lbs), the Applied Biosystems 7500 Real-Time PCR System weighs approximately 34 kg (75 lbs), and the Applied Biosystems 7500 Fast Real-Time PCR System weighs approximately 34 kg (75 lbs).

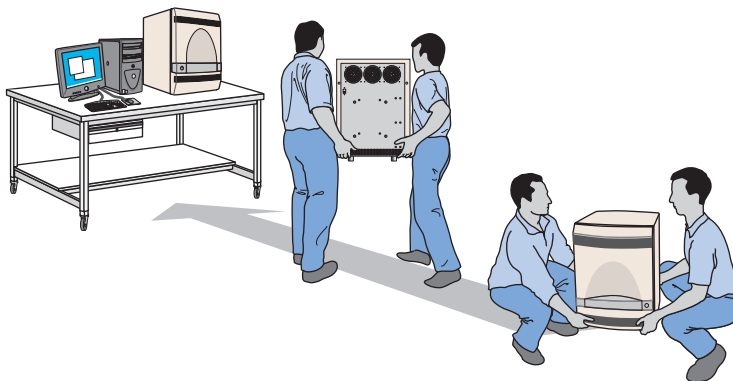
 **WARNING PHYSICAL INJURY HAZARD.** Do not attempt to lift the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System by yourself. There must be at least two people to lift the instrument.



Moving and Lifting the Instrument

**CAUTION**

PHYSICAL INJURY HAZARD. If you decide to lift or move the instrument after it has been installed, do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more persons.

**CAUTION**

Do not tip the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System on end. Tipping damages the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System hardware and electronics.

During Installation

After the system is uncrated, it takes you about 6 hours to set up the Applied Biosystems 7300/7500 Real-Time PCR System and about 4 hours to set up the Applied Biosystems 7500 Fast Real-Time PCR System and check its operation.

When the 7300/7500/7500 Fast system reaches proper operating status, the Applied Biosystems service representative returns to perform installation qualification tests.

This chapter includes the following:

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Ventilation and Waste Collection Checklist	2-4
Electrical Checklist	2-5
Computer Checklist	2-5
Safety Checklist	2-6
Materials Checklist	2-7
System Receipt and Inspection Checklist	2-8
Moving the Crated Instrument Checklist	2-8

Overview

Before using the checklists, read all previous sections in this guide.

Use the checklists in this chapter to ensure that you have made all preparations for installing the system. An Applied Biosystems service representative will contact you to verify that all checklists are complete before setting up the installation date.

In the following checklists, date each item after verifying its completion.

Personnel Checklist

For more information, see [“Assigning Personnel” on page 1-5](#).

Date Verified	Designated Personnel
	Site Preparation/Installation coordinator
	Laboratory safety representative
	Laboratory personnel: • To ensure that customer-supplied materials are on hand • Primary users to be trained during installation and to subsequently train other users
	Facilities personnel: • To provide installation requirements for environmental, electrical, and computer site-preparation requirements • 2 people to help move and position the instrument, if applicable

Space and Layout Checklist

Date each item below after verifying its completion. For more information, see [“Space Requirements” on page 1-7](#).

Date Verified	Requirements
	Location is away from: • Heating or cooling ducts • Direct sunlight
	Computer workspace allows for proper ergonomics during use.
	Location accommodates the dimensions and weights specified in “Dimensions and Weights” on page 1-8 .
	Location meets the requirements specified in “Clearances” on page 1-8 .

Environmental Checklist

Date Verified	Requirement
	The altitude does not exceed 2000 m (6500 ft.).
	The conditions specified in “Temperature and Humidity Requirements” on page 1-10 have been met.
	Pollution Degree II - Only nonconductive pollutants, if any, are present.

Ventilation and Waste Collection Checklist

Date each item below after verifying its completion.

Date Verified	Requirement
Instrument Hot-Air Exhaust Venting	
	One of the following conditions exists: • Facilities personnel have certified that the normal room ventilation system can maintain room temperature if the maximum thermal output of the system (specified in “Venting Hot-Air-Only Exhaust” on page 1-10) is vented directly into the room air. • A suitable venting device such as a fume hood or fume dust is available to vent the hot air exhaust from the instrument space.

Electrical Checklist

Date each item after verifying its completion. For more information, see [“Electrical Requirements” on page 1-11](#).

Date Verified	Requirement
	The main power supply to the instrument can be immediately disconnected.
	Appropriate grounded power receptacles are available (see “Electrical Requirements” on page 1-11).

Computer Checklist

Date each item after verifying its completion. For more information, see [“Computer Requirements” on page 1-12](#).

Date Verified	Requirement
Antivirus Software	
	Appropriate antivirus software is available for loading on the system computer.
Printer	
	A network printer or a dedicated printer and necessary print drivers are available.

Safety Checklist

Date each item below after verifying its completion. For more information, see [“Safety Practices and Equipment” on page 1-12](#).

Date Verified	Requirement
	The site is not designated BioSafety level 3 (BSL-3) or BioSafety level 4 (BSL-4).
	Safety practices and policies to protect laboratory personnel from potential hazards are in place and are followed.
	Protection from any sources of hazardous chemicals, radiation (for example, lasers, radioisotopes, radioactive wastes, and contaminated equipment), and potentially infectious biological material is in place.
	Appropriate fire extinguisher
	Eye and hand protection
	Eyewash
	Safety shower
	Vent lines/fume hood, if applicable
	Biohazard waste container, if applicable
	First-aid equipment
	Spill cleanup equipment
	MSDSs readily available

Materials Checklist

Date each item below after verifying its completion. For more information, see [“Stocking the Site” on page 1-12](#).

Date Verified	Requirement
Materials for General Installation	
	Safety glasses and lab coats
	Chemical-resistant disposable gloves (powder free)
	Lint-free tissues
	Isopropanol, HPLC-grade or better
	Water, Milli-Q grade
	Three sizes of micropipettors and tips: • 1- to 10-μL • 10- to 100-μL • 100- to 1,000-μL
	A mini vortexer, centrifuge (equipped to accept reaction plates), and sample tubes
Materials for Routine Operation	
	Materials for routine operation after installation are available or have been ordered (see “Materials for Routine Operation” on page 1-14).

System Receipt and Inspection Checklist

Date each item below after verifying its completion. For more information, see [“Receiving and Inspecting the System” on page 1-14](#).

Date Verified	Action
	Verified that items on the packing list are those that were ordered. Otherwise, reported to the Applied Biosystems service representative discrepancies in the packing list.
	Opened and stored the Chemical Installation Kit components as specified in the kit operating instructions.
	Received the system and inspected the crates and boxes for mishandling or damage. IMPORTANT! Except for the Chemical Installation Kit, do not open any crates or boxes.
	Reported to the Applied Biosystems service representative: - Any damage to the crates or boxes - Tip indicators or shock indicators that show evidence of mishandling during transit

Moving the Crated Instrument Checklist

Date each item below after verifying its completion. For more information, see [“Moving the Crated Instrument to the Laboratory” on page 1-16](#)

Date Verified	Item
	The measured building clearances can accommodate the Applied Biosystems 7300/7500/7500 Fast Real-Time PCR System crate dimensions (see “Required Building Clearances” on page 1-16). If the crate dimensions exceed building clearances, contact the Applied Biosystems service representative. Do not unpack the crate without authorization.
	If possible, moved all the crated equipment, excluding the crated 7300/7500/7500 Fast system, to the laboratory before the date of the scheduled installation.  WARNING PHYSICAL INJURY HAZARD. Do not attempt to lift or move any boxed or crated items unless you have received related training. Incorrect lifting can cause painful and sometimes permanent back injury. Use proper lifting techniques when lifting or moving items. No attempt should be made to lift the instrument.
	Cleared the installation site of all unnecessary materials.

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Worldwide Sales and Support

Applied Biosystems vast distribution and service network, composed of highly trained support and applications personnel, reaches 150 countries on six continents. For sales office locations and technical support, please call our local office or refer to our Web site at www.appliedbiosystems.com.

Applera is committed to providing the world's leading technology and information for life scientists. Applera Corporation consists of the Applied Biosystems and Celera Genomics businesses.

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