QuantStudio™ 3 and 5 Real-Time PCR Systems

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This guide contains the information needed to prepare your site for installation of the QuantStudio™ 3 or 5 Real-Time PCR System.

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Site preparation overview

Customers have the option to install the instrument themselves or purchase installation service from the field services team.

Note: Optional installation by a Thermo Fisher Scientific service representative includes some basic operator training and a review of data during installation. If you opt for a service representative to install the instrument, contact Thermo Fisher Scientific to schedule the installation.

IMPORTANT! Thermo Fisher Scientific does not install, service, or repair instruments in areas designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4).

Before installing the instrument:

1. Review this guide.
2. Receive and inspect the shipment (page 13).
3. Ensure that the purchase order is complete.
4. Move the packaged instrument to the installation site (page 13).
5. Complete the site preparation checklist (page 3).
   This task is required for a service representative to complete the installation.

Installation time

After the instrument is unpacked, installation and verification take approximately 1 hour. For additional information, see the user documents that are provided with the instrument.

Site preparation checklist

Complete all items in the following checklist before you install the instrument.

IMPORTANT! For installation by a Thermo Fisher Scientific service representative, complete, date, and initial the following checklist before the scheduled installation date. If the site preparation checklist is not complete when the service representative arrives, the scheduled installation may be postponed.

✓	Date	Initials	Site preparation requirement	See page
☐			Customer responsibilities have been reviewed.	4
☐			Personnel have been assigned tasks and responsibilities.	
☐			The installation site is identified and meets the following requirements:	
			☐ Space and clearance	5
			☐ Environmental	7
			☐ Electrical	8
			☐ Instrument-to-computer connections	10
			☐ Safety	12
☐			The instrument was received and inspected as follows:	13
			☐ All shipping list items are the items ordered at the time of purchase.	
			☐ Any damage to shipping containers was reported to the shipping company that delivered the instrument.	
			☐ Any damage or mishandling was recorded on the shipping documents.	
			☐ All reagents and plates are unpacked and stored as specified.	
☐			The installation site is cleared and ready for the instrument installation.	13
☐			The packaged instrument and other shipping containers are moved to the installation site.	
☐			All materials for installation and operation are available.	14
☐			Register at **thermofisher.com/cloud** to access free analysis software and 10 GB of Thermo Fisher Cloud storage.	16
☐			The *QuantStudio™ 3 and 5 Real-Time PCR Systems IT Checklist* (Pub. No. MAN0013738) has been completed and returned.	—

Customer responsibilities

Personnel	Responsibilities
Site preparation/ installation coordinator	• Receives and inspects the instrument. • Unpacks and stores the reagents and plates as specified. • Reviews the site preparation guide for safety information and the instrument requirements. • Coordinates personnel and tasks. • Chooses the installation site. • Reviews checklists with applicable personnel, then the service representative[1], to verify that the site is properly prepared. • Schedules the installation and informs personnel of the installation day. • Ensures that the site is clear of unnecessary material on the installation day. • Is available during installation to assist the service representative.[1]
Laboratory safety representative	• Reviews the site preparation guide for safety information. • Ensures that the required safety practices and equipment are in place. • Is available at all times while the service representative is at the customer's facility.[1]
Laboratory personnel/ primary users	• Reviews safety information. • Ensures that all customer-provided materials for installation are present at the site. • Ensures that primary users (responsible for training other users) are available during installation, so that they can be trained on the instrument.[1]
Facilities personnel	• Ensures that the installation requirements are met for: – Space at the installation site – Building clearances – Humidity and temperature – Waste collection – Electrical supply – Computer *(optional)* – Safety and installation materials • If possible, moves the instrument packages to the site before the installation date. • Is available during installation to assist service representative and laboratory personnel.[1] • Ensures that at least two people are available to help the service representative move and position the instrument.[1]
Network or IT specialist (if the instrument will be connected to a network)	• Ensures that active, tested local area network (LAN) connections are in place. • Ensures that network hardware is compatible with an RJ45-type connector. • If necessary, supplies additional cables. • Is available during installation to connect the instrument to the network.[1] • If applicable, provides and installs a network or dedicated printer. • Ensures that the *QuantStudio™ 3 and 5 Real-Time PCR Systems IT Checklist* (Pub. No. MAN0013738) has been completed and returned.

[1] Required for service representative installation of the instrument.

Site requirements

Dimensions and weights

Note: All measurements are rounded to the nearest whole- or half-unit.

Components (packaged)

WARNING! PHYSICAL INJURY HAZARD. The packages are heavy. Do not attempt to lift or move the packages without professional assistance. Any incorrect lifting or moving of the packages can cause serious injury.

Ensure the building clearances allow for the passage of the instrument packaging.

Package	Height	Length (depth)	Width	Weight
Instrument (on pallet)	63 cm (25 in.)	69 cm (27 in.)	42 cm (16.5 in.)	35 kg (77 lb)
Computer (laptop)[1]	22 cm (9 in.)	42 cm (16.5 in.)	59 cm (23 in.)	7 kg (15 lbs)
Computer (minitower)[1]	36 cm (14 in.)	47 cm (18.5 in.)	54 cm (21 in.)	14.5 kg (32 lb)
Monitor (with stand)[1]	18 cm (7 in.)	46 cm (18 in.)	41 cm (16 in.)	7 kg (15 lbs)

[1] A computer (laptop or minitower), monitor, and keyboard are optional equipment.

Components (unpacked)

Ensure that the installation site bench space can accommodate the dimensions and support the weights of the purchased configuration.

Component	Height	Length (depth)	Width	Weight
Instrument	40 cm (16 in.)	50 cm (20 in.)	27 cm (10.5 in.)	26 kg (57 lbs)
Computer (laptop)[1]	4 cm (1.5 in.)	25 cm (10 in.)	38 cm (15 in.)	2.5 kg (5 lbs)
Computer (minitower)[1]	36 cm (14 in.)	42 cm (16.5 in.)	17.5 cm (7 in.)	9.5 kg (21 lbs)
Monitor (with stand)[1]	37 cm (15 in.)	18 cm (7 in.)	41 cm (16 in.)	5 kg (11 lbs)
Keyboard[1]	3 cm (1.5 in.)	14 cm (5.5 in.)	45 cm (18 in.)	1 kg (2.5 lbs)

[1] A computer (laptop or minitower), monitor, and keyboard are optional equipment.

Instrument clearances

During instrument installation and maintenance, it is necessary to access the back of the instrument. If the back of the instrument faces a wall, ensure that there is sufficient clearance on the bench to rotate the instrument for access.

IMPORTANT! For safety, the power outlet for the instrument must be accessible.

Component	Top	Front	Sides	Back
Instrument	30 cm (12 in.)	30 cm (12 in.)	15 cm (6 in.)	15 cm (6 in.)
Computer[1]	—	15 cm (6 in.)	—	15 cm (6 in.)

[1] Co-locating the computer with the instrument is optional.

Instrument and computer connections

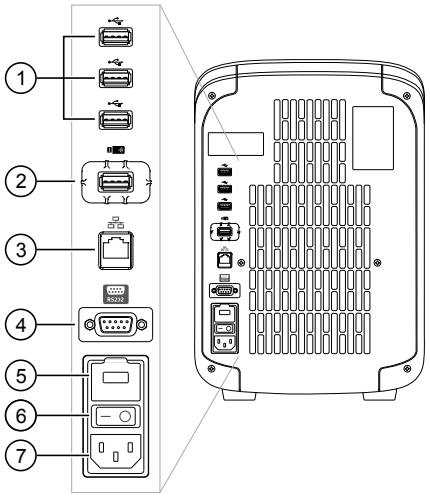


Figure 1 Instrument back panel

① USB ports
② WiFi USB port—Connect USB wireless adapter for wireless network access (ordered separately)
③ Ethernet Port—RJ45 port for 100/1,000 Mbps Ethernet communication with the instrument
④ RS232 Port—For service use only
⑤ Fuse Cover
⑥ Power Switch
⑦ Power Port—100 to 240 VAC

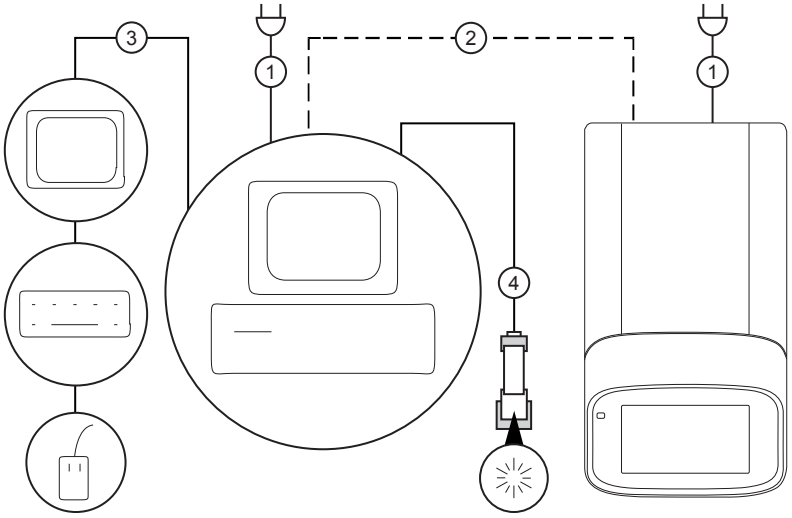


Figure 2 Instrument-to-computer connections (minitower configuration)

① Detachable power supply cord compatible with local power supply receptacle.
② Connection between the computer and the instrument.
③ Connection between the computer and the monitor, keyboard, and mouse.
④ Connection between the computer and the *(optional)* handheld barcode scanner.

Environmental requirements

Table 1 Environmental requirements

Condition	Acceptable range
Installation site	Indoor use only
Electromagnetic interference	Do not use this device in close proximity to sources of strong electromagnetic radiation (for example, unshielded intentional RF sources). Strong electromagnetic radiation may interfere with the proper operation of the device.
Altitude	Between sea level and 2000 m (6500 ft.) above sea level
Operating conditions	• Humidity: 15–80% relative humidity (noncondensing) • Temperature: 15 to 30°C (59 to 86°F) **Note:** For optimal performance, avoid rapid or extreme fluctuations in room temperature.
Storage and transport conditions	• Humidity: 20–80% relative humidity (noncondensing) • Temperature: –30 to 60°C (–22 to 140°F)
Thermal output	During operation, the net thermal output, based on the actual current draw of the instrument, is expected to be approximately 960 W (3275 Btu/h).
Vibration	Ensure that the instrument is not adjacent to strong vibration sources, such as a centrifuge, pump, or compressor. Excessive vibration will affect instrument performance.
Pollution degree	The instrument has a Pollution Degree rating of II. The instrument may only be installed in an environment that has nonconductive pollutants such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories and sales and commercial areas. The noise output of the instrument is ≤ 60 dB when running.
Other conditions	Ensure the instrument is located away from any vents that could expel particulate material onto the instrument components. Avoid placing the instrument and computer adjacent to heaters, cooling ducts, or in direct sunlight.

Electrical requirements

WARNING! For safety, the power outlet used for powering the instrument must be accessible at all times. See “Instrument clearances“ on page 5 for information about the space needed between the wall and the instrument. In case of emergency, you must be able to immediately disconnect the main power supply to all the equipment. Allow adequate space between the wall and the equipment so that the power cords can be disconnected in case of emergency.

- Electric receptacle with grounding capability
- Maximum power dissipation: ~960 W (not including computer and monitor)
- Mains AC line voltage tolerances must be up to ±10 percent of nominal voltage

Device	Rated voltage	Circuit required	Rated frequency	Rated power
Instrument	100–240 ±10% VAC[1]	10 A	50/60 Hz	960 W
Computer (laptop)	100–240 ±10% VAC	10 A	50/60 Hz	90 VA
Computer (desktop)	100–240 ±10% VAC	10 A	50/60 Hz	125 VA
Monitor				65 VA

[1] If the supplied power fluctuates beyond the rated voltage, a power line regulator may be required. High or low voltages can adversely affect the electronic components of the instrument.

Electrical protective devices

We recommend the use of electrical protective devices to protect the system in environments with large voltage and power fluctuations.

Recommended devices
Power line regulator
• 1.5-kVA power line regulator • Use in areas where the supplied power fluctuates in excess of ±10% of the normal voltage. • Power fluctuations can adversely affect the function of the instrument and computer. **Note:** A power line regulator monitors the input current and adjusts the power supplied to the instrument or computer. It does not protect against a power surge or failure.
Surge protector
• 10-kVA surge protector (line conditioner) • Use in areas with frequent electrical storms or near devices that are electrically noisy, such as refrigerators, air conditioners, or centrifuges. • Short-duration, high-voltage power fluctuations can abruptly terminate the function of, and thereby damage the components of, the computer and the instrument. **Note:** A dedicated line and ground between the instrument, computer, and the building's main electrical service can also prevent problems caused by power fluctuations.
Uninterruptible power supply (UPS)
• 1.5-kVA uninterruptible power supply (UPS) • Use in areas prone to power failure. • Power failures and other events that abruptly terminate the function of the instrument and computer can corrupt data and possibly damage the system. ⚠ **WARNING! PHYSICAL INJURY HAZARD.** Do not attempt to lift the UPS unit without assistance of at least two people. Improper lifting can cause painful and permanent back injury. Refer to the UPS manufacturer user guide for more information. **IMPORTANT!** A UPS provides power for a limited time. It is meant to delay the effects of a power outage, not to serve as a replacement power source. In the event of a power loss, power off the instrument and computer unless you expect to regain power within the battery life of the UPS.

Instrument-to-computer connections

Supported options for instrument and computer connections

We support the following direct, networked (LAN–local area network), or Cloud configurations. Configurations other than those listed are not recommended. Select a configuration that meets the needs of your laboratory's instrument, software, and workflow requirements.

IMPORTANT! Do *not* connect *both* an Ethernet cable and the Wi-Fi module (Cat. No. A26774) to the instrument. Configuring the instrument for both wired and wireless connection can interfere with instrument operation.

Note: For detailed information about networking your instrument, see the *QuantStudio™ 3 and 5 Real-Time PCR Systems IT Checklist* (Pub. No. MAN0013738).

Direct configuration option

- A computer provided by Thermo Fisher Scientific with the QuantStudio™ Design and Analysis desktop Software

- Computer-to-instrument connection:
  - Direct, wired connection between the computer and the instrument using an Ethernet cable

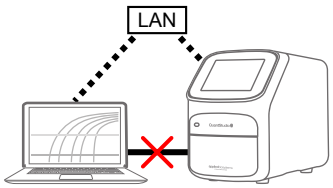
IMPORTANT! A direct instrument-to-computer connection *cannot* be combined with the LAN or the Cloud configurations.

Networked configuration option

- A computer provided by Thermo Fisher Scientific with the QuantStudio™ Design and Analysis desktop Software
- The computer and instrument must be on the same subnet mask.

- Computer-to-LAN connection *(select an option)*:
  - Wired connection to the network using an Ethernet cable – *or* –
  - Wireless connection to the network

- Instrument-to-LAN connection *(select an option)*:
  - Wired connection to the network using an Ethernet cable – *or* –
  - Wireless connection to the network using the instrument Wi-Fi module

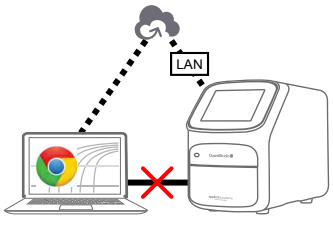


Thermo Fisher Cloud configuration option

- Internet access and a computer with the Chrome™ web browser to access the Cloud

- Computer-to-Cloud connection *(select an option)*:
  - Wired connection to the internet using an Ethernet cable – *or* –
  - Wireless connection to the internet

- Instrument-to-Cloud connection *(select an option)*:
  - Wired connection to the network using an Ethernet cable – *or* –
  - Wireless connection to the network using the instrument Wi-Fi module



Networked (local area network– LAN) configuration

Note: Networked (LAN) configurations can be internal configurations that do not require internet access. However, if you are networking an instrument for Cloud access, the LAN must have internet access.

IMPORTANT! For all wired configurations using an Ethernet cable, we support DHCP or static IP only. Proxy servers are not supported.

- A networked computer can *detect* all instruments that are on the same network and subnet mask.

  However, the computer can only *control* one instrument at a time.
- All networked computers can *detect* each instrument that is on the same network and subnet mask.

  However, the instrument can only be *controlled* by one computer at a time.

Note: For detailed information about networking your instrument, see the *QuantStudio™ 3 and 5 Real-Time PCR Systems IT Checklist* (Pub. No. MAN0013738).

Network requirements

The instrument:

- Is factory-configured for IPv4 TCP/IP communication and includes an Ethernet adapter (100/1,000 Mbps) with an RJ45-type connector for integrating the device into a local area network (LAN).
- Can alternatively be configured for wireless networking (High Power USB WiFi Module required, sold separately as an optional accessory).

The instrument can be configured for *either* wired or wireless networking, not both.

If a Thermo Fisher Scientific service representative is to install the instrument:

- If the instrument will be connected to a LAN, an active, tested network jack must be in place before the scheduled installation date.
- A representative from your information technologies department must be available during the installation to help connect the instrument to your network.

Required materials to network the instrument:

- Wired—Ethernet cable of sufficient length with RJ45 connectors
  - CAT5 cable for a 100 Mbps network connection
  - CAT5e or CAT6 cable for a 1,000 Mbps network connection

  –or–
- Wireless—High Power USB WiFi Module (Cat. No. A26774, sold separately)

Firewall ports that must be open

Ports	Condition
80/443	Standard ports for instrument-to-Cloud and computer-to-Cloud connections
mDNS, 7000	Instrument-to-computer connection
mDNS, 5353	Instrument discovery

Safety requirements

Safety practices

A safety representative from your facility must ensure that:

- Personnel establish and follow all applicable safety practices and policies to protect laboratory personnel from potential hazards.
- All applicable safety devices and equipment are available at all times.

Required safety equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Follow all applicable safety-related procedures at all times.

The following safety equipment and protection from hazards 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 service representative will work.
- Appropriate fire extinguisher:
  - You are responsible for providing an appropriate fire extinguisher for use on or near the 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 Safety Data Sheets (SDSs)

Receive and inspect the shipment

1. Verify that the items on the shipping list are the same items that you ordered at the time of purchase.
2. Carefully inspect the shipping containers. Report any damage to customer support. Record any damage or mishandling on the shipping documents.
3. Unpack and store the reagents and plates as specified.

Move the instrument packages to the installation site

1. Clear the installation site of all unnecessary materials.
2. Move the instrument packages and other shipping containers to the installation site.

   CAUTION! Do not tip the packaged instrument on end. Tipping may damage the instrument hardware and electronics.

3. Follow the pre-printed instructions on the instrument packaging to install the instrument.

CAUTION! PHYSICAL INJURY HAZARD. 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 people.

Note: After installation, keep the instrument packaging in case you need to relocate the instrument.

Materials for installation and operation

Installation materials

Ensure the following materials are available before installation of the instrument.

- Safety glasses, lab coats, and chemical-resistant, disposable gloves (powder-free)
- Easily accessible specified power outlet
- (*Optional*) Electrical protective devices (universal power supply unit, surge protector, and/or power line regulator)
- (*Optional*) External network connection
- Refrigerator or cold-room (4°C)
- Freezer (–20°C)
- Lint-free tissues
- Water

Operation materials

Additional supplies and consumables are necessary for routine operation of the instrument. For information about these additional supplies, see the user documentation provided with the instrument. Use only supplies as specified by Thermo Fisher Scientific.

Download and install the desktop software

Computer requirements for the desktop software

If you purchased a computer provided by Thermo Fisher Scientific, you can install the desktop software and use it to control the instrument.

Thermo Fisher Scientific does not support the use of customer-provided computers to control the instrument.

However, if desired, you can install the desktop software on a customer-provided computer and use the software to create templates and analyze data. Minimum requirements for a customer-provided computer are:

- Operating system—Windows™ 7 (32-bit or 64-bit)
- Processor—Pentium® 4 or comparable
- Memory—4 GB RAM
- Hard drive—500 GB
- Monitor—1280 × 1024 resolution

Download the desktop software

1. Sign in to your account at **thermofisher.com**.

   Note: If you do not have an account, create an account.

2. Go to **thermofisher.com/quantstudio3-5softwaredownloads**.

3. Download the software and the example files.

Install the desktop software

1. Use a Windows™ Administrator account to log in to the computer on which you are installing the desktop software.

2. Unzip the downloaded software and example files.

3. Double-click **setup.exe**.

4. Follow the **InstallShield Wizard** prompts to install the software.

5. Accept the License Agreement.

6. Select **Typical** as the setup preference, then click **Next**.

7. If you are installing the software on a computer provided by Thermo Fisher Scientific, install the software on the D:\ drive. If you are installing on a customer-provided computer, install the software in your preferred location.

8. Click **Finish**.

Third-party software

Before installing third-party software on the computer running the QuantStudio™ desktop Software, confirm that the third-party software will not:

- Restrict Ethernet communication.
- Interfere with instrument or computer operation.

Antivirus requirements

No antivirus software is provided because customer preferences and network requirements vary. You are responsible for installing antivirus software of your choice to protect the computer against viruses.

Compatible USB formats

The system supports USBs with formats: FAT, FAT32, and NTFS.

IMPORTANT! Do not use a USB with exFAT formatting. It may cause file corruption.

Register to access the Thermo Fisher Cloud

The Thermo Fisher Cloud is an online dashboard that provides data analytics software applications and secure storage. Register online to access the analysis applications and 10 GB of free data storage. The first time you upload data from the instrument to the Cloud, an additional 10 GB of storage is provided.

1. Go to **thermofisher.com/cloud**.
2. Follow the instructions on the screen to either access an existing account or to create a new account.

Documentation and support

Related documentation

Document	Pub. No.
QuantStudio™ 3 and 5 Real-Time PCR Systems Installation, Use, and Maintenance Guide	MAN0010407
QuantStudio™ Design and Analysis desktop Software User Guide	MAN0010408
QuantStudio™ 3 and 5 Real-Time PCR Systems SAE Admin Console User Guide	MAN0010410

Customer and technical support

Visit **thermofisher.com/support** for the latest in services and support, including:

- Worldwide contact telephone numbers
- Product support, including:
  - Product FAQs
  - Software, patches, and updates
  - Training for many applications and instruments
- Order and web support
- Product documentation, including:
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

    Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale found on Life Technologies' website at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have any questions, please contact Life Technologies at **www.thermofisher.com/support**.

Manufacturer's address: Life Technologies Holdings Pte Ltd | Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256

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Revision history: Pub. No. MAN0010405

Revision	Date	Description
C.0	14 April 2017	• Update general formatting for style and readability. • Update component and component packaging dimensions. • Update environmental requirements (operating and storage conditions), networking requirements, and materials required for installation.
B.0	September 2015	• Add sections for software download, installation, and network configuration. • Add reagent and plate storage at –20°C. • Update firewall URLs.
A.0	April 2015	New document.

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