

StepOnePlus™ Real-Time PCR System

Comparison to the 7300 Real-Time PCR System



Green Benefits

- Energy-efficient
- Less material usage
- Allows decreased fuel consumption and greenhouse gas emissions for transport
- Less waste

Introduction

Life Technologies is committed to designing products with the environment in mind—it's one more step toward a smaller footprint. This fact sheet provides the rationale behind the environmental claim that this product is more energy-efficient, utilizes less raw material, and is less hazardous for disposal than its predecessor, the 7300 Real-Time PCR System.

The StepOnePlus™ Real-Time PCR System is safer and easier to recycle because it is designed free of key hazardous substances commonly found in electronic products (e.g., lead, mercury, cadmium, hexavalent chromium, and polybrominated flame retardants). This product also weighs less and, which allows for a decrease in greenhouse gas emissions as the instrument is lighter to transport. Use

of less material also translates to less waste at end-of-life.

Product Description

The StepOnePlus™ Real-Time PCR System makes it simple and easy to get publication-ready, high-quality real-time PCR results on day one. This remarkably simple 96-well, 4-color real-time PCR system is designed with a user-friendly yet powerful interface for researchers of all experience levels.

Green Features

Energy-Efficient

The StepOnePlus™ Real-Time PCR System draws 66% less energy to process one sample plate (when the instrument is in a heated state), compared to the 7300 Real-Time PCR System (Table 2) and 29% when idling (Table 1).

Table 1. Energy Usage When Idling

Instrument	Average Usage (kW)	Run Time (hr)	kW-hr
7300	0.17	1	0.17
StepOnePlus™	0.12	1	0.12
Energy Conservation			29%

For comparison of energy efficiency, the default protocol for each instrument was used, despite the differences in volume and run time, to better represent actual use.

For the StepOnePlus™ instrument, each well of a 96-well plate was prepared with 10 µL of the TaqMan® Fast Universal PCR Master Mix (2X) and 10 µL water, for a total of 20 µL. The default “Fast Protocol” was selected. The instrument was set up at 100 VAC @ 60 Hz.

For the 7300 instrument, each well of a 96-well plate was prepared with 12.5 µL of the TaqMan® Gene Expression Master Mix and 12.5 µL water, for a total of 25 µL. The default “Standard Protocol” was selected. The instrument was set up at 100 VAC @ 60 Hz.

Fewer Resources/Less Waste

Manufacturing the StepOnePlus™ Real-Time PCR System requires 13% less material than its predecessor, the 7300 Real-Time PCR System. Furthermore, the instrument has a smaller footprint (almost 18% less); this helps to improve laboratory space use efficiency (Table 3).

UL Environment™ Validation

UL Environment helps support the growth and development of sustainable products and services in the global marketplace through

Table 2. Energy Usage When Performing a Run.*

Instrument	Average Usage (kW)	Run Time (hr)	kW-hr
7300 Default “Standard Protocol”	0.28	1.63	0.461
StepOnePlus™ Default “Fast Protocol”	0.25	0.62	0.154
Energy Conservation			66%

* The instruments completed a 48- or 96-well sample plate run from a heated start (i.e., the heated cover was at 105°C when the run was started). We recommend starting the protocol after the instrument has been in a heated state.

Table 3. Instrument Weight and Footprint.

Instrument	Instrument Weight (kg)	Footprint
7300 Real-Time PCR System	27.8	1530 cm ² (34 cm x 45 cm)
StepOnePlus™ Real-Time PCR System	24	1259 cm ² (24.6 cm x 51.2 cm)
Material Reduction		17.7%

independent third-party assessment and certification. UL Environment is a wholly-owned subsidiary of Underwriters Laboratories, a global leader in conformity assessment that has been testing and certifying products and writing standards for over 115 years.

We have presented the data that supports our claim that the StepOnePlus™ Real-Time PCR System uses less energy and weighs less than its predecessor, Applied Biosystems’ 7300 Real-Time PCR System. These claims have been validated by UL Environment Inc. in accordance with the Federal Trade Commission’s

16 CFR Part 260 – Guides for the Use of Environmental Marketing Claims. This validation helps ensure that environmental statements being made by manufacturers are accurate and not deceptive.

For more information about UL Environment please see <http://www.ulenvironment.com/ulenvironment/eng/pages/offerings/services/ecv/>.



- ✓ Uses up to 29% less energy when idling and 66% less energy when running
- ✓ Less materials used in instrument, weighs 13% less

Compared to the 7300 Real-Time PCR System

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