# Applied Biosystems - 9700

## GENERAL DESCRIPTION:

The GeneAmp PCR System 9700 is an automated instrument, specifically designed for the amplification of nucleic acids using the Polymerase Chain Reaction (PCR) process. The user interface consists of a control panel with a full numeric keypad, soft keys, and a graphical display screen that shows the time and temperature profile for each run. The sample compartment holds up to 96 MicroAmp Reaction Tubes (0.2 mL). The internal Peltier heating/cooling unit is housed in the sample block module. Platinum sensors provide a wide temperature range (4°C to 99.9°C), accurate measurements (±0.25°C from 35°C to 100°C) and long term stability and high reliability.

## TECHNICAL DESCRIPTION:

The Applied Biosystems 9700 Thermal Cycler allows for fast and easy detection of genetic signatures using Polymerase Chain Reaction (PCR). PCR uses naturally occurring biological components to amplify genetic material (RNA or DNA) from a variety of biological and environmental sources by making billions of copies from a single copy. This amplification process requires repetitive and precise cycling of temperatures provided by Peltier-based thermal cycling elements in the 9700 combined with specialized liquid reagents and plastic disposable reaction vessels. PCR amplifies specific genetic signatures (pathogens, human genetic signatures) only if they are present in the starting material.

## Tier Selection

Final tier assignment is based on overall product score.

Top Tier | Second Tier | Third Tier | Fourth Tier | Bottom Tier

**RANKINGS**

| | Biological | Chemical | Radiological |
|---|---|---|---|
| **FIELD USE** System | Bottom Tier | N/A | N/A |
| **MOBILE** Laboratory | Bottom Tier | N/A | N/A |
| **DIAGNOSTIC** Laboratory | Fourth Tier | N/A | N/A |
| **ANALYTICAL** Laboratory | Fourth Tier | N/A | N/A |

## CONTACT INFORMATION

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## COST

- $8,010 - $15,820/system
- $1.50/analysis

## Notes

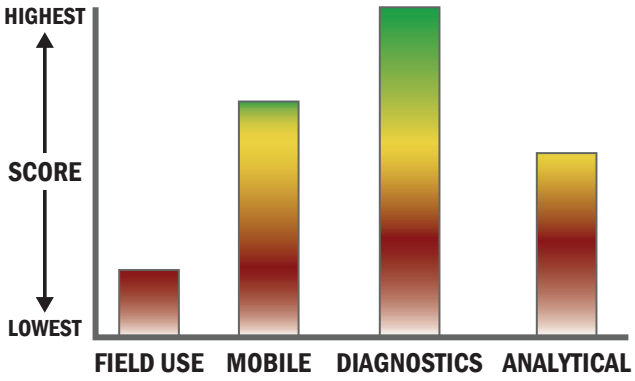
The ABI 9700 is a traditional thermocycler that does not perform real-time analysis. This system is popular as a workhorse PCR machine. The lower rankings are a result of comparison to other devices with automation and optics.

## Survey Source

Vendor and Internet Supplied Information

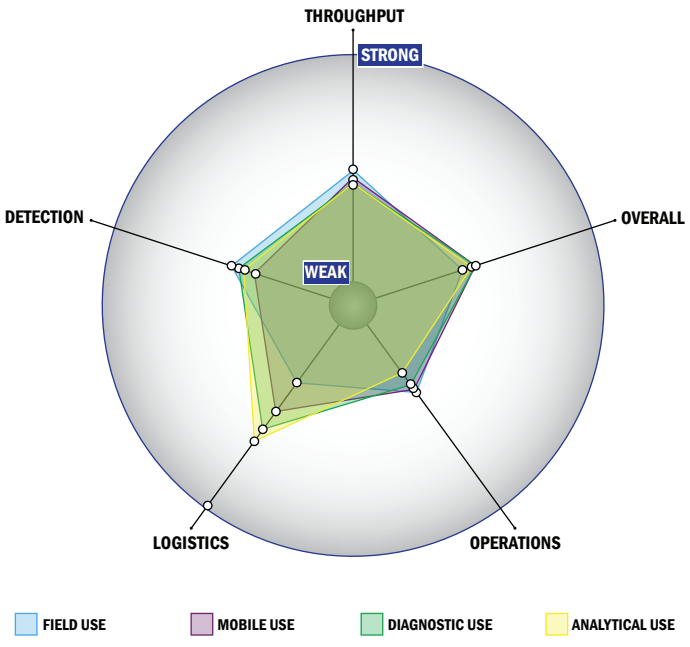
## Scoring Analysis

System scores are compared across the four scenarios and ranked from highest to lowest.




## Impact Chart

The Impact Chart is a spider graph representing specific categories and designed to give the reader a visual depiction of how a particular system is expected to operate across the four different scenarios. The score for each of the seven categories is presented as the percentage of the total possible score. Higher category scores extend the spokes of a graphic toward the outer edge of the chart. The area graphed for each of the four scenarios relates to how well the system performed in that scenario. Graphics for each of the four scenarios are super-imposed for ease of comparison.



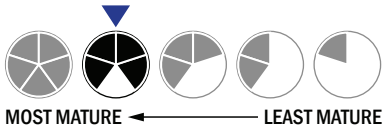

## Evaluation Criteria

### Throughput:

- Between 60 minutes and 8 hours for detection
- Multiple samples, multiple tests/sample per run
- Greater than 750 samples every 2 hours
- The system could be adapted to a semi-automated system with some effort
- Device or system is intended for multiple detection assays
- 2 solutions, buffer, eluents, and/or reagents
- 2 components
- 10-20 minutes is required for set-up
- 3-5 steps are required for detection

### Logistics:

- Very brief (minutes-hours) training and minimal technical skills
- Approximately the size of a toaster
- Between 5 and 25 kg
- This system is not capable of transmitting data
- System or device has 110V electrical requirement
- The device is not intended for portable use
- Is commercially available




### Operations:

- Can be used from 4 °C to 37 °C
- Components must be frozen (-20 °C)
- Performance is not influenced by relative humidity
- Between 6 months and 1 year shelf life
- 3-5 years expected life
- Results cannot be viewed in real-time
- The system is not capable of autonomy
- The system software is closed and not available for modification
- The system hardware is closed and not available for modification

### Detection:

- Possible the system could receive 510K clearance, no current efforts at this time
- Possible the system could receive FDA approval, no current efforts at this time
- Less than 10 µL
- 1-100 CFU/mL of original sample
- 1-100 PFU/mL of original sample
- Manual kit not integrated with the system handles spore lysis