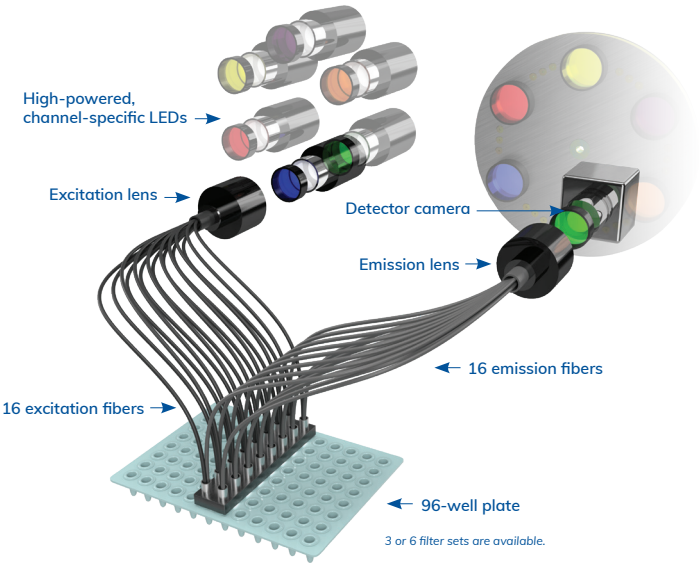
TECHNICAL NOTE

What sets the Azure Cielo™ apart from other real time PCR instruments?

1. Broad Spectrum Detection

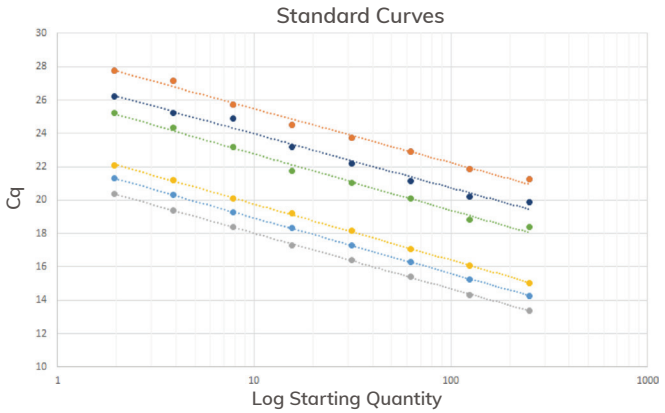
Do you run multiple 96-well plates to detect all your genes? Though this strategy can work, it wastes time pipetting and running the instrument, not to mention money spent on reagents. Furthermore, with limited sample volumes, determining which genes of interest to measure can sometimes be a tradeoff.

The Cielo was designed to detect multiple dyes per well—saving time, money, and sample.



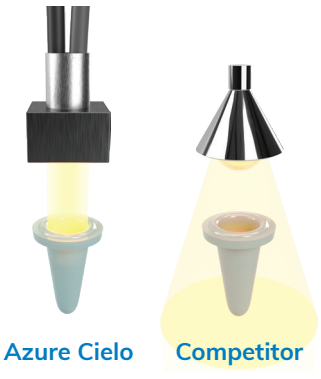
Six targets at once: The Cielo 6 contains 6 high-powered channel-specific excitation and emission light emitting diodes (LEDs) that can distinguish up to 6 different dyes per well without crosstalk or signal leakage. Whereas other instruments are capable of multiplexing 2–3 different dyes, the Cielo 6 detects an entire spectrum of qPCR dyes and chemistries, allowing broad compatibility.

Dyes/Probes		
• SYBR® Green • EvaGreen™ • FAM™	• VIC® • HEX™ • JOE™ • CAL Fluor® 540 • CAL Fluor® Orange 560	• TAMRA™ • Cy3
• ROX™ • TEX®615, • CAL Fluor® Red 610	• Cy®5 • Quasar®670, • Liz® • Mustang Purple®	• Cy®5.5 • Quasar 705

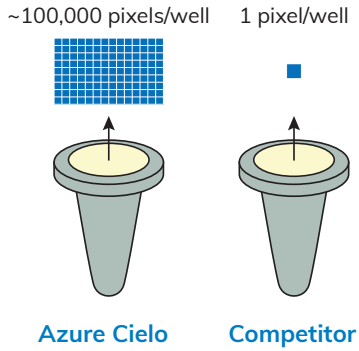


2. Background Reduction

Unlike other systems, **the Cielo delivers light to each sample through fiber optics instead of an overhead 'white' light source.** This allows light to penetrate each sample with precision, reducing the amount of light hitting outside the well.

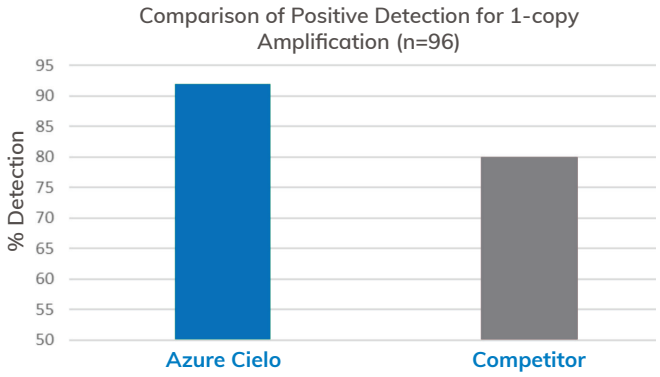


Increased resolution: By combining an adjacent CMOS sensor to 16 fiber optics, the Cielo detects close to 100,000 data points per well (pixels/ well) compared to other instruments that detect only a handful of pixels per well. **The increased resolution of the Cielo enhances well-to-well Cq uniformity.** Typically, to account for poor resolution and inconsistencies from well-to-well, a passive reference dye like ROX is added to normalize each sample. However, the increased resolution of the Cielo **eliminates the need for a passive reference dye**.



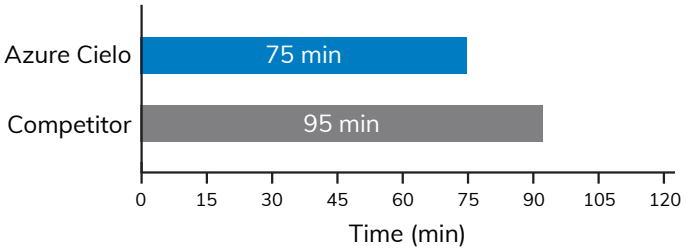
3. Sensitivity & Speed

Ever struggled with low copy number detection? The Cielo identifies over 10% more positive calls (Cq values) with minimal amounts of sample over other instruments.



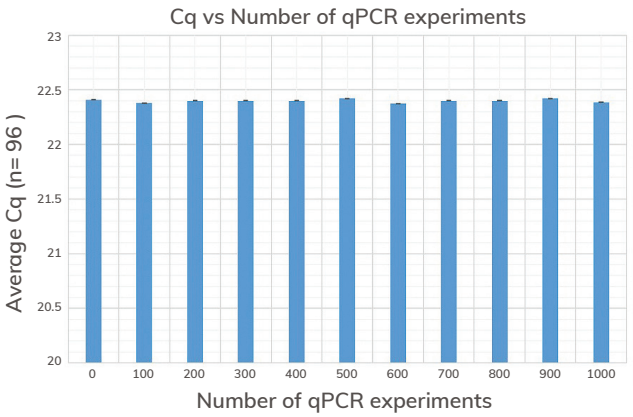
The increased sensitivity of the Cielo makes it ideal for amplifying the cDNA or DNA of difficult targets, including COVID-19 viral RNA or low copy number variants in the genome.

Speed: At the core of the Cielo's light detection system are 16 individual excitation and emission fibers that span across 16 wells. Among systems that also utilize in-well scanning, in either 1-well or 8-wells at a time, the Cielo stands out—**scanning 16-wells at a time**. This feature allows for faster plate scanning—**detecting each channel in 1.5 seconds**.

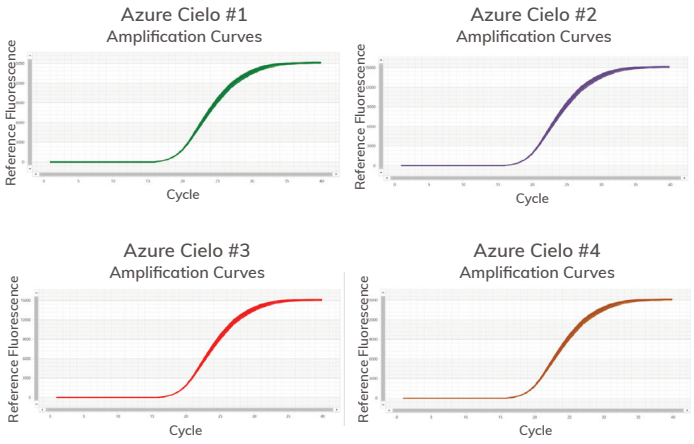


4. Reproducibility

Being able to trust an instrument to perform consistently from run-to-run is super important, not only for generating reproducible results, but for peace of mind—knowing that the instrument is not the cause of any inconsistencies amongst your samples. You can count on the Cielo to generate highly reproducible Cq values, up to at least 1,000 experiments later.



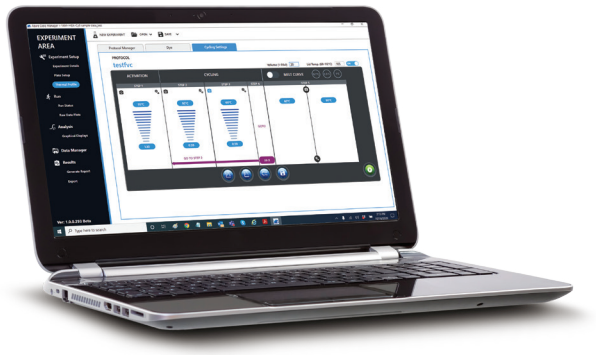
Whether you have a large number of samples to run at the same time or you're in a shared space (where you may not be able to use the same instrument every time) multiple instruments may be needed. **The Cielo generates highly reproducible data from one instrument to another, with a standard deviation of only 0.02 across four different devices**.



5. Intuitive Data Analysis

After preparing your samples and running an experiment, don't waste your time making an excel template that only partially fits the needs of your data.

Although exporting the data in excel format is always an option, with Cielo Manager software the plate layout can be programmed in and saved for future use. Making changes to the plate layout file or any saved protocol is easy and intuitive. Furthermore, to analyze the data, there are several different modes of analysis to select; from standard curve to ΔΔCt, both are easily programable, saving you time. Let the software do the work.



Email Notification: Starting a run at the end of the day but need your data tomorrow morning? As the Cielo connects via Wi-Fi, Cielo Manager software not only notifies you when your run is completed, but sends the data straight to your inbox.

6. Dedicated Support

1-year Comprehensive Warranty: The Cielo is backed by a 1 year warranty included at no extra cost.

Service Contract: At Azure Biosystems, we are happy to help with any inquires. That's why we back our instruments with a service contract, which includes parts, depot service, and on-site service. A premium service contract includes all of the above plus a preventative maintenance visit on-site. As always, our dedicated support team is available free of charge 24/7 through email at support@azurebiosystems.com.

IQOQ & Certificates: All Cielo instruments are quality control checked prior to shipment from our manufacturing facility. For those requiring additional installation and operational qualification assurance to meet FDA requirements (e.g., pharmaceutical industry) or desire an extra layer of 'peace of mind', our IQOQ documents are available on demand. Ask us for a copy today!

Lifetime Free Software Updates: Some things in life are still free! The Cielo device software and Cielo Manager software are freely updateable for life, either through our distributors or directly through our website. As the software is license-free, you won't have to deal with a security key and therefore installation is quick and simple.

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