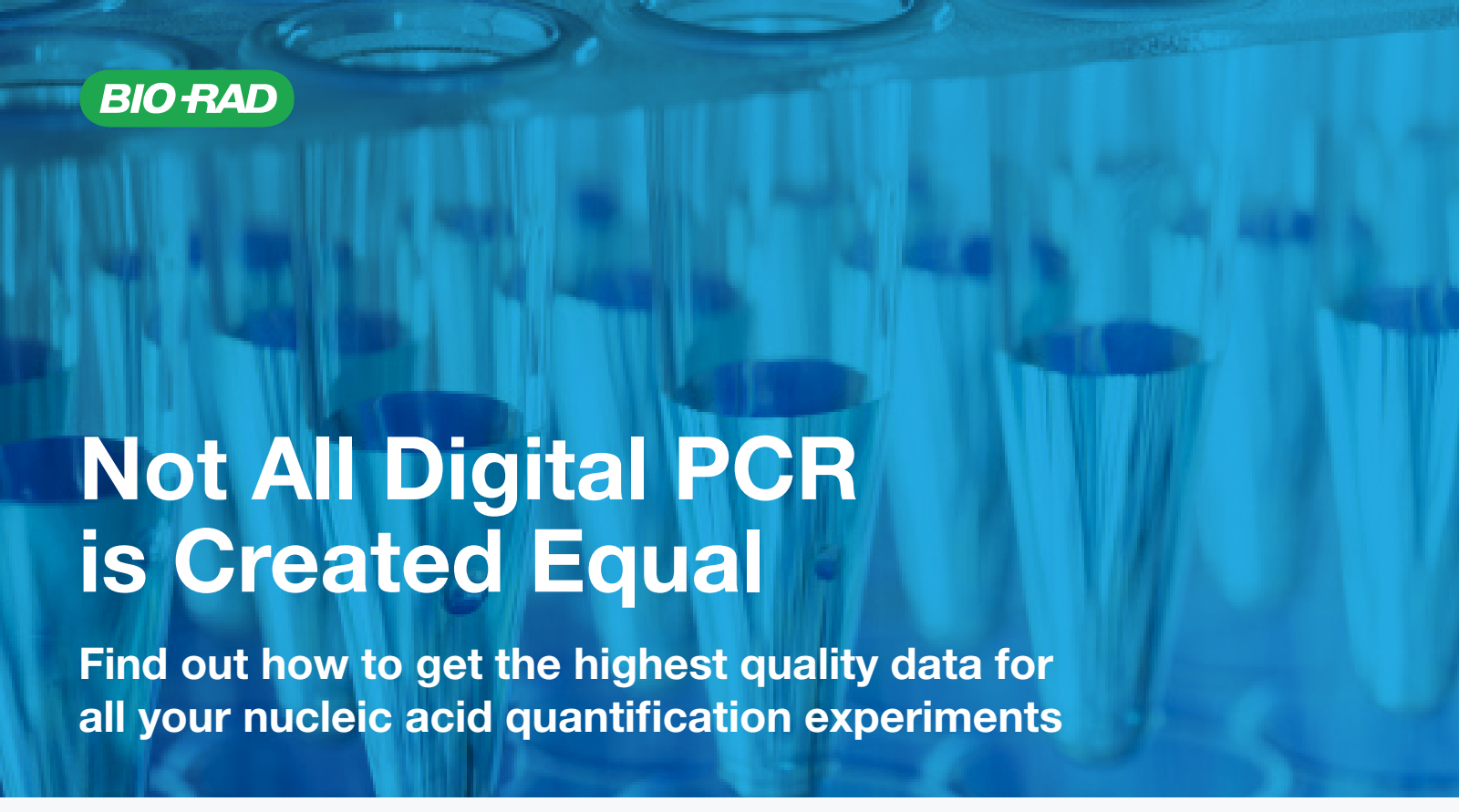


Not All Digital PCR is Created Equal

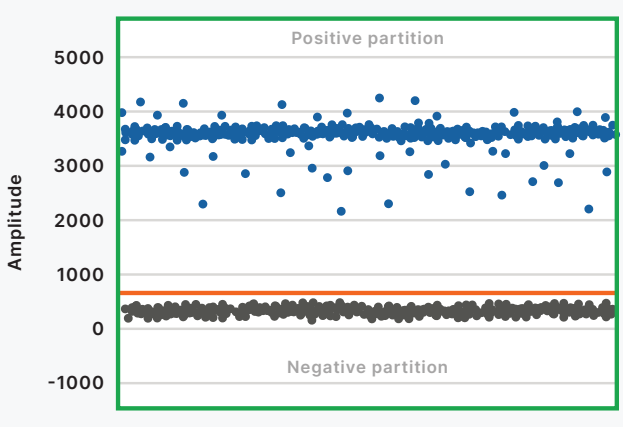
Find out how to get the highest quality data for all your nucleic acid quantification experiments

Implementing digital PCR (dPCR) into your research can offer unparalleled sensitivity and absolute quantification of DNA and RNA in samples of interest, overcoming many of the limitations of qPCR. But as with any laboratory tool, the quality of dPCR data can only be as high as the quality of the assays and instrumentation used to produce it.

With several options available on the market, your choice of dPCR system can impact your dPCR data. To ensure that every experiment yields reliable results that can translate to meaningful scientific conclusions, it's vital to understand what defines good vs. bad dPCR data.

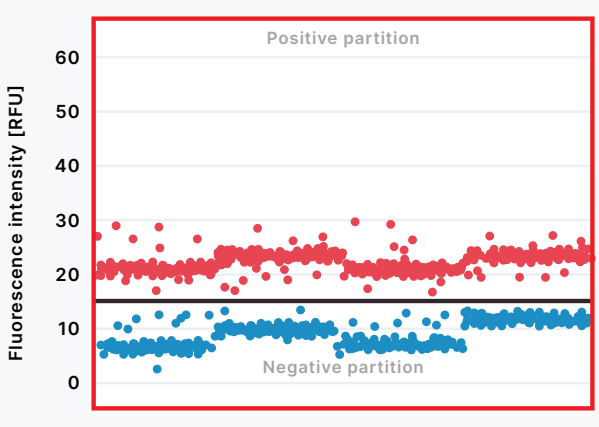
What Defines dPCR Data Quality?

Good dPCR Data
from Bio-Rad QX200™ Droplet Digital™ PCR (ddPCR™) System



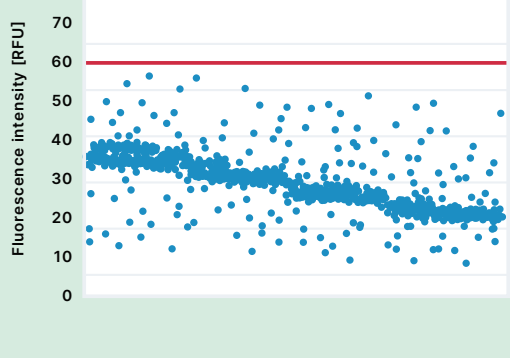
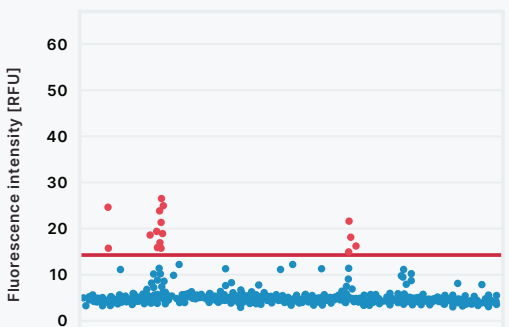
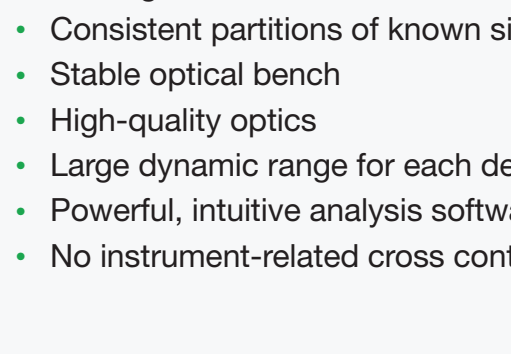
- Tight and consistent amplitudes for positive and negative partitions enable easy threshold setting
- Amplitude separation between positive and negative partitions provides confidence in the results

Bad dPCR Data
from "Instrument X"



- Inconsistent amplitudes within partition types make it difficult for scientists to set thresholds with confidence
- Lack of separation between partitions means that slight changes in day to day sample prep and reaction setup can alter results, preventing accurate quantification

Understanding Issues in dPCR Data Quality

Observed Issue	Potential Causes	Consequences
Random Positive Partitions 	Poor partitioning of the sample Low specificity assays Instrument noise	Threshold placement uncertainty Reduced limit of detection (LOD) Reduced sensitivity
Cross Contamination 	Environmental factors User error Instrument dispersion	False positives Reduced LOD Reduced sensitivity, especially for low copy number samples
Noise 	Optical issues, contaminants (solids, bubbles)	Incorrect assessment in addition to advanced user skills and time required to interpret data appropriately
Hardware Instability 	Lack of robust instrumentation	Threshold placement uncertainty Reduced sensitivity False positives or false negatives Advanced user skills and time required to interpret data appropriately
Optical Instability 	Inferior optics technology	Poor data quality and advanced user skills and time required to interpret data appropriately

All of these issues can also create a need to repeat experiments, increasing both the cost and time required to obtain usable results.

Maximize Data Quality with Droplet Digital PCR

Obtaining accurate dPCR results requires quality assays and reliable instrumentation. When it matters, avoid the potential pitfalls listed above by choosing a dPCR solution with more than ten years of demonstrated history in quality and reliability.

Droplet Digital PCR (ddPCR) instruments and assays offer:

- High target specificity
- High amplification efficiency
- A strong signal produced when amplifying the target of interest
- Consistent partitions of known size
- Stable optical bench
- High-quality optics
- Large dynamic range for each detection channel
- Powerful, intuitive analysis software
- No instrument-related cross contamination

The Bio-Rad ddPCR Technology Solution:

Digital PCR systems and software

Wide selection of kits, assays, and reagents

Experienced field application scientists and support teams

Over 6,300 peer-reviewed publications across diverse applications

Learn more about cutting-edge ddPCR solutions from Bio-Rad at www.bio-rad.com/good-digital-pcr-data

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