

# Qubit Fluorometer vs. Quantus Fluorometer

## Accurate, sensitive, intuitive

The Invitrogen™ Qubit™ Fluorometer is an analytical instrument for DNA, RNA, and protein quantitation with a small benchtop footprint and an intuitive user interface. The instrument works with Invitrogen™ Qubit™ assay kits to enable greater sensitivity and accuracy than UV absorbance measurements, and is ideal for applications including cloning, sequencing, transfection, qPCR, and protein assays. Here we compare accuracy and specificity data for the Qubit Fluorometer and Qubit assays with the Quantus™ Fluorometer and QuantiFluor™ assays from Promega.

### DNA assay sensitivity

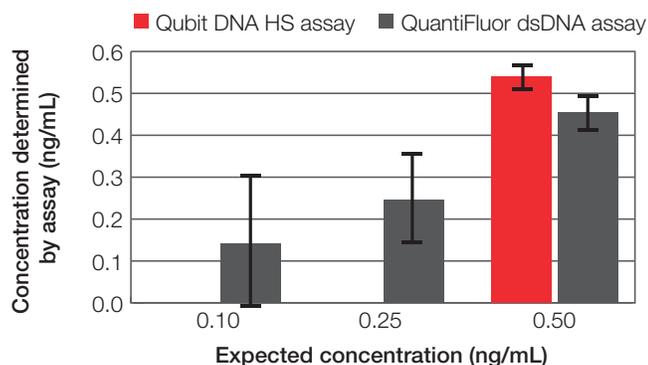
Promega claims that dsDNA assays on the Quantus Fluorometer are 10x more sensitive than Qubit Fluorometer dsDNA assays,<sup>\*</sup> but assay precision is compromised for both instruments at concentrations below 0.5 ng/mL (Figure 1). The Qubit Fluorometer gives an out-of-range message when the calculated value exceeds a CV of 20%, providing you with confidence in the results. Table 1 summarizes these results along with other attributes of each instrument.



**Table 1. Comparison of dsDNA quantitation data and other instrument features.**

	Qubit Fluorometer and assays	Quantus Fluorometer and QuantiFluor assays
<b>Sensitivity (dsDNA)</b>	0.5 ng/mL (10% CV)	0.1 ng/mL (112% CV)
<b>Dynamic range<sup>†</sup> (dsDNA)</b>	0.5 ng/mL to 5 µg/mL	0.1 ng/mL to 1 µg/mL
<b>Detection limit</b>	Yes—out-of-range message at low and high ends of assays	No—gives concentration values for any sample with fluorescence signal above background
<b>Display</b>	Large, intuitive touch screen	Push-button navigation
<b>Data storage</b>	1,000 samples	20 samples
<b>Data transfer</b>	USB thumb drive or cable	Indirect—need to download software onto computer
<b>Footprint</b>	Small	Similar to the Qubit 2.0 Fluorometer

<sup>†</sup> Combined range of Qubit Broad Range and High Sensitivity assays.



**Figure 1. Assay sensitivity.** Comparable results are achieved at 0.5 ng/mL, but the coefficient of variation (CV) for the QuantiFluor assay is 112% at 0.1 ng/mL. The Qubit Fluorometer reports an out-of-range message at levels >20% CV; the Quantus Fluorometer does not.

<sup>\*</sup> Quantus Fluorometer sensitivity claim is stated at [www.promega.com/quantus](http://www.promega.com/quantus).

### RNA quantitation accuracy in the presence of DNA

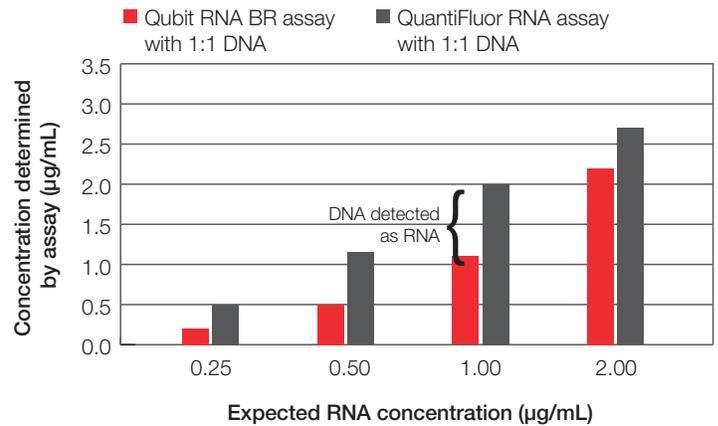
Qubit™ RNA assays are designed to be specific and accurate for RNA even in the presence of a 1:1 mixture of RNA and DNA, whereas the QuantiFluor RNA assay on the Quantus Fluorometer cannot distinguish RNA from DNA below 3 µg/mL (Figure 2). This is critical for limited, low-concentration samples that may also contain DNA.

### The Qubit Fluorometer has more compatible assays

The Qubit Fluorometer supports assays for high-sensitivity or broad-range dsDNA and RNA quantitation (Table 2). Assays for oligos, ssDNA, protein, and microRNA quantitation are also available.

### Trusted when accuracy matters

Invitrogen™ Qubit™ instruments and assays have a proven track record, with over 3,000 citations and hundreds of testimonials. With high sensitivity for DNA, high specificity for RNA, and a broad range of available assays, the Qubit Fluorometer is the instrument of choice when accuracy matters most.



**Figure 2. Accuracy in the presence of DNA.** The Qubit RNA BR (broad range) assay demonstrates high specificity, even at low concentrations and in the presence of DNA. A significant amount of DNA is detected as RNA with the QuantiFluor assay.

**Table 2. Assays available for each fluorometer.**

Assay <sup>‡</sup>	Qubit assays for the Qubit Fluorometer	QuantiFluor assays for the Quantus Fluorometer
dsDNA	Yes	Yes
RNA	Yes	Yes <sup>§</sup>
microRNA	Yes	No
Protein	Yes	No
ssDNA or oligos	Yes	Yes

<sup>‡</sup> New assays including cholesterol, glucose, and peroxide can be added to the Qubit 2.0 or 3.0 Fluorometers.

<sup>§</sup> QuantiFluor RNA assay for the Quantus Fluorometer also detects DNA.

“Quick and easy with excellent repeatability; more reliable than spectrophotometry and more confidence in results.”

—Kevin Barr  
University of Western Ontario

“It gives me the possibility to measure very diluted samples. Good, quick, and easy.”

—Sylvia Rodriguez  
Institute for Research in Biomedicine (IRB Barcelona)

## Ordering information

Product	Starting sample concentration range	Assay range	Cat. No.
Qubit dsDNA HS (High Sensitivity) Assay Kit	10 pg/μL–100 ng/μL	0.1–100 ng	Q32854
Qubit dsDNA BR (Broad Range) Assay Kit	100 pg/μL–1,000 ng/μL	0.2–1,000 ng	Q32853
Qubit ssDNA Assay Kit	50 pg/μL–200 ng/μL	1–200 ng	Q10212
Qubit RNA HS (High Sensitivity) Assay Kit	250 pg/μL–100 ng/μL	5–100 ng	Q32852
Qubit RNA BR (Broad Range) Assay Kit	1 ng/μL–1 μg/μL	20–1,000 ng	Q10210
Qubit Protein Assay Kit	12.5 μg/mL–5 mg/mL	0.25–5 μg	Q33212
Qubit microRNA Assay Kit	50 ng/mL–100 μg/mL	1–100 ng	Q32880
Qubit 3.0 Fluorometer			Q33216
Qubit 3.0 Quantitation Starter Kit			Q33217
Qubit 3.0 NGS Starter Kit			Q33218

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