MOLECULAR DEVICES

TECHNICAL NOTE

Data show performance equivalence between SpectraMax and VersaMax absorbance readers

This technical note is designed to provide information on the similarities in performance between four single-mode absorbance plate readers: SpectraMax® ABS, SpectraMax® ABS Plus, SpectraMax® 190* and VersaMax™* Microplate Readers.

The SpectraTest® ABS1 Absorbance Validation Plate** enables you to qualify the performance of the system by testing optical specifications that are critical to achieve quality results. It contains NIST- and NMI-traceable filters of varying optical densities. The validation plates were run on three different instruments of each reader model using the appropriate reader validation protocol within the SoftMax® Pro Software protocol library.

Wavelengths 440 nm and 635 nm of the photometric accuracy test, which measures the accuracy or linearity of the optical density measurement, were used for this analysis. Samples 1 through 4 are NIST- and NMI-traceable filters of varying optical densities.

Table 1 and Figure 1 show average data and standard curves obtained from the four models of microplate readers at 440 nm. Each data point is an average of 24 replicates and eight replicates per instrument.

440 nm	Average OD			
Instrument	Sample 1	Sample 2	Sample 3	Sample 4
SpectraMax ABS reader	0.267	0.583	1.109	1.660
SpectraMax ABS Plus reader	0.266	0.584	1.111	1.661
SpectraMax 190 reader	0.270	0.562	1.102	1.663
VersaMax reader	0.274	0.563	1.101	1.663
Average	0.269	0.573	1.106	1.662
STDEV	0.004	0.012	0.005	0.002
%CV	1.325	2.150	0.431	0.094

Table 1. Average OD at 440 nm.

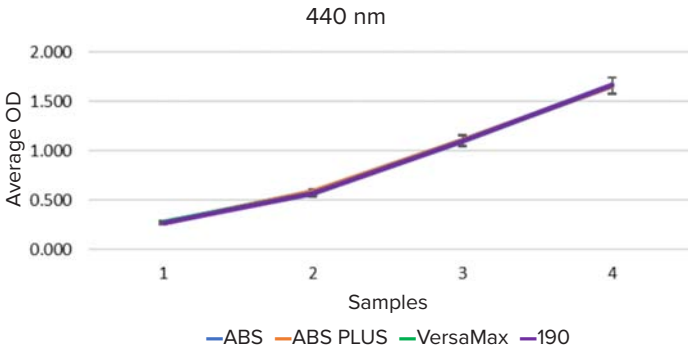

Figure 1. Standard curve for 440 nm OD measurements.

* We will cease manufacturing SpectraMax 190 and VersaMax Microplate Readers on December 30, 2022.

** The SpectraTest ABS1 Absorbance Validation Plate will be discontinued on December 29, 2023. Please update to the SpectraTest ABS2 Absorbance Validation Plate, which is compatible with the SpectraMax ABS and ABS Plus Microplate Readers.

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Table 2 and Figure 2 show average data and standard curve obtained from the four models of microplate readers at 440 nm. Each data point is an average of 24 replicates.

635 nm	Average OD			
Instrument	**Sample 1**	**Sample 2**	**Sample 3**	**Sample 4**
SpectraMax ABS reader	0.260	0.564	1.065	1.589
SpectraMax ABS Plus reader	0.259	0.564	1.066	1.588
SpectraMax 190 reader	0.260	0.564	1.067	1.591
VersaMax reader	0.269	0.553	1.059	1.590
Average	0.262	0.561	1.064	1.589
STDEV	0.004	0.006	0.004	0.001
%CV	1.661	0.985	0.349	0.083

Table 2. Average OD at 635 nm.

Together, the results demonstrate that the four models of microplate readers deliver equivalent results. The %CV values are below 2.5% for all replicates at each wavelength, assuring uniformity of results.

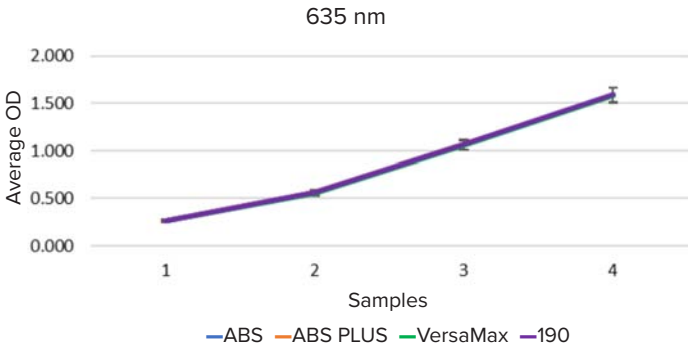

Figure 2. Standard curve for 635 nm OD measurements.

Contact Us

Phone: +1.800.635.5577
Web: www.moleculardevices.com
Email: info@moldev.com
Check our website for a current listing of worldwide distributors.

Regional Offices

USA and Canada	+1.800.635.5577	Taiwan/Hong Kong	+886.2.2656.7585
United Kingdom	+44.118.944.8000	Japan	+81.3.6362.9109
Europe*	00800.665.32860	South Korea	+82.2.3471.9531
China	+86.4008203586	India	+91.73.8661.1198

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