

## ND-1000 Reproducibility

### Introduction

The precision or reproducibility of the NanoDrop® ND1000 spectrophotometer was assessed in three separate studies. The RNA and DNA studies utilized the absorbance at 260nm to automatically calculate the respective nucleic acid concentrations. The protein study utilized the absorbance at 280 nm.

### Method-RNA

tRNA was serially-diluted with distilled water to generate solutions that spanned the dynamic detection range of the instrument. Following blanking with water, one microliter (1ul) aliquots of the tRNA solutions were dispensed on to the spectrophotometer platform and measured in the Nucleic Acid Sample window using the RNA-40 setting. Spent sample was wiped from the pedestal with a Kimwipe. Ten individually-dispensed replicates were measured for each of the eight tRNA solutions as shown in Table 1.

Table 1.

Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul
3200x	26.1	1600x	53.8	800x	110.1	400x	199.2	200x	441.6	100x	840.4	50*x	1663.2	25x	3161.4
3200x	25	1600x	54.5	800x	111.1	400x	201.2	200x	446.4	100x	836.8	50*x	1669.2	25x	3173.3
3200x	25.2	1600x	55.1	800x	113.7	400x	199.2	200x	456.8	100x	841.2	50*x	1689.2	25x	3156.2
3200x	24.6	1600x	54.9	800x	111.4	400x	226.4	200x	447.6	100x	839.6	50*x	1676.4	25x	3179.1
3200x	24.2	1600x	55	800x	110.9	400x	222.8	200x	447.6	100x	835.6	50*x	1722.4	25x	3158
3200x	24.7	1600x	55.6	800x	111.2	400x	230.7	200x	444.4	100x	839.2	50*x	1684.4	25x	3155.1
3200x	25.5	1600x	54.7	800x	111.3	400x	233.4	200x	448	100x	834	50*x	1673.6	25x	3148.7
3200x	25.7	1600x	54.3	800x	111.8	400x	229.3	200x	446	100x	851.2	50*x	1685.6	25x	3156.7
3200x	25.8	1600x	54.9	800x	111	400x	228.9	200x	448.8	100x	838.8	50*x	1686	25x	3157.9
3200x	26.2			800x	111.5	400x	229	200x	452.4	100x	835.2	50*x	1692	25x	3167.3
<b>MEAN</b> =	<b>25.3</b>		<b>54.7</b>		<b>111.4</b>		<b>220</b>		<b>448</b>		<b>839.2</b>		<b>1684.2</b>		<b>3161.4</b>
<b>SD =</b>	<b>0.7</b>		<b>0.5</b>		<b>0.9</b>		<b>14.2</b>		<b>4.2</b>		<b>4.8</b>		<b>16.3</b>		<b>9.2</b>

### Method-DNA

A second reproducibility study was conducted using three different concentrations of Herring sperm DNA diluted in TE buffer. All of the DNA solutions were measured using the 1.0mm pathlength since they were < 500ng/ul. Following Blanking with TE buffer, 1ul aliquots of the DNA sample solutions were measured in the Nucleic Acid Sample window using the DNA-50 setting. Spent sample was wiped from the pedestal with a Kimwipe. Ten replicates at the three DNA concentrations, plus water, were individually measured by dispensing with a multi-dispense pipettor. Data shown in Table 2.

Table 2.

Sample	ng/ul	Sample	ng/ul	Sample	ng/ul	Sample	ng/ul
water	0.27	3 ng/ul	4.32	33 ng/ul	36.2	333 ng/ul	305.18
water	0.2	3 ng/ul	3.88	33 ng/ul	36.36	333 ng/ul	306.36
water	-0.22	3 ng/ul	4.66	33 ng/ul	35.18	333 ng/ul	305.76
water	-0.79	3 ng/ul	4.46	33 ng/ul	35.89	333 ng/ul	305.82
water	-0.76	3 ng/ul	4.52	33 ng/ul	35.49	333 ng/ul	304.83
water	-0.34	3 ng/ul	3.28	33 ng/ul	35.94	333 ng/ul	304.64
water	-0.78	3 ng/ul	2.98	33 ng/ul	35.58	333 ng/ul	307.05
water	-0.11	3 ng/ul	3.63	33 ng/ul	35.13	333 ng/ul	307.83
water	-0.22	3 ng/ul	2.8	33 ng/ul	36.8	333 ng/ul	309.97
water	0.34	3 ng/ul	3.28	33 ng/ul	35.8	333 ng/ul	309.56
<b>MEAN =</b>	<b>-0.24</b>		<b>3.78</b>		<b>35.84</b>		<b>306.70</b>
<b>SD =</b>	<b>0.43</b>		<b>0.68</b>		<b>0.52</b>		<b>1.89</b>

## Method-Protein

The Absorbance of a protein solution (A-1), measured at 280nm on two NanoDrop® ND1000 Spectrophotometers and normalized at 340nm in the UV-Visible (Figure 1) window, is shown in the table 3 below. The Absorbance of a second protein solution (B-1), was also measured at 280nm, normalized at 340nm in the UV-Visible window, and is shown in table 4.

Sample ID	A280nm	A280nm
Protein A-1	0.094	
Protein A-1	0.08	
Protein A-1	0.085	0.079
Protein A-1	0.082	0.077
Protein A-1	0.071	0.078
Protein A-1	0.083	0.073
Protein A-1	0.071	0.073
Protein A-1	0.072	0.076
Protein A-1	0.072	0.071
Protein A-1	0.071	0.07
<b>MEAN =</b>	<b>0.078</b>	<b>0.074</b>
<b>SD =</b>	<b>0.008</b>	<b>0.003</b>

Table 3.

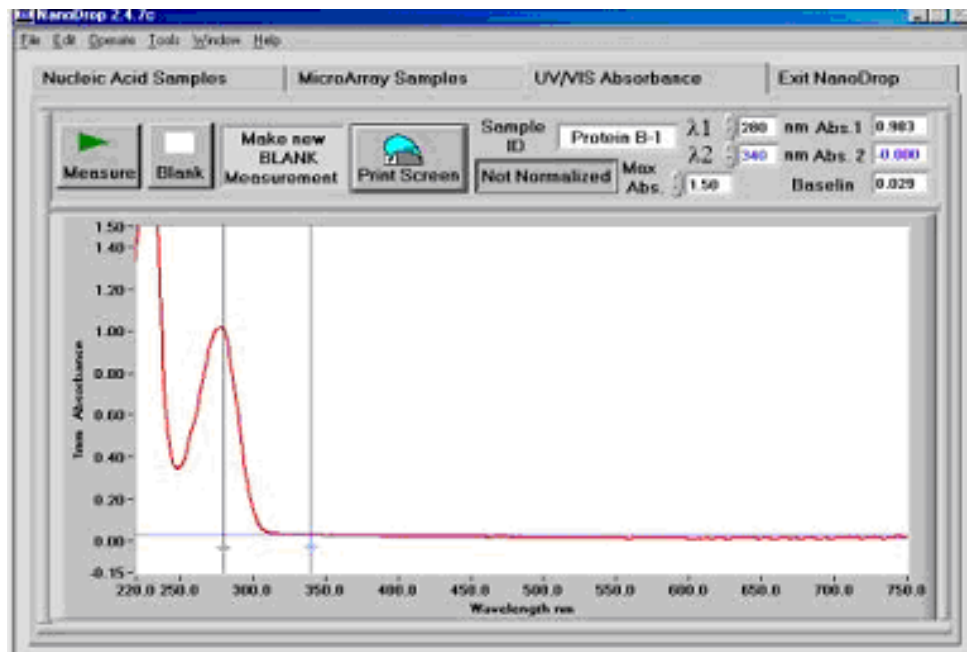


Fig-

Sample ID	A280nm
Protein B-1	0.997
Protein B-1	0.985
Protein B-1	0.986
Protein B-1	0.982
<b>MEAN =</b>	<b>0.988</b>
<b>SD =</b>	<b>0.007</b>

Figure 1.