National Voluntary Laboratory Accreditation Program

CALIBRATION LABORATORIES **NVLAP LAB CODE 200951-0**

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Labsphere Inc.	**Fields of Calibration**
231 Shaker Road North Sutton, NH 03260 Steven M. Bowers Phone: 603-927-1074 Fax: 603-927-4694 E-mail: sbowers@labsphere.com URL: http://www.labsphere.com	Optical Radiation This laboratory is compliant to ANSI/NCSL Z540-1-1994; Part 1. (NVLAP Code: 20/A01)

CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	**Range**	**Expanded Uncertainty** [Notes 3,5]	**Remarks**
OPTICAL RADIATION			
Photometric (20/O02)			
Total Luminous Flux	10 lm to 4000 lm	0.56 %	Derived from spectral radiant flux values for a Halogen lamp; 4π, 2π, and directional 2π versions
Correlated Color	2500 K to 8000 K	9.2 K	
Color Rendering Index	95.8 to 100.0	±0.30	
x	Typical for Lamp Type	0.00053	
y		0.00068	
u’	Typical for Lamp Type	0.00070	
v’		0.00021	
X	Typical for Lamp Type	0.00048	
Y		0.00034	
Z		0.000072	
Luminance (cd/m2)	9.00 – 2,078,000	1.1%	Derived from spectral radiance values for an Integrating Sphere Source
Illuminance (lux)	28.27 - 6,528,000	1.1%	
Correlated Color	2500 K to 8500 K	8.5 K	
Color Rendering Index	6.37 – 99.87	±0.15	
x	0.14813 - 0.69741	0.000063	
y	0.0259 - 0.7248	0.000088	
u’	0.0657 - 0.5338	0.000033	
v’	0.05176 - 0.38606	0.00016	
X	0.0144 - 3604.0	0.000039	
Y	0.0132 - 3042.0	0.000036	
Z	0.0046 - 5036.0	0.000018	
Duv	-0.19739 - 0.14995	0.000022	

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Reflectance Factor for 8°/h geometry at Wavelength Shown Below:	Reflectance		Spectral reflectance factor is a dimensionless quantity
250 nm to 600 nm	> 0.00 to 0.02	0.0016	
	> 0.02 to 0.05	0.0029	
	> 0.05 to 0.10	0.012	
	> 0.10 to 0.20	0.012	
	> 0.20 to 0.50	0.0054	
	> 0.50 to 0.80	0.0054	
	> 0.80 to 0.99	0.0053	
601 nm to 1500 nm	> 0.00 to 0.02	0.0017	
	> 0.02 to 0.05	0.0022	
	> 0.05 to 0.10	0.0025	
	> 0.10 to 0.20	0.0052	
	> 0.20 to 0.50	0.0064	
	> 0.50 to 0.80	0.0064	
	> 0.80 to 0.99	0.0049	
1501 nm to 2200 nm	> 0.00 to 0.02	0.0090	
	> 0.02 to 0.05	0.0090	
	> 0.05 to 0.10	0.015	
	> 0.10 to 0.20	0.015	
	> 0.20 to 0.50	0.0099	
	> 0.50 to 0.80	0.0083	
	> 0.80 to 0.99	0.0088	
2201 nm to 2500 nm	> 0.00 to 0.02	0.054	
	> 0.02 to 0.05	0.054	
	> 0.05 to 0.10	0.043	
	> 0.10 to 0.20	0.043	
	> 0.20 to 0.50	0.035	
	> 0.50 to 0.80	0.028	
	> 0.80 to 0.99	0.032	

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) [Notes 1,2]

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty [Notes 3,5]	Remarks
Radiometric (20/O03)			
Total Spectral Radiant Flux (W/nm) 350 nm to 400 nm 401 nm to 600 nm 601 nm to 1050 nm	Typical for lamp type	 2.1% 1.7% 1.9%	Halogen Lamp, 4π, 2π, and directional 2π versions
Radiant Flux, 350 – 1050nm	0.50 W to 40.00 W	0.33%	Derived from spectral radiant flux values for a Halogen lamp; 4π, 2π, and directional 2π versions

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Irradiance of FEL Lamp (W/m^2)	(250 – 2500) nm at 1nm interval	(See table below)	

Wavelength Range	Exp. Rel. Unc., k=2	Wavelength Range	Exp. Rel. Unc., k=2	Wavelength Range	Exp. Rel. Unc., k=2	Wavelength Range	Exp. Rel. Unc., k=2
250 - 270	1.70%	637 - 647	0.70%	2173 - 2180	0.41%	2334 - 2335	0.70%
271 - 290	1.60%	648 - 662	0.69%	2181 - 2188	0.40%	2336 - 2336	0.71%
291 - 312	1.50%	663 - 686	0.68%	2189 - 2197	0.39%	2337 - 2338	0.72%
313 - 332	1.40%	687 - 712	0.67%	2198 - 2209	0.38%	2339 - 2339	0.73%
333 - 353	1.30%	713 - 734	0.66%	2210 - 2250	0.37%	2340 - 2341	0.74%
354 - 382	1.20%	735 - 754	0.65%	2251 - 2259	0.38%	2342 - 2342	0.75%
383 - 410	1.10%	755 - 773	0.64%	2260 - 2265	0.39%	2343 - 2344	0.76%
411 - 423	1.00%	774 - 791	0.63%	2266 - 2270	0.40%	2345 - 2345	0.77%
424 - 426	0.99%	792 - 808	0.62%	2271 - 2275	0.41%	2346 - 2347	0.78%
427 - 428	0.98%	809 - 826	0.61%	2276 - 2278	0.42%	2348 - 2348	0.79%
429 - 431	0.97%	827 - 844	0.60%	2279 - 2282	0.43%	2349 - 2349	0.80%
432 - 434	0.96%	845 - 864	0.59%	2283 - 2285	0.44%	2350 - 2351	0.81%
435 - 437	0.95%	865 - 886	0.58%	2286 - 2288	0.45%	2352 - 2352	0.82%
438 - 440	0.94%	887 - 915	0.57%	2289 - 2291	0.46%	2353 - 2354	0.83%
441 - 443	0.93%	916 - 969	0.56%	2292 - 2294	0.47%	2355 - 2355	0.84%
444 - 447	0.92%	970 - 1114	0.55%	2295 - 2296	0.48%	2356 - 2357	0.85%
448 - 452	0.91%	1115 - 1176	0.54%	2297 - 2298	0.49%	2358 - 2358	0.86%
453 - 457	0.90%	1177 - 1223	0.53%	2299 - 2301	0.50%	2359 - 2360	0.87%
458 - 464	0.89%	1224 - 1272	0.52%	2302 - 2303	0.51%	2361 - 2361	0.88%
465 - 471	0.88%	1273 - 1332	0.51%	2304 - 2305	0.52%	2362 - 2362	0.89%
472 - 479	0.87%	1333 - 1420	0.50%	2306 - 2307	0.53%	2363 - 2364	0.90%
480 - 488	0.86%	1421 - 1509	0.49%	2308 - 2309	0.54%	2365 - 2365	0.91%
489 - 496	0.85%	1510 - 1565	0.48%	2310 - 2311	0.55%	2366 - 2367	0.92%
497 - 503	0.84%	1566 - 1670	0.47%	2312 - 2312	0.56%	2368 - 2368	0.93%
504 - 510	0.83%	1671 - 1739	0.48%	2313 - 2314	0.57%	2369 - 2370	0.94%
511 - 517	0.82%	1740 - 1971	0.49%	2315 - 2316	0.58%	2371 - 2371	0.95%
518 - 524	0.81%	1972 - 2020	0.50%	2317 - 2318	0.59%	2372 - 2373	0.96%
525 - 531	0.80%	2021 - 2091	0.51%	2319 - 2319	0.60%	2374 - 2375	0.97%
532 - 539	0.79%	2092 - 2106	0.50%	2320 - 2321	0.61%	2376 - 2376	0.98%
540 - 549	0.78%	2107 - 2117	0.49%	2322 - 2323	0.62%	2377 - 2378	0.99%
550 - 561	0.77%	2118 - 2126	0.48%	2324 - 2324	0.63%	2379 - 2387	1.00%
562 - 577	0.76%	2127 - 2135	0.47%	2325 - 2326	0.64%	2388 - 2411	1.10%
578 - 593	0.75%	2136 - 2143	0.46%	2327 - 2327	0.65%	2412 - 2482	1.20%
594 - 605	0.74%	2144 - 2150	0.45%	2328 - 2329	0.66%	2483 - 2500	1.10%
606 - 616	0.73%	2151 - 2157	0.44%	2330 - 2330	0.67%		
617 - 625	0.72%	2158 - 2165	0.43%	2331 - 2332	0.68%		
626 - 636	0.71%	2166 - 2172	0.42%	2333 - 2333	0.69%		

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Radiance of Source (uW/cm^2-sr-nm)	(250 – 2500) nm at 1nm interval	(See table below)	Based on comparison to Spectral Irradiance and Reflectance Standards

WL Range	Spectral Radiance Range uW/cm2-sr-nm	Rel Exp. Unc., k=2	WL Range	Spectral Radiance Range uW/cm2-sr-nm	Rel Exp. Unc., k=2
250 - 320	0.05304 – 0.37731	(See Note)			
321 - 324	0.3899 - 0.4342	1.60%	1398 - 1535	65.000 - 83.544	0.89%
325 - 334	0.4342 - 0.6133	1.70%	1536 - 1539	64.635 - 65.000	0.88%
335 - 339	0.6133 - 0.7006	1.60%	1540 - 1541	64.514 - 64.635	0.89%
340 - 361	0.7006 - 1.3351	1.50%	1542 - 1697	45.852 - 64.514	0.88%
362 - 389	1.3351 - 2.8429	1.40%	1698 - 1700	45.530 - 45.852	0.89%
390 - 424	2.8429 - 6.8580	1.30%	1701 - 1704	44.974 - 45.530	0.88%
425 - 470	6.8580 - 15.190	1.20%	1705 - 1969	23.329 - 44.974	0.89%
471 - 471	15.190 - 15.190	1.10%	1970 - 1975	22.923 - 23.329	0.90%
472 - 474	15.190 - 15.615	1.20%	1976 - 1979	22.701 - 22.923	0.89%
475 - 590	15.615 - 48.118	1.10%	1980 - 2296	8.0485 - 22.701	0.90%
591 - 594	48.118 - 49.077	1.00%	2297 - 2299	9.6807 - 9.7768	0.89%
595 - 597	49.077 - 49.724	1.10%	2300 - 2302	9.5769 - 9.6807	0.90%
598 - 718	49.724 - 85.899	1.00%	2303 - 2305	9.4671 - 9.5769	0.91%
719 - 748	85.899 - 93.135	0.99%	2306 - 2308	9.3600 - 9.4671	0.92%
749 - 779	93.135 - 99.616	0.98%	2309 - 2310	9.3099 - 9.3600	0.93%
780 - 810	99.616 - 104.87	0.97%	2311 - 2313	9.2167 - 9.3099	0.94%
811 - 842	104.87 - 108.98	0.96%	2314 - 2316	9.1300 - 9.2167	0.95%
843 - 874	108.98 - 112.21	0.95%	2317 - 2318	9.0880 - 9.1300	0.96%
875 - 926	112.21 - 116.49	0.94%	2319 - 2321	9.0047 - 9.0880	0.97%
927 - 1050	115.55 - 117.82	0.93%	2322 - 2323	8.9628 - 9.0047	0.98%
1051 - 1185	104.96 - 115.55	0.92%	2324 - 2326	8.8762 - 8.9628	0.99%
1186 - 1271	96.020 - 104.96	0.91%	2327 - 2339	8.3226 - 8.8762	1.00%
1272 - 1390	83.858 - 96.020	0.90%	2340 - 2362	7.3700 - 8.3226	1.10%
1391 - 1394	83.730 - 83.858	0.89%	2363 - 2382	6.5032 - 7.3700	1.20%
1395 - 1397	83.544 - 83.730	0.90%	2383 - 2500	4.8837 - 6.5032	1.30%

Note:
The relative standard uncertainty ($U(\lambda)_{rel}$) for the 250 – 320nm spectral range is given by the formula: $U(\lambda)_{rel} = -3.695E\text{-}04\lambda+0.1320$ (%)

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Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Radiance of Source (uW/cm^2-sr-nm)	(350 – 2400) nm at 1nm interval	(See table below)	Based on comparison to Standard Integrating Sphere Source

WL Range	Spectral Radiance Range uW/cm2-sr-nm	Rel Exp. Unc., k=2
350 - 350	0.00027 - 17.148	3.30%
351 - 351	0.00026 - 17.076	3.20%
352 - 352	0.00027 - 16.734	2.90%
353 - 353	0.00030 - 16.383	2.50%
354 - 354	0.00032 - 16.079	2.20%
355 - 356	0.00032 - 15.768	2.00%
357 - 357	0.00037 - 15.488	1.90%
358 - 359	0.00037 - 15.980	2.00%
360 - 360	0.00039 - 15.583	2.10%
361 - 361	0.00040 - 15.903	2.00%
362 - 362	0.00042 - 16.781	2.20%
363 - 363	0.00044 - 17.823	2.30%
364 - 365	0.00046 - 18.866	1.90%
366 - 367	0.00049 - 18.372	2.00%
368 - 370	0.00053 - 17.826	1.90%
371 - 372	0.00058 - 17.776	1.80%
373 - 374	0.00061 - 16.430	1.90%
375 - 375	0.00065 - 16.862	1.70%
376 - 379	0.00067 - 19.579	1.60%
380 - 380	0.00076 - 19.833	1.70%
381 - 381	0.00079 - 20.331	1.90%
382 - 382	0.00081 - 20.701	1.70%
383 - 385	0.00083 - 21.241	1.50%
386 - 386	0.00090 - 19.371	1.70%
387 - 388	0.00093 - 18.681	1.50%
389 - 389	0.00099 - 18.977	1.60%
390 - 393	0.00101 - 20.583	1.50%
394 - 394	0.00113 - 22.140	1.40%
395 - 398	0.00117 - 28.148	1.50%
399 - 399	0.00131 - 29.705	1.40%
400 - 400	0.00136 - 31.292	1.50%
401 - 407	0.00140 - 68.802	1.40%
408 - 408	0.00176 - 75.883	1.50%
409 - 413	0.00181 - 125.73	1.40%
414 - 414	0.00208 - 149.77	1.30%
415 - 427	0.00213 - 1273.0	1.40%
428 - 452	0.00276 - 10655.	1.30%
453 - 470	0.00415 - 10101.	1.20%
471 - 498	0.00530 - 2455.3	1.30%
499 - 500	0.00726 - 2725.4	1.20%
587 - 763	0.01463 - 16958.	1.10%
764 - 764	0.03167 - 38.013	1.00%
765 - 767	0.03177 - 38.179	1.10%
768 - 948	0.03205 - 41.352	1.00%
949 - 949	0.04000 - 41.061	1.10%
950 - 955	0.04001 - 41.033	1.00%
956 - 956	0.04031 - 40.862	1.10%
957 - 961	0.04038 - 40.821	1.00%
962 - 963	0.04058 - 40.662	1.10%
964 - 967	0.04068 - 40.584	1.00%
968 - 971	0.04085 - 40.478	1.10%
972 - 972	0.04097 - 40.404	1.00%
973 - 973	0.04098 - 40.389	1.10%
974 - 974	0.04099 - 40.359	1.00%
975 - 977	0.04105 - 40.358	1.10%
978 - 978	0.04106 - 40.289	1.00%
979 - 981	0.04110 - 40.238	1.10%
982 - 982	0.04118 - 40.037	1.00%
983 - 985	0.04120 - 40.027	1.10%
986 - 988	0.04127 - 39.917	1.00%
989 - 989	0.04134 - 39.831	1.10%
990 - 1031	0.04135 - 39.808	1.00%
1032 - 1049	0.04117 - 39.234	1.10%
1050 - 1050	0.04116 - 38.996	0.98%
1051 - 1334	5.31469 - 39.000	1.10%
1335 - 1515	2.48008 - 26.267	1.20%
1516 - 1659	2.42380 - 13.286	1.30%
1660 - 1782	1.73627 - 12.629	1.40%
1783 - 1800	1.70120 - 9.3859	1.50%
1801 - 1802	1.69891 - 9.2803	3.80%
1803 - 1806	1.69630 - 9.2801	3.70%
1807 - 1814	1.69263 - 9.3425	3.80%
1815 - 1822	1.68532 - 9.3767	3.70%
1823 - 1828	1.68023 - 9.4074	3.80%
1829 - 1833	1.68523 - 9.4923	3.70%
1834 - 1834	1.69384 - 9.5017	3.80%
1835 - 1835	1.69143 - 9.5030	3.70%
1836 - 1841	1.65288 - 9.4931	3.80%
1842 - 1843	1.63982 - 9.2819	3.70%
1844 - 1849	1.61438 - 9.2066	3.80%
1895 - 1895	0.83511 - 5.0544	3.70%
1896 - 1896	0.82431 - 4.9759	3.80%
1897 - 1900	0.78760 - 4.9040	3.70%
1901 - 1902	0.76717 - 4.6391	3.80%
1903 - 1907	0.69214 - 4.5010	3.70%
1908 - 2013	0.50487 - 4.1516	3.80%
1908 - 2013	0.50487 - 4.1516	3.80%
2014 - 2017	0.52419 - 3.7905	3.70%
2018 - 2026	0.51659 - 3.8303	3.80%
2027 - 2027	0.51449 - 3.8140	3.70%
2028 - 2029	0.51072 - 3.8034	3.80%
2030 - 2032	0.50483 - 3.7874	3.70%
2033 - 2122	0.36152 - 3.7804	3.80%
2123 - 2129	0.36096 - 3.3847	3.70%
2130 - 2145	0.35314 - 3.3977	3.80%
2146 - 2146	0.36063 - 3.3630	3.70%
2147 - 2148	0.36555 - 3.3528	3.80%
2149 - 2149	0.36553 - 3.3485	3.70%
2150 - 2203	0.36059 - 3.4529	3.80%
2204 - 2210	0.43469 - 3.4029	3.70%
2211 - 2230	0.42715 - 3.3884	3.80%
2231 - 2232	0.44335 - 3.3058	3.70%
2233 - 2234	0.43699 - 3.2996	3.80%
2235 - 2236	0.43220 - 3.3041	3.70%
2237 - 2239	0.43057 - 3.3050	3.80%
2240 - 2240	0.42924 - 3.2813	3.70%
2241 - 2276	0.35319 - 3.2696	3.80%
2277 - 2281	0.33642 - 2.7467	3.70%
2282 - 2284	0.32285 - 2.6310	3.80%
2285 - 2286	0.31345 - 2.5630	3.70%
2287 - 2308	0.24078 - 2.5162	3.80%
2309 - 2312	0.23390 - 2.1384	3.70%
2313 - 2347	0.21002 - 2.1274	3.80%
2348 - 2348	0.20774 - 1.9856	3.90%
2349 - 2364	0.19627 - 1.9816	3.80%
2365 - 2366	0.19704 - 1.8952	3.90%
2367 - 2377	0.18437 - 1.8891	3.80%
2378 - 2387	0.18504 - 1.8508	3.90%
2398 - 2390	0.18561 - 1.7969	3.80%
2391 - 2400	0.17581 - 1.7857	3.90%

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Responsivity of laser power system	(700 – 1800) nm	(See table below)	for system with InGaAs detector

Wavelength, nm	Responsivity Range, A/W	Relative Uncertainty, k=2	Wavelength, nm	Responsivity Range, A/W	Relative Uncertainty, k=2
700	3.19E-07 - 1.21E-06	0.63%	1275	1.01E-05 - 2.49E-05	0.48%
725	3.95E-07 - 1.40E-06	0.60%	1300	1.04E-05 - 2.61E-05	0.48%
750	4.82E-07 - 1.57E-06	0.60%	1325	1.02E-05 - 2.71E-05	0.48%
775	5.87E-07 - 1.86E-06	0.60%	1350	9.55E-06 - 2.75E-05	0.48%
800	7.08E-07 - 2.18E-06	0.58%	1375	8.61E-06 - 2.75E-05	0.48%
825	8.61E-07 - 2.59E-06	0.56%	1400	6.37E-06 - 2.76E-05	0.48%
850	1.09E-06 - 3.21E-06	0.56%	1425	4.83E-06 - 2.83E-05	0.48%
875	1.49E-06 - 4.28E-06	0.52%	1450	4.47E-06 - 2.84E-05	0.48%
900	1.90E-06 - 5.38E-06	0.48%	1475	4.61E-06 - 2.88E-05	0.48%
925	2.85E-06 - 7.91E-06	0.46%	1500	5.03E-06 - 2.92E-05	0.50%
950	3.85E-06 - 1.06E-05	0.44%	1525	5.49E-06 - 2.96E-05	0.50%
975	4.43E-06 - 1.21E-05	0.50%	1550	5.79E-06 - 2.98E-05	0.54%
1000	5.09E-06 - 1.37E-05	0.48%	1575	5.82E-06 - 2.95E-05	0.86%
1025	5.49E-06 - 1.47E-05	0.48%	1600	5.92E-06 - 3.01E-05	1.20%
1050	5.71E-06 - 1.51E-05	0.48%	1625	6.15E-06 - 2.94E-05	1.30%
1075	6.09E-06 - 1.59E-05	0.48%	1650	6.17E-06 - 2.77E-05	1.30%
1100	6.71E-06 - 1.74E-05	0.48%	1675	4.06E-06 - 1.90E-05	2.00%
1125	7.41E-06 - 1.90E-05	0.48%	1700	1.19E-06 - 5.91E-06	2.40%
1150	8.03E-06 - 2.05E-05	0.48%	1725	4.92E-07 - 2.38E-06	2.84%
1175	8.47E-06 - 2.15E-05	0.48%	1750	2.14E-07 - 1.04E-06	3.22%
1200	8.64E-06 - 2.21E-05	0.48%	1775	1.03E-07 - 4.97E-07	3.81%
1225	9.12E-06 - 2.28E-05	0.48%	1800	5.95E-08 - 2.92E-07	5.09%
1250	9.59E-06 - 2.38E-05	0.48%			

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CALIBRATION LABORATORIES **NVLAP LAB CODE 200951-0**

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CALIBRATION AND MEASUREMENT CAPABILITIES (CMC) Notes 1,2

Measured Parameter or Device Calibrated	Range	Expanded Uncertainty Notes 3,5	Remarks
Spectral Responsivity of Si laser power system	(350 – 1100) nm	(See table below)	for system with Si detector

Wavelength, nm	Responsivity Range, A/W	Relative Uncertainty, k=2	Wavelength, nm	Responsivity Range, A/W	Relative Uncertainty, k=2
350	1.14E-05 - 2.04E-05	1.64%	750	5.40E-05 - 7.31E-05	0.20%
375	1.34E-05 - 2.34E-05	0.81%	775	5.62E-05 - 7.81E-05	0.20%
400	1.89E-05 - 2.80E-05	0.39%	800	5.83E-05 - 8.31E-05	0.20%
425	2.34E-05 - 3.23E-05	0.30%	825	5.96E-05 - 8.75E-05	0.20%
450	2.72E-05 - 3.56E-05	0.25%	850	6.10E-05 - 9.14E-05	0.20%
475	3.04E-05 - 3.90E-05	0.22%	875	6.34E-05 - 9.62E-05	0.20%
500	3.32E-05 - 4.20E-05	0.22%	900	6.42E-05 - 1.01E-04	0.20%
525	3.57E-05 - 4.49E-05	0.20%	925	6.52E-05 - 1.06E-04	0.20%
550	3.77E-05 - 4.76E-05	0.20%	950	6.60E-05 - 1.10E-04	0.21%
575	3.96E-05 - 5.04E-05	0.20%	975	6.46E-05 - 1.13E-04	0.88%
600	4.13E-05 - 5.30E-05	0.20%	1000	6.01E-05 - 1.08E-04	1.20%
625	4.28E-05 - 5.56E-05	0.20%	1025	4.97E-05 - 9.03E-05	1.50%
650	4.44E-05 - 5.84E-05	0.20%	1050	3.28E-05 - 6.06E-05	2.00%
675	4.57E-05 - 6.13E-05	0.20%	1075	1.81E-05 - 3.37E-05	2.60%
700	4.79E-05 - 6.48E-05	0.20%	1100	1.00E-05 - 1.90E-05	3.00%
725	5.05E-05 - 6.97E-05	0.20%			

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Notes

Note 1: A Calibration and Measurement Capability (CMC) is a description of the best result of a calibration or measurement (result with the smallest uncertainty of measurement) that is available to the laboratory's customers under normal conditions, when performing more or less routine calibrations of nearly ideal measurement standards or instruments. The CMC is described in the laboratory's scope of accreditation by: the measurement parameter/device being calibrated, the measurement range, the uncertainty associated with that range (see note 3), and remarks on additional parameters, if applicable.

Note 2: Calibration and Measurement Capabilities are traceable to the national measurement standards of the U.S. or to the national measurement standards of other countries and are thus traceable to the internationally accepted representation of the appropriate SI (Système International) unit.

Note 3: The uncertainty associated with a measurement in a CMC is an expanded uncertainty with a level of confidence of approximately 95 %, typically using a coverage factor of $k = 2$. However, laboratories may report a coverage factor different than $k = 2$ to achieve the 95 % level of confidence. Units for the measurand and its uncertainty are to match. Exceptions to this occur when marketplace practice employs mixed units, such as when the artifact to be measured is labeled in non-SI units and the uncertainty is given in SI units (Example: 5 lb weight with uncertainty given in mg).

Note 3a: The uncertainty of a specific calibration by the laboratory may be greater than the uncertainty in the CMC due to the condition and behavior of the customer's device and specific circumstances of the calibration. The uncertainties quoted do not include possible effects on the calibrated device of transportation, long term stability, or intended use.

Note 3b: As the CMC represents the best measurement results achievable under normal conditions, the accredited calibration laboratory shall not report smaller uncertainty of measurement than that given in a CMC for calibrations or measurements covered by that CMC.

Note 3c: As described in Note 1, CMCs cover calibrations and measurements that are available to the laboratory's customers under *normal conditions.* However, the laboratory may have the capability to offer special tests, employing special conditions, which yield calibration or measurement results with lower uncertainties. Such special tests are not covered by the CMCs and are outside the laboratory's scope of accreditation. In this case, NVLAP requirements for the labeling, on calibration reports, of results outside the laboratory's scope of accreditation apply. These requirements are set out in Annex A.1.h. of NIST Handbook 150, Procedures and General Requirements.

Note 4: Uncertainties associated with field service calibration may be greater as they incorporate on-site environmental contributions, transportation effects, or other factors that affect the measurements. (This note applies only if marked in the body of the scope.)

Note 5: Values listed with percent (%) are percent of reading or generated value unless otherwise noted.

Note 6: NVLAP accreditation is the formal recognition of specific calibration capabilities. Neither NVLAP nor NIST guarantee the accuracy of individual calibrations made by accredited laboratories.

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