



## Report of Test

LLIA001333-003A

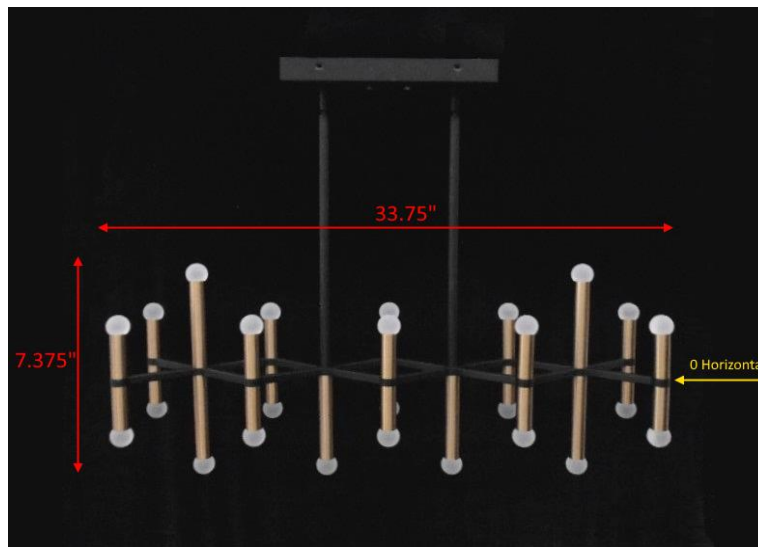
Indoor Distribution Photometry Test Report

Catalog Number: 3-686-1540 Nero Pendant

Pendant mounted, formed steel and tubular steel housing, frosted plastic enclosures.

26 White LEDs

Two ES LD030D-CA07242-M28F LED drivers



Prepared For:  
Oxygen Lighting  
201 Railhead Road  
Fort Worth, TX 76106, USA

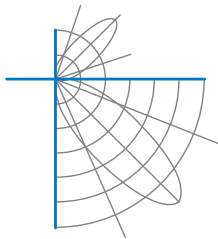
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	2045.5 Lumens
Input Current	0.5415 A	Total Efficacy	31.8 lm/W
Input Power	64.37 W	Downward Flux	1088.9 Lumens
Frequency	60.00 Hz	Downward Flux	53.2 % of Total
Power Factor	0.991		
Current THD	6.7 %		

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 10/19/2020

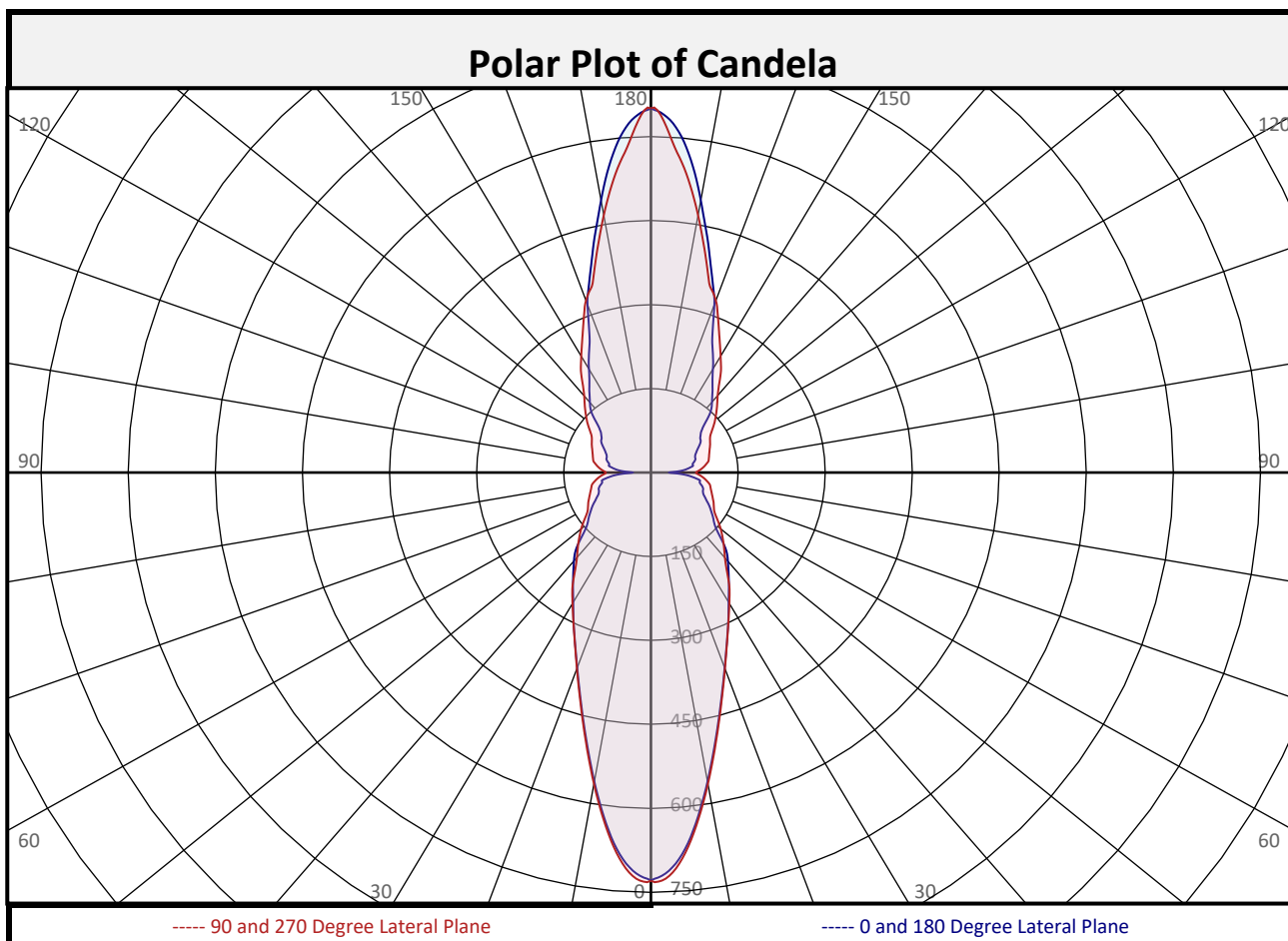
Report date: 10/19/2020

Signed: \_\_\_\_\_



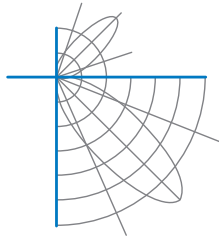
## Report of Test

### LLIA001333-003A



### Zonal Flux Summary

Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	60.9	3.0%	90-100	108.8	5.3%	0-20	187.3	9.2%
10-20	126.5	6.2%	100-110	112.5	5.5%	0-30	330.5	16.2%
20-30	143.2	7.0%	110-120	111.3	5.4%	0-40	476.4	23.3%
30-40	145.8	7.1%	120-130	112.4	5.5%	0-60	740.5	36.2%
40-50	139.6	6.8%	130-140	121.9	6.0%	0-80	978.5	47.8%
50-60	124.6	6.1%	140-150	122.5	6.0%	10-90	1028	50.3%
60-70	120.7	5.9%	150-160	117.7	5.8%	20-50	428.6	21.0%
70-80	117.3	5.7%	160-170	99.0	4.8%	40-90	612.6	29.9%
80-90	110.4	5.4%	170-180	50.4	2.5%	60-90	348.4	17.0%
0-90	1089	53.2%	90-180	956.6	46.8%	0-180	2046	100.0%

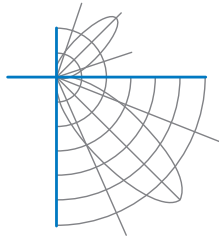


## Report of Test

### LLIA001333-003A

Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	729	729	729	729	729	729	729	729	729
	2.5	712	713	716	719	721	719	716	713	712
	5	675	676	678	680	681	680	678	676	675
	7.5	620	621	622	623	625	623	622	621	620
	10	561	561	561	563	565	563	561	561	561
	12.5	503	503	503	505	507	505	503	503	503
	15	453	451	451	453	455	453	451	451	453
	17.5	408	406	405	408	410	408	405	406	408
	20	371	368	367	371	372	371	367	368	371
	22.5	339	335	333	339	340	339	333	335	339
	25	312	308	306	312	313	312	306	308	312
	27.5	289	286	283	289	290	289	283	286	289
	30	267	266	263	269	270	269	263	266	267
	32.5	249	249	245	252	252	252	245	249	249
	35	233	233	229	235	232	235	229	233	233
	37.5	219	217	215	221	213	221	215	217	219
	40	206	204	202	208	198	208	202	204	206
	42.5	193	194	190	196	187	196	190	194	193
	45	174	185	180	186	176	186	180	185	174
	47.5	155	175	167	174	166	174	167	175	155
50	143	165	153	161	157	161	153	165	143	
52.5	135	154	140	149	147	149	140	154	135	
55	128	142	132	143	137	143	132	142	128	
57.5	122	134	127	140	130	140	127	134	122	
60	115	132	124	138	125	138	124	132	115	
62.5	108	131	120	134	122	134	120	131	108	
65	102	129	118	130	118	130	118	129	102	
67.5	97	122	117	127	115	127	117	122	97	
70	95	118	115	124	112	124	115	118	95	
72.5	94	114	113	122	109	122	113	114	94	
75	91	115	111	120	106	120	111	115	91	
77.5	86	114	109	118	104	118	109	114	86	
80	86	112	108	117	100	117	108	112	86	
82.5	77	111	107	115	95	115	107	111	77	
85	66	110	106	115	89	115	106	110	66	
87.5	48	107	105	114	83	114	105	107	48	
90	32	102	105	113	78	113	105	102	32	

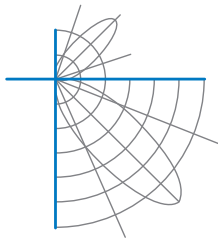


## Report of Test

### LLIA001333-003A

Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	32	102	105	113	78	113	105	102	32
	92.5	47	106	105	113	82	113	105	106	47
	95	60	109	105	114	88	114	105	109	60
	97.5	68	110	105	114	94	114	105	110	68
	100	74	110	106	115	98	115	106	110	74
	102.5	74	111	107	116	102	116	107	111	74
	105	78	111	108	117	103	117	108	111	78
	107.5	80	109	109	118	105	118	109	109	80
	110	81	112	109	119	107	119	109	112	81
	112.5	83	114	110	120	109	120	110	114	83
	115	86	118	109	121	112	121	109	118	86
	117.5	91	120	110	125	115	125	110	120	91
	120	96	121	113	127	117	127	113	121	96
	122.5	101	123	115	130	121	130	115	123	101
	125	104	129	120	132	127	132	120	129	104
	127.5	107	138	126	138	135	138	126	138	107
	130	113	148	136	147	144	147	136	148	113
	132.5	123	155	147	158	152	158	147	155	123
	135	139	162	157	168	160	168	157	162	139
	137.5	154	163	165	177	169	177	165	163	154
140	163	162	175	187	179	187	175	162	163	
142.5	173	166	185	198	191	198	185	166	173	
145	185	177	197	210	208	210	197	177	185	
147.5	197	188	210	224	224	224	210	188	197	
150	213	207	225	239	240	239	225	207	213	
152.5	231	224	240	256	257	256	240	224	231	
155	250	232	245	276	277	276	245	232	250	
157.5	278	245	251	299	301	299	251	245	278	
160	319	274	275	306	327	306	275	274	319	
162.5	354	303	304	310	344	310	304	303	354	
165	393	336	338	348	376	348	338	336	393	
167.5	441	376	378	396	419	396	378	376	441	
170	494	429	423	454	467	454	423	429	494	
172.5	552	497	482	514	518	514	482	497	552	
175	603	578	560	564	565	564	560	578	603	
177.5	636	632	624	619	618	619	624	632	636	
180	651	651	651	651	651	651	651	651	651	



## Report of Test

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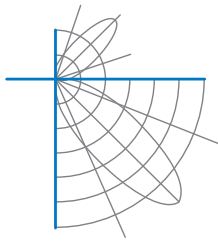
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																					
Effective Floor Cavity Reflectance 0.20																					
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59	53			
1	97	91	87	83	89	85	81	77	72	69	66	60	58	56	49	48	46	41			
2	88	79	73	67	81	73	67	62	62	58	54	52	49	46	43	40	38	34			
3	80	70	62	56	74	65	58	52	55	50	45	46	42	39	38	35	32	28			
4	73	62	54	47	67	57	50	44	49	43	39	41	37	33	34	31	28	25			
5	67	55	47	41	62	52	44	38	44	38	34	37	33	29	31	28	25	22			
6	62	50	42	36	57	47	39	34	40	34	30	34	29	26	28	25	22	19			
7	58	45	37	32	53	42	35	30	37	31	27	31	27	23	26	23	20	17			
8	54	41	34	28	50	39	32	27	34	28	24	29	24	21	24	21	18	16			
9	50	38	30	25	47	36	29	24	31	26	22	27	22	19	23	19	17	15			
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13			

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot			
Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	20.2	3.67	3.69
8.0	11.4	4.89	4.92
10.0	7.3	6.11	6.15
12.0	5.1	7.33	7.38
14.0	3.7	8.56	8.60
16.0	2.8	9.78	9.83

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	32743	32743	32743
45	7804	8066	7927
55	5757	5915	6159
65	4580	5312	5319
75	4072	4968	4778
85	2948	4742	4004

Spacing Criterion	
0 degree plane:	0.6
90 degree plane:	0.6
180 degree plane:	0.6
270 degree plane:	0.6



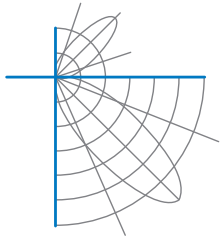
## Report of Test

### LLIA001333-003A

#### UGR TABLE - CORRECTED

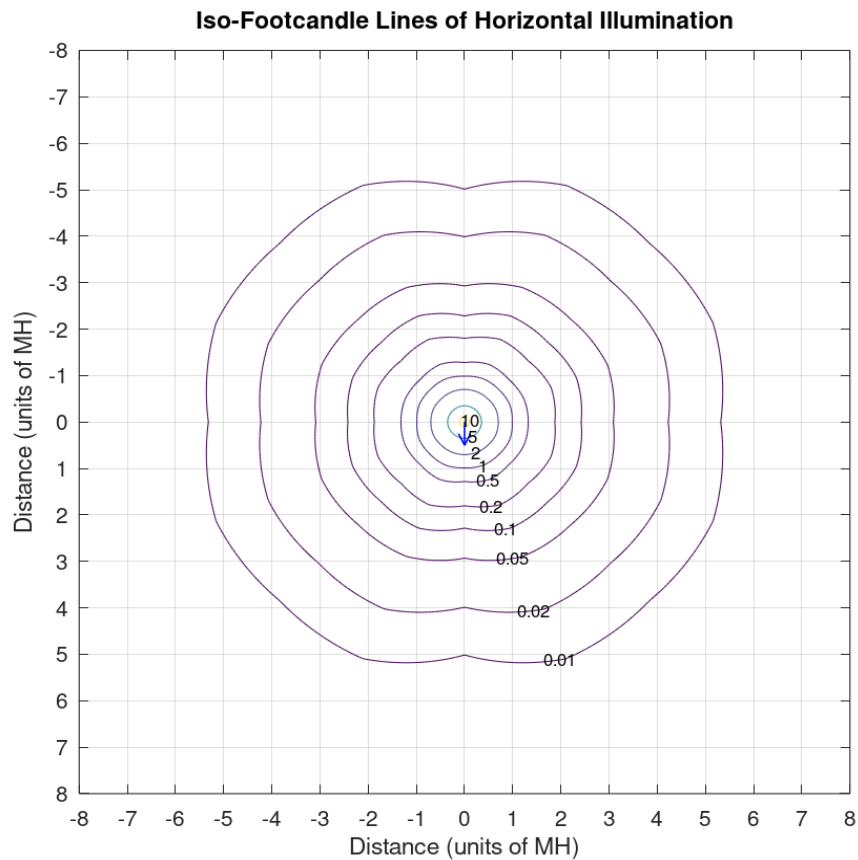
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
X=2H	Y=2H	4.6	5.5	5.5	6.5	7.7	5.5	6.5	6.5	7.4	8.6
	3H	6.9	7.7	7.8	8.7	9.9	8.2	9.0	9.1	10.0	11.3
	4H	8.0	8.8	8.9	9.7	11.0	9.5	10.3	10.5	11.3	12.6
	6H	9.1	9.8	10.0	10.8	12.0	10.9	11.7	11.9	12.6	13.9
	8H	9.6	10.3	10.5	11.2	12.5	11.6	12.3	12.6	13.3	14.6
	12H	10.0	10.6	10.9	11.6	12.9	12.3	12.9	13.2	13.9	15.2
4H	2H	5.3	6.1	6.3	7.1	8.4	6.0	6.9	7.0	7.8	9.1
	3H	8.0	8.6	8.9	9.6	10.9	9.0	9.7	10.0	10.7	12.0
	4H	9.3	10.0	10.3	10.9	12.2	10.6	11.2	11.6	12.2	13.5
	6H	10.7	11.2	11.6	12.2	13.5	12.2	12.8	13.2	13.8	15.1
	8H	11.3	11.8	12.2	12.8	14.1	13.0	13.5	14.0	14.5	15.8
	12H	11.8	12.2	12.8	13.2	14.6	13.8	14.2	14.8	15.2	16.6
8H	4H	10.0	10.5	11.0	11.5	12.8	11.0	11.6	12.0	12.6	13.9
	6H	11.6	12.0	12.6	13.1	14.4	12.9	13.3	13.9	14.4	15.7
	8H	12.4	12.8	13.4	13.8	15.2	13.9	14.3	14.9	15.3	16.6
	12H	13.1	13.5	14.2	14.5	15.9	14.8	15.2	15.9	16.2	17.6
12H	4H	10.2	10.6	11.2	11.6	13.0	11.1	11.6	12.1	12.6	13.9
	6H	11.9	12.3	12.9	13.3	14.6	13.1	13.4	14.1	14.5	15.8
	8H	12.8	13.1	13.8	14.2	15.5	14.1	14.5	15.1	15.5	16.8

Maximum UGR = 17.6

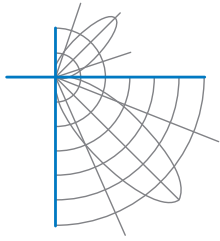


Report of Test  
LLIA001333-003A

**Iso-Illuminance Plot**

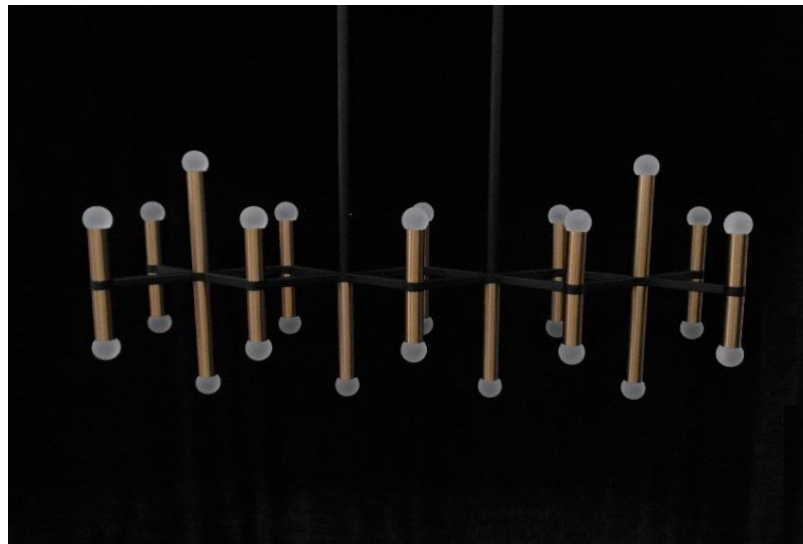
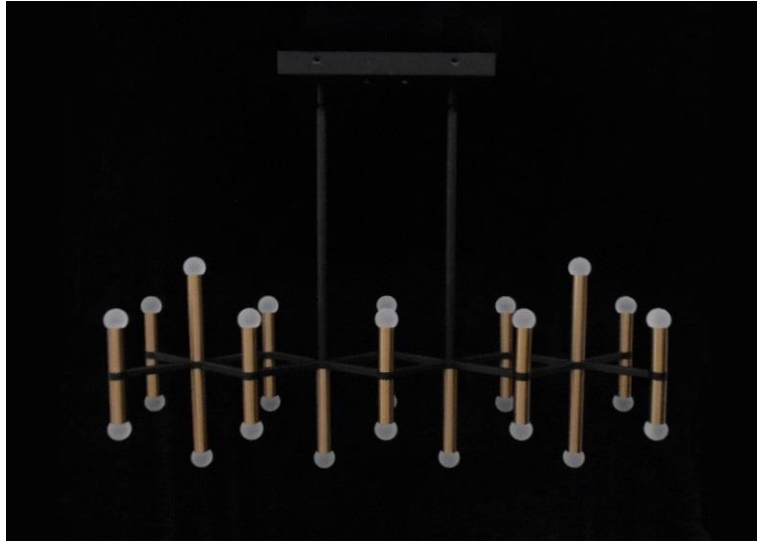


The isofootcandle values shown in the plot above are based on a mounting height of  $h = 8.0$  feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.

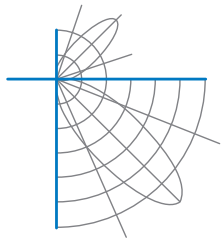


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LLIA001333-003A

**Additional Pictures of Test Subject**







## Report of Test

### LLIA001333-003A

Test Distance                    9.5 m  
Ambient Temperature        24.9 °C

#### Notes

The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of IES LM-79-19. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

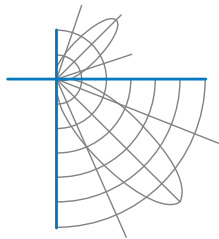
Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE C-Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ‡ are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.



## Report of Test

**LLIA001333-003B**

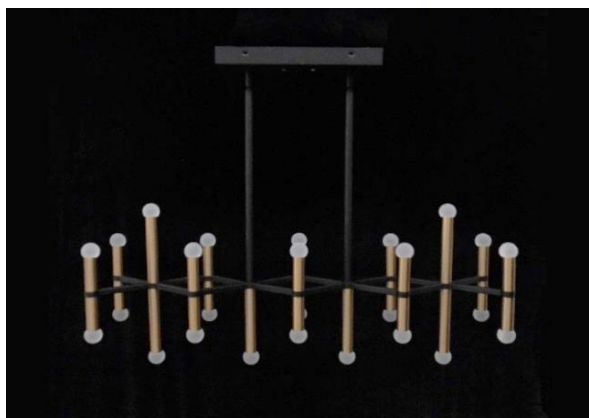
Integrating Sphere Report

Catalog Number: 3-686-1540 Nero Pendant

Pendant mounted, formed steel and tubular steel housing, frosted plastic enclosures.

26 White LEDs

Two ES LD030D-CA07242-M28F LED drivers

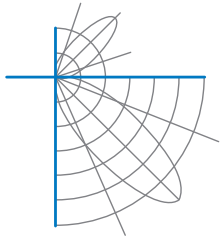


### Performance Summary

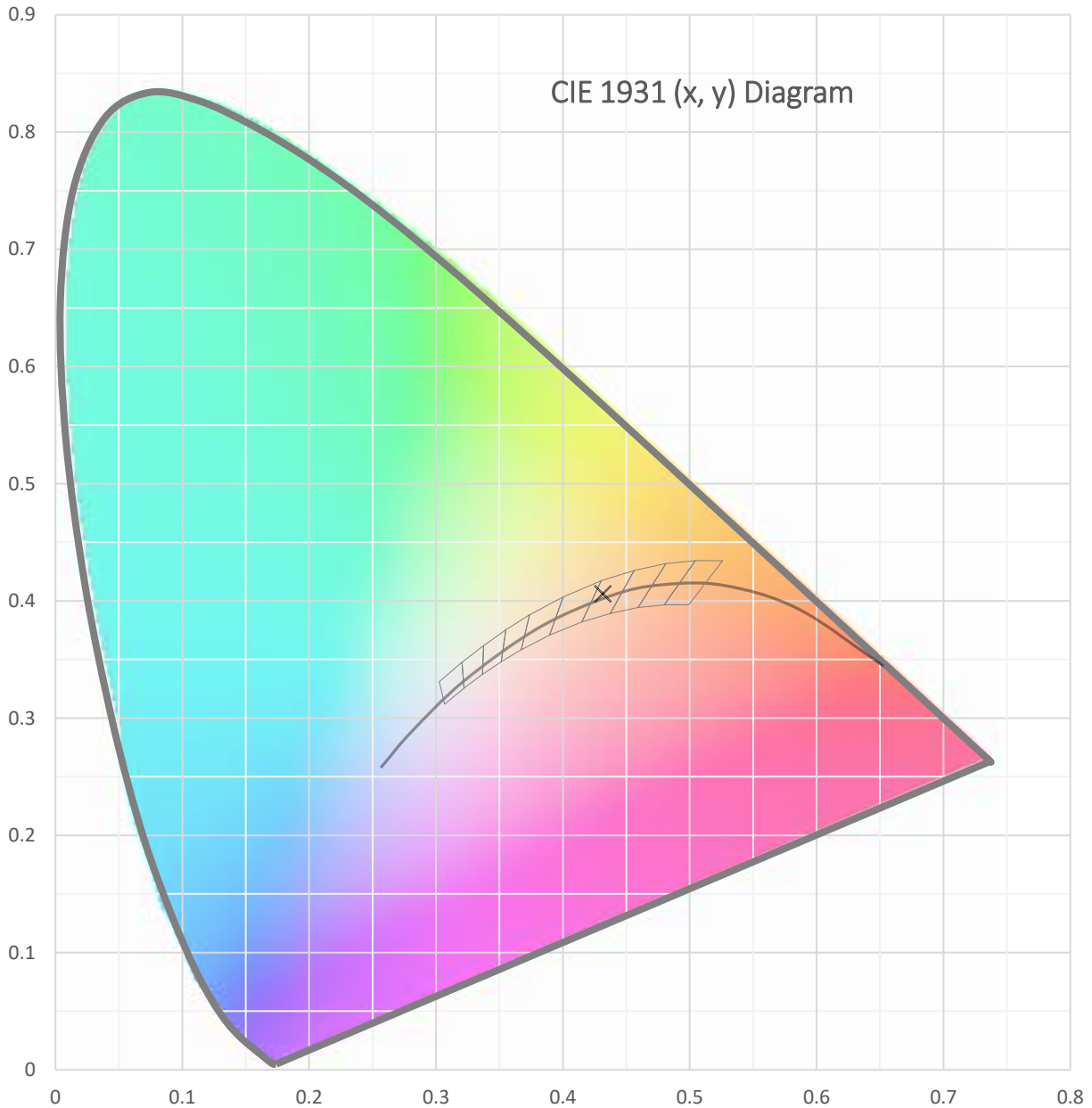
Voltage	120.0 Vac
Current	0.5378 A
Power	64.03 W
Frequency	59.99 Hz
Power Factor	0.992
Current THD	6.7 %
Total Luminous Flux	2099.9 lm
Efficacy	32.8 lm/W
Chromaticity (x,y)	(0.4316, 0.4061)
(u',v')	(0.2463, 0.5214)
Duv	0.0016
CCT	3109 K
CRI (Ra)	93
R9	60
TM-30: Rf	91
TM-30: Rg	99

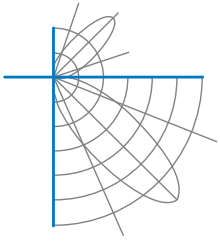
Prepared For:  
Oxygen Lighting  
201 Railhead Road  
Fort Worth, TX 76106, USA

Test date: 10/19/2020  
Report date: 10/19/2020

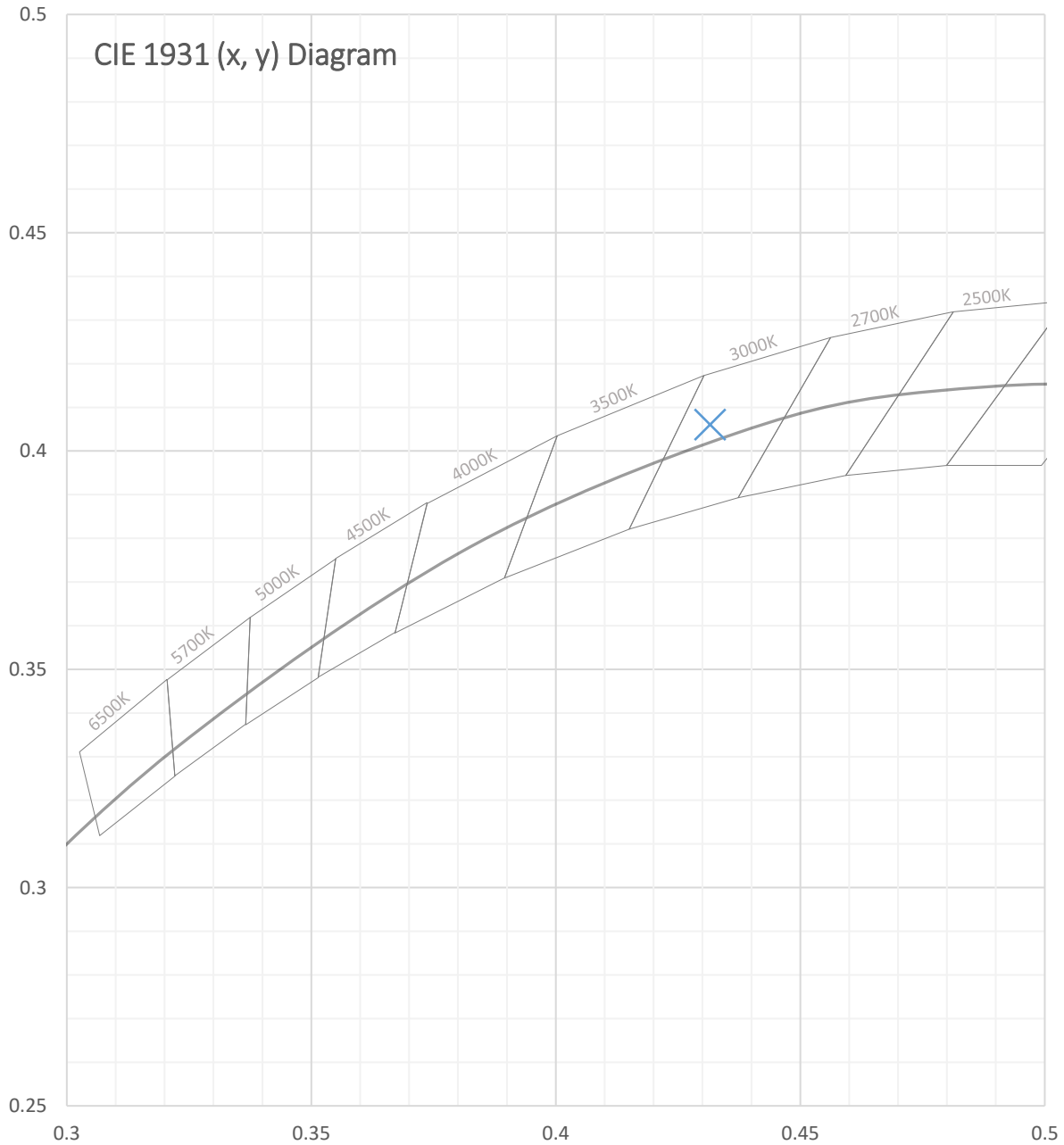


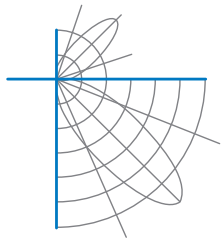
Test Report Number: LLIA001333-003B





Test Report Number: LLIA001333-003B



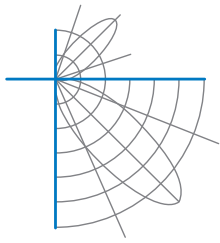


Test Report Number: LLIA001333-003B

Total Radiant Flux	7.248 W
Total Luminous Flux	2099.9 Lm
Chromaticity CIE 1931 (x, y)	(0.4316, 0.4061)
Chromaticity CIE 1976 (u', v')	(0.2463, 0.5214)
Correlated Color Temperature (CCT)	3109 K
Color Rendering Index (Ra)	93
R1	93
R2	95
R3	97
R4	93
R5	92
R6	94
R7	94
R8	83
R9	60
R10	88
R11	93
R12	80
R13	93
R14	97
TM-30: Rf	91
TM-30: Rg	99
Distance from Planckian Locus (Duv)	0.0016
Scotopic/Photopic Ratio ‡	1.446

**Electrical Data**

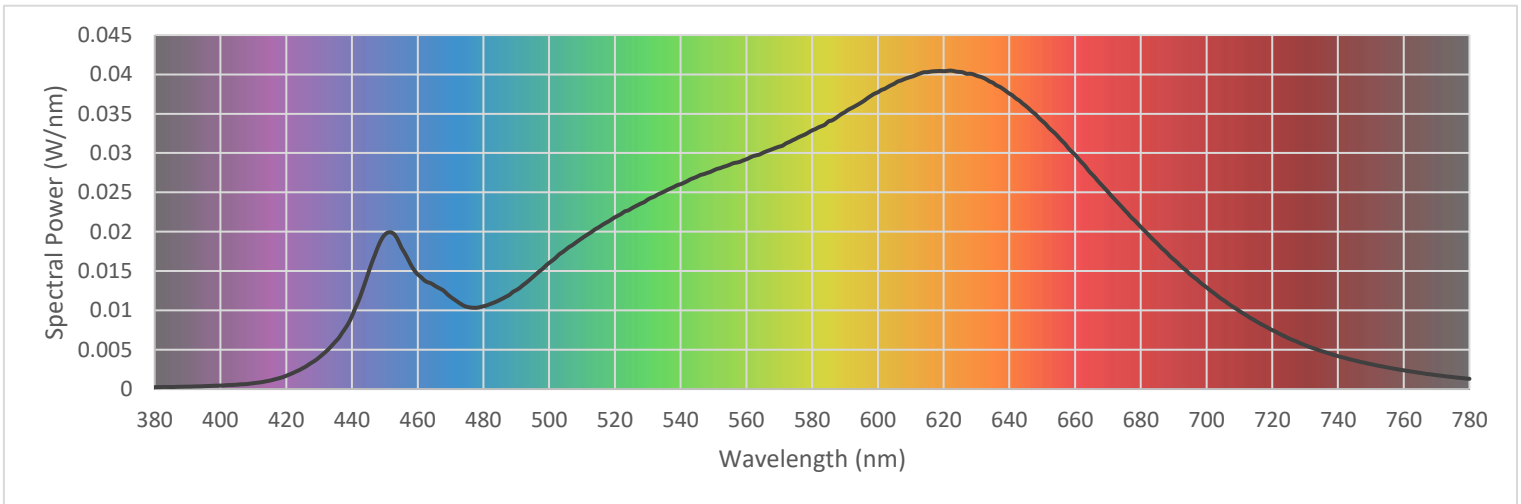
Voltage	120.0 Vac
Current	0.5378 A
Power	64.03 W
Frequency	59.99 Hz
Power Factor	0.992
Current THD	6.7 %

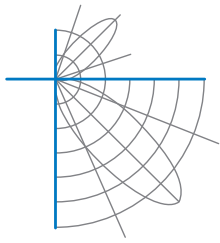


Test Report Number: LLIA001333-003B

Summary Spectral Power Distribution (wavelength - nm, spectral power - W/nm)

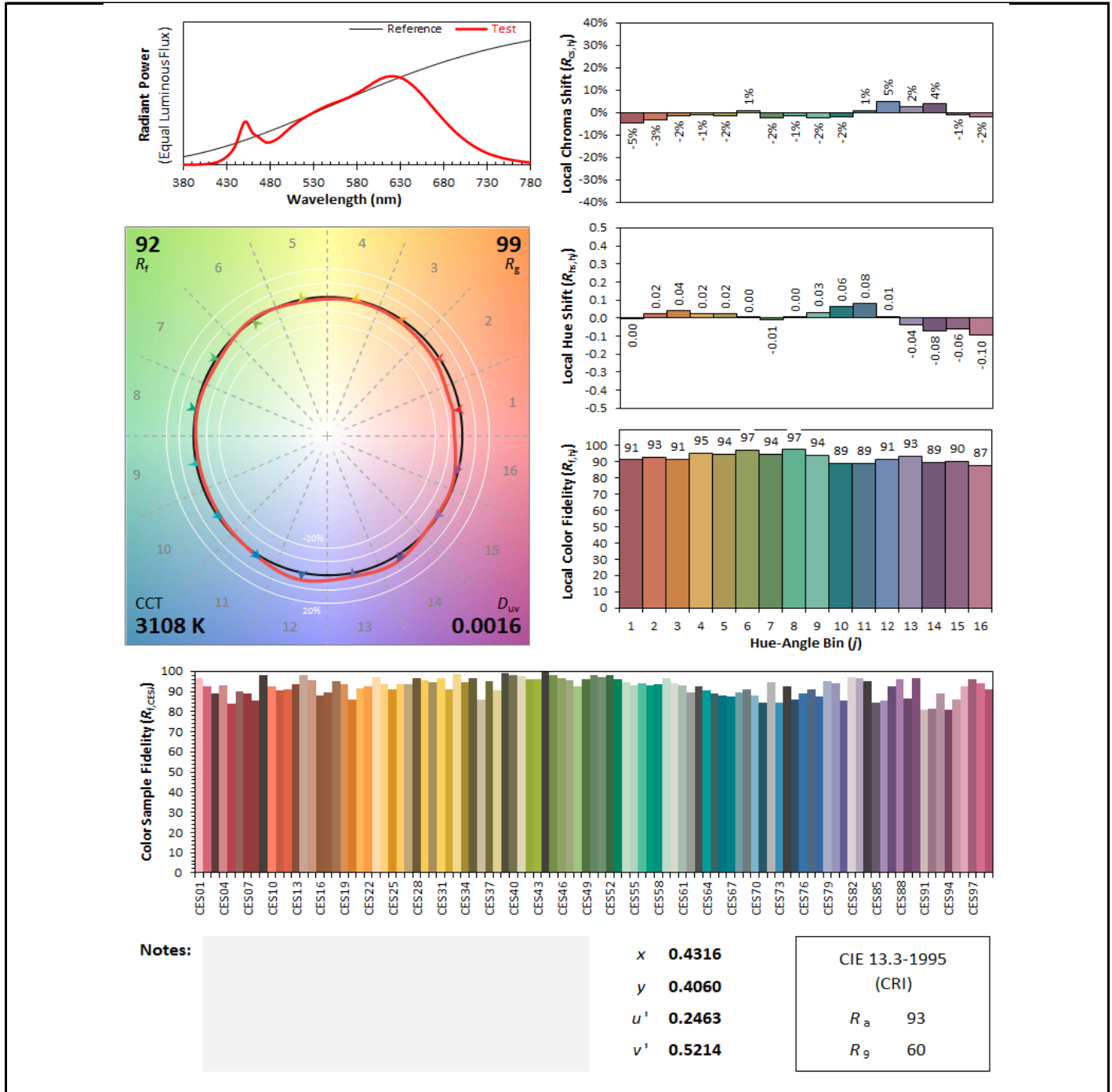
380	0.000251	480	0.010526	580	0.032880	680	0.020603
385	0.000259	485	0.011333	585	0.034024	685	0.018516
390	0.000312	490	0.012575	590	0.035209	690	0.016478
395	0.000370	495	0.014230	595	0.036427	695	0.014586
400	0.000446	500	0.016038	600	0.037718	700	0.012929
405	0.000555	505	0.017705	605	0.038808	705	0.011342
410	0.000744	510	0.019178	610	0.039672	710	0.009927
415	0.001073	515	0.020539	615	0.040283	715	0.008644
420	0.001687	520	0.021835	620	0.040403	720	0.007493
425	0.002645	525	0.022945	625	0.040310	725	0.006455
430	0.004019	530	0.024087	630	0.039840	730	0.005585
435	0.006041	535	0.025105	635	0.038942	735	0.004826
440	0.009269	540	0.026041	640	0.037560	740	0.004188
445	0.014792	545	0.026999	645	0.035989	745	0.003647
450	0.019623	550	0.027790	650	0.034082	750	0.003168
455	0.018037	555	0.028528	655	0.032009	755	0.002746
460	0.014582	560	0.029208	660	0.029790	760	0.002384
465	0.013194	565	0.030021	665	0.027355	765	0.002057
470	0.011723	570	0.030818	670	0.025071	770	0.001763
475	0.010455	575	0.031809	675	0.022799	775	0.001521
						780	0.001302

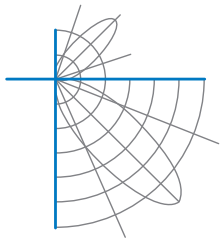




Test Report Number: LLIA001333-003B

IES TM-30 Details





## Test Report Number: LLIA001333-003B

**Test Equipment Configuration:** LightLab International Allentown 2m Integrating Sphere  
Measurements acquired using a Labsphere CDS 2600 spectroradiometer  
Testing was performed using  $4\pi$  geometry

**Test Temperature:** 25.2 °C

**Test Procedure:** Tested in accordance with the applicable sections of:  
LM-79-19, LM-78-07, LM-58-13, ANSI\_ANSI C78.377-2017, TM-30-18

**Significance:** The laboratory has not participated in the selection of samples to be tested.  
All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

**Notes:** The measurements and other derived quantities contained in this report are based on the absolute data as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ‡ are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.