

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P624666

Luminaire Tested: S930DIP-W227-X4-USTD-W

Issue Date: 11/3/2022

**Test Information**

Test Method: LM-79-2019  
Report Number: P624666  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35539-R2)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/3/2022  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S930DIP-W227-X4-USTD-W  
Description: NEO-RAY COVERA DIRECT/INDIRECT 4-FOOT LED WaveStream LUMINAIRE  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

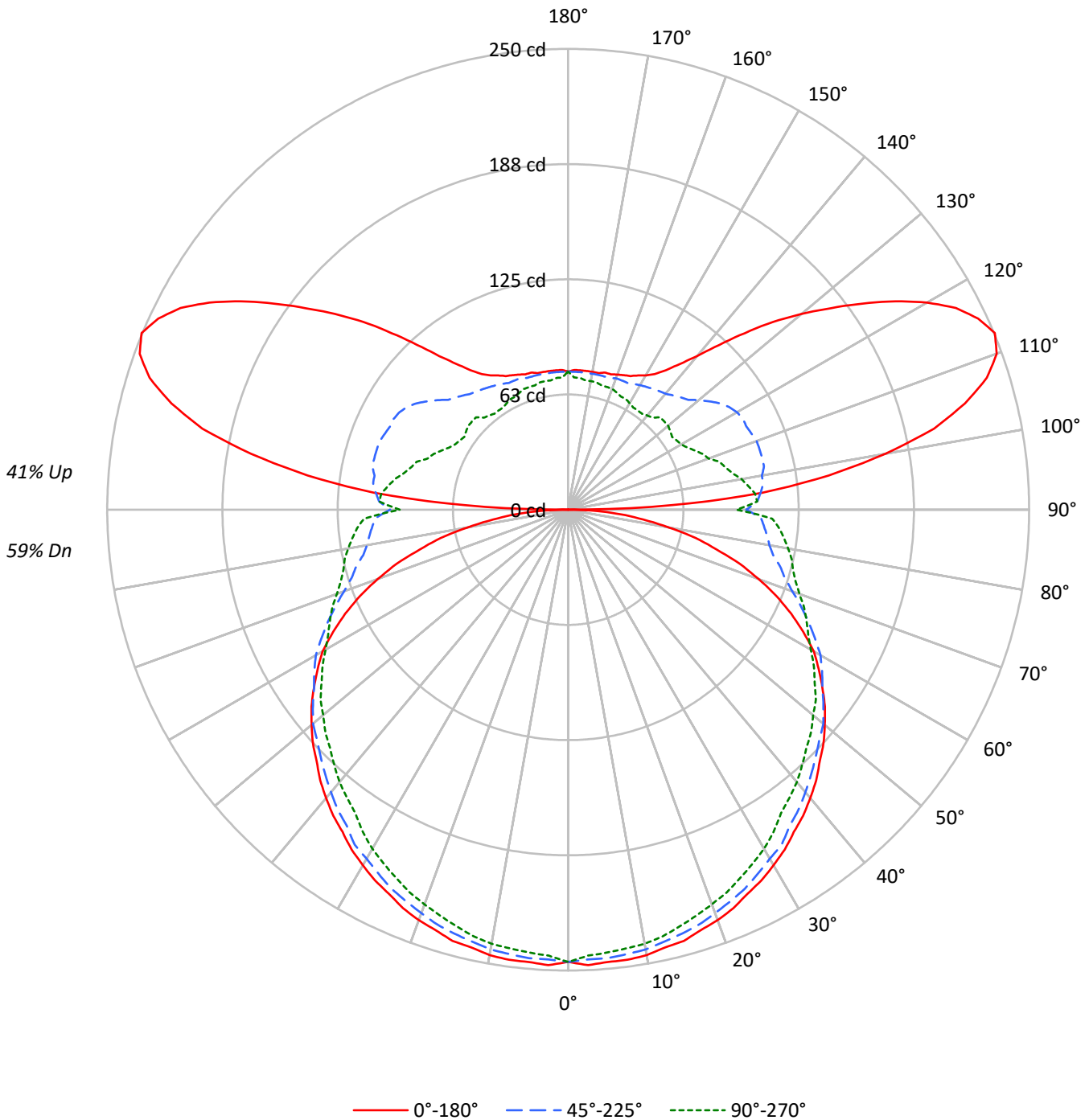
Lumens per Lamp: N/A  
Luminaire Lumens: 1660.9 lumens  
Efficiency: N/A  
Efficacy: 83.0 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.29 / 1.48  
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 3.83' x H: 0.17')  
CIE Type: General Diffuse

Input Watts (W): 20  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				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	0
RCR																		
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	65	65	65	59
1	97	92	87	82	90	85	81	77	73	70	67	63	60	58	53	51	49	44
2	87	78	71	65	81	73	67	61	63	58	53	54	50	46	45	42	39	35
3	79	68	60	53	73	63	56	50	55	49	44	46	42	38	39	35	32	28
4	72	60	51	44	66	56	48	42	48	42	37	41	36	32	34	30	27	24
5	66	53	44	37	61	49	41	35	43	36	31	36	31	27	31	27	23	20
6	61	47	38	32	56	44	36	30	38	32	27	33	28	23	28	23	20	17
7	56	43	34	28	52	40	32	26	35	28	23	30	24	21	25	21	18	15
8	52	39	30	24	48	36	29	23	31	25	21	27	22	18	23	19	16	13
9	48	35	27	22	45	33	26	21	29	23	18	25	20	16	21	17	14	12
10	45	32	25	19	42	30	23	18	26	21	16	23	18	15	20	16	13	11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1033	1033	1033
5°	1037	1014	998
10°	1041	999	979
15°	1044	984	956
20°	1046	971	936
25°	1047	961	918
30°	1057	949	903
35°	1065	940	880
40°	1083	937	877
45°	1101	936	871
50°	1131	949	875
55°	1164	953	883
60°	1206	979	893
65°	1216	991	925
70°	1208	1014	974
75°	1164	1091	1062
80°	1078	1235	1215
85°	927	1529	1439

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 90°  
 Luminance: 2577 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	23.3	1.4
10°-20°	67.5	4.1
20°-30°	104.6	6.3
30°-40°	131.2	7.9
40°-50°	146.4	8.8
50°-60°	150.2	9.0
60°-70°	139.9	8.4
70°-80°	119.2	7.2
80°-90°	100.0	6.0
90°-100°	114.2	6.9
100°-110°	139.9	8.4
110°-120°	132.4	8.0
120°-130°	104.5	6.3
130°-140°	73.7	4.4
140°-150°	50.5	3.0
150°-160°	35.1	2.1
160°-170°	21.2	1.3
170°-180°	7.1	0.4
0°-30°	195.4	11.8
0°-40°	326.6	19.7
0°-60°	623.2	37.5
0°-90°	982.2	59.1
90°-120°	386.6	23.3
90°-150°	615.3	37.0
90°-180°	679.0	40.9
0°-180°	1660.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	245	245	245	245	245	
5°	246	246	244	244	241	23
15°	242	241	238	238	234	68
25°	230	229	227	226	221	106
35°	213	211	209	207	201	134
45°	193	191	190	189	183	149
55°	168	166	168	170	163	151
65°	133	136	144	146	143	132
75°	83	98	119	128	126	88
85°	29	74	107	115	115	29
90°	0	83	96	95	91	10
95°	106	115	105	104	102	99
105°	223	176	109	93	88	231
115°	245	186	107	82	76	241
125°	195	155	101	78	69	175
135°	136	114	86	75	71	106
145°	92	88	80	72	66	59
155°	80	79	76	73	68	37
165°	77	76	75	74	70	22
175°	76	76	75	75	72	7
180°	75	75	75	75	75	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	245.3	245.3	245.3	245.3	245.3
2.5°	247.3	246.3	244.2	245.3	242.2
5°	246.3	246.3	244.2	244.2	241.2
7.5°	246.3	245.3	243.2	243.2	240.1
10°	245.3	244.2	242.2	242.2	239.1
12.5°	243.2	243.2	240.1	240.1	237.0
15°	242.2	241.2	238.1	238.1	234.0
17.5°	239.1	238.1	236.0	235.0	230.9
20°	237.0	236.0	232.9	231.9	227.8
22.5°	234.0	232.9	229.9	228.8	224.7
25°	229.9	228.8	226.8	225.8	220.6
27.5°	226.8	225.8	222.7	221.7	216.5
30°	222.7	221.7	218.6	216.5	212.4
32.5°	218.6	216.5	215.5	212.4	207.3
35°	213.4	211.4	209.3	207.3	201.1
37.5°	209.3	207.3	205.2	203.2	197.0
40°	204.2	201.1	200.1	198.1	192.9
42.5°	199.1	196.0	195.0	193.9	187.8
45°	192.9	190.9	189.8	188.8	182.7
47.5°	187.8	184.7	184.7	183.7	178.6
50°	181.6	178.6	180.6	179.6	173.4
52.5°	175.5	173.4	174.5	175.5	169.3
55°	168.3	166.2	168.3	170.3	163.2
57.5°	161.1	160.1	163.2	164.2	158.0
60°	153.9	152.9	158.0	158.0	151.9
62.5°	143.7	144.7	150.8	151.9	146.7
65°	133.4	136.5	143.7	145.7	142.6
67.5°	122.1	128.3	136.5	141.6	138.5
70°	109.8	119.0	129.3	136.5	133.4
72.5°	97.5	108.8	123.1	132.4	129.3
75°	83.1	97.5	119.0	128.3	126.2
77.5°	70.8	87.2	113.9	125.2	124.2
80°	55.4	79.0	110.8	122.1	121.1
82.5°	41.0	73.9	108.8	119.0	118.0
85°	28.7	73.9	106.7	114.9	114.9
87.5°	15.4	78.0	104.7	111.9	110.8
90°	0.0	83.1	96.5	95.4	91.3
92.5°	56.4	98.5	102.6	103.6	102.6
95°	105.7	114.9	104.7	103.6	101.6
97.5°	142.6	131.4	106.7	100.6	98.5
100°	174.5	148.8	106.7	98.5	95.4
102.5°	203.2	163.2	108.8	95.4	91.3
105°	222.7	176.5	108.8	93.4	88.3
107.5°	238.1	185.7	108.8	91.3	86.2
110°	247.3	189.8	108.8	89.3	81.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	250.4	189.8	107.7	85.2	79.0
115°	245.3	185.7	106.7	82.1	75.9
117.5°	237.0	180.6	106.7	80.0	72.9
120°	224.7	173.4	105.7	79.0	70.8
122.5°	210.4	164.2	103.6	78.0	69.8
125°	195.0	155.0	100.6	78.0	68.8
127.5°	179.6	144.7	96.5	79.0	69.8
130°	165.2	134.4	92.4	79.0	70.8
132.5°	150.8	124.2	88.3	78.0	70.8
135°	135.5	113.9	86.2	74.9	70.8
137.5°	121.1	104.7	84.1	72.9	67.7
140°	108.8	98.5	82.1	71.8	66.7
142.5°	99.5	93.4	81.1	70.8	65.7
145°	92.4	88.3	80.0	71.8	65.7
147.5°	87.2	85.2	79.0	71.8	65.7
150°	84.1	83.1	78.0	71.8	66.7
152.5°	82.1	81.1	77.0	72.9	67.7
155°	80.0	79.0	75.9	72.9	67.7
157.5°	79.0	78.0	75.9	72.9	68.8
160°	78.0	77.0	75.9	72.9	69.8
162.5°	77.0	77.0	74.9	73.9	69.8
165°	77.0	75.9	74.9	73.9	69.8
167.5°	75.9	75.9	74.9	73.9	70.8
170°	75.9	75.9	74.9	73.9	70.8
172.5°	75.9	75.9	74.9	73.9	70.8
175°	75.9	75.9	74.9	74.9	71.8
177.5°	75.9	75.9	74.9	74.9	71.8
180°	74.9	74.9	74.9	74.9	74.9



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**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.68	9.72	9.54	10.61	11.74	9.33	10.37	10.19	11.27	12.39
	3H	10.78	11.73	11.65	12.63	13.78	12.11	13.06	12.97	13.96	15.11
	4H	11.56	12.47	12.44	13.37	14.53	13.56	14.47	14.45	15.37	16.54
	6H	12.14	12.98	13.03	13.89	15.07	15.19	16.03	16.08	16.94	18.12
	8H	12.32	13.13	13.23	14.06	15.24	16.05	16.86	16.95	17.79	18.96
	12H	12.44	13.21	13.35	14.14	15.34	17.00	17.77	17.91	18.70	19.90
4H	2H	9.51	10.42	10.40	11.32	12.48	10.00	10.90	10.89	11.81	12.97
	3H	11.86	12.63	12.75	13.57	14.74	13.00	13.78	13.90	14.71	15.89
	4H	12.82	13.53	13.72	14.47	15.67	14.63	15.35	15.54	16.28	17.48
	6H	13.57	14.20	14.49	15.16	16.36	16.44	17.07	17.36	18.03	19.23
	8H	13.85	14.44	14.77	15.39	16.61	17.42	18.01	18.34	18.96	20.18
	12H	14.04	14.59	14.99	15.55	16.78	18.48	19.02	19.43	19.99	21.21
8H	4H	13.54	14.13	14.46	15.08	16.30	15.04	15.63	15.96	16.58	17.80
	6H	14.57	15.07	15.52	16.06	17.28	17.08	17.58	18.03	18.57	19.79
	8H	15.02	15.48	15.98	16.46	17.69	18.22	18.67	19.18	19.65	20.88
	12H	15.40	15.80	16.36	16.78	18.05	19.49	19.89	20.45	20.87	22.14
12H	4H	13.75	14.29	14.69	15.26	16.48	15.07	15.62	16.02	16.58	17.81
	6H	14.94	15.39	15.90	16.37	17.60	17.20	17.66	18.16	18.64	19.87
	8H	15.53	15.93	16.49	16.91	18.18	18.43	18.83	19.39	19.81	21.08