

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: P644227

Luminaire Tested: CRQ4DIP-SR4F0-100D50U935-FLLFLL-1DUDD-WW

Issue Date: 2/20/2023



**Test Information**

Test Method: LM-79-2019  
Report Number: P644227  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2206-689-28, G2-2206-689-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 2/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: CRQ4DIP-SR4F0-100D50U935-FLLFLL-1DUDD-WW  
Description: NEO-RAY CIRQUE SUSPENDED LED LUMINAIRE  
DOWNLIGHT - CURVED FROSTED LENS - 1000 LUMENS PER FOOT  
UPLIGHT - CURVED FROSTED LENS - 500 LUMENS PER FOOT  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

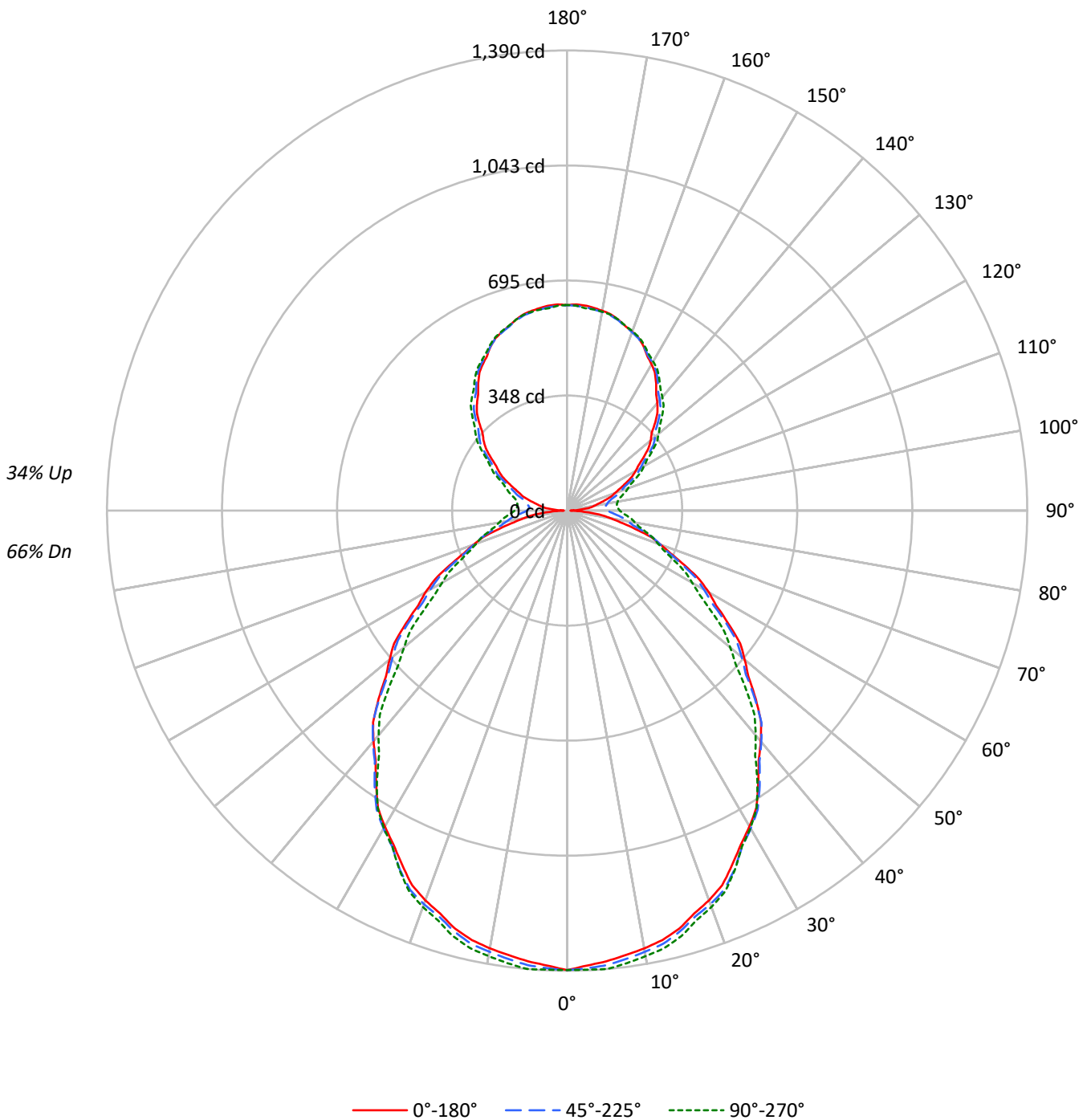
Lumens per Lamp: N/A  
Luminaire Lumens: 5411.6 lumens  
Efficiency: N/A  
Efficacy: 121.6 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.3  
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 4' x H: 0.33')  
CIE Type: Semi-Direct

Input Watts (W): 44.5  
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										
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	50	30	10	0														
RCR																																						
0	111	111	111	111	105	105	105	105	92	92	92	81	81	81	71	71	71	66																				
1	101	96	92	88	95	91	87	84	80	77	75	71	69	67	62	60	59	55																				
2	92	84	77	72	86	79	73	69	70	66	62	62	59	56	54	52	50	46																				
3	84	74	66	60	79	70	63	57	62	57	52	55	51	47	48	45	42	39																				
4	77	66	57	51	72	62	55	49	55	49	45	49	44	41	43	40	37	33																				
5	71	59	50	44	66	56	48	42	50	43	39	44	39	35	39	35	32	29																				
6	65	53	44	38	61	50	42	37	45	39	34	40	35	31	36	31	28	26																				
7	60	48	40	34	57	45	38	32	41	35	30	37	31	28	33	28	25	23																				
8	56	43	35	30	53	41	34	29	37	31	27	34	28	25	30	26	23	20																				
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	20	18																				
10	49	37	29	24	46	35	28	23	32	26	22	29	24	20	26	22	19	17																				

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

	0°	45°	90°
0°	22410	22410	22410
5°	21987	19787	19174
10°	21698	17614	16563
15°	21380	15773	14488
20°	20890	14151	12671
25°	20239	12629	11042
30°	19599	11173	9584
35°	18730	9834	8226
40°	17921	8599	6973
45°	16984	7391	5820
50°	15992	6272	4774
55°	14942	5275	3883
60°	13940	4338	3154
65°	12709	3500	2569
70°	11524	2800	2125
75°	10074	2254	1804
80°	8417	1834	1568
85°	6139	1558	1410

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 16984 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	131.0	2.4
10°-20°	371.9	6.9
20°-30°	549.0	10.1
30°-40°	631.5	11.7
40°-50°	612.7	11.3
50°-60°	514.6	9.5
60°-70°	377.9	7.0
70°-80°	246.6	4.6
80°-90°	149.9	2.8
90°-100°	117.2	2.2
100°-110°	150.9	2.8
110°-120°	210.1	3.9
120°-130°	268.5	5.0
130°-140°	302.2	5.6
140°-150°	298.4	5.5
150°-160°	252.4	4.7
160°-170°	168.0	3.1
170°-180°	58.8	1.1
0°-30°	1051.9	19.4
0°-40°	1683.4	31.1
0°-60°	2810.7	51.9
0°-90°	3585.1	66.2
90°-120°	478.2	8.8
90°-150°	1347.3	24.9
90°-180°	1826.0	33.7
0°-180°	5411.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1366	1391	1378	1380	1390	130
15°	1308	1328	1316	1322	1331	368
25°	1180	1201	1196	1190	1198	544
35°	1006	1023	1014	1002	1002	630
45°	806	815	800	776	765	621
55°	594	604	582	547	532	533
65°	392	398	381	362	356	390
75°	212	217	235	243	245	226
85°	65	94	150	176	182	68
90°	10	60	121	150	159	11
95°	49	61	114	145	150	47
105°	116	114	141	165	170	124
115°	195	198	212	225	228	193
125°	283	290	302	311	314	253
135°	376	384	391	401	406	290
145°	468	474	477	480	486	293
155°	547	550	548	548	552	251
165°	597	600	595	593	597	168
175°	622	625	617	614	614	59
180°	621	621	621	621	621	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1388.0	<i>1388.0</i>	1388.0	1388.0	1388.0
2.5°	<i>1375.5</i>	<i>1395.4</i>	<i>1383.8</i>	<i>1386.5</i>	<i>1388.0</i>
5°	1366.5	<i>1391.4</i>	1378.2	1380.4	1390.0
7.5°	1353.9	<i>1377.4</i>	1365.9	1367.9	1379.0
10°	1342.9	<i>1365.9</i>	1353.4	1356.9	1366.5
12.5°	1328.8	<i>1351.3</i>	1340.3	1344.3	1353.9
15°	1307.6	<i>1328.1</i>	1316.1	1321.6	1331.2
17.5°	1276.3	<i>1297.6</i>	1285.6	1288.3	1297.8
20°	1252.7	<i>1272.6</i>	1265.2	1264.7	1274.3
22.5°	1224.5	<i>1245.9</i>	1240.1	1235.0	1246.1
25°	1180.2	<i>1200.7</i>	1195.9	1190.2	1197.9
27.5°	1136.3	<i>1152.8</i>	1144.5	1138.0	1143.7
30°	1101.8	<i>1120.3</i>	1109.0	1101.9	1107.7
32.5°	1064.1	<i>1083.2</i>	1071.3	1062.6	1065.3
35°	1005.7	<i>1023.0</i>	1013.6	1001.8	1001.8
37.5°	950.4	<i>963.0</i>	954.6	937.4	933.2
40°	909.7	<i>923.7</i>	912.3	891.9	886.1
42.5°	867.3	<i>881.4</i>	868.9	846.3	837.5
45°	805.8	<i>815.4</i>	800.5	776.1	764.6
47.5°	742.2	<i>752.7</i>	732.6	705.5	691.7
50°	699.9	<i>711.4</i>	688.1	658.4	643.0
52.5°	659.1	<i>668.1</i>	645.3	611.9	598.6
55°	594.0	<i>604.3</i>	581.6	546.7	532.0
57.5°	533.2	<i>543.1</i>	517.3	487.2	475.1
60°	494.0	<i>502.4</i>	477.1	447.5	436.0
62.5°	450.1	<i>459.0</i>	435.8	412.5	402.0
65°	392.1	<i>397.9</i>	381.0	362.0	355.7
67.5°	337.6	<i>341.5</i>	330.2	320.6	316.9
70°	300.0	<i>303.8</i>	299.4	295.5	292.3
72.5°	265.4	<i>268.3</i>	271.7	273.1	271.5
75°	211.7	<i>216.9</i>	234.8	243.4	244.7
77.5°	164.7	<i>168.6</i>	203.3	218.4	221.8
80°	133.3	<i>142.3</i>	184.5	204.4	208.2
82.5°	105.1	<i>119.2</i>	169.9	192.9	196.8
85°	64.7	<i>93.6</i>	150.0	175.8	181.6
87.5°	30.3	<i>72.7</i>	132.7	160.8	167.6
90°	10.5	<i>60.5</i>	120.7	150.4	158.8
92.5°	25.7	<i>58.3</i>	116.5	145.8	153.6
95°	49.3	<i>60.9</i>	114.3	144.6	150.4
97.5°	70.3	<i>70.9</i>	118.2	145.6	151.5
100°	83.5	<i>81.0</i>	123.0	148.8	155.2
102.5°	96.7	<i>92.7</i>	129.4	154.1	160.0
105°	116.5	<i>114.0</i>	140.9	164.7	170.5
107.5°	138.6	<i>136.8</i>	158.2	179.4	184.0
110°	153.4	<i>154.1</i>	172.0	190.5	195.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	170.8	171.5	187.2	202.6	207.8
115°	194.9	197.6	212.1	224.7	228.0
117.5°	220.0	224.7	237.6	248.1	251.2
120°	238.5	243.6	255.0	265.0	267.5
122.5°	255.9	261.1	273.4	283.4	286.0
125°	282.6	289.7	301.8	311.1	313.7
127.5°	309.9	318.3	329.3	338.8	342.1
130°	329.4	337.8	347.3	357.2	361.1
132.5°	346.3	354.7	364.1	375.2	379.6
135°	375.6	384.0	391.4	401.4	405.9
137.5°	404.2	412.3	418.0	425.9	431.6
140°	423.7	430.8	434.9	442.3	447.4
142.5°	441.6	448.7	451.8	458.1	463.2
145°	468.5	474.3	477.1	480.5	485.6
147.5°	493.7	499.4	500.5	503.5	506.7
150°	510.0	515.2	515.3	516.7	519.9
152.5°	525.3	530.0	528.5	529.4	533.1
155°	546.9	550.1	547.6	548.3	551.5
157.5°	564.1	567.3	563.3	564.5	567.1
160°	574.6	577.8	573.3	574.0	576.6
162.5°	584.6	586.8	582.8	581.9	585.5
165°	597.0	599.6	595.0	593.1	597.0
167.5°	607.6	610.1	604.1	602.1	606.0
170°	612.8	615.4	608.9	606.3	610.2
172.5°	617.6	620.1	613.1	610.0	612.8
175°	622.0	624.6	616.8	614.1	614.1
177.5°	623.4	624.9	619.1	616.6	619.7
180°	620.7	620.7	620.7	620.7	620.7

(END OF REPORT)