

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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: P902177

Luminaire Tested: DFN2DIP-4P3F0-020D020US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902177
REPORT IS A COMBINATION OF REPORTS P900550 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D020US830-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

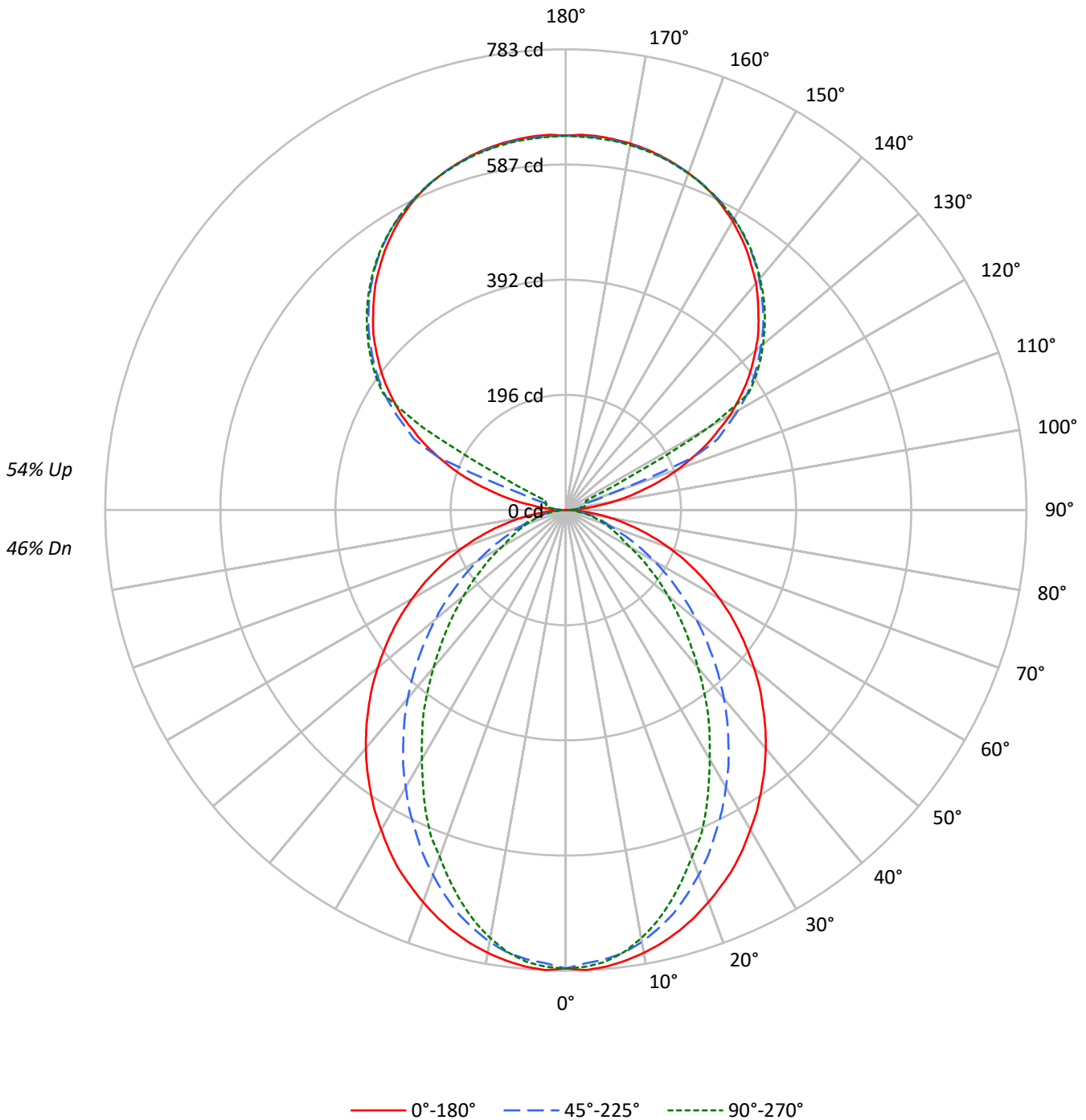
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3468.5 lumens
Efficiency: N/A
Efficacy: 111.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 31
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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				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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46				46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40				40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34				34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29				29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26				26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23				23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20				20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18				18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16				16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15				15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13				13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	888	888	888
5°	889	873	879
10°	879	856	850
15°	867	827	806
20°	850	787	751
25°	833	743	699
30°	810	698	632
35°	788	649	573
40°	766	599	506
45°	740	543	446
50°	713	487	386
55°	684	427	329
60°	651	365	271
65°	613	301	243
70°	567	242	220
75°	509	212	199
80°	425	176	172
85°	289	115	128

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 740 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.0	2.1
10°-20°	200.4	5.8
20°-30°	281.4	8.1
30°-40°	306.8	8.8
40°-50°	282.0	8.1
50°-60°	221.4	6.4
60°-70°	144.1	4.2
70°-80°	74.2	2.1
80°-90°	20.1	0.6
90°-100°	21.0	0.6
100°-110°	78.2	2.3
110°-120°	207.4	6.0
120°-130°	344.0	9.9
130°-140°	365.4	10.5
140°-150°	339.6	9.8
150°-160°	273.0	7.9
160°-170°	175.9	5.1
170°-180°	60.6	1.7
0°-30°	554.9	16.0
0°-40°	861.7	24.8
0°-60°	1365.1	39.4
0°-90°	1603.5	46.2
90°-120°	306.6	8.8
90°-150°	1355.6	39.1
90°-180°	1865.0	53.8
0°-180°	3468.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	779	779	779	779	779	
5°	779	776	766	773	771	74
15°	741	733	709	696	689	209
25°	673	650	604	575	564	309
35°	580	544	482	437	422	363
45°	474	426	353	302	286	366
55°	360	305	229	187	173	322
65°	243	186	123	99	97	241
75°	130	80	56	52	51	137
85°	30	16	13	13	13	35
90°	0	6	9	12	12	3
95°	30	15	18	20	20	35
105°	140	154	28	33	35	150
115°	265	272	284	71	38	261
125°	374	380	389	392	394	334
135°	463	470	475	479	478	358
145°	537	537	545	548	546	336
155°	592	587	593	596	592	273
165°	623	621	622	625	622	176
175°	638	634	635	638	634	61
180°	636	636	636	636	636	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	779.1	779.1	779.1	779.1	779.1
2.5°	782.6	779.1	771.3	778.4	777.0
5°	779.1	775.6	766.4	772.8	770.6
7.5°	772.8	768.5	758.7	761.5	757.9
10°	764.3	759.3	745.3	743.1	739.0
12.5°	753.8	747.3	728.3	724.2	716.3
15°	741.0	733.2	709.3	695.9	688.9
17.5°	726.2	714.9	685.3	669.8	658.6
20°	709.3	695.1	660.0	642.3	626.8
22.5°	691.0	674.8	633.9	609.9	599.4
25°	672.7	650.1	603.5	574.7	564.0
27.5°	650.8	626.8	575.3	542.2	525.9
30°	627.5	600.7	544.3	508.4	489.3
32.5°	604.9	572.5	514.7	472.4	454.8
35°	579.6	543.7	481.6	437.2	421.6
37.5°	554.9	516.0	450.5	401.9	384.3
40°	528.8	486.5	418.1	368.1	349.7
42.5°	502.0	456.9	385.7	333.5	315.9
45°	473.8	426.5	352.6	302.5	285.5
47.5°	447.0	397.0	320.8	270.7	255.2
50°	417.5	367.4	289.8	241.1	226.4
52.5°	388.4	335.5	260.1	213.7	200.3
55°	360.2	305.3	229.1	186.9	173.4
57.5°	331.4	274.9	201.7	162.2	150.9
60°	301.8	245.3	172.8	136.9	125.5
62.5°	272.9	216.5	148.1	114.2	108.6
65°	243.3	186.2	122.7	98.8	96.6
67.5°	215.1	157.9	98.8	86.7	84.6
70°	185.4	130.4	81.7	74.7	71.9
72.5°	157.2	105.0	68.3	62.8	61.4
75°	129.7	80.3	56.4	51.5	50.8
77.5°	102.3	57.1	44.4	41.6	40.2
80°	76.8	40.9	33.8	31.0	31.0
82.5°	53.5	27.5	23.3	21.9	21.9
85°	30.3	15.5	13.4	13.4	13.4
87.5°	11.3	5.7	5.7	4.9	4.9
90°	0.5	5.6	9.1	11.5	12.4
92.5°	11.5	9.7	11.0	12.0	12.4
95°	29.9	14.7	17.9	20.3	19.8
97.5°	53.8	16.1	23.5	24.9	25.4
100°	81.5	18.4	26.2	29.9	30.8
102.5°	111.9	110.9	27.1	32.2	33.6
105°	140.0	153.7	28.1	33.1	35.0
107.5°	172.7	184.1	29.0	34.0	35.9
110°	204.0	213.6	80.6	34.6	36.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	233.4	241.7	233.8	35.4	36.9
115°	264.7	272.5	284.1	70.9	37.8
117.5°	291.8	301.0	308.9	243.1	122.4
120°	322.3	329.1	337.4	343.0	280.8
122.5°	348.0	355.3	364.6	367.3	367.9
125°	374.3	380.2	389.0	392.2	393.6
127.5°	398.2	404.6	411.6	416.1	416.6
130°	420.8	428.1	433.2	438.3	437.8
132.5°	443.7	449.8	454.8	458.9	458.5
135°	463.2	470.5	474.6	479.3	478.3
137.5°	483.3	488.9	493.5	498.1	496.7
140°	503.1	506.9	511.9	516.0	513.8
142.5°	519.7	523.0	529.0	532.6	530.3
145°	537.2	536.8	544.6	547.8	545.5
147.5°	552.4	551.0	558.8	561.1	559.3
150°	567.1	563.9	571.3	574.0	571.7
152.5°	579.6	575.9	582.8	585.6	582.3
155°	591.5	587.4	593.0	595.7	592.0
157.5°	601.2	597.6	601.7	604.9	601.2
160°	609.5	606.7	609.5	612.3	609.1
162.5°	616.8	614.1	616.4	619.6	615.5
165°	623.3	620.6	621.9	625.2	621.9
167.5°	628.4	625.6	627.0	630.3	626.0
170°	632.5	629.7	630.7	633.9	629.7
172.5°	635.3	632.5	633.5	636.7	632.5
175°	637.5	634.3	635.3	638.5	633.9
177.5°	638.5	635.3	635.7	638.9	634.8
180°	636.2	636.2	636.2	636.2	636.2



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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	6.34	7.14	7.33	8.14	9.47	2.30	3.10	3.29	4.10	5.43
	3H	8.01	8.72	9.01	9.73	11.08	3.48	4.19	4.48	5.21	6.55
	4H	8.61	9.29	9.63	10.30	11.66	3.92	4.60	4.94	5.61	6.97
	6H	9.03	9.65	10.06	10.67	12.04	4.24	4.86	5.27	5.88	7.25
	8H	9.15	9.74	10.19	10.78	12.14	4.32	4.92	5.36	5.95	7.32
	12H	9.21	9.77	10.25	10.80	12.19	4.36	4.93	5.40	5.96	7.34
4H	2H	6.35	7.03	7.37	8.04	9.40	2.89	3.57	3.91	4.58	5.94
	3H	8.17	8.73	9.20	9.78	11.14	4.23	4.79	5.26	5.83	7.20
	4H	8.86	9.37	9.90	10.41	11.80	4.77	5.28	5.81	6.32	7.71
	6H	9.37	9.81	10.42	10.87	12.25	5.18	5.62	6.23	6.68	8.07
	8H	9.54	9.95	10.59	11.00	12.40	5.31	5.72	6.36	6.77	8.17
	12H	9.63	10.00	10.70	11.07	12.47	5.37	5.74	6.43	6.80	8.21
8H	4H	8.82	9.23	9.87	10.28	11.69	5.04	5.46	6.10	6.51	7.91
	6H	9.38	9.72	10.46	10.81	12.21	5.55	5.89	6.63	6.99	8.39
	8H	9.59	9.89	10.68	10.97	12.39	5.74	6.04	6.82	7.12	8.53
	12H	9.73	9.99	10.81	11.06	12.52	5.85	6.12	6.94	7.19	8.65
12H	4H	8.77	9.14	9.84	10.21	11.62	5.05	5.42	6.12	6.49	7.89
	6H	9.36	9.66	10.44	10.73	12.15	5.60	5.90	6.68	6.98	8.40
	8H	9.57	9.83	10.66	10.91	12.37	5.81	6.07	6.89	7.14	8.60