

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: P909571

Luminaire Tested: DFN2DIP-SQ4F0-100D160US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909571
REPORT IS A COMBINATION OF REPORTS P901732 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D160US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

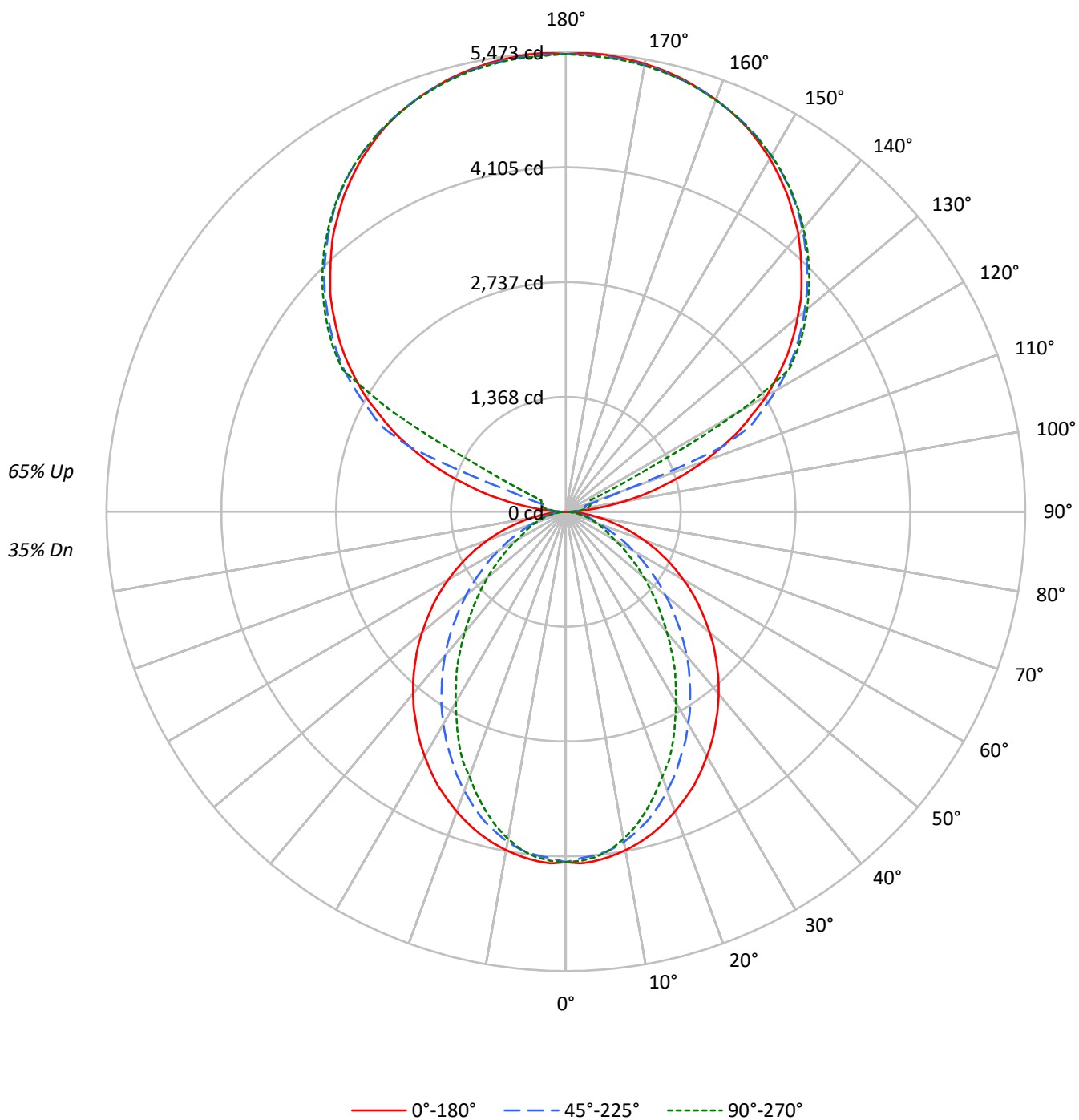
Lumens per Lamp: N/A
Luminaire Lumens: 24580.1 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 214.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	42	42	42
1	95	91	87	84	86	82	79	76	66	64	62	51	50	49	38	37	36
2	87	80	74	69	78	72	67	63	58	55	52	46	43	41	34	32	31
3	79	70	63	58	71	64	58	53	52	47	44	41	38	35	30	28	27
4	72	62	55	49	65	57	50	45	46	41	38	36	33	30	27	25	23
5	67	56	48	42	60	51	44	39	41	36	33	33	29	27	25	22	21
6	61	50	42	37	55	45	39	34	37	32	29	30	26	23	22	20	18
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	19	17	15
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	18	15	13
10	46	34	27	23	41	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2929	2929	2929
5°	2933	2883	2901
10°	2904	2827	2808
15°	2864	2734	2663
20°	2811	2606	2484
25°	2757	2462	2312
30°	2684	2314	2093
35°	2613	2156	1901
40°	2540	1991	1680
45°	2456	1809	1480
50°	2369	1625	1285
55°	2278	1428	1097
60°	2173	1222	904
65°	2051	1013	814
70°	1904	817	738
75°	1720	722	674
80°	1452	608	587
85°	1011	409	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2921 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.2	1.6
10°-20°	1073.8	4.4
20°-30°	1507.6	6.1
30°-40°	1643.4	6.7
40°-50°	1510.5	6.1
50°-60°	1186.3	4.8
60°-70°	772.1	3.1
70°-80°	397.5	1.6
80°-90°	111.1	0.5
90°-100°	179.8	0.7
100°-110°	670.3	2.7
110°-120°	1777.8	7.2
120°-130°	2948.5	12.0
130°-140°	3132.1	12.7
140°-150°	2910.9	11.8
150°-160°	2340.3	9.5
160°-170°	1508.0	6.1
170°-180°	519.0	2.1
0°-30°	2972.6	12.1
0°-40°	4616.1	18.8
0°-60°	7312.8	29.8
0°-90°	8593.4	35.0
90°-120°	2627.9	10.7
90°-150°	11619.4	47.3
90°-180°	15987.0	65.0
0°-180°	24580.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4106	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3604	3482	3233	3078	3022	1657
35°	3105	2912	2580	2342	2259	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1636	1228	1001	929	1725
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	4	47	79	99	106	23
95°	256	126	154	174	170	304
105°	1200	1318	241	284	300	1282
115°	2269	2336	2435	608	324	2234
125°	3208	3259	3334	3362	3374	2861
135°	3970	4033	4068	4108	4100	3066
145°	4605	4601	4668	4695	4676	2880
155°	5070	5035	5082	5106	5074	2336
165°	5342	5319	5331	5358	5331	1509
175°	5465	5437	5445	5473	5433	520
180°	5453	5453	5453	5453	5453	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4173.8	4173.8	4173.8	4173.8	4173.8
2.5°	4192.6	4173.8	4132.1	4170.1	4162.6
5°	4173.8	4154.9	4105.6	4139.7	4128.4
7.5°	4139.7	4117.2	4064.3	4079.1	4060.4
10°	4094.4	4067.9	3992.6	3981.0	3958.6
12.5°	4037.9	4003.8	3901.6	3879.2	3837.5
15°	3969.8	3928.1	3799.8	3728.1	3690.5
17.5°	3890.4	3829.9	3671.3	3588.3	3527.8
20°	3799.8	3724.1	3535.3	3441.2	3357.8
22.5°	3701.7	3614.7	3395.5	3267.3	3210.8
25°	3603.5	3482.5	3233.2	3078.5	3021.6
27.5°	3486.5	3357.8	3082.1	2904.6	2817.6
30°	3361.8	3217.9	2915.8	2723.5	2621.3
32.5°	3240.9	3066.9	2757.5	2530.7	2436.1
35°	3104.9	2912.3	2580.0	2342.0	2258.6
37.5°	2972.7	2764.7	2413.7	2152.8	2058.6
40°	2832.9	2606.5	2239.8	1971.7	1873.5
42.5°	2689.4	2447.7	2066.3	1786.6	1692.3
45°	2538.3	2285.0	1888.8	1620.2	1529.6
47.5°	2394.9	2126.8	1718.8	1450.3	1367.4
50°	2236.1	1968.0	1552.5	1291.6	1212.6
52.5°	2081.0	1797.8	1393.8	1144.5	1072.8
55°	1930.0	1635.5	1227.5	1001.1	929.3
57.5°	1775.3	1473.1	1080.5	868.8	808.3
60°	1616.6	1314.4	925.3	733.0	672.5
62.5°	1461.9	1159.7	793.0	612.0	581.9
65°	1303.2	997.0	657.2	529.0	517.4
67.5°	1152.2	846.0	529.0	464.4	453.2
70°	993.4	698.9	438.0	400.3	385.2
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.9	430.4	302.2	275.7	272.1
77.5°	547.9	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
90°	3.7	47.4	78.7	98.9	106.3
92.5°	98.9	82.9	94.6	102.6	106.3
95°	256.3	126.0	153.7	173.8	169.7
97.5°	461.5	138.3	201.0	213.2	216.9
100°	698.6	157.9	224.9	256.3	264.3
102.5°	958.7	951.2	232.9	276.0	288.1
105°	1199.5	1318.1	240.9	284.0	299.8
107.5°	1479.7	1578.1	248.8	292.0	307.8
110°	1748.2	1830.7	690.6	296.1	311.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2000.7	2071.5	2004.5	303.7	315.8
115°	2268.8	2335.7	2434.6	607.7	323.8
117.5°	2501.6	2580.3	2647.9	2083.3	1049.6
120°	2762.2	2821.2	2892.4	2939.7	2407.0
122.5°	2982.8	3046.1	3125.2	3148.7	3152.9
125°	3207.7	3259.2	3334.3	3361.9	3373.7
127.5°	3412.9	3468.3	3527.8	3567.1	3570.9
130°	3606.5	3669.8	3712.9	3756.4	3752.7
132.5°	3803.8	3855.3	3898.4	3934.0	3930.3
135°	3969.6	4032.9	4068.0	4107.8	4099.9
137.5°	4143.0	4190.3	4230.1	4269.5	4257.8
140°	4312.6	4344.4	4387.6	4423.2	4403.5
142.5°	4455.0	4482.7	4533.8	4565.2	4545.5
145°	4605.0	4600.7	4667.8	4695.4	4675.8
147.5°	4734.8	4723.0	4790.1	4809.8	4794.2
150°	4861.3	4833.6	4896.9	4920.4	4900.7
152.5°	4967.6	4936.2	4995.3	5019.2	4991.6
155°	5070.2	5035.1	5082.5	5105.9	5074.5
157.5°	5153.2	5121.8	5157.4	5185.1	5153.2
160°	5224.4	5200.5	5224.4	5247.9	5220.2
162.5°	5287.3	5263.8	5283.4	5311.1	5275.5
165°	5342.5	5319.1	5330.8	5358.4	5330.8
167.5°	5386.1	5362.2	5374.4	5402.0	5366.4
170°	5421.7	5397.8	5405.7	5433.4	5397.8
172.5°	5445.1	5421.7	5429.6	5457.3	5421.7
175°	5464.8	5437.1	5445.1	5472.8	5433.4
177.5°	5472.8	5445.1	5449.3	5477.0	5441.4
180°	5453.1	5453.1	5453.1	5453.1	5453.1

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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	9.30	10.02	10.38	11.10	12.57	5.26	5.98	6.34	7.06	8.53
	3H	10.97	11.62	12.07	12.71	14.20	6.44	7.09	7.53	8.17	9.66
	4H	11.58	12.19	12.68	13.28	14.78	6.89	7.50	7.99	8.59	10.08
	6H	12.00	12.56	13.11	13.65	15.16	7.20	7.77	8.31	8.86	10.37
	8H	12.13	12.66	13.24	13.77	15.27	7.29	7.83	8.41	8.93	10.44
	12H	12.19	12.69	13.30	13.79	15.32	7.33	7.84	8.45	8.94	10.46
4H	2H	9.31	9.92	10.41	11.00	12.50	5.85	6.46	6.95	7.54	9.04
	3H	11.13	11.64	12.24	12.75	14.26	7.19	7.70	8.30	8.81	10.32
	4H	11.82	12.29	12.94	13.39	14.92	7.73	8.20	8.85	9.30	10.83
	6H	12.33	12.73	13.46	13.86	15.38	8.15	8.54	9.27	9.67	11.19
	8H	12.51	12.88	13.64	14.00	15.54	8.27	8.65	9.40	9.76	11.30
	12H	12.60	12.94	13.74	14.07	15.61	8.33	8.67	9.48	9.80	11.35
8H	4H	11.78	12.15	12.91	13.27	14.81	8.01	8.38	9.13	9.50	11.04
	6H	12.35	12.65	13.49	13.82	15.35	8.52	8.83	9.67	9.99	11.53
	8H	12.57	12.84	13.72	13.98	15.53	8.71	8.98	9.87	10.12	11.68
	12H	12.70	12.94	13.86	14.08	15.67	8.83	9.06	9.98	10.20	11.79
12H	4H	11.73	12.07	12.87	13.20	14.74	8.01	8.34	9.15	9.48	11.02
	6H	12.32	12.59	13.48	13.73	15.29	8.57	8.84	9.72	9.98	11.54
	8H	12.54	12.78	13.70	13.92	15.51	8.78	9.01	9.93	10.15	11.74

END OF REPORT