

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: P910177

Luminaire Tested: DFN2DIP-TR4F0-080D120US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910177
REPORT IS A COMBINATION OF REPORTS P902042 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D120US840-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

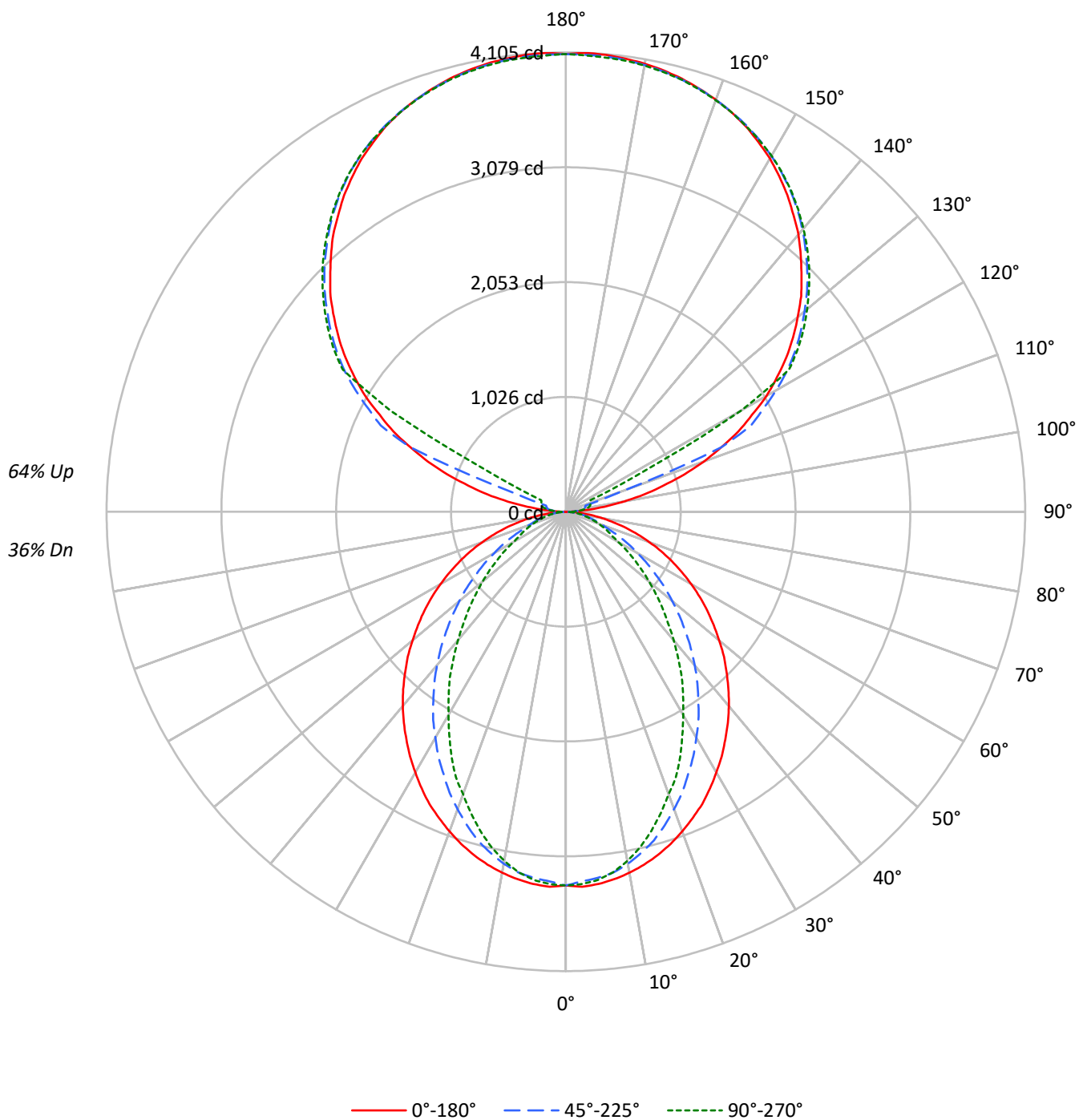
Lumens per Lamp: N/A
Luminaire Lumens: 18864.3 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 166.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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					0
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		76	76	76		59	59	59		44	44	44
1	95	91	87	84	86	83	80	77		67	65	63		52	51	50		39	38	38
2	87	80	74	69	78	73	68	63		59	56	53		46	44	42		35	33	32
3	79	70	63	58	72	64	58	53		52	48	45		41	38	36		31	29	28
4	73	63	55	49	66	57	51	46		47	42	38		37	34	31		28	26	24
5	67	56	48	42	60	51	44	39		42	37	33		33	30	27		25	23	21
6	62	50	42	37	56	46	39	34		38	33	29		30	27	24		23	21	19
7	57	45	38	32	52	41	35	30		34	29	26		28	24	21		21	19	17
8	53	41	34	29	48	38	31	27		31	26	23		25	22	19		20	17	15
9	49	37	30	25	45	34	28	24		29	24	20		23	20	17		18	16	14
10	46	34	27	23	42	32	25	21		26	22	18		22	18	15		17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2653	2653	2653
5°	2657	2610	2627
10°	2631	2559	2542
15°	2594	2475	2409
20°	2547	2358	2247
25°	2498	2227	2090
30°	2432	2093	1892
35°	2367	1949	1717
40°	2301	1800	1517
45°	2225	1635	1336
50°	2146	1468	1159
55°	2064	1289	989
60°	1969	1103	814
65°	1859	913	732
70°	1726	736	663
75°	1559	649	603
80°	1317	544	522
85°	919	363	392

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2225 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	1.7
10°-20°	859.1	4.6
20°-30°	1206.1	6.4
30°-40°	1314.7	7.0
40°-50°	1208.4	6.4
50°-60°	949.0	5.0
60°-70°	617.7	3.3
70°-80°	318.0	1.7
80°-90°	88.4	0.5
90°-100°	134.9	0.7
100°-110°	502.7	2.7
110°-120°	1333.3	7.1
120°-130°	2211.4	11.7
130°-140°	2349.0	12.5
140°-150°	2183.2	11.6
150°-160°	1755.2	9.3
160°-170°	1131.0	6.0
170°-180°	389.3	2.1
0°-30°	2378.1	12.6
0°-40°	3692.9	19.6
0°-60°	5850.2	31.0
0°-90°	6874.3	36.4
90°-120°	1970.9	10.4
90°-150°	8714.5	46.2
90°-180°	11990.0	63.6
0°-180°	18864.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	3	35	59	74	80	18
95°	192	94	115	130	127	228
105°	900	989	181	213	225	961
115°	1702	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3025	3051	3081	3075	2300
145°	3454	3451	3501	3522	3507	2160
155°	3803	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4105	4075	390
180°	4090	4090	4090	4090	4090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	77.0	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.5	168.6	192.2	198.2
102.5°	719.0	713.4	174.6	207.0	216.1
105°	899.6	988.6	180.7	213.0	224.9
107.5°	1109.7	1183.6	186.6	218.9	230.9
110°	1311.1	1373.0	518.0	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.6	1553.6	1503.4	227.7	236.8
115°	1701.5	1751.8	1825.9	455.8	242.9
117.5°	1876.2	1935.3	1985.9	1562.4	787.2
120°	2071.6	2115.9	2169.3	2204.8	1805.2
122.5°	2237.2	2284.6	2344.0	2361.6	2364.7
125°	2405.8	2444.5	2500.7	2521.4	2530.2
127.5°	2559.7	2601.2	2645.8	2675.3	2678.2
130°	2704.8	2752.3	2784.6	2817.3	2814.5
132.5°	2852.8	2891.4	2923.8	2950.5	2947.7
135°	2977.2	3024.6	3051.0	3080.9	3074.9
137.5°	3107.3	3142.7	3172.6	3202.1	3193.3
140°	3234.5	3258.3	3290.6	3317.4	3302.7
142.5°	3341.2	3362.0	3400.3	3423.8	3409.1
145°	3453.7	3450.6	3500.8	3521.6	3506.8
147.5°	3551.1	3542.3	3592.6	3607.3	3595.7
150°	3645.9	3625.2	3672.7	3690.3	3675.5
152.5°	3725.7	3702.2	3746.5	3764.4	3743.7
155°	3802.6	3776.3	3811.8	3829.4	3805.9
157.5°	3864.9	3841.3	3868.1	3888.8	3864.9
160°	3918.3	3900.4	3918.3	3935.8	3915.1
162.5°	3965.4	3947.9	3962.6	3983.3	3956.7
165°	4006.8	3989.3	3998.1	4018.9	3998.1
167.5°	4039.6	4021.6	4030.8	4051.5	4024.8
170°	4066.2	4048.3	4054.3	4075.0	4048.3
172.5°	4083.8	4066.2	4072.3	4093.0	4066.2
175°	4098.5	4077.8	4083.8	4104.6	4075.0
177.5°	4104.6	4083.8	4087.0	4107.7	4081.1
180°	4089.9	4089.9	4089.9	4089.9	4089.9

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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	9.12	9.85	10.19	10.92	12.37	5.09	5.82	6.16	6.89	8.34
	3H	10.79	11.44	11.87	12.52	13.99	6.27	6.92	7.35	8.00	9.48
	4H	11.39	12.01	12.48	13.09	14.57	6.72	7.34	7.81	8.42	9.90
	6H	11.81	12.38	12.91	13.46	14.95	7.03	7.60	8.14	8.69	10.18
	8H	11.93	12.47	13.03	13.57	15.05	7.12	7.66	8.23	8.76	10.25
	12H	11.99	12.50	13.10	13.59	15.10	7.16	7.68	8.27	8.77	10.28
4H	2H	9.12	9.74	10.22	10.82	12.30	5.67	6.29	6.77	7.37	8.85
	3H	10.94	11.46	12.05	12.56	14.06	7.01	7.53	8.12	8.64	10.13
	4H	11.63	12.10	12.74	13.20	14.71	7.56	8.03	8.67	9.13	10.64
	6H	12.14	12.54	13.26	13.66	15.17	7.97	8.38	9.09	9.50	11.00
	8H	12.31	12.69	13.43	13.80	15.32	8.10	8.48	9.22	9.59	11.11
	12H	12.40	12.75	13.54	13.87	15.39	8.16	8.50	9.30	9.63	11.15
8H	4H	11.59	11.97	12.71	13.08	14.60	7.83	8.21	8.95	9.32	10.84
	6H	12.15	12.46	13.29	13.62	15.14	8.35	8.66	9.49	9.81	11.33
	8H	12.37	12.64	13.51	13.78	15.31	8.54	8.81	9.68	9.95	11.48
	12H	12.50	12.74	13.65	13.87	15.45	8.65	8.89	9.80	10.02	11.60
12H	4H	11.54	11.88	12.67	13.00	14.53	7.83	8.17	8.97	9.30	10.82
	6H	12.13	12.40	13.27	13.54	15.07	8.40	8.67	9.54	9.80	11.34
	8H	12.34	12.58	13.49	13.71	15.29	8.60	8.84	9.75	9.97	11.55