

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: P910137

Luminaire Tested: DFN2DIP-TR4F0-070D110US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910137
REPORT IS A COMBINATION OF REPORTS P902022 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D110US840-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

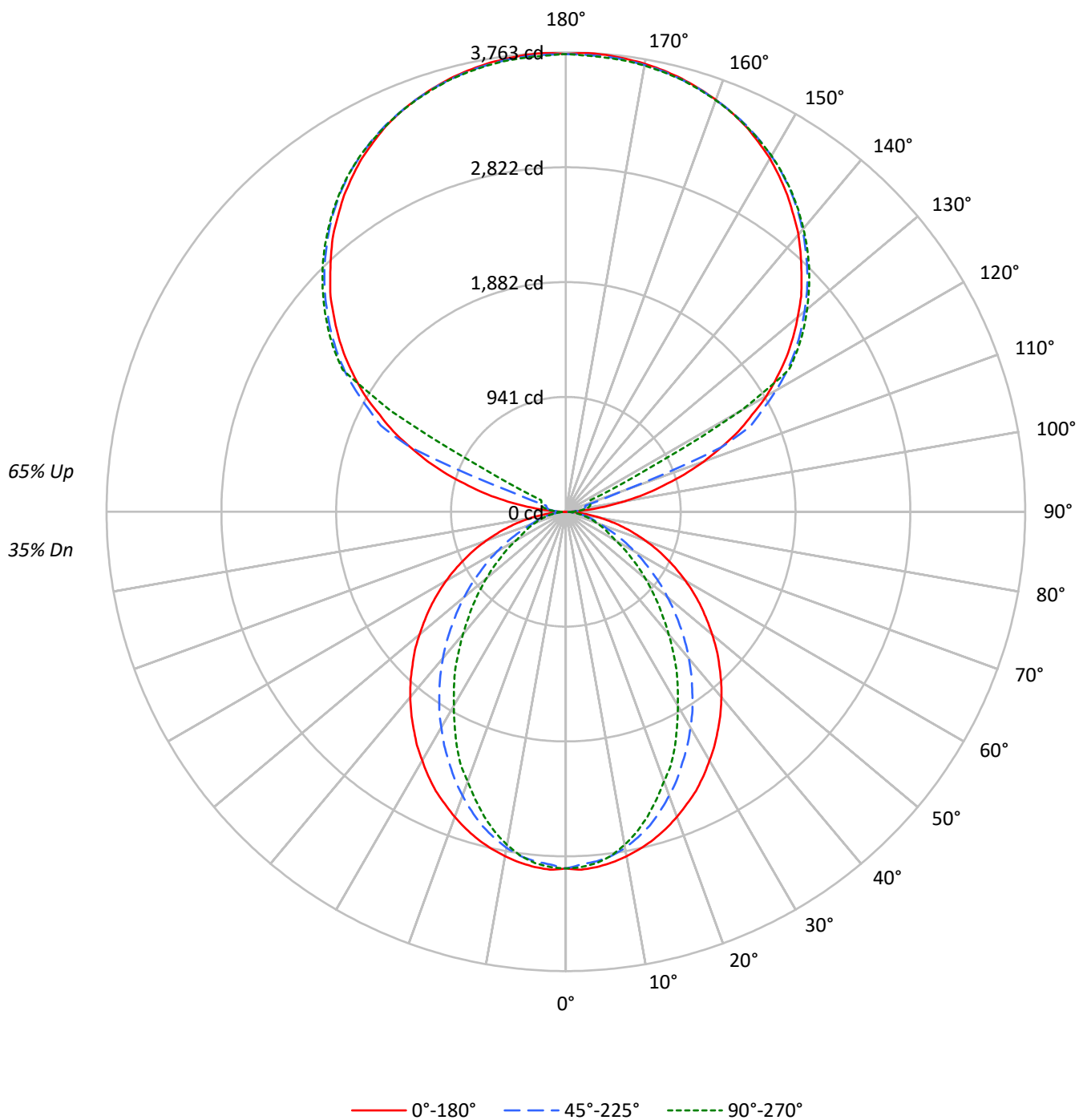
Lumens per Lamp: N/A
Luminaire Lumens: 17006.0 lumens
Efficiency: N/A
Efficacy: 113.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 150.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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				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	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2321	2321	2321
5°	2325	2284	2299
10°	2302	2239	2224
15°	2270	2165	2108
20°	2228	2063	1966
25°	2185	1949	1829
30°	2128	1832	1655
35°	2071	1706	1503
40°	2014	1575	1327
45°	1947	1430	1169
50°	1878	1284	1014
55°	1806	1128	865
60°	1723	965	712
65°	1627	799	641
70°	1510	644	580
75°	1365	568	527
80°	1153	476	457
85°	803	318	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1989 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.6
10°-20°	751.7	4.4
20°-30°	1055.3	6.2
30°-40°	1150.4	6.8
40°-50°	1057.3	6.2
50°-60°	830.4	4.9
60°-70°	540.5	3.2
70°-80°	278.2	1.6
80°-90°	77.6	0.5
90°-100°	123.6	0.7
100°-110°	460.8	2.7
110°-120°	1222.2	7.2
120°-130°	2027.1	11.9
130°-140°	2153.3	12.7
140°-150°	2001.2	11.8
150°-160°	1608.9	9.5
160°-170°	1036.7	6.1
170°-180°	356.8	2.1
0°-30°	2080.9	12.2
0°-40°	3231.2	19.0
0°-60°	5118.9	30.1
0°-90°	6015.2	35.4
90°-120°	1806.7	10.6
90°-150°	7988.3	47.0
90°-180°	10991.0	64.6
0°-180°	17006.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	3	32	54	68	73	16
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1536
125°	2205	2241	2292	2311	2319	1967
135°	2729	2773	2797	2824	2819	2108
145°	3166	3163	3209	3228	3215	1980
155°	3486	3462	3494	3510	3489	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3744	3763	3736	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.2
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.9	160.1	189.8	198.1
105°	824.7	906.2	165.6	195.2	206.2
107.5°	1017.3	1084.9	171.1	200.7	211.7
110°	1201.8	1258.6	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.5	1424.1	1378.1	208.7	217.1
115°	1559.7	1605.8	1673.9	417.8	222.6
117.5°	1719.9	1774.0	1820.4	1432.2	721.5
120°	1899.0	1939.5	1988.5	2021.0	1654.8
122.5°	2050.7	2094.2	2148.6	2164.7	2167.7
125°	2205.3	2240.8	2292.3	2311.3	2319.4
127.5°	2346.4	2384.4	2425.3	2452.4	2455.0
130°	2479.4	2522.9	2552.5	2582.5	2580.0
132.5°	2615.0	2650.5	2680.2	2704.6	2702.1
135°	2729.2	2772.6	2796.7	2824.2	2818.6
137.5°	2848.3	2880.8	2908.2	2935.3	2927.2
140°	2965.0	2986.8	3016.5	3040.9	3027.4
142.5°	3062.8	3081.8	3116.9	3138.6	3125.0
145°	3165.9	3163.0	3209.0	3228.1	3214.6
147.5°	3255.2	3247.1	3293.2	3306.7	3296.1
150°	3342.2	3323.2	3366.6	3382.7	3369.2
152.5°	3415.3	3393.7	3434.2	3450.7	3431.7
155°	3485.9	3461.6	3494.1	3510.3	3488.7
157.5°	3542.8	3521.2	3545.7	3564.7	3542.8
160°	3591.8	3575.3	3591.8	3607.8	3588.9
162.5°	3634.9	3618.9	3632.4	3651.4	3626.9
165°	3673.0	3656.8	3664.9	3683.9	3664.9
167.5°	3702.9	3686.5	3694.9	3713.9	3689.4
170°	3727.4	3711.0	3716.4	3735.5	3711.0
172.5°	3743.5	3727.4	3732.9	3751.9	3727.4
175°	3757.0	3738.0	3743.5	3762.6	3735.5
177.5°	3762.6	3743.5	3746.4	3765.4	3740.9
180°	3749.0	3749.0	3749.0	3749.0	3749.0

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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	8.53	9.25	9.60	10.32	11.79	4.50	5.22	5.58	6.30	7.77
	3H	10.19	10.84	11.28	11.93	13.41	5.68	6.33	6.77	7.41	8.90
	4H	10.80	11.41	11.90	12.50	13.99	6.13	6.74	7.22	7.82	9.32
	6H	11.21	11.78	12.32	12.87	14.37	6.44	7.01	7.55	8.09	9.60
	8H	11.34	11.87	12.45	12.98	14.47	6.53	7.07	7.64	8.17	9.67
	12H	11.39	11.90	12.51	13.00	14.52	6.57	7.08	7.69	8.18	9.70
4H	2H	8.53	9.14	9.64	10.23	11.72	5.08	5.69	6.19	6.78	8.27
	3H	10.35	10.86	11.46	11.97	13.48	6.42	6.93	7.53	8.04	9.55
	4H	11.04	11.51	12.15	12.61	14.13	6.97	7.43	8.08	8.54	10.06
	6H	11.55	11.95	12.67	13.07	14.59	7.38	7.78	8.50	8.91	10.42
	8H	11.72	12.09	12.84	13.21	14.74	7.51	7.88	8.63	9.00	10.53
	12H	11.81	12.15	12.95	13.28	14.82	7.57	7.91	8.71	9.04	10.58
8H	4H	11.00	11.37	12.12	12.49	14.02	7.24	7.61	8.36	8.73	10.26
	6H	11.56	11.87	12.70	13.03	14.56	7.75	8.06	8.90	9.22	10.75
	8H	11.78	12.05	12.93	13.18	14.74	7.95	8.21	9.10	9.35	10.90
	12H	11.91	12.15	13.06	13.28	14.87	8.06	8.30	9.21	9.43	11.02
12H	4H	10.94	11.28	12.08	12.41	13.95	7.24	7.58	8.38	8.71	10.24
	6H	11.53	11.80	12.68	12.94	14.49	7.80	8.07	8.95	9.21	10.76
	8H	11.75	11.99	12.90	13.12	14.71	8.01	8.25	9.16	9.38	10.97