

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: P923665

Luminaire Tested: DFN2DIP-TR4F0-040D100US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923665
REPORT IS A COMBINATION OF REPORTS P901998 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D100US940-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

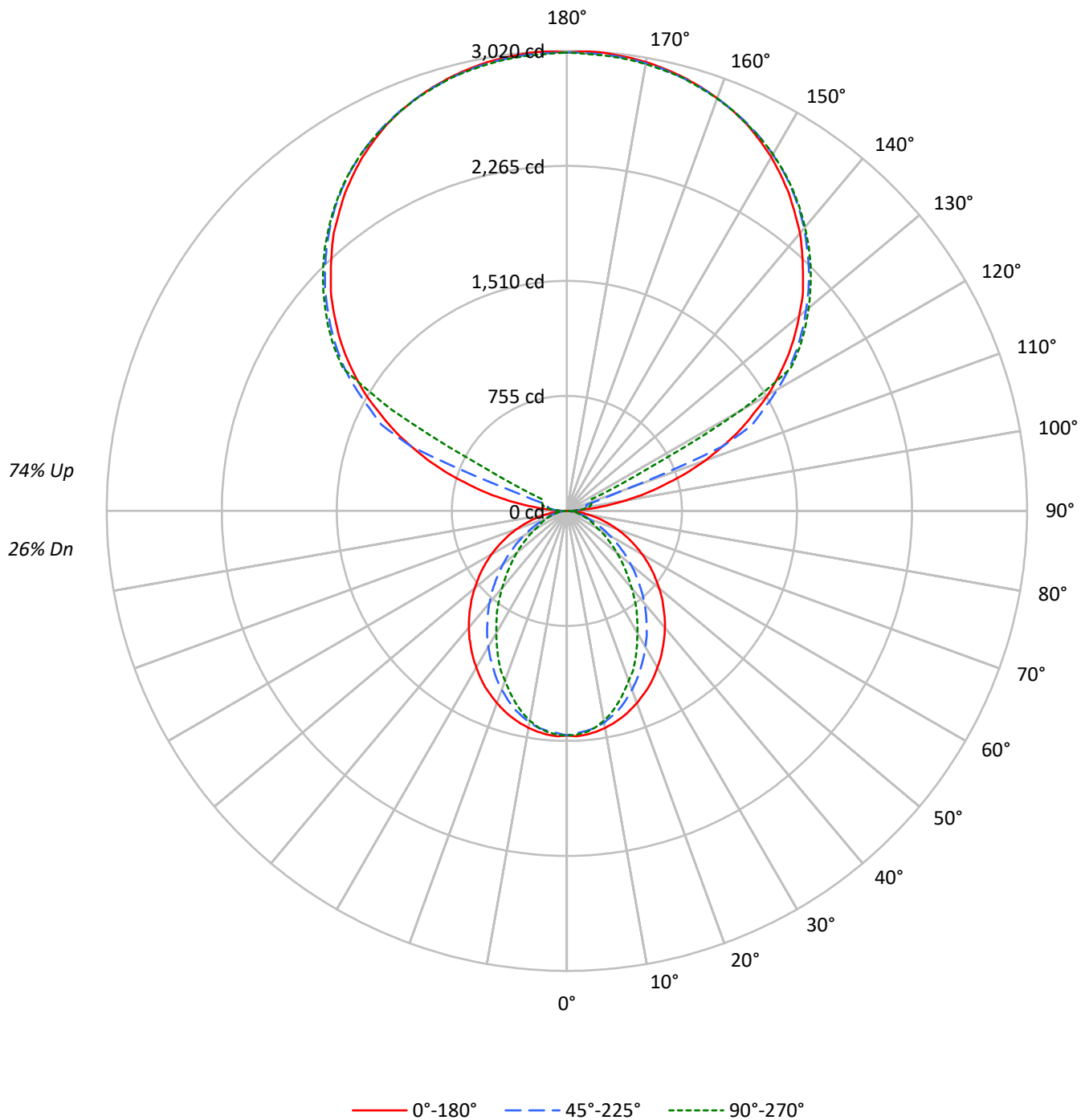
Lumens per Lamp: N/A
Luminaire Lumens: 11859.8 lumens
Efficiency: N/A
Efficacy: 109.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	101	101	101	101		90	90	90	90		70	70	70		51	51	51		34	34	34
1	93	88	85	82		82	79	76	73		61	59	58		45	44	43		30	29	29
2	84	77	72	67		75	69	65	60		54	51	48		40	38	36		27	26	25
3	77	68	61	56		69	61	55	51		48	44	41		35	33	31		24	23	21
4	71	60	53	47		63	54	48	43		43	38	35		32	29	26		22	20	19
5	65	54	46	41		58	48	42	37		38	33	30		28	25	23		19	18	16
6	60	48	41	35		53	43	37	32		34	30	26		26	23	20		18	16	14
7	55	43	36	31		49	39	33	28		31	26	23		23	20	18		16	14	13
8	51	39	32	27		45	36	29	25		28	24	20		21	18	16		15	13	12
9	47	36	29	24		42	32	26	22		26	21	18		20	16	14		14	12	10
10	44	33	26	21		39	30	24	20		24	19	16		18	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1171	1171	1171
5°	1173	1153	1160
10°	1161	1130	1122
15°	1145	1093	1064
20°	1124	1041	992
25°	1103	983	923
30°	1074	924	835
35°	1045	860	758
40°	1016	795	670
45°	982	722	590
50°	948	648	512
55°	911	569	436
60°	869	487	359
65°	821	403	323
70°	762	325	292
75°	688	286	266
80°	581	240	231
85°	405	160	173

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1598 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.2
10°-20°	379.3	3.2
20°-30°	532.5	4.5
30°-40°	580.5	4.9
40°-50°	533.5	4.5
50°-60°	419.0	3.5
60°-70°	272.7	2.3
70°-80°	140.4	1.2
80°-90°	41.1	0.3
90°-100°	99.2	0.8
100°-110°	369.9	3.1
110°-120°	981.1	8.3
120°-130°	1627.2	13.7
130°-140°	1728.5	14.6
140°-150°	1606.5	13.5
150°-160°	1291.5	10.9
160°-170°	832.2	7.0
170°-180°	286.4	2.4
0°-30°	1049.9	8.9
0°-40°	1630.4	13.7
0°-60°	2582.9	21.8
0°-90°	3037.1	25.6
90°-120°	1450.3	12.2
90°-150°	6412.5	54.1
90°-180°	8823.0	74.4
0°-180°	11859.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	26	43	55	59	11
95°	141	70	85	96	94	168
105°	662	727	133	157	166	707
115°	1252	1289	1344	335	179	1233
125°	1770	1799	1840	1855	1862	1579
135°	2191	2226	2245	2267	2263	1692
145°	2541	2539	2576	2591	2580	1589
155°	2798	2779	2805	2818	2800	1289
165°	2948	2935	2942	2957	2942	833
175°	3016	3001	3005	3020	2999	287
180°	3009	3009	3009	3009	3009	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	2.1	26.1	43.4	54.6	58.7
92.5°	54.6	45.7	52.3	56.6	58.7
95°	141.4	69.6	84.8	95.9	93.6
97.5°	254.7	76.2	110.9	117.6	119.8
100°	385.6	87.1	124.1	141.4	145.9
102.5°	529.1	524.9	128.5	152.3	159.0
105°	662.0	727.4	133.0	156.7	165.5
107.5°	816.6	870.9	137.3	161.1	169.9
110°	964.7	1010.3	381.1	163.5	171.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1104.1	1143.2	1106.3	167.6	174.3
115°	1252.1	1289.1	1343.6	335.4	178.7
117.5°	1380.5	1424.1	1461.2	1149.7	579.3
120°	1524.4	1556.9	1596.3	1622.4	1328.4
122.5°	1646.2	1681.1	1724.7	1737.7	1740.0
125°	1770.3	1798.8	1840.1	1855.4	1861.8
127.5°	1883.6	1914.1	1946.9	1968.6	1970.7
130°	1990.3	2025.3	2049.1	2073.0	2071.0
132.5°	2099.2	2127.6	2151.4	2171.0	2169.0
135°	2190.8	2225.6	2245.1	2267.0	2262.6
137.5°	2286.4	2312.6	2334.5	2356.3	2349.7
140°	2380.0	2397.6	2421.4	2441.1	2430.2
142.5°	2458.6	2473.9	2502.1	2519.3	2508.6
145°	2541.4	2539.1	2576.1	2591.3	2580.4
147.5°	2613.0	2606.6	2643.5	2654.4	2645.9
150°	2682.8	2667.6	2702.5	2715.4	2704.6
152.5°	2741.5	2724.2	2756.8	2769.9	2754.7
155°	2798.2	2778.7	2804.9	2817.8	2800.5
157.5°	2843.9	2826.6	2846.3	2861.5	2843.9
160°	2883.3	2870.1	2883.3	2896.2	2880.9
162.5°	2917.9	2904.9	2915.8	2931.1	2911.4
165°	2948.4	2935.4	2941.9	2957.2	2941.9
167.5°	2972.4	2959.2	2966.0	2981.3	2961.5
170°	2992.0	2978.9	2983.3	2998.6	2978.9
172.5°	3005.0	2992.0	2996.5	3011.8	2992.0
175°	3015.9	3000.6	3005.0	3020.3	2998.6
177.5°	3020.3	3005.0	3007.4	3022.6	3002.9
180°	3009.4	3009.4	3009.4	3009.4	3009.4

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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	4.82	5.48	5.96	6.61	8.20	0.79	1.45	1.93	2.58	4.17
	3H	6.48	7.07	7.63	8.21	9.81	1.97	2.56	3.12	3.70	5.30
	4H	7.08	7.64	8.24	8.78	10.39	2.41	2.97	3.57	4.11	5.72
	6H	7.49	8.01	8.66	9.15	10.77	2.72	3.24	3.89	4.38	6.00
	8H	7.61	8.11	8.79	9.27	10.87	2.81	3.30	3.98	4.46	6.07
	12H	7.67	8.14	8.85	9.29	10.92	2.85	3.31	4.02	4.47	6.09
4H	2H	4.81	5.38	5.98	6.52	8.12	1.36	1.93	2.53	3.07	4.67
	3H	6.63	7.10	7.80	8.26	9.88	2.70	3.17	3.87	4.33	5.95
	4H	7.31	7.74	8.49	8.90	10.53	3.24	3.67	4.42	4.83	6.46
	6H	7.82	8.19	9.00	9.36	10.99	3.65	4.02	4.83	5.20	6.82
	8H	7.99	8.33	9.17	9.50	11.14	3.78	4.12	4.96	5.29	6.93
	12H	8.08	8.39	9.27	9.57	11.21	3.84	4.15	5.03	5.33	6.97
8H	4H	7.27	7.61	8.45	8.78	10.42	3.51	3.85	4.69	5.02	6.66
	6H	7.83	8.11	9.03	9.32	10.96	4.02	4.31	5.22	5.52	7.15
	8H	8.04	8.29	9.25	9.48	11.14	4.21	4.46	5.42	5.65	7.31
	12H	8.17	8.39	9.38	9.58	11.27	4.33	4.54	5.53	5.73	7.42
12H	4H	7.21	7.52	8.41	8.70	10.35	3.51	3.82	4.70	5.00	6.64
	6H	7.80	8.05	9.01	9.24	10.90	4.07	4.32	5.28	5.51	7.17
	8H	8.02	8.23	9.22	9.42	11.11	4.28	4.49	5.48	5.68	7.37