

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: P923659

Luminaire Tested: DFN2DIP-TR4F0-040D090US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923659
REPORT IS A COMBINATION OF REPORTS P901979 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D090US940-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

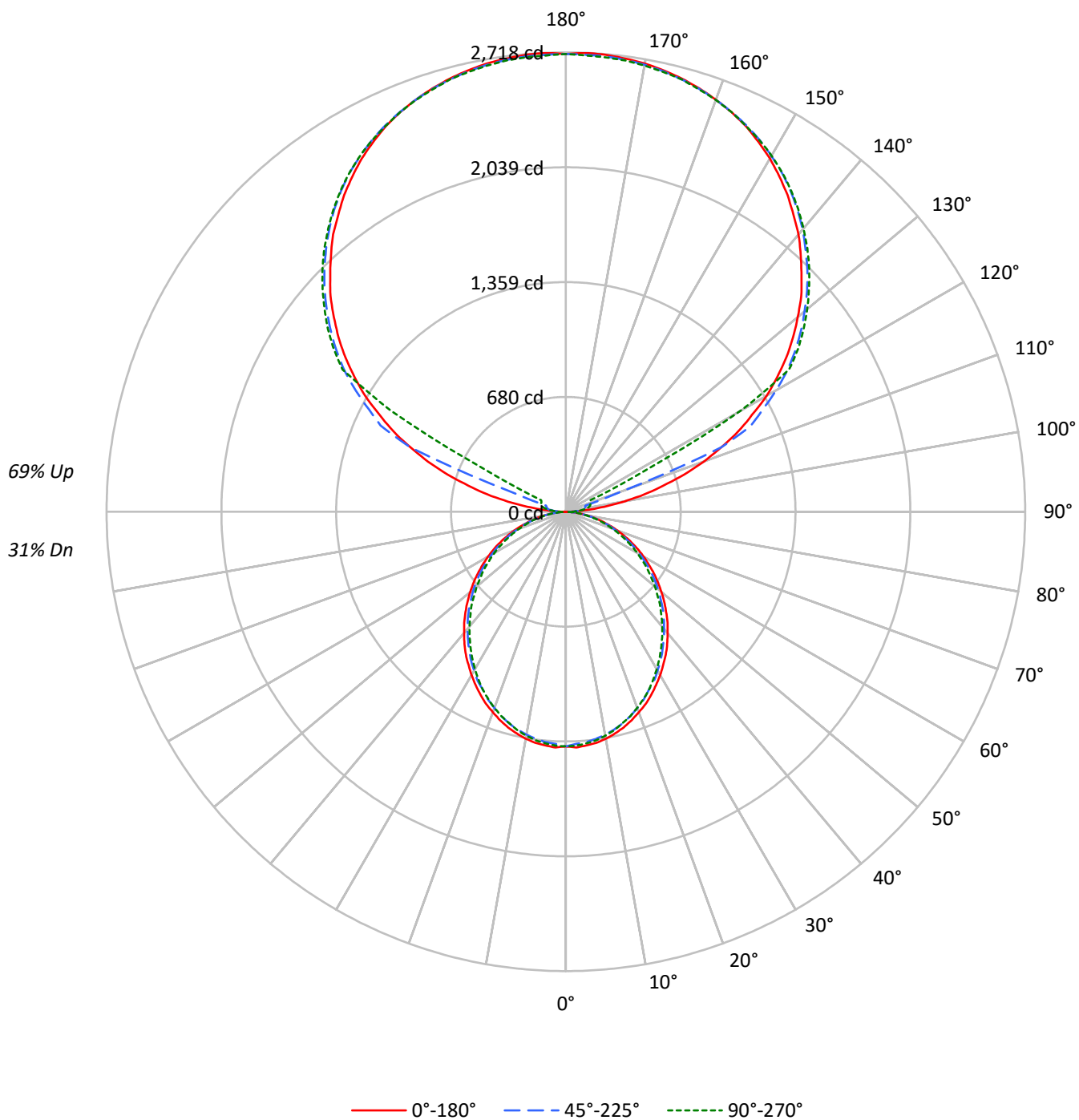
Lumens per Lamp: N/A
Luminaire Lumens: 11476.3 lumens
Efficiency: N/A
Efficacy: 115.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 99.6
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
RCR																	
0	103	103	103	103	92	92	92	92	73	73	73		55	55	55		38
1	93	89	86	82	84	80	77	74	64	61	59		48	47	46		34
2	85	78	72	67	76	70	65	61	56	52	49		42	40	38		30
3	78	68	61	56	69	62	56	51	49	45	41		37	35	32		26
4	71	60	53	47	63	55	48	43	44	39	35		33	30	27		24
5	65	54	46	40	58	49	42	37	39	34	30		30	26	24		21
6	60	48	40	35	53	44	37	32	35	30	26		27	23	21		19
7	55	43	36	30	49	39	33	28	32	27	23		24	21	18		18
8	51	39	32	27	46	36	29	24	29	24	20		22	19	16		16
9	47	36	28	24	43	32	26	22	26	21	18		20	17	14		15
10	44	33	26	21	40	30	23	19	24	19	16		19	15	13		14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1103	1103	1103
5°	1104	1087	1095
10°	1095	1073	1080
15°	1079	1055	1056
20°	1058	1030	1033
25°	1036	1001	1005
30°	1009	974	970
35°	983	941	933
40°	951	909	898
45°	920	876	862
50°	885	842	821
55°	849	803	783
60°	808	755	739
65°	764	707	687
70°	707	648	631
75°	629	576	580
80°	534	486	482
85°	387	330	319

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1437 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	1.1
10°-20°	367.5	3.2
20°-30°	540.1	4.7
30°-40°	627.3	5.5
40°-50°	626.6	5.5
50°-60°	546.3	4.8
60°-70°	403.9	3.5
70°-80°	228.5	2.0
80°-90°	65.1	0.6
90°-100°	89.3	0.8
100°-110°	332.9	2.9
110°-120°	883.0	7.7
120°-130°	1464.5	12.8
130°-140°	1555.6	13.6
140°-150°	1445.8	12.6
150°-160°	1162.4	10.1
160°-170°	749.0	6.5
170°-180°	257.8	2.2
0°-30°	1038.3	9.0
0°-40°	1665.6	14.5
0°-60°	2838.5	24.7
0°-90°	3536.0	30.8
90°-120°	1305.2	11.4
90°-150°	5771.2	50.3
90°-180°	7940.0	69.2
0°-180°	11476.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	2	24	39	49	53	11
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5

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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	5.50	6.21	6.61	7.32	8.84	5.07	5.78	6.18	6.88	8.41
	3H	7.15	7.79	8.27	8.90	10.44	6.68	7.32	7.79	8.43	9.96
	4H	7.73	8.34	8.86	9.45	10.99	7.26	7.86	8.38	8.97	10.52
	6H	8.12	8.68	9.26	9.79	11.35	7.65	8.20	8.78	9.32	10.87
	8H	8.22	8.75	9.36	9.88	11.43	7.75	8.28	8.88	9.41	10.96
	12H	8.27	8.77	9.41	9.89	11.46	7.79	8.29	8.93	9.41	10.98
4H	2H	5.95	6.55	7.08	7.66	9.21	5.60	6.21	6.73	7.32	8.86
	3H	7.80	8.30	8.94	9.44	11.00	7.40	7.91	8.54	9.05	10.60
	4H	8.51	8.97	9.65	10.10	11.67	8.10	8.56	9.24	9.69	11.27
	6H	9.01	9.41	10.16	10.56	12.13	8.60	9.00	9.75	10.15	11.72
	8H	9.16	9.53	10.30	10.67	12.25	8.75	9.12	9.89	10.26	11.84
	12H	9.22	9.56	10.39	10.71	12.30	8.80	9.14	9.97	10.29	11.88
8H	4H	8.69	9.06	9.84	10.20	11.79	8.33	8.70	9.48	9.84	11.43
	6H	9.31	9.62	10.48	10.80	12.38	8.95	9.26	10.12	10.44	12.02
	8H	9.53	9.80	10.71	10.96	12.56	9.17	9.43	10.34	10.60	12.20
	12H	9.66	9.89	10.84	11.05	12.69	9.27	9.51	10.45	10.67	12.30
12H	4H	8.67	9.01	9.83	10.16	11.75	8.32	8.65	9.48	9.81	11.39
	6H	9.34	9.61	10.52	10.77	12.37	8.99	9.26	10.16	10.42	12.02
	8H	9.58	9.81	10.76	10.97	12.61	9.22	9.46	10.40	10.62	12.25

END OF REPORT