

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: P922033

Luminaire Tested: DFN2DIP-PN2F0-060D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922033
REPORT IS A COMBINATION OF REPORTS P901009 AND P897905
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-060D040US940-FLLONL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

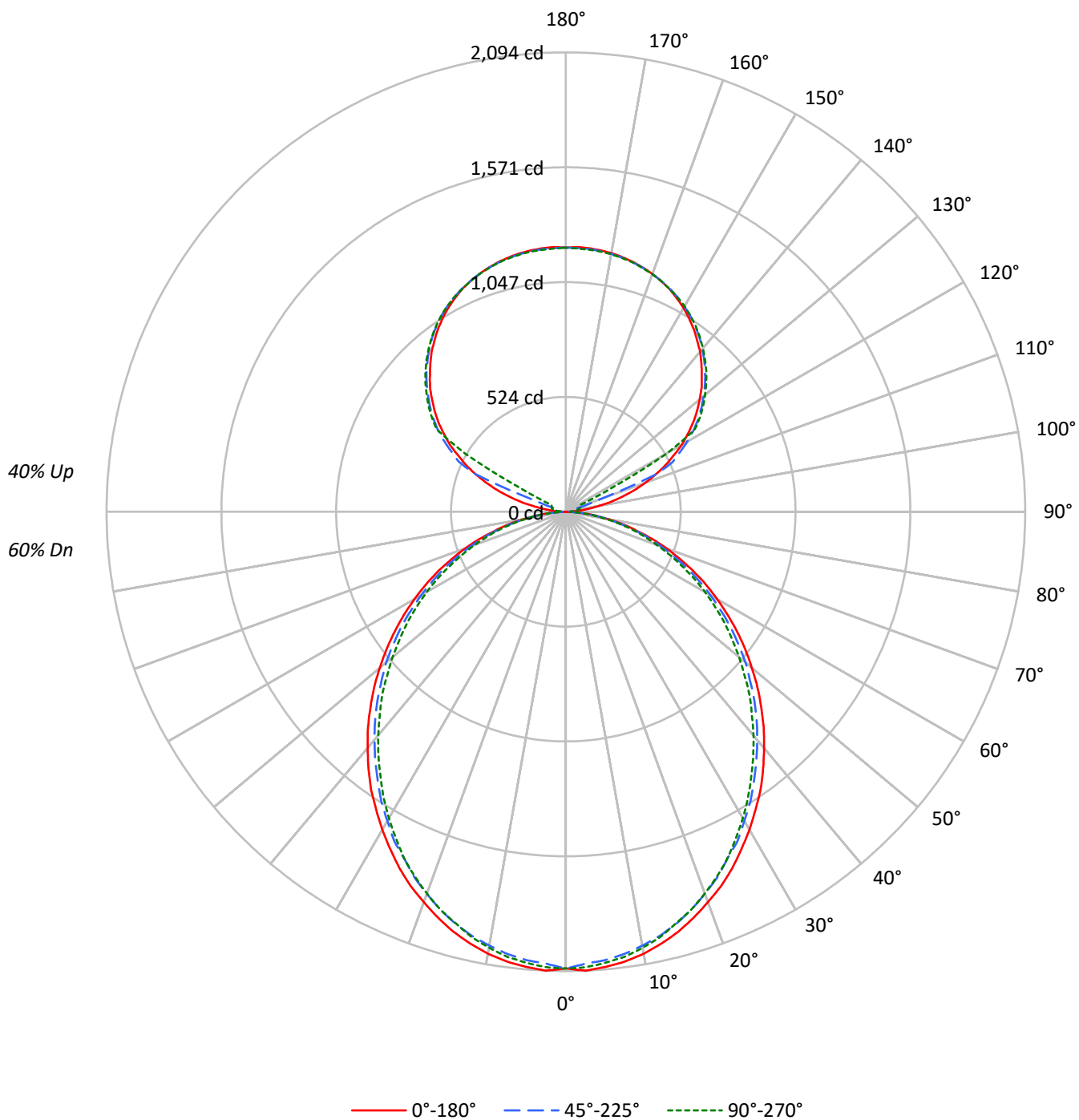
Lumens per Lamp: N/A
Luminaire Lumens: 8827.9 lumens
Efficiency: N/A
Efficacy: 92.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 95.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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		
0	110	110	110	110		102	102	102	102		89	89	89		77	77	77		65	65	65	60
1	100	96	92	88		93	90	86	83		78	75	73		67	66	64		58	56	55	51
2	91	84	77	72		85	78	73	68		68	64	61		59	56	53		51	49	47	42
3	83	73	66	60		77	69	62	57		60	55	51		52	48	45		45	42	40	36
4	76	65	57	51		71	61	54	48		54	48	44		47	42	39		40	37	34	31
5	70	58	50	44		65	55	47	42		48	42	38		42	37	34		36	33	30	27
6	64	52	44	38		60	49	42	36		43	37	33		38	33	30		33	29	26	24
7	60	47	39	33		56	44	37	32		39	33	29		35	30	26		30	26	23	21
8	55	43	35	30		52	40	33	28		36	30	26		32	27	23		28	24	21	19
9	52	39	32	26		48	37	30	25		33	27	23		29	24	21		26	22	19	17
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		24	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4509	4509	4509
5°	4509	4436	4469
10°	4465	4367	4402
15°	4392	4286	4301
20°	4296	4176	4198
25°	4201	4047	4080
30°	4083	3926	3931
35°	3970	3786	3774
40°	3833	3643	3624
45°	3696	3499	3470
50°	3545	3349	3293
55°	3387	3175	3128
60°	3208	2969	2940
65°	3011	2754	2718
70°	2762	2493	2477
75°	2419	2180	2245
80°	2002	1780	1821
85°	1357	1125	1142

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3696 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	2.2
10°-20°	551.3	6.2
20°-30°	810.2	9.2
30°-40°	941.0	10.7
40°-50°	939.8	10.6
50°-60°	819.5	9.3
60°-70°	605.8	6.9
70°-80°	342.7	3.9
80°-90°	92.6	1.0
90°-100°	39.7	0.4
100°-110°	148.0	1.7
110°-120°	392.4	4.4
120°-130°	650.9	7.4
130°-140°	691.4	7.8
140°-150°	642.6	7.3
150°-160°	516.6	5.9
160°-170°	332.9	3.8
170°-180°	114.6	1.3
0°-30°	1557.4	17.6
0°-40°	2498.4	28.3
0°-60°	4257.8	48.2
0°-90°	5298.9	60.0
90°-120°	580.1	6.6
90°-150°	2565.0	29.1
90°-180°	3529.0	40.0
0°-180°	8827.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	1	10	17	22	24	8
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	13.27	14.22	14.13	15.11	16.23	12.83	13.79	13.69	14.67	15.80
	3H	14.91	15.77	15.79	16.67	17.82	14.43	15.29	15.31	16.19	17.34
	4H	15.49	16.30	16.39	17.21	18.36	15.01	15.82	15.90	16.73	17.88
	6H	15.88	16.63	16.79	17.54	18.71	15.39	16.14	16.30	17.05	18.22
	8H	15.98	16.69	16.89	17.62	18.79	15.49	16.21	16.41	17.14	18.30
	12H	16.02	16.70	16.94	17.63	18.82	15.53	16.21	16.45	17.13	18.33
4H	2H	13.73	14.54	14.63	15.44	16.60	13.38	14.19	14.28	15.09	16.25
	3H	15.58	16.26	16.49	17.19	18.36	15.18	15.86	16.09	16.79	17.96
	4H	16.28	16.90	17.20	17.83	19.03	15.87	16.49	16.79	17.42	18.61
	6H	16.78	17.32	17.72	18.27	19.47	16.36	16.90	17.30	17.85	19.05
	8H	16.92	17.42	17.86	18.37	19.58	16.50	17.00	17.44	17.95	19.16
	12H	16.99	17.44	17.95	18.41	19.63	16.56	17.01	17.52	17.98	19.19
8H	4H	16.47	16.97	17.41	17.92	19.13	16.11	16.61	17.04	17.55	18.76
	6H	17.09	17.50	18.05	18.49	19.70	16.71	17.13	17.68	18.12	19.33
	8H	17.29	17.66	18.27	18.64	19.87	16.91	17.28	17.89	18.26	19.49
	12H	17.42	17.74	18.39	18.71	19.99	17.02	17.34	18.00	18.31	19.59
12H	4H	16.46	16.91	17.42	17.88	19.10	16.10	16.55	17.06	17.52	18.73
	6H	17.11	17.48	18.08	18.46	19.68	16.75	17.12	17.72	18.09	19.32
	8H	17.34	17.66	18.32	18.64	19.91	16.97	17.30	17.95	18.27	19.54