

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: P922028

Luminaire Tested: DFN2DIP-PN2F0-060D030US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922028
REPORT IS A COMBINATION OF REPORTS P899479 AND P896349
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-060D030US940-FLLFLL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

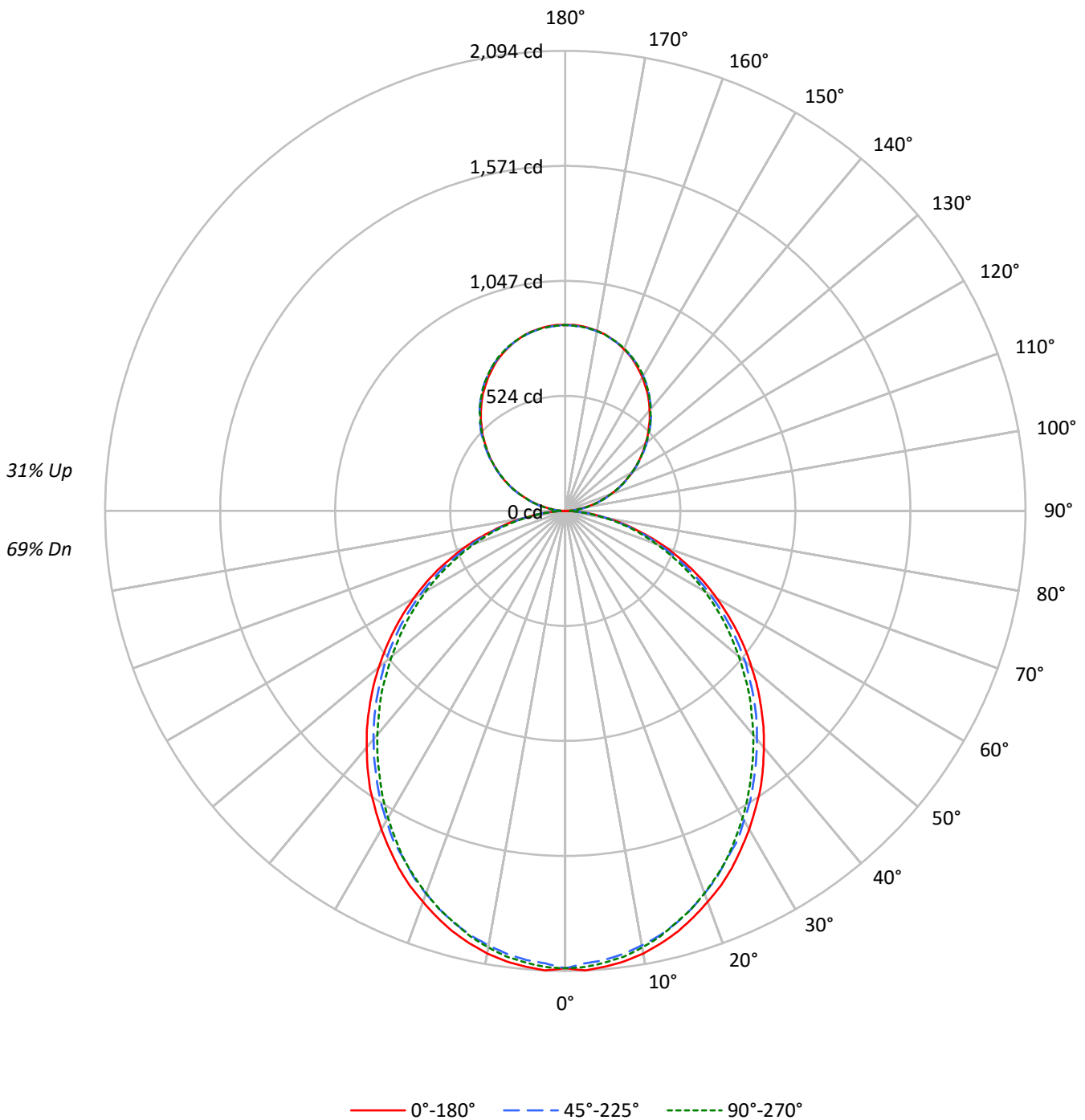
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7664.3 lumens
Efficiency: N/A
Efficacy: 91.8 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): 83.5
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

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	2.6
10°-20°	551.3	7.2
20°-30°	810.2	10.6
30°-40°	941.0	12.3
40°-50°	939.8	12.3
50°-60°	819.5	10.7
60°-70°	605.8	7.9
70°-80°	342.7	4.5
80°-90°	92.9	1.2
90°-100°	52.3	0.7
100°-110°	166.3	2.2
110°-120°	284.7	3.7
120°-130°	374.4	4.9
130°-140°	420.2	5.5
140°-150°	412.1	5.4
150°-160°	345.7	4.5
160°-170°	229.2	3.0
170°-180°	80.1	1.0
0°-30°	1557.4	20.3
0°-40°	2498.4	32.6
0°-60°	4257.8	55.6
0°-90°	5299.2	69.1
90°-120°	503.4	6.6
90°-150°	1710.0	22.3
90°-180°	2365.0	30.9
0°-180°	7664.3	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	9	25	24	24	7
95°	37	44	46	46	44	41
105°	154	156	157	158	158	162
115°	286	290	288	288	286	283
125°	416	422	420	418	417	371
135°	537	545	547	546	544	415
145°	652	658	662	662	660	408
155°	746	748	750	754	752	343
165°	812	811	811	816	812	229
175°	844	842	841	846	842	80
180°	846	846	846	846	846	



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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	9.2	25.0	23.5	24.3
92.5°	15.8	21.4	22.2	22.9	22.9
95°	37.3	44.4	45.7	45.7	44.4
97.5°	62.0	68.6	71.4	71.4	71.4
100°	90.5	96.4	98.4	98.4	97.7
102.5°	120.6	125.0	127.8	128.6	127.8
105°	153.6	155.6	157.1	158.4	158.4
107.5°	186.2	189.2	189.2	189.8	186.2
110°	217.8	221.9	221.9	221.9	219.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	252.0	256.4	255.6	253.5	252.0
115°	285.7	289.7	288.5	287.8	285.7
117.5°	319.1	324.7	321.1	319.1	317.0
120°	352.8	358.4	352.8	352.8	350.4
122.5°	383.3	390.5	386.9	384.9	383.3
125°	415.5	421.9	419.8	417.5	416.8
127.5°	446.8	454.8	452.0	448.9	446.8
130°	476.2	485.4	484.1	482.6	479.7
132.5°	509.1	516.2	516.7	513.2	511.1
135°	537.4	545.3	546.9	546.1	544.0
137.5°	569.0	575.4	576.7	576.2	573.1
140°	596.8	603.2	606.8	606.8	604.0
142.5°	625.4	631.8	633.8	634.6	631.8
145°	652.5	657.5	661.6	662.4	659.6
147.5°	676.7	683.1	686.1	687.4	684.6
150°	701.7	706.1	708.8	711.1	708.8
152.5°	723.9	728.2	731.7	734.6	731.7
155°	746.1	748.1	750.4	753.9	751.7
157.5°	765.2	766.7	768.0	773.1	769.5
160°	782.3	783.8	784.6	788.9	785.9
162.5°	798.1	798.1	798.9	803.7	800.1
165°	811.6	810.8	810.8	815.9	812.3
167.5°	823.9	821.5	821.5	826.6	823.0
170°	833.0	831.0	830.3	835.4	831.0
172.5°	839.4	837.4	836.6	841.7	837.4
175°	844.5	842.5	841.0	846.1	841.7
177.5°	847.3	845.3	843.7	848.1	843.7
180°	846.1	846.1	846.1	846.1	846.1



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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	13.99	15.06	14.76	15.85	16.82	13.55	14.62	14.33	15.41	16.38
	3H	15.65	16.60	16.43	17.41	18.41	15.17	16.12	15.95	16.93	17.93
	4H	16.23	17.13	17.03	17.95	18.96	15.75	16.65	16.55	17.46	18.47
	6H	16.62	17.46	17.44	18.28	19.30	16.14	16.97	16.95	17.79	18.82
	8H	16.73	17.52	17.55	18.36	19.39	16.24	17.03	17.07	17.87	18.90
	12H	16.77	17.53	17.61	18.37	19.42	16.28	17.04	17.11	17.87	18.92
4H	2H	14.47	15.37	15.27	16.18	17.19	14.12	15.02	14.92	15.83	16.84
	3H	16.33	17.08	17.15	17.93	18.95	15.93	16.68	16.75	17.53	18.55
	4H	17.03	17.72	17.87	18.57	19.62	16.62	17.31	17.45	18.15	19.20
	6H	17.54	18.13	18.39	19.00	20.06	17.12	17.71	17.97	18.58	19.64
	8H	17.68	18.24	18.54	19.11	20.18	17.26	17.82	18.11	18.68	19.75
	12H	17.76	18.26	18.63	19.14	20.22	17.32	17.82	18.20	18.71	19.79
8H	4H	17.23	17.79	18.09	18.66	19.73	16.87	17.42	17.72	18.29	19.36
	6H	17.85	18.31	18.73	19.22	20.29	17.48	17.94	18.36	18.84	19.91
	8H	18.06	18.47	18.95	19.37	20.46	17.68	18.09	18.57	18.99	20.08
	12H	18.19	18.55	19.08	19.44	20.58	17.79	18.15	18.69	19.04	20.18
12H	4H	17.23	17.73	18.10	18.61	19.69	16.87	17.37	17.74	18.25	19.33
	6H	17.88	18.29	18.77	19.19	20.28	17.51	17.92	18.41	18.82	19.91
	8H	18.11	18.47	19.01	19.37	20.51	17.74	18.10	18.64	19.00	20.14