

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: P919424

Luminaire Tested: DFN2DIP-PN3F0-060D090US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919424
REPORT IS A COMBINATION OF REPORTS P899601 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-060D090US935-FLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

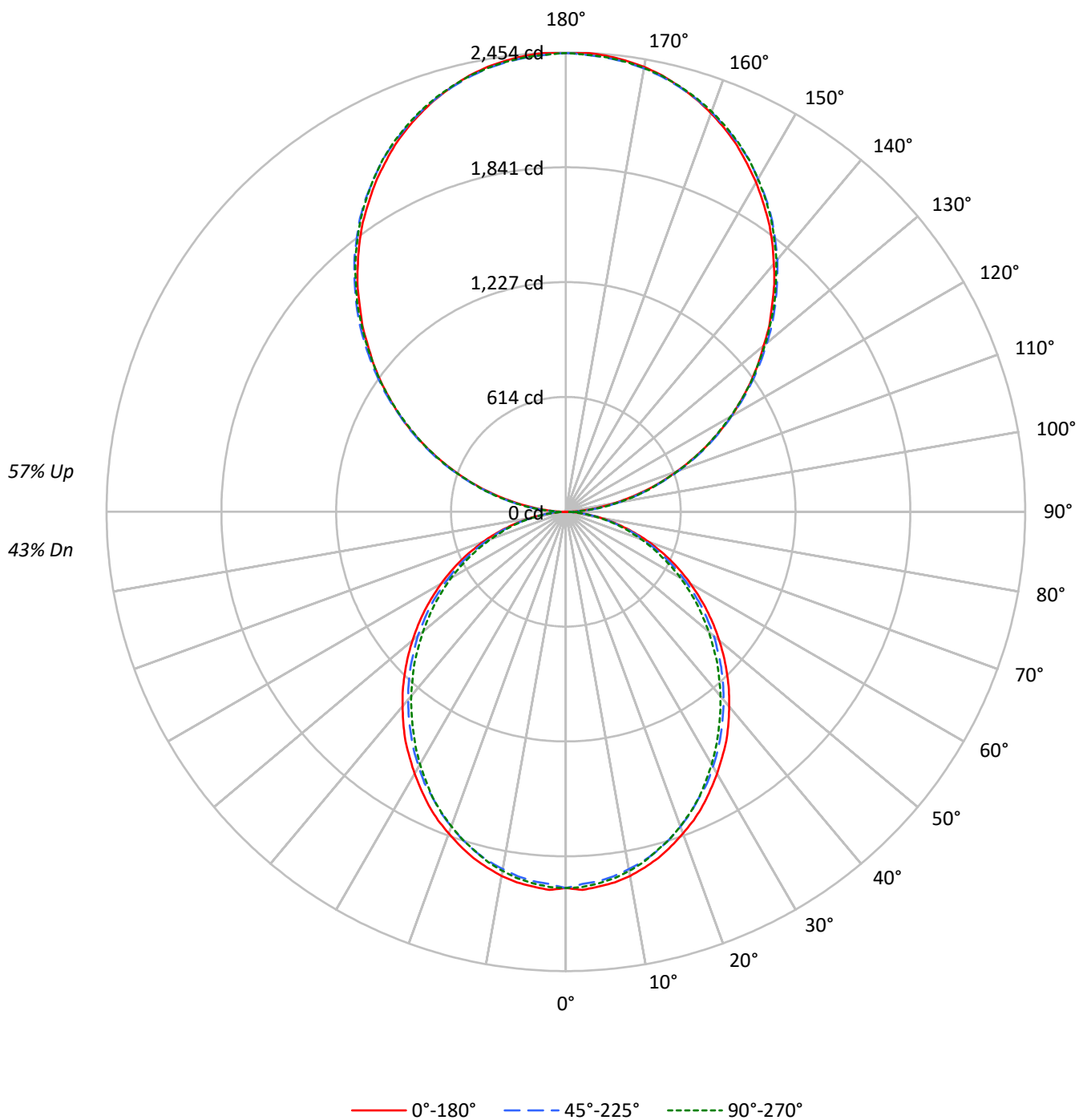
Lumens per Lamp: N/A
Luminaire Lumens: 11972.1 lumens
Efficiency: N/A
Efficacy: 93.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 128.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2350	2350	2350
5°	2352	2315	2332
10°	2332	2283	2299
15°	2296	2243	2249
20°	2248	2189	2197
25°	2201	2125	2138
30°	2142	2066	2063
35°	2085	1995	1983
40°	2016	1924	1907
45°	1948	1853	1830
50°	1872	1778	1740
55°	1793	1692	1657
60°	1704	1589	1563
65°	1606	1483	1451
70°	1481	1353	1330
75°	1309	1197	1217
80°	1101	998	1004
85°	776	660	655

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2428 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.6
10°-20°	532.3	4.4
20°-30°	782.3	6.5
30°-40°	908.6	7.6
40°-50°	907.5	7.6
50°-60°	791.3	6.6
60°-70°	584.9	4.9
70°-80°	330.9	2.8
80°-90°	94.3	0.8
90°-100°	151.6	1.3
100°-110°	481.8	4.0
110°-120°	824.6	6.9
120°-130°	1084.4	9.1
130°-140°	1217.2	10.2
140°-150°	1193.6	10.0
150°-160°	1001.3	8.4
160°-170°	664.0	5.5
170°-180°	232.1	1.9
0°-30°	1503.8	12.6
0°-40°	2412.4	20.2
0°-60°	4111.1	34.3
0°-90°	5121.3	42.8
90°-120°	1458.0	12.2
90°-150°	4953.4	41.4
90°-180°	6851.0	57.2
0°-180°	11972.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	2	27	72	68	70	12
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

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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	9.49	10.29	10.51	11.32	12.69	9.05	9.85	10.07	10.88	12.25
	3H	11.14	11.86	12.17	12.89	14.29	10.66	11.38	11.69	12.41	13.80
	4H	11.72	12.40	12.76	13.44	14.84	11.24	11.92	12.28	12.95	14.35
	6H	12.12	12.74	13.16	13.78	15.19	11.63	12.25	12.67	13.29	14.70
	8H	12.22	12.81	13.27	13.87	15.28	11.73	12.32	12.78	13.38	14.78
	12H	12.26	12.83	13.32	13.88	15.31	11.76	12.33	12.82	13.38	14.81
4H	2H	9.94	10.62	10.99	11.66	13.06	9.59	10.27	10.64	11.31	12.71
	3H	11.80	12.36	12.85	13.43	14.84	11.39	11.96	12.45	13.03	14.44
	4H	12.50	13.02	13.56	14.08	15.51	12.09	12.61	13.15	13.66	15.10
	6H	13.01	13.46	14.08	14.54	15.96	12.59	13.03	13.66	14.11	15.54
	8H	13.15	13.57	14.22	14.64	16.09	12.73	13.14	13.80	14.22	15.66
	12H	13.22	13.60	14.31	14.68	16.13	12.78	13.16	13.87	14.25	15.70
8H	4H	12.69	13.11	13.76	14.18	15.62	12.32	12.74	13.39	13.81	15.25
	6H	13.31	13.66	14.40	14.77	16.21	12.94	13.28	14.03	14.40	15.84
	8H	13.53	13.83	14.63	14.93	16.39	13.14	13.45	14.24	14.54	16.00
	12H	13.65	13.92	14.76	15.01	16.51	13.25	13.52	14.36	14.61	16.11
12H	4H	12.67	13.05	13.76	14.14	15.58	12.31	12.69	13.40	13.77	15.22
	6H	13.34	13.64	14.44	14.74	16.20	12.98	13.28	14.08	14.38	15.84
	8H	13.57	13.84	14.68	14.93	16.43	13.20	13.47	14.31	14.56	16.06