

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: P922229

Luminaire Tested: DFN2DIP-PN3F0-090D070US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922229
REPORT IS A COMBINATION OF REPORTS P901099 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D070US940-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

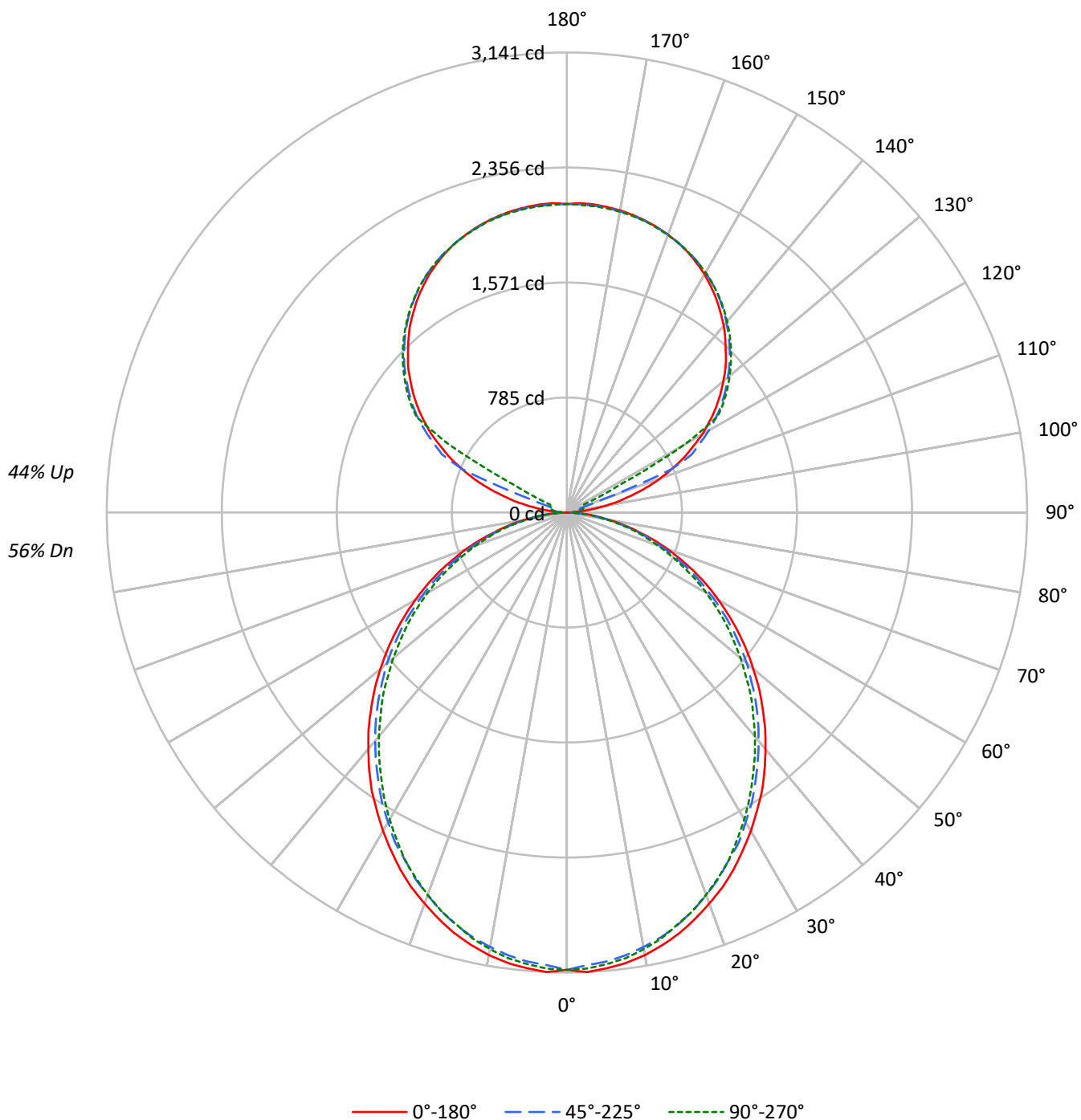
Lumens per Lamp: N/A
Luminaire Lumens: 14124.7 lumens
Efficiency: N/A
Efficacy: 95.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 147.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	99	95	91	87	92	88	85	82	76	74	71	65	63	62	55	53	52
2	90	83	77	71	84	77	72	67	67	63	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	51	47	44	43	40	38
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	58	49	43	64	54	46	41	47	41	37	40	36	32	34	31	28
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25
7	59	47	39	33	55	44	37	31	38	33	28	33	29	25	29	25	22
8	55	42	35	29	51	40	33	28	35	29	25	30	26	22	26	23	20
9	51	39	31	26	48	36	30	25	32	26	23	28	23	20	24	21	18
10	48	36	28	23	44	34	27	22	30	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3650	3650	3650
5°	3654	3597	3622
10°	3622	3546	3572
15°	3567	3485	3493
20°	3493	3401	3413
25°	3419	3302	3321
30°	3327	3209	3204
35°	3240	3100	3081
40°	3132	2990	2963
45°	3025	2879	2843
50°	2908	2762	2703
55°	2786	2628	2575
60°	2647	2469	2428
65°	2495	2303	2254
70°	2301	2101	2067
75°	2034	1859	1891
80°	1711	1550	1561
85°	1207	1026	1017

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3025 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.1
10°-20°	827.0	5.9
20°-30°	1215.3	8.6
30°-40°	1411.5	10.0
40°-50°	1409.7	10.0
50°-60°	1229.3	8.7
60°-70°	908.7	6.4
70°-80°	514.1	3.6
80°-90°	139.4	1.0
90°-100°	69.5	0.5
100°-110°	259.0	1.8
110°-120°	686.8	4.9
120°-130°	1139.1	8.1
130°-140°	1209.9	8.6
140°-150°	1124.5	8.0
150°-160°	904.1	6.4
160°-170°	582.6	4.1
170°-180°	200.5	1.4
0°-30°	2336.2	16.5
0°-40°	3747.7	26.5
0°-60°	6386.7	45.2
0°-90°	7948.9	56.3
90°-120°	1015.2	7.2
90°-150°	4488.7	31.8
90°-180°	6176.0	43.7
0°-180°	14124.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	1	18	30	38	41	13
95°	99	49	59	67	66	117
105°	463	509	93	110	116	495
115°	876	902	940	235	125	863
125°	1239	1259	1288	1299	1303	1105
135°	1534	1558	1572	1587	1584	1185
145°	1779	1777	1803	1814	1806	1113
155°	1959	1945	1963	1972	1960	903
165°	2064	2055	2059	2070	2059	583
175°	2111	2100	2104	2114	2099	201
180°	2107	2107	2107	2107	2107	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.1	65.5
97.5°	178.3	53.4	77.7	82.4	83.8
100°	269.9	61.0	86.9	99.0	102.1
102.5°	370.3	367.5	90.0	106.6	111.3
105°	463.4	509.2	93.0	109.7	115.8
107.5°	571.6	609.7	96.1	112.8	119.0
110°	675.4	707.2	266.8	114.4	120.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	772.9	800.2	774.4	117.3	122.0
115°	876.5	902.3	940.5	234.8	125.1
117.5°	966.4	996.8	1022.9	804.8	405.5
120°	1067.0	1089.8	1117.4	1135.7	929.9
122.5°	1152.3	1176.7	1207.4	1216.4	1218.0
125°	1239.2	1259.1	1288.1	1298.8	1303.2
127.5°	1318.5	1339.8	1362.8	1378.0	1379.5
130°	1393.2	1417.6	1434.3	1451.2	1449.7
132.5°	1469.4	1489.3	1506.0	1519.7	1518.3
135°	1533.5	1557.9	1571.6	1586.9	1583.9
137.5°	1600.4	1618.8	1634.1	1649.4	1644.8
140°	1666.0	1678.3	1695.0	1708.7	1701.1
142.5°	1721.0	1731.7	1751.4	1763.5	1756.0
145°	1779.0	1777.4	1803.2	1813.9	1806.3
147.5°	1829.1	1824.6	1850.5	1858.1	1852.1
150°	1877.9	1867.3	1891.8	1900.8	1893.2
152.5°	1919.0	1906.9	1929.8	1938.9	1928.3
155°	1958.7	1945.1	1963.4	1972.5	1960.3
157.5°	1990.7	1978.6	1992.3	2003.0	1990.7
160°	2018.3	2009.0	2018.3	2027.3	2016.6
162.5°	2042.6	2033.5	2041.0	2051.7	2038.0
165°	2063.9	2054.9	2059.3	2070.0	2059.3
167.5°	2080.7	2071.4	2076.2	2086.9	2073.1
170°	2094.4	2085.3	2088.3	2099.0	2085.3
172.5°	2103.5	2094.4	2097.6	2108.2	2094.4
175°	2111.1	2100.4	2103.5	2114.2	2099.0
177.5°	2114.2	2103.5	2105.1	2115.9	2102.0
180°	2106.6	2106.6	2106.6	2106.6	2106.6

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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	12.29	13.21	13.19	14.13	15.31	11.85	12.77	12.75	13.69	14.87
	3H	13.95	14.78	14.86	15.71	16.91	13.47	14.29	14.38	15.22	16.43
	4H	14.54	15.32	15.47	16.25	17.47	14.05	14.83	14.98	15.77	16.98
	6H	14.94	15.66	15.88	16.60	17.82	14.45	15.17	15.39	16.11	17.33
	8H	15.04	15.73	15.99	16.68	17.91	14.55	15.24	15.50	16.19	17.42
	12H	15.09	15.74	16.04	16.69	17.94	14.59	15.24	15.54	16.20	17.45
4H	2H	12.76	13.54	13.69	14.47	15.69	12.41	13.19	13.34	14.12	15.34
	3H	14.62	15.27	15.57	16.24	17.47	14.22	14.87	15.16	15.84	17.07
	4H	15.33	15.93	16.29	16.89	18.14	14.92	15.51	15.87	16.47	17.72
	6H	15.85	16.36	16.81	17.34	18.59	15.42	15.94	16.39	16.92	18.17
	8H	15.99	16.47	16.96	17.45	18.72	15.57	16.05	16.54	17.03	18.29
	12H	16.07	16.50	17.06	17.49	18.77	15.63	16.06	16.62	17.06	18.33
8H	4H	15.53	16.01	16.50	16.99	18.25	15.16	15.64	16.13	16.62	17.88
	6H	16.16	16.55	17.15	17.57	18.84	15.78	16.18	16.78	17.20	18.46
	8H	16.37	16.72	17.38	17.73	19.01	15.99	16.34	16.99	17.35	18.63
	12H	16.50	16.81	17.51	17.81	19.14	16.10	16.41	17.11	17.41	18.74
12H	4H	15.52	15.95	16.51	16.95	18.22	15.16	15.59	16.14	16.58	17.85
	6H	16.19	16.54	17.19	17.54	18.83	15.82	16.17	16.82	17.18	18.46
	8H	16.43	16.73	17.43	17.74	19.06	16.05	16.36	17.06	17.36	18.69