

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: P928690

Luminaire Tested: DFN2DIP-HX4F0-090D080US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928690
REPORT IS A COMBINATION OF REPORTS P900902 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D080US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

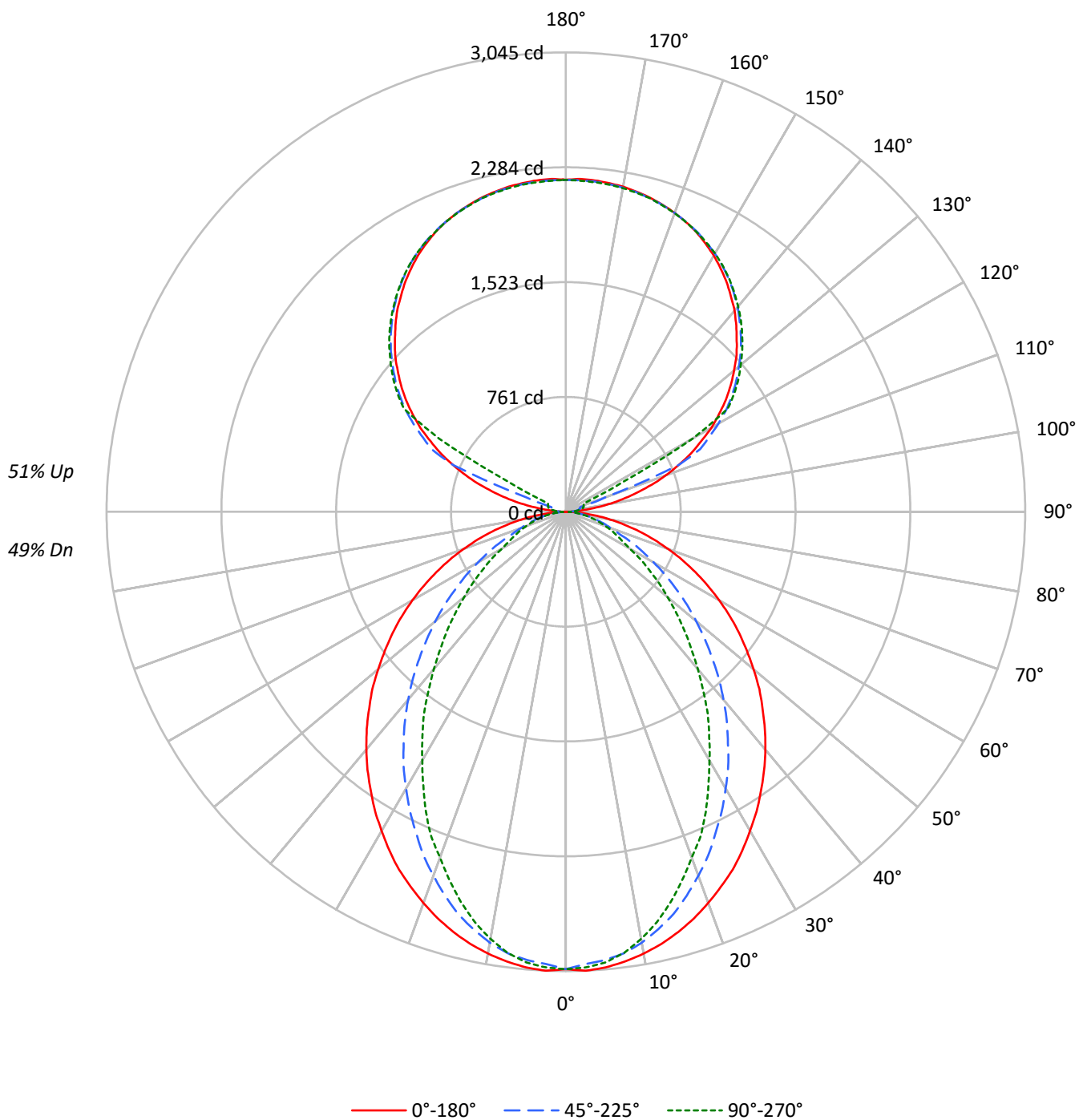
Lumens per Lamp: N/A
Luminaire Lumens: 12689.6 lumens
Efficiency: N/A
Efficacy: 86.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 147
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	52	49	44	42	41
3	82	73	66	60	75	68	62	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	37	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	30	27
6	64	52	44	39	59	49	42	37	42	36	32	36	31	28	30	27	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	28	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2254	2254	2254
5°	2258	2219	2233
10°	2236	2175	2160
15°	2205	2104	2048
20°	2165	2005	1910
25°	2123	1894	1777
30°	2067	1780	1608
35°	2013	1658	1460
40°	1957	1531	1290
45°	1892	1391	1136
50°	1826	1249	986
55°	1756	1097	841
60°	1675	939	692
65°	1582	778	623
70°	1470	628	564
75°	1329	554	514
80°	1124	465	446
85°	785	312	336

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1892 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.1	2.2
10°-20°	780.0	6.1
20°-30°	1095.0	8.6
30°-40°	1193.7	9.4
40°-50°	1097.1	8.6
50°-60°	861.6	6.8
60°-70°	560.8	4.4
70°-80°	288.7	2.3
80°-90°	77.6	0.6
90°-100°	72.6	0.6
100°-110°	270.5	2.1
110°-120°	717.4	5.7
120°-130°	1189.8	9.4
130°-140°	1263.8	10.0
140°-150°	1174.6	9.3
150°-160°	944.4	7.4
160°-170°	608.5	4.8
170°-180°	209.4	1.7
0°-30°	2159.1	17.0
0°-40°	3352.8	26.4
0°-60°	5311.5	41.9
0°-90°	6238.6	49.2
90°-120°	1060.4	8.4
90°-150°	4688.7	36.9
90°-180°	6451.0	50.8
0°-180°	12689.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3032	3032	3032	3032	3032	
5°	3032	3018	2982	3007	2999	287
15°	2883	2853	2760	2708	2680	813
25°	2617	2529	2348	2236	2195	1204
35°	2255	2115	1874	1701	1640	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	946	724	477	384	376	938
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	2	19	32	40	43	12
95°	103	51	62	70	68	122
105°	484	532	97	115	121	517
115°	916	942	982	245	131	901
125°	1294	1315	1345	1357	1361	1154
135°	1602	1627	1642	1658	1654	1237
145°	1858	1856	1884	1895	1887	1162
155°	2046	2032	2051	2060	2048	943
165°	2156	2146	2151	2162	2151	609
175°	2205	2194	2197	2208	2192	210
180°	2200	2200	2200	2200	2200	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3031.6	3031.6	3031.6	3031.6	3031.6
2.5°	3045.2	3031.6	3001.2	3028.9	3023.4
5°	3031.6	3017.9	2982.1	3006.8	2998.6
7.5°	3006.8	2990.5	2952.1	2962.9	2949.2
10°	2973.9	2954.7	2900.0	2891.5	2875.2
12.5°	2932.9	2908.2	2833.9	2817.6	2787.3
15°	2883.4	2853.2	2760.0	2707.8	2680.5
17.5°	2825.8	2781.8	2666.5	2606.3	2562.4
20°	2760.0	2705.0	2567.8	2499.4	2438.9
22.5°	2688.7	2625.5	2466.3	2373.1	2332.1
25°	2617.4	2529.4	2348.4	2236.0	2194.7
27.5°	2532.4	2438.9	2238.6	2109.7	2046.5
30°	2441.8	2337.3	2117.9	1978.2	1903.9
32.5°	2353.9	2227.6	2002.9	1838.2	1769.4
35°	2255.3	2115.3	1873.9	1701.1	1640.5
37.5°	2159.2	2008.2	1753.1	1563.7	1495.3
40°	2057.6	1893.2	1626.8	1432.1	1360.8
42.5°	1953.4	1777.9	1500.7	1297.6	1229.2
45°	1843.7	1659.7	1371.8	1176.8	1111.0
47.5°	1739.5	1544.8	1248.4	1053.4	993.2
50°	1624.2	1429.4	1127.6	938.1	880.8
52.5°	1511.6	1305.8	1012.4	831.3	779.2
55°	1401.8	1187.9	891.5	727.1	675.0
57.5°	1289.5	1070.0	784.8	631.1	587.1
60°	1174.2	954.7	672.1	532.4	488.4
62.5°	1061.9	842.4	576.0	444.5	422.7
65°	946.5	724.2	477.3	384.2	375.8
67.5°	836.8	614.4	384.2	337.3	329.2
70°	721.6	507.7	318.2	290.8	279.7
72.5°	611.8	408.6	266.0	244.2	238.7
75°	504.7	312.6	219.5	200.2	197.6
77.5°	397.9	222.1	172.9	161.9	156.3
80°	298.9	159.3	131.5	120.8	120.8
82.5°	208.4	107.1	90.5	85.0	85.0
85°	117.8	60.2	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.4	50.9	62.0	70.2	68.5
97.5°	186.2	55.7	81.1	86.1	87.5
100°	281.9	63.7	90.8	103.4	106.6
102.5°	386.9	383.8	94.0	111.3	116.3
105°	484.0	531.9	97.1	114.6	121.0
107.5°	597.1	636.8	100.4	117.8	124.2
110°	705.5	738.7	278.7	119.5	125.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	807.3	835.9	808.9	122.5	127.5
115°	915.5	942.5	982.4	245.2	130.6
117.5°	1009.5	1041.2	1068.5	840.6	423.6
120°	1114.6	1138.4	1167.2	1186.2	971.2
122.5°	1203.6	1229.2	1261.1	1270.6	1272.3
125°	1294.4	1315.2	1345.4	1356.6	1361.3
127.5°	1377.2	1399.5	1423.6	1439.4	1440.9
130°	1455.3	1480.8	1498.2	1515.8	1514.3
132.5°	1534.9	1555.7	1573.1	1587.5	1585.9
135°	1601.8	1627.3	1641.5	1657.6	1654.4
137.5°	1671.8	1690.9	1706.9	1722.8	1718.1
140°	1740.2	1753.1	1770.5	1784.8	1776.9
142.5°	1797.7	1808.8	1829.4	1842.1	1834.2
145°	1858.2	1856.5	1883.5	1894.7	1886.7
147.5°	1910.6	1905.9	1932.9	1940.8	1934.6
150°	1961.6	1950.5	1976.0	1985.4	1977.5
152.5°	2004.6	1991.9	2015.7	2025.4	2014.2
155°	2046.0	2031.8	2050.9	2060.3	2047.7
157.5°	2079.4	2066.8	2081.1	2092.3	2079.4
160°	2108.2	2098.5	2108.2	2117.6	2106.4
162.5°	2133.5	2124.1	2132.0	2143.1	2128.8
165°	2155.8	2146.4	2151.1	2162.2	2151.1
167.5°	2173.4	2163.7	2168.6	2179.8	2165.5
170°	2187.8	2178.1	2181.3	2192.5	2178.1
172.5°	2197.2	2187.8	2191.0	2202.1	2187.8
175°	2205.1	2194.0	2197.2	2208.3	2192.5
177.5°	2208.3	2197.2	2198.9	2210.0	2195.7
180°	2200.4	2200.4	2200.4	2200.4	2200.4

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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	9.89	10.72	10.86	11.70	12.98	5.87	6.69	6.84	7.67	8.96
	3H	11.57	12.31	12.55	13.30	14.60	7.06	7.79	8.04	8.78	10.09
	4H	12.18	12.88	13.18	13.87	15.19	7.51	8.20	8.50	9.20	10.51
	6H	12.60	13.24	13.61	14.24	15.57	7.83	8.47	8.84	9.47	10.80
	8H	12.73	13.34	13.74	14.35	15.68	7.92	8.53	8.93	9.54	10.87
	12H	12.79	13.37	13.81	14.38	15.73	7.97	8.54	8.98	9.55	10.90
4H	2H	9.91	10.61	10.91	11.60	12.92	6.46	7.16	7.46	8.15	9.47
	3H	11.74	12.32	12.75	13.34	14.67	7.81	8.39	8.82	9.41	10.74
	4H	12.43	12.96	13.45	13.98	15.33	8.36	8.89	9.38	9.91	11.26
	6H	12.95	13.40	13.98	14.44	15.79	8.78	9.24	9.81	10.27	11.63
	8H	13.12	13.55	14.15	14.58	15.94	8.91	9.34	9.94	10.37	11.73
	12H	13.22	13.60	14.27	14.65	16.02	8.98	9.36	10.03	10.41	11.78
8H	4H	12.40	12.82	13.43	13.86	15.22	8.64	9.07	9.67	10.10	11.46
	6H	12.97	13.32	14.02	14.39	15.75	9.16	9.51	10.22	10.59	11.95
	8H	13.19	13.49	14.25	14.55	15.93	9.36	9.66	10.42	10.72	12.10
	12H	13.32	13.59	14.39	14.65	16.07	9.48	9.75	10.54	10.80	12.22
12H	4H	12.35	12.73	13.40	13.78	15.15	8.65	9.03	9.69	10.08	11.44
	6H	12.94	13.25	14.00	14.31	15.69	9.21	9.52	10.27	10.58	11.96
	8H	13.16	13.44	14.23	14.49	15.91	9.42	9.69	10.49	10.75	12.17

END OF REPORT