

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: P928654

Luminaire Tested: DFN2DIP-HX4F0-080D080US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928654
REPORT IS A COMBINATION OF REPORTS P900900 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D080US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

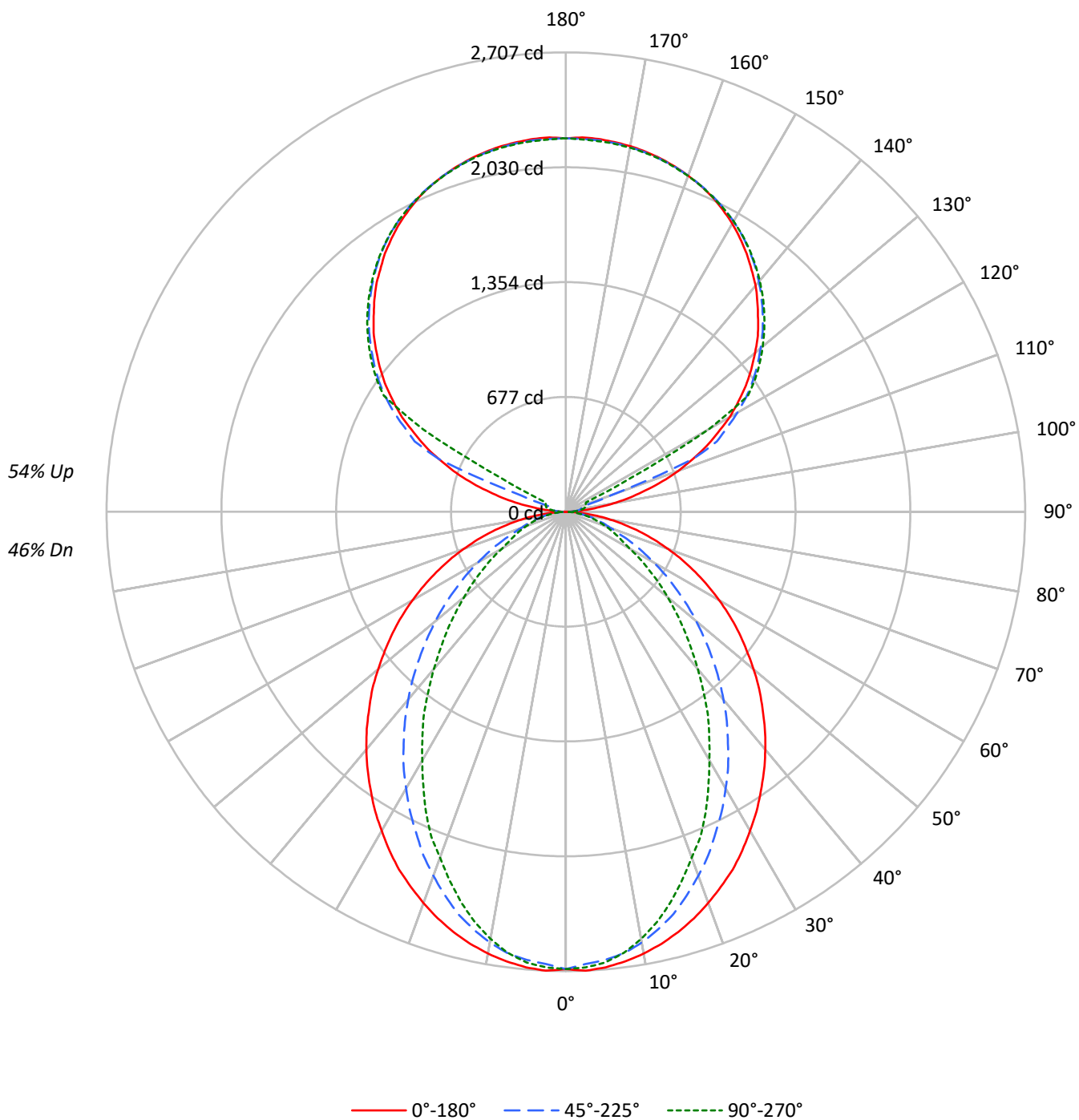
Lumens per Lamp: N/A
Luminaire Lumens: 11996.9 lumens
Efficiency: N/A
Efficacy: 88.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2004	2004	2004
5°	2007	1972	1985
10°	1987	1934	1920
15°	1960	1870	1820
20°	1924	1782	1698
25°	1887	1683	1580
30°	1838	1582	1430
35°	1789	1474	1298
40°	1740	1361	1147
45°	1682	1236	1010
50°	1623	1110	876
55°	1561	975	748
60°	1489	835	616
65°	1407	691	554
70°	1307	558	502
75°	1181	492	457
80°	999	414	396
85°	699	277	299

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1682 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	2.1
10°-20°	693.3	5.8
20°-30°	973.4	8.1
30°-40°	1061.0	8.8
40°-50°	975.2	8.1
50°-60°	765.9	6.4
60°-70°	498.5	4.2
70°-80°	256.6	2.1
80°-90°	69.4	0.6
90°-100°	72.6	0.6
100°-110°	270.5	2.3
110°-120°	717.4	6.0
120°-130°	1189.8	9.9
130°-140°	1263.8	10.5
140°-150°	1174.6	9.8
150°-160°	944.4	7.9
160°-170°	608.5	5.1
170°-180°	209.4	1.7
0°-30°	1919.2	16.0
0°-40°	2980.3	24.8
0°-60°	4721.4	39.4
0°-90°	5545.9	46.2
90°-120°	1060.4	8.8
90°-150°	4688.7	39.1
90°-180°	6451.0	53.8
0°-180°	11996.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2695	2695	2695	2695	2695	
5°	2695	2683	2651	2673	2666	256
15°	2563	2536	2453	2407	2383	722
25°	2326	2248	2088	1988	1951	1070
35°	2005	1880	1666	1512	1458	1255
45°	1639	1475	1219	1046	988	1266
55°	1246	1056	792	646	600	1113
65°	841	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	19	32	40	43	11
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°	2694.7	2694.7	2694.7	2694.7	2694.7
2.5°	2706.9	2694.7	2667.8	2692.4	2687.5
5°	2694.7	2682.6	2650.7	2672.7	2665.5
7.5°	2672.7	2658.2	2624.1	2633.7	2621.4
10°	2643.5	2626.4	2577.8	2570.3	2555.8
12.5°	2607.0	2585.0	2519.0	2504.5	2477.6
15°	2563.0	2536.1	2453.3	2407.0	2382.7
17.5°	2511.7	2472.7	2370.3	2316.7	2277.6
20°	2453.3	2404.4	2282.6	2221.8	2167.9
22.5°	2389.9	2333.8	2192.3	2109.5	2073.0
25°	2326.5	2248.4	2087.5	1987.6	1950.9
27.5°	2250.9	2167.9	1989.9	1875.3	1819.2
30°	2170.5	2077.6	1882.6	1758.4	1692.3
32.5°	2092.3	1980.1	1780.4	1633.9	1572.9
35°	2004.7	1880.2	1665.7	1512.1	1458.2
37.5°	1919.2	1785.0	1558.4	1389.9	1329.1
40°	1829.0	1682.8	1446.1	1272.9	1209.5
42.5°	1736.4	1580.4	1334.0	1153.5	1092.6
45°	1638.8	1475.3	1219.4	1046.1	987.6
47.5°	1546.2	1373.1	1109.7	936.4	882.8
50°	1443.7	1270.7	1002.4	833.9	782.9
52.5°	1343.6	1160.6	899.8	739.0	692.7
55°	1246.1	1055.9	792.5	646.3	600.0
57.5°	1146.2	951.1	697.6	561.0	521.8
60°	1043.7	848.7	597.4	473.2	434.2
62.5°	943.9	748.7	512.1	395.1	375.7
65°	841.4	643.7	424.3	341.6	334.0
67.5°	743.9	546.2	341.6	299.8	292.7
70°	641.4	451.3	282.8	258.4	248.7
72.5°	543.8	363.2	236.5	217.1	212.1
75°	448.7	277.9	195.1	178.0	175.7
77.5°	353.7	197.4	153.7	143.8	139.0
80°	265.7	141.6	117.0	107.3	107.3
82.5°	185.2	95.2	80.4	75.6	75.6
85°	104.8	53.5	46.3	46.3	46.3
87.5°	39.0	19.4	19.4	17.1	17.1
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	9.20	10.00	10.19	11.00	12.33	5.17	5.97	6.17	6.98	8.30
	3H	10.88	11.59	11.88	12.60	13.95	6.36	7.08	7.37	8.09	9.44
	4H	11.48	12.16	12.50	13.18	14.53	6.81	7.49	7.83	8.50	9.86
	6H	11.90	12.53	12.93	13.55	14.91	7.13	7.76	8.16	8.77	10.14
	8H	12.03	12.62	13.06	13.66	15.02	7.22	7.82	8.26	8.85	10.21
	12H	12.09	12.65	13.13	13.68	15.07	7.27	7.83	8.31	8.86	10.25
4H	2H	9.21	9.89	10.24	10.91	12.26	5.77	6.44	6.79	7.46	8.81
	3H	11.04	11.60	12.08	12.65	14.02	7.11	7.68	8.15	8.72	10.09
	4H	11.73	12.25	12.77	13.28	14.68	7.66	8.18	8.70	9.21	10.60
	6H	12.25	12.69	13.30	13.75	15.14	8.08	8.52	9.13	9.58	10.97
	8H	12.42	12.84	13.47	13.89	15.29	8.21	8.62	9.26	9.67	11.08
	12H	12.52	12.89	13.59	13.96	15.36	8.28	8.65	9.34	9.71	11.12
8H	4H	11.70	12.11	12.75	13.16	14.57	7.94	8.35	8.99	9.40	10.81
	6H	12.27	12.61	13.34	13.70	15.10	8.46	8.80	9.53	9.89	11.29
	8H	12.48	12.78	13.56	13.86	15.28	8.65	8.95	9.73	10.03	11.45
	12H	12.62	12.88	13.71	13.96	15.42	8.77	9.04	9.86	10.11	11.57
12H	4H	11.65	12.02	12.72	13.09	14.50	7.94	8.32	9.01	9.38	10.79
	6H	12.24	12.54	13.32	13.62	15.04	8.51	8.81	9.59	9.89	11.30
	8H	12.46	12.72	13.55	13.80	15.26	8.72	8.98	9.81	10.06	11.52