

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: P905459

Luminaire Tested: DFN2DIP-HX4F0-060D080US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905459
REPORT IS A COMBINATION OF REPORTS P899376 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D080US835-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

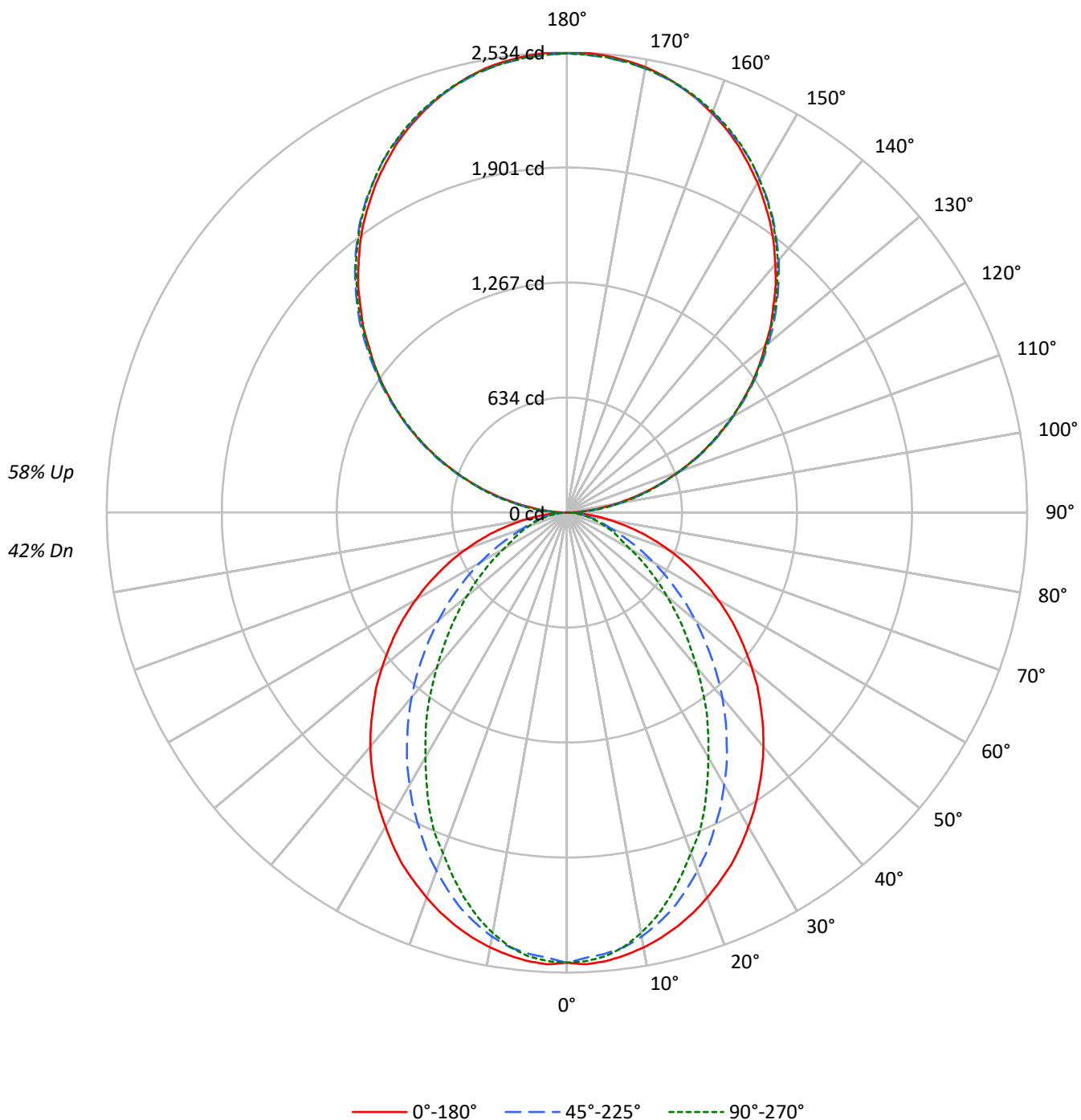
Lumens per Lamp: N/A
Luminaire Lumens: 12180.0 lumens
Efficiency: N/A
Efficacy: 122.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 99.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	63	63	63	49	49	49
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36
3	81	72	65	59	73	66	60	55	55	50	47	44	41	39	35	33	31
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	40	34	30	33	29	26	26	23	21
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	34	29	49	39	32	28	33	28	24	27	23	21	22	19	17
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	20	18	16
10	47	35	28	24	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1844	1844	1844
5°	1847	1815	1826
10°	1829	1779	1767
15°	1804	1721	1675
20°	1771	1640	1563
25°	1737	1549	1454
30°	1691	1456	1316
35°	1646	1356	1194
40°	1601	1252	1055
45°	1548	1138	929
50°	1493	1022	806
55°	1436	898	688
60°	1370	768	566
65°	1294	636	510
70°	1202	513	462
75°	1087	453	420
80°	919	380	365
85°	643	255	275

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1909 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.4	1.9
10°-20°	638.0	5.2
20°-30°	895.7	7.4
30°-40°	976.4	8.0
40°-50°	897.4	7.4
50°-60°	704.8	5.8
60°-70°	458.8	3.8
70°-80°	236.1	1.9
80°-90°	67.5	0.6
90°-100°	156.6	1.3
100°-110°	497.5	4.1
110°-120°	851.3	7.0
120°-130°	1119.6	9.2
130°-140°	1256.7	10.3
140°-150°	1232.3	10.1
150°-160°	1033.7	8.5
160°-170°	685.6	5.6
170°-180°	239.6	2.0
0°-30°	1766.2	14.5
0°-40°	2742.6	22.5
0°-60°	4344.8	35.7
0°-90°	5107.2	41.9
90°-120°	1505.3	12.4
90°-150°	5113.9	42.0
90°-180°	7073.0	58.1
0°-180°	12180.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2480	2480	2480	2480	2480	
5°	2480	2469	2439	2460	2453	235
15°	2359	2334	2258	2215	2193	665
25°	2141	2069	1921	1829	1795	985
35°	1845	1730	1533	1391	1342	1155
45°	1508	1358	1122	963	909	1165
55°	1147	972	729	595	552	1025
65°	774	592	390	314	307	768
75°	413	256	180	164	162	437
85°	96	49	43	43	43	111
90°	2	28	75	70	72	12
95°	111	133	136	136	133	124
105°	459	465	470	474	474	485
115°	854	866	863	860	854	845
125°	1242	1262	1256	1249	1246	1110
135°	1607	1631	1635	1633	1627	1242
145°	1951	1966	1979	1981	1972	1219
155°	2231	2237	2244	2255	2248	1027
165°	2427	2425	2425	2440	2429	685
175°	2526	2519	2515	2530	2517	240
180°	2530	2530	2530	2530	2530	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2479.8	2479.8	2479.8	2479.8	2479.8
2.5°	2491.0	2479.8	2455.0	2477.6	2473.1
5°	2479.8	2468.6	2439.3	2459.6	2452.9
7.5°	2459.6	2446.2	2414.8	2423.6	2412.4
10°	2432.6	2416.9	2372.2	2365.3	2351.9
12.5°	2399.1	2378.8	2318.1	2304.8	2280.0
15°	2358.6	2333.8	2257.6	2215.0	2192.6
17.5°	2311.5	2275.5	2181.2	2131.9	2096.0
20°	2257.6	2212.6	2100.5	2044.5	1995.0
22.5°	2199.3	2147.6	2017.4	1941.2	1907.6
25°	2141.0	2069.1	1921.0	1829.1	1795.3
27.5°	2071.5	1995.0	1831.2	1725.7	1674.1
30°	1997.4	1911.9	1732.4	1618.1	1557.4
32.5°	1925.5	1822.2	1638.4	1503.6	1447.4
35°	1844.8	1730.3	1532.9	1391.4	1341.9
37.5°	1766.2	1642.6	1434.1	1279.1	1223.1
40°	1683.1	1548.6	1330.7	1171.4	1113.1
42.5°	1597.9	1454.3	1227.6	1061.4	1005.5
45°	1508.1	1357.6	1122.2	962.6	908.8
47.5°	1422.9	1263.6	1021.2	861.7	812.4
50°	1328.6	1169.3	922.4	767.4	720.5
52.5°	1236.4	1068.1	828.1	680.0	637.4
55°	1146.7	971.7	729.3	594.8	552.1
57.5°	1054.8	875.2	641.9	516.2	480.2
60°	960.5	781.0	549.8	435.5	399.5
62.5°	868.6	689.1	471.2	363.6	345.7
65°	774.3	592.4	390.5	314.3	307.4
67.5°	684.5	502.6	314.3	276.0	269.3
70°	590.2	415.2	260.2	237.9	228.8
72.5°	500.5	334.3	217.6	199.8	195.2
75°	412.9	255.7	179.5	163.8	161.7
77.5°	325.5	181.7	141.4	132.4	127.9
80°	244.5	130.2	107.6	98.8	98.8
82.5°	170.5	87.6	74.0	69.5	69.5
85°	96.4	49.3	42.6	42.6	42.6
87.5°	36.0	17.9	17.9	15.7	15.7
90°	2.3	27.5	74.8	70.2	72.5
92.5°	47.3	64.1	66.4	68.6	68.6
95°	111.4	132.7	136.5	136.5	132.7
97.5°	185.4	205.2	213.6	213.6	213.6
100°	270.8	288.3	294.4	294.4	292.1
102.5°	360.8	373.8	382.1	384.4	382.1
105°	459.2	465.3	469.9	473.7	473.7
107.5°	556.8	566.0	566.0	567.5	556.8
110°	651.4	663.6	663.6	663.6	657.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	753.6	766.6	764.3	758.2	753.6
115°	854.3	866.5	862.7	860.4	854.3
117.5°	954.2	971.0	960.3	954.2	948.1
120°	1054.9	1071.7	1054.9	1054.9	1048.0
122.5°	1146.4	1167.8	1157.1	1151.0	1146.4
125°	1242.5	1261.6	1255.5	1248.6	1246.4
127.5°	1336.4	1360.0	1351.6	1342.5	1336.4
130°	1424.1	1451.5	1447.7	1443.2	1434.8
132.5°	1522.5	1543.8	1545.4	1534.7	1528.6
135°	1607.1	1630.8	1635.4	1633.1	1627.0
137.5°	1701.7	1720.8	1724.6	1723.1	1713.9
140°	1784.9	1803.9	1814.6	1814.6	1806.2
142.5°	1870.3	1889.4	1895.5	1897.8	1889.4
145°	1951.2	1966.4	1978.6	1980.9	1972.5
147.5°	2023.6	2042.7	2051.8	2055.7	2047.3
150°	2098.4	2111.3	2119.7	2126.6	2119.7
152.5°	2164.7	2177.7	2188.4	2196.8	2188.4
155°	2231.1	2237.2	2244.1	2254.7	2247.9
157.5°	2288.3	2292.9	2296.7	2311.9	2301.3
160°	2339.4	2344.0	2346.3	2359.2	2350.1
162.5°	2386.7	2386.7	2389.0	2403.5	2392.8
165°	2427.1	2424.8	2424.8	2440.1	2429.4
167.5°	2463.7	2456.9	2456.9	2472.1	2461.4
170°	2491.2	2485.1	2482.8	2498.1	2485.1
172.5°	2510.3	2504.2	2501.9	2517.1	2504.2
175°	2525.5	2519.4	2514.8	2530.1	2517.1
177.5°	2533.9	2527.8	2523.2	2536.2	2523.2
180°	2530.1	2530.1	2530.1	2530.1	2530.1

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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	8.47	9.24	9.50	10.27	11.65	4.44	5.21	5.47	6.24	7.63
	3H	10.14	10.83	11.18	11.87	13.28	5.63	6.31	6.67	7.36	8.76
	4H	10.75	11.40	11.80	12.44	13.85	6.08	6.73	7.13	7.77	9.18
	6H	11.17	11.77	12.23	12.81	14.24	6.40	6.99	7.46	8.04	9.47
	8H	11.29	11.86	12.36	12.93	14.34	6.49	7.06	7.55	8.12	9.54
	12H	11.35	11.89	12.42	12.95	14.39	6.53	7.07	7.60	8.13	9.57
4H	2H	8.48	9.13	9.54	10.17	11.59	5.03	5.68	6.09	6.72	8.14
	3H	10.30	10.85	11.37	11.92	13.34	6.38	6.92	7.44	7.99	9.41
	4H	10.99	11.49	12.07	12.55	14.00	6.92	7.42	8.00	8.48	9.93
	6H	11.51	11.93	12.59	13.02	14.46	7.34	7.77	8.42	8.85	10.29
	8H	11.68	12.08	12.76	13.16	14.61	7.47	7.87	8.55	8.95	10.40
	12H	11.78	12.13	12.87	13.23	14.69	7.53	7.89	8.63	8.98	10.45
8H	4H	10.96	11.36	12.04	12.43	13.89	7.20	7.60	8.28	8.68	10.13
	6H	11.52	11.85	12.63	12.97	14.42	7.72	8.05	8.82	9.17	10.62
	8H	11.74	12.03	12.85	13.13	14.60	7.91	8.20	9.02	9.30	10.77
	12H	11.88	12.13	12.99	13.23	14.74	8.03	8.28	9.14	9.38	10.89
12H	4H	10.91	11.27	12.01	12.36	13.82	7.20	7.56	8.30	8.65	10.11
	6H	11.50	11.79	12.61	12.89	14.36	7.77	8.05	8.88	9.16	10.63
	8H	11.72	11.97	12.83	13.07	14.58	7.98	8.23	9.09	9.33	10.84