

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: P916389

Luminaire Tested: DFN2DIP-HX4F0-070D080US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916389
REPORT IS A COMBINATION OF REPORTS P899378 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D080US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

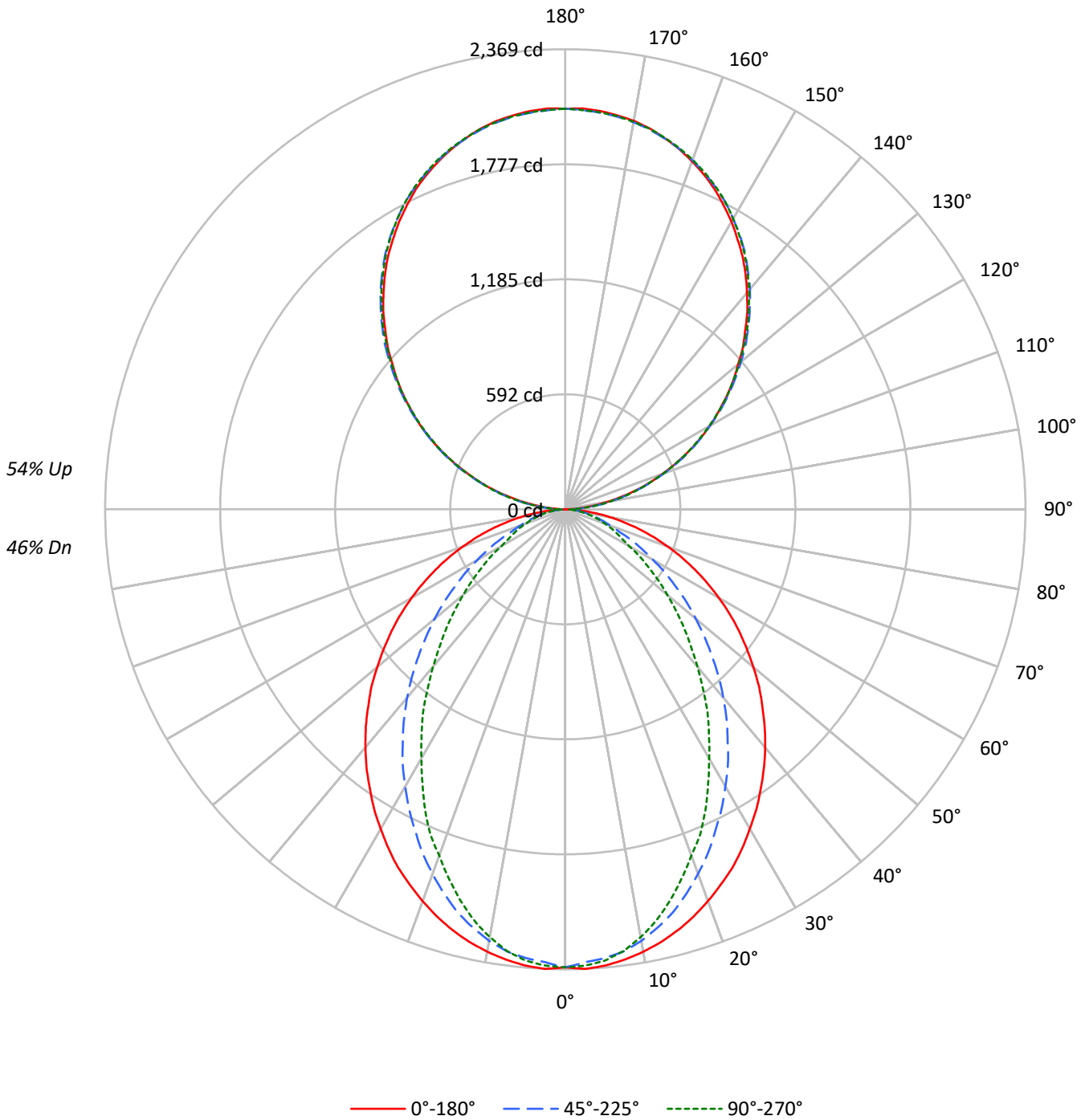
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10623.3 lumens
Efficiency: N/A
Efficacy: 95.2 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): 111.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46	46	46	46
1	97	93	89	86	89	86	82	80	72	69	67	59	57	56	47	46	45	39	39	39	39
2	89	82	76	71	81	75	70	66	63	60	56	52	49	47	42	40	38	34	34	34	34
3	81	72	65	60	74	67	61	56	56	52	48	46	43	40	37	35	33	29	29	29	29
4	75	64	57	51	68	59	53	48	50	45	41	42	38	35	34	31	29	25	25	25	25
5	69	57	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	22	22	22	22
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	43	37	32	37	32	28	31	27	24	26	23	20	18	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	18	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	20	22	19	17	15	15	15	15
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1754	1754	1754
5°	1757	1726	1737
10°	1740	1692	1681
15°	1716	1637	1593
20°	1684	1560	1486
25°	1652	1473	1383
30°	1609	1385	1252
35°	1566	1290	1136
40°	1523	1191	1004
45°	1472	1082	884
50°	1420	972	767
55°	1366	854	654
60°	1303	730	539
65°	1231	605	485
70°	1144	488	439
75°	1034	431	400
80°	875	362	347
85°	611	242	261

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1556 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.1	2.1
10°-20°	606.9	5.7
20°-30°	852.0	8.0
30°-40°	928.8	8.7
40°-50°	853.6	8.0
50°-60°	670.4	6.3
60°-70°	436.4	4.1
70°-80°	224.6	2.1
80°-90°	63.2	0.6
90°-100°	127.6	1.2
100°-110°	405.6	3.8
110°-120°	694.1	6.5
120°-130°	912.8	8.6
130°-140°	1024.6	9.6
140°-150°	1004.7	9.5
150°-160°	842.8	7.9
160°-170°	558.9	5.3
170°-180°	195.4	1.8
0°-30°	1679.9	15.8
0°-40°	2608.7	24.6
0°-60°	4132.7	38.9
0°-90°	4856.9	45.7
90°-120°	1227.3	11.6
90°-150°	4169.4	39.2
90°-180°	5766.0	54.3
0°-180°	10623.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2359	2359	2359	2359	2359	
5°	2359	2348	2320	2340	2333	224
15°	2244	2220	2147	2107	2086	632
25°	2036	1968	1827	1740	1708	937
35°	1755	1646	1458	1324	1276	1098
45°	1434	1291	1067	916	864	1108
55°	1091	924	694	566	525	975
65°	736	564	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	2	22	61	57	59	10
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2358.7	2358.7	2358.7	2358.7	2358.7
2.5°	2369.3	2358.7	2335.2	2356.7	2352.4
5°	2358.7	2348.1	2320.3	2339.5	2333.1
7.5°	2339.5	2326.8	2296.9	2305.3	2294.7
10°	2313.9	2299.0	2256.3	2249.8	2237.1
12.5°	2281.9	2262.7	2205.0	2192.3	2168.7
15°	2243.5	2219.9	2147.4	2106.9	2085.6
17.5°	2198.6	2164.5	2074.8	2027.8	1993.6
20°	2147.4	2104.6	1998.0	1944.7	1897.6
22.5°	2092.0	2042.8	1918.9	1846.4	1814.5
25°	2036.5	1968.0	1827.2	1739.8	1707.6
27.5°	1970.3	1897.6	1741.8	1641.5	1592.4
30°	1899.9	1818.6	1647.8	1539.1	1481.4
32.5°	1831.5	1733.2	1558.4	1430.2	1376.7
35°	1754.7	1645.8	1458.1	1323.6	1276.4
37.5°	1680.0	1562.4	1364.1	1216.6	1163.4
40°	1600.9	1473.0	1265.8	1114.3	1058.7
42.5°	1519.9	1383.3	1167.7	1009.6	956.4
45°	1434.5	1291.4	1067.4	915.7	864.5
47.5°	1353.4	1201.9	971.3	819.6	772.7
50°	1263.7	1112.2	877.3	729.9	685.3
52.5°	1176.1	1015.9	787.7	646.8	606.3
55°	1090.7	924.2	693.7	565.7	525.2
57.5°	1003.3	832.5	610.6	491.0	456.8
60°	913.6	742.8	522.9	414.3	380.0
62.5°	826.1	655.4	448.2	345.8	328.8
65°	736.5	563.5	371.4	299.0	292.4
67.5°	651.1	478.1	299.0	262.4	256.2
70°	561.4	394.9	247.5	226.2	217.6
72.5°	476.1	318.0	207.0	190.0	185.7
75°	392.7	243.2	170.7	155.8	153.8
77.5°	309.6	172.8	134.5	125.9	121.6
80°	232.6	123.8	102.4	94.0	94.0
82.5°	162.2	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.2	17.0	17.0	14.9	14.9
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8



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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	8.68	9.48	9.68	10.49	11.82	4.66	5.45	5.66	6.46	7.79
	3H	10.36	11.07	11.37	12.09	13.44	5.85	6.56	6.86	7.57	8.93
	4H	10.97	11.64	11.99	12.66	14.02	6.30	6.97	7.32	7.99	9.35
	6H	11.39	12.01	12.42	13.03	14.41	6.62	7.24	7.65	8.26	9.63
	8H	11.51	12.10	12.55	13.14	14.51	6.71	7.30	7.74	8.34	9.71
	12H	11.58	12.14	12.62	13.17	14.56	6.75	7.31	7.79	8.34	9.74
4H	2H	8.70	9.37	9.73	10.39	11.75	5.25	5.92	6.28	6.94	8.30
	3H	10.53	11.09	11.56	12.13	13.51	6.60	7.16	7.64	8.20	9.58
	4H	11.22	11.73	12.26	12.77	14.17	7.15	7.66	8.19	8.70	10.10
	6H	11.73	12.17	12.79	13.23	14.63	7.57	8.01	8.62	9.07	10.46
	8H	11.91	12.32	12.96	13.37	14.78	7.69	8.11	8.75	9.16	10.57
	12H	12.00	12.37	13.07	13.44	14.85	7.76	8.13	8.83	9.20	10.61
8H	4H	11.18	11.59	12.24	12.65	14.06	7.42	7.84	8.48	8.89	10.30
	6H	11.75	12.09	12.83	13.18	14.59	7.94	8.28	9.02	9.38	10.79
	8H	11.97	12.26	13.05	13.34	14.77	8.14	8.43	9.22	9.51	10.94
	12H	12.10	12.37	13.19	13.44	14.91	8.25	8.52	9.34	9.59	11.06
12H	4H	11.13	11.50	12.21	12.57	13.99	7.43	7.80	8.50	8.87	10.28
	6H	11.72	12.02	12.81	13.10	14.53	7.99	8.29	9.08	9.37	10.80
	8H	11.94	12.21	13.03	13.28	14.75	8.20	8.47	9.29	9.54	11.01