

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: P913643

Luminaire Tested: DFN2DIP-HX4F0-060D080US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913643
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-HX4F0-060D080US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

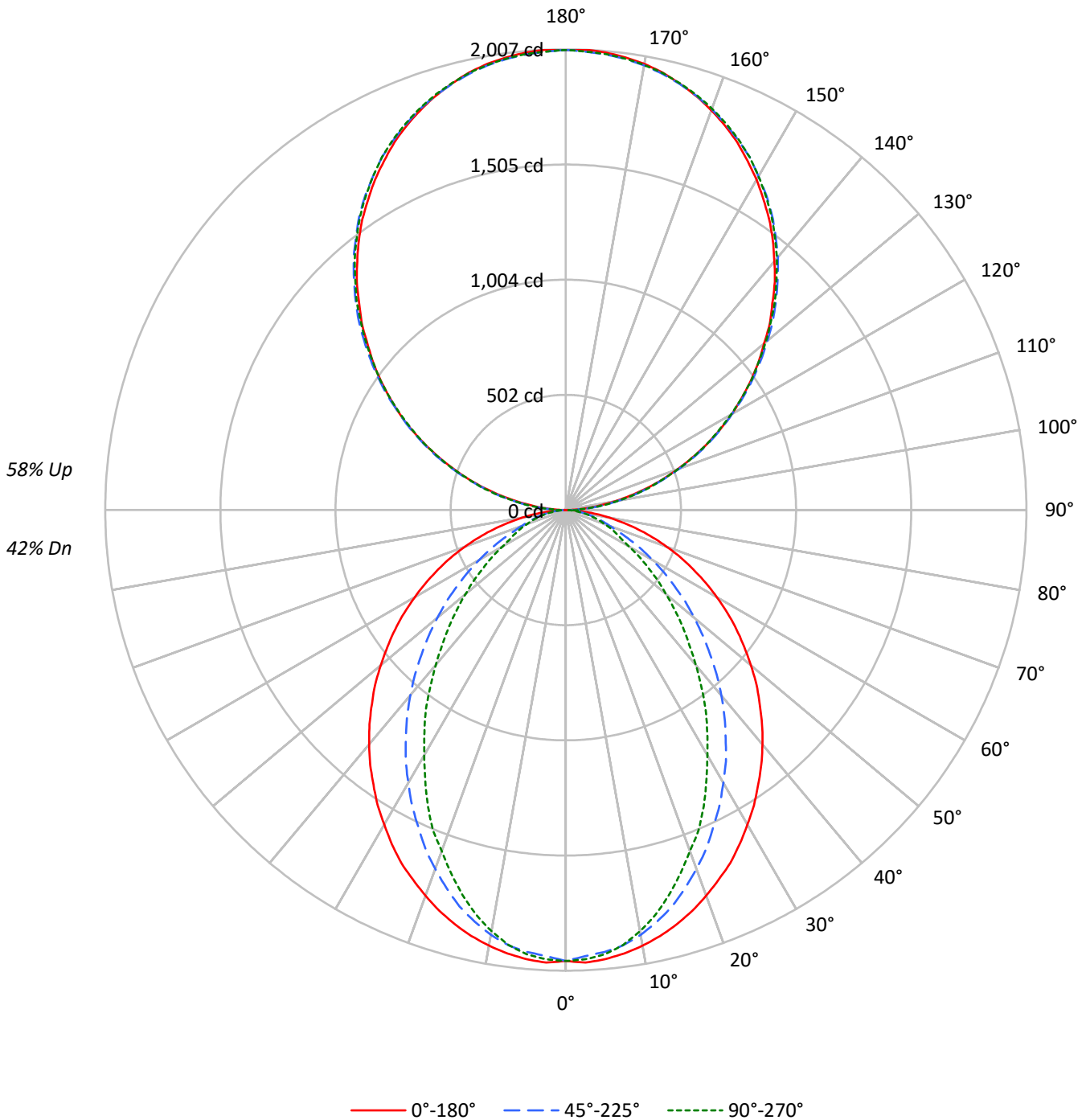
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9648.8 lumens
Efficiency: N/A
Efficacy: 97.0 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				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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	42
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	44	43	42	44	43	42	36
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36	39	37	36	31
3	81	72	65	59	73	66	60	55	55	50	47	44	41	39	35	33	31	35	33	31	27
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27	31	29	27	23
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24	28	26	24	20
6	63	51	43	38	57	47	40	35	40	34	30	33	29	26	26	23	21	26	23	21	18
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19	24	21	19	16
8	54	42	34	29	49	39	32	28	33	28	24	27	23	21	22	19	17	22	19	17	15
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	20	18	16	20	18	16	13
10	47	35	28	24	43	33	26	22	28	23	19	23	19	17	19	16	14	19	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1461	1461	1461
5°	1463	1438	1447
10°	1449	1410	1400
15°	1429	1363	1327
20°	1403	1299	1238
25°	1376	1227	1152
30°	1340	1154	1042
35°	1304	1074	946
40°	1268	992	836
45°	1226	901	736
50°	1183	809	639
55°	1138	711	545
60°	1086	608	449
65°	1025	504	404
70°	952	406	366
75°	861	359	333
80°	728	301	289
85°	509	202	217

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1511 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.1	1.9
10°-20°	505.4	5.2
20°-30°	709.6	7.4
30°-40°	773.5	8.0
40°-50°	710.9	7.4
50°-60°	558.3	5.8
60°-70°	363.4	3.8
70°-80°	187.1	1.9
80°-90°	53.5	0.6
90°-100°	124.0	1.3
100°-110°	394.1	4.1
110°-120°	674.4	7.0
120°-130°	886.9	9.2
130°-140°	995.5	10.3
140°-150°	976.2	10.1
150°-160°	818.9	8.5
160°-170°	543.1	5.6
170°-180°	189.8	2.0
0°-30°	1399.1	14.5
0°-40°	2172.6	22.5
0°-60°	3441.9	35.7
0°-90°	4045.8	41.9
90°-120°	1192.5	12.4
90°-150°	4051.1	42.0
90°-180°	5603.0	58.1
0°-180°	9648.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1956	1932	1948	1943	186
15°	1868	1849	1788	1755	1737	527
25°	1696	1639	1522	1449	1422	780
35°	1461	1371	1214	1102	1063	915
45°	1195	1076	889	763	720	923
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	203	142	130	128	346
85°	76	39	34	34	34	88
90°	2	22	59	56	57	10
95°	88	105	108	108	105	98
105°	364	369	372	375	375	384
115°	677	686	683	682	677	669
125°	984	999	995	989	987	880
135°	1273	1292	1296	1294	1289	984
145°	1546	1558	1567	1569	1563	966
155°	1767	1772	1778	1786	1781	813
165°	1923	1921	1921	1933	1924	542
175°	2001	1996	1992	2004	1994	190
180°	2004	2004	2004	2004	2004	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.5	1964.5	1964.5	1964.5	1964.5
2.5°	1973.3	1964.5	1944.8	1962.7	1959.1
5°	1964.5	1955.6	1932.4	1948.4	1943.1
7.5°	1948.4	1937.8	1913.0	1919.9	1911.1
10°	1927.1	1914.6	1879.2	1873.7	1863.1
12.5°	1900.5	1884.4	1836.4	1825.8	1806.2
15°	1868.4	1848.8	1788.4	1754.7	1736.9
17.5°	1831.1	1802.6	1727.9	1688.9	1660.4
20°	1788.4	1752.8	1664.0	1619.6	1580.4
22.5°	1742.2	1701.3	1598.1	1537.8	1511.2
25°	1696.1	1639.1	1521.8	1449.0	1422.2
27.5°	1641.0	1580.4	1450.6	1367.1	1326.2
30°	1582.3	1514.6	1372.4	1281.8	1233.7
32.5°	1525.3	1443.5	1297.9	1191.1	1146.6
35°	1461.4	1370.7	1214.3	1102.2	1063.0
37.5°	1399.2	1301.2	1136.1	1013.3	968.9
40°	1333.3	1226.8	1054.2	928.0	881.8
42.5°	1265.8	1152.1	972.5	840.8	796.5
45°	1194.7	1075.5	889.0	762.6	719.9
47.5°	1127.2	1001.0	809.0	682.6	643.6
50°	1052.5	926.3	730.7	607.9	570.8
52.5°	979.5	846.1	656.0	538.7	504.9
55°	908.4	769.8	577.7	471.2	437.4
57.5°	835.6	693.3	508.5	408.9	380.4
60°	760.9	618.7	435.5	345.0	316.5
62.5°	688.1	545.9	373.3	288.0	273.9
65°	613.4	469.3	309.3	249.0	243.5
67.5°	542.2	398.2	249.0	218.6	213.3
70°	467.5	328.9	206.1	188.5	181.3
72.5°	396.5	264.8	172.4	158.3	154.6
75°	327.1	202.6	142.2	129.8	128.1
77.5°	257.9	143.9	112.0	104.9	101.3
80°	193.7	103.1	85.2	78.3	78.3
82.5°	135.1	69.4	58.6	55.1	55.1
85°	76.4	39.1	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	1.8	21.8	59.3	55.6	57.4
92.5°	37.5	50.8	52.6	54.3	54.3
95°	88.2	105.1	108.1	108.1	105.1
97.5°	146.9	162.6	169.2	169.2	169.2
100°	214.5	228.4	233.2	233.2	231.4
102.5°	285.8	296.1	302.7	304.5	302.7
105°	363.8	368.6	372.2	375.3	375.3
107.5°	441.1	448.4	448.4	449.6	441.1
110°	516.0	525.7	525.7	525.7	520.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	597.0	607.3	605.5	600.6	597.0
115°	676.8	686.4	683.4	681.6	676.8
117.5°	755.9	769.2	760.7	755.9	751.1
120°	835.7	849.0	835.7	835.7	830.2
122.5°	908.2	925.1	916.6	911.8	908.2
125°	984.3	999.4	994.6	989.1	987.4
127.5°	1058.7	1077.4	1070.7	1063.5	1058.7
130°	1128.1	1149.9	1146.8	1143.3	1136.6
132.5°	1206.1	1223.0	1224.2	1215.8	1210.9
135°	1273.1	1291.9	1295.5	1293.7	1288.9
137.5°	1348.1	1363.2	1366.2	1365.0	1357.7
140°	1414.0	1429.0	1437.5	1437.5	1430.8
142.5°	1481.6	1496.7	1501.6	1503.4	1496.7
145°	1545.7	1557.7	1567.4	1569.2	1562.6
147.5°	1603.1	1618.2	1625.4	1628.5	1621.8
150°	1662.3	1672.5	1679.2	1684.7	1679.2
152.5°	1714.8	1725.1	1733.6	1740.3	1733.6
155°	1767.4	1772.3	1777.7	1786.1	1780.7
157.5°	1812.7	1816.4	1819.4	1831.4	1823.0
160°	1853.2	1856.9	1858.7	1868.9	1861.7
162.5°	1890.7	1890.7	1892.5	1904.0	1895.5
165°	1922.7	1920.9	1920.9	1933.0	1924.5
167.5°	1951.7	1946.3	1946.3	1958.4	1949.9
170°	1973.5	1968.6	1966.8	1978.9	1968.6
172.5°	1988.6	1983.8	1982.0	1994.0	1983.8
175°	2000.7	1995.8	1992.2	2004.3	1994.0
177.5°	2007.3	2002.5	1998.8	2009.1	1998.8
180°	2004.3	2004.3	2004.3	2004.3	2004.3



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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	7.66	8.43	8.69	9.46	10.84	3.63	4.40	4.66	5.43	6.82
	3H	9.33	10.02	10.37	11.06	12.47	4.82	5.51	5.86	6.55	7.95
	4H	9.94	10.59	10.99	11.63	13.05	5.27	5.92	6.32	6.96	8.37
	6H	10.36	10.96	11.42	12.01	13.43	5.59	6.19	6.65	7.23	8.66
	8H	10.48	11.05	11.55	12.12	13.54	5.68	6.25	6.74	7.31	8.73
	12H	10.54	11.08	11.61	12.14	13.58	5.72	6.26	6.79	7.32	8.76
4H	2H	7.67	8.32	8.73	9.36	10.78	4.22	4.87	5.28	5.92	7.33
	3H	9.49	10.04	10.56	11.11	12.53	5.57	6.11	6.63	7.18	8.60
	4H	10.19	10.68	11.26	11.74	13.19	6.11	6.61	7.19	7.67	9.12
	6H	10.70	11.12	11.78	12.21	13.65	6.53	6.96	7.61	8.04	9.48
	8H	10.87	11.27	11.95	12.35	13.80	6.66	7.06	7.74	8.14	9.59
	12H	10.97	11.32	12.06	12.42	13.88	6.72	7.08	7.82	8.18	9.64
8H	4H	10.15	10.55	11.23	11.62	13.08	6.39	6.79	7.47	7.87	9.32
	6H	10.71	11.04	11.82	12.16	13.61	6.91	7.24	8.01	8.36	9.81
	8H	10.93	11.22	12.04	12.32	13.79	7.10	7.39	8.21	8.49	9.96
	12H	11.07	11.32	12.18	12.42	13.93	7.22	7.47	8.33	8.57	10.08
12H	4H	10.10	10.46	11.20	11.55	13.01	6.39	6.75	7.49	7.84	9.30
	6H	10.69	10.98	11.80	12.08	13.55	6.96	7.25	8.07	8.35	9.82
	8H	10.91	11.16	12.02	12.26	13.77	7.17	7.42	8.28	8.52	10.03