

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: P921845

Luminaire Tested: DFN2DIP-HX4F0-070D080US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921845
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-HX4F0-070D080US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

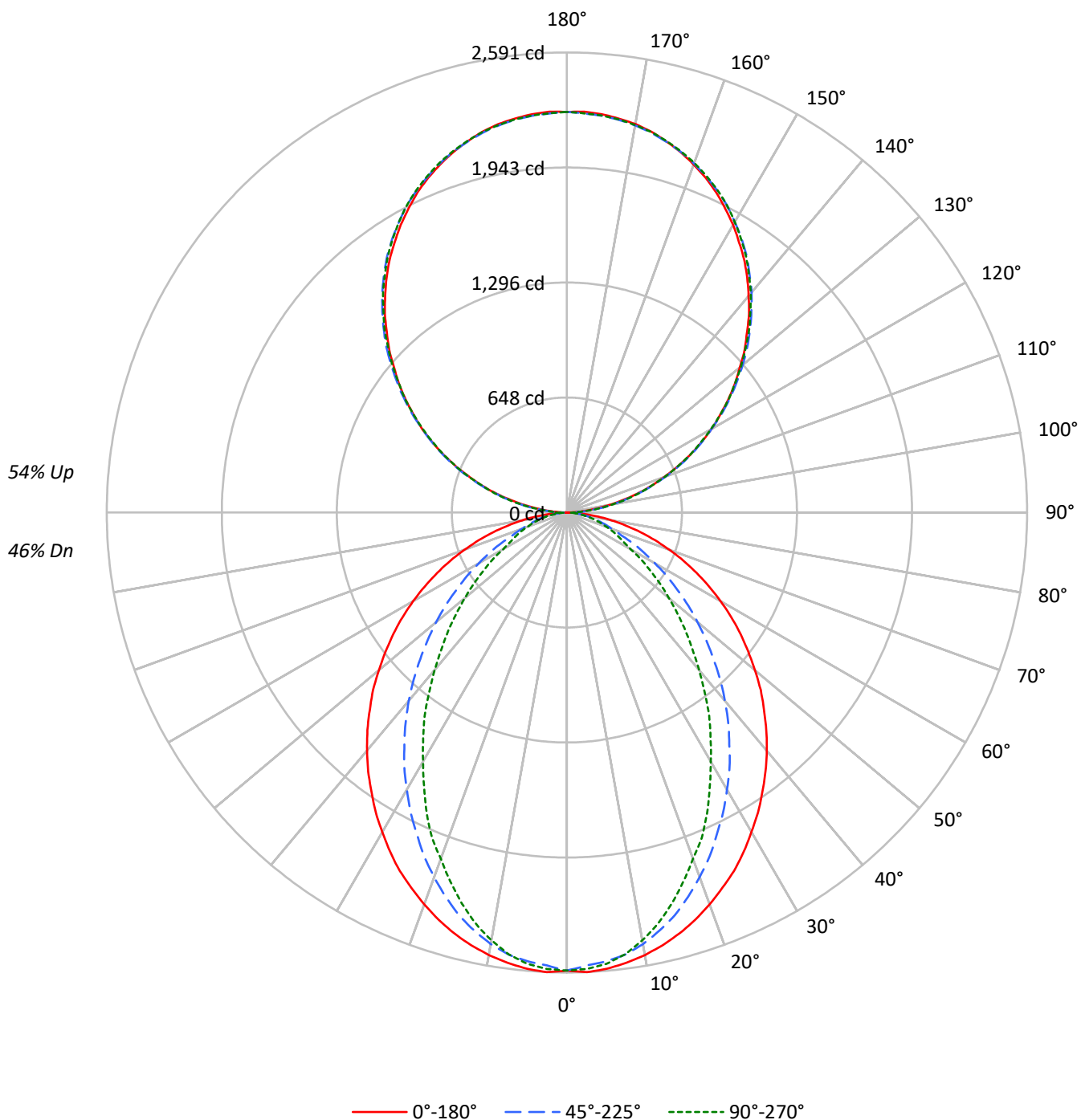
Lumens per Lamp: N/A
Luminaire Lumens: 11618.9 lumens
Efficiency: N/A
Efficacy: 104.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	93	89	86	89	86	82	80	72	69	67	59	57	56	47	46	45
2	89	82	76	71	81	75	70	66	63	60	56	52	49	47	42	40	38
3	81	72	65	60	74	67	61	56	56	52	48	46	43	40	37	35	33
4	75	64	57	51	68	59	53	48	50	45	41	42	38	35	34	31	29
5	69	57	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23
7	59	47	39	34	54	43	37	32	37	32	28	31	27	24	26	23	20
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	18
9	51	39	32	27	47	36	30	25	31	26	22	26	22	20	22	19	17
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1918	1918	1918
5°	1921	1888	1900
10°	1903	1851	1838
15°	1877	1790	1743
20°	1842	1706	1626
25°	1807	1612	1512
30°	1759	1515	1369
35°	1713	1411	1243
40°	1665	1303	1098
45°	1611	1183	967
50°	1554	1063	839
55°	1494	934	716
60°	1426	799	589
65°	1347	662	531
70°	1251	534	480
75°	1131	471	437
80°	957	396	379
85°	669	265	286

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1701 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.8	2.1
10°-20°	663.7	5.7
20°-30°	931.9	8.0
30°-40°	1015.8	8.7
40°-50°	933.6	8.0
50°-60°	733.2	6.3
60°-70°	477.3	4.1
70°-80°	245.7	2.1
80°-90°	69.1	0.6
90°-100°	139.6	1.2
100°-110°	443.6	3.8
110°-120°	759.1	6.5
120°-130°	998.3	8.6
130°-140°	1120.6	9.6
140°-150°	1098.9	9.5
150°-160°	921.8	7.9
160°-170°	611.3	5.3
170°-180°	213.7	1.8
0°-30°	1837.4	15.8
0°-40°	2853.2	24.6
0°-60°	4520.0	38.9
0°-90°	5312.1	45.7
90°-120°	1342.3	11.6
90°-150°	4560.1	39.2
90°-180°	6307.0	54.3
0°-180°	11618.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	2	24	67	63	65	11
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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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	9.00	9.79	9.99	10.80	12.13	4.97	5.77	5.97	6.77	8.10
	3H	10.67	11.38	11.68	12.40	13.75	6.16	6.87	7.17	7.88	9.24
	4H	11.28	11.95	12.30	12.97	14.33	6.61	7.28	7.63	8.30	9.66
	6H	11.70	12.32	12.73	13.34	14.72	6.93	7.55	7.96	8.57	9.94
	8H	11.83	12.42	12.86	13.45	14.82	7.02	7.61	8.06	8.65	10.02
	12H	11.89	12.45	12.93	13.48	14.87	7.06	7.62	8.10	8.65	10.05
4H	2H	9.01	9.68	10.04	10.70	12.06	5.56	6.23	6.59	7.25	8.62
	3H	10.84	11.40	11.87	12.44	13.82	6.91	7.47	7.95	8.52	9.89
	4H	11.53	12.04	12.57	13.08	14.48	7.46	7.97	8.50	9.01	10.41
	6H	12.04	12.48	13.10	13.54	14.94	7.88	8.32	8.93	9.38	10.77
	8H	12.22	12.63	13.27	13.68	15.09	8.01	8.42	9.06	9.47	10.88
	12H	12.31	12.68	13.38	13.75	15.17	8.07	8.44	9.14	9.51	10.92
8H	4H	11.49	11.91	12.55	12.96	14.37	7.74	8.15	8.79	9.20	10.61
	6H	12.06	12.40	13.14	13.50	14.90	8.26	8.59	9.33	9.69	11.10
	8H	12.28	12.58	13.36	13.66	15.08	8.45	8.75	9.53	9.83	11.25
	12H	12.42	12.68	13.50	13.75	15.22	8.57	8.83	9.65	9.90	11.37
12H	4H	11.44	11.82	12.52	12.88	14.30	7.74	8.11	8.81	9.18	10.59
	6H	12.04	12.33	13.12	13.41	14.84	8.30	8.60	9.39	9.68	11.11
	8H	12.26	12.52	13.34	13.59	15.06	8.52	8.78	9.60	9.85	11.32