

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: P924385

Luminaire Tested: DFN2DIP-HX3F0-040D070US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924385
REPORT IS A COMBINATION OF REPORTS P900780 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D070US950-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

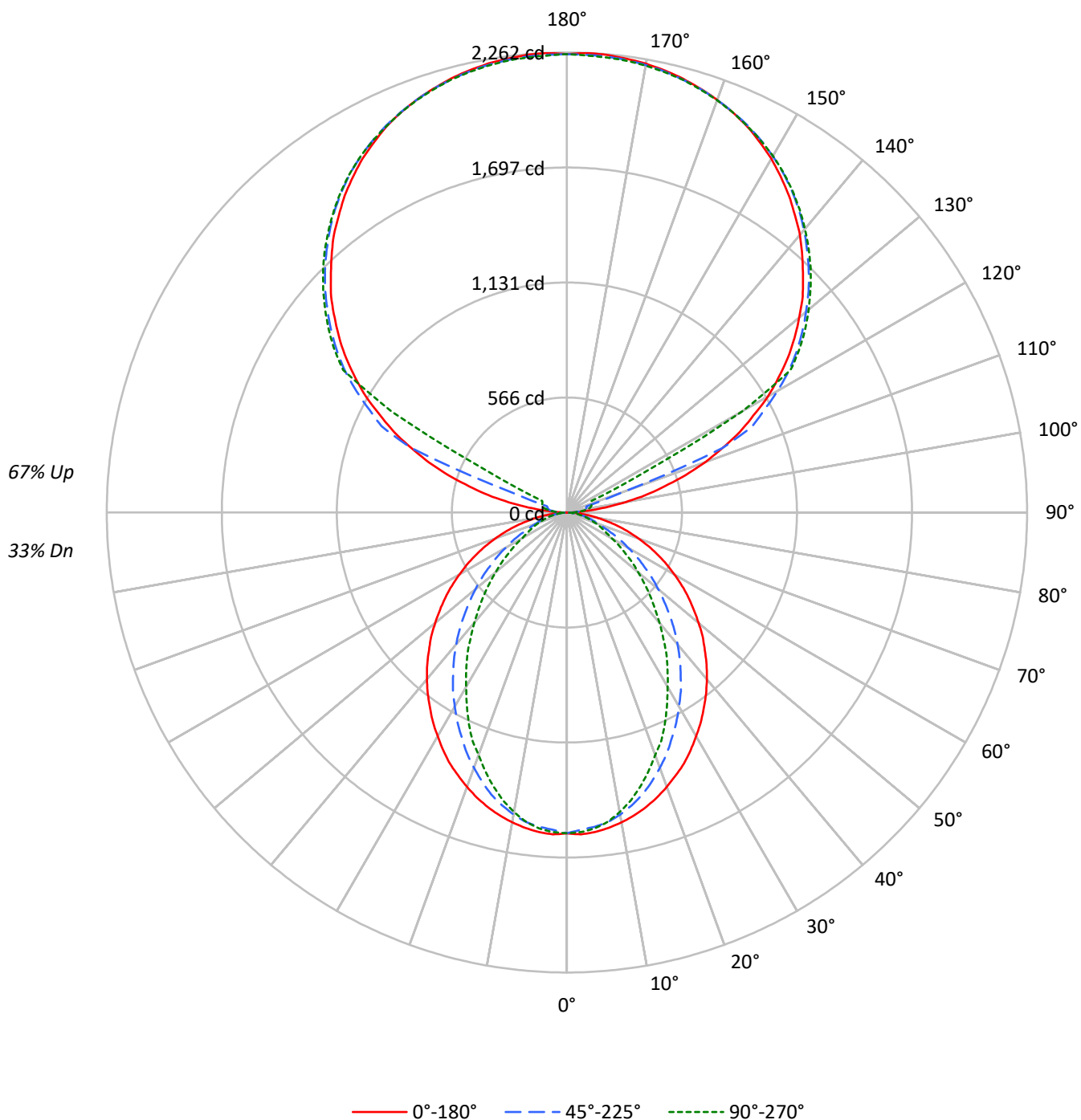
Lumens per Lamp: N/A
Luminaire Lumens: 9854.8 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 87.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1827	1827	1827
5°	1829	1797	1808
10°	1810	1760	1749
15°	1784	1701	1657
20°	1751	1619	1544
25°	1716	1528	1436
30°	1670	1435	1298
35°	1624	1335	1178
40°	1578	1232	1040
45°	1525	1117	915
50°	1469	1002	792
55°	1411	878	675
60°	1344	750	555
65°	1267	619	498
70°	1173	497	449
75°	1055	436	407
80°	884	361	350
85°	604	235	257

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1525 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.8	1.5
10°-20°	405.8	4.1
20°-30°	569.7	5.8
30°-40°	621.0	6.3
40°-50°	570.8	5.8
50°-60°	448.2	4.5
60°-70°	291.8	3.0
70°-80°	150.2	1.5
80°-90°	42.3	0.4
90°-100°	74.3	0.8
100°-110°	277.0	2.8
110°-120°	734.8	7.5
120°-130°	1218.6	12.4
130°-140°	1294.5	13.1
140°-150°	1203.1	12.2
150°-160°	967.2	9.8
160°-170°	623.3	6.3
170°-180°	214.5	2.2
0°-30°	1123.3	11.4
0°-40°	1744.3	17.7
0°-60°	2763.3	28.0
0°-90°	3247.6	33.0
90°-120°	1086.1	11.0
90°-150°	4802.2	48.7
90°-180°	6607.0	67.0
0°-180°	9854.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1570	1551	1564	1560	150
15°	1500	1484	1436	1409	1395	423
25°	1362	1316	1222	1163	1142	626
35°	1173	1100	975	885	853	734
45°	959	864	714	612	578	741
55°	729	618	464	378	351	652
65°	492	377	248	200	196	488
75°	262	163	114	104	103	278
85°	61	31	27	27	27	70
90°	2	20	32	41	44	9
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1577.2	1577.2	1577.2	1577.2	1577.2
2.5°	1584.3	1577.2	1561.4	1575.8	1572.9
5°	1577.2	1570.0	1551.4	1564.3	1560.1
7.5°	1564.3	1555.8	1535.8	1541.4	1534.3
10°	1547.2	1537.2	1508.7	1504.3	1495.9
12.5°	1525.8	1512.9	1474.3	1465.8	1450.1
15°	1500.1	1484.3	1435.9	1408.8	1394.6
17.5°	1470.1	1447.2	1387.2	1355.9	1333.0
20°	1435.9	1407.2	1335.9	1300.3	1268.8
22.5°	1398.8	1365.9	1283.0	1234.6	1213.3
25°	1361.6	1315.9	1221.7	1163.3	1141.7
27.5°	1317.5	1268.8	1164.6	1097.6	1064.7
30°	1270.3	1216.0	1101.8	1029.1	990.5
32.5°	1224.6	1158.9	1042.0	956.3	920.5
35°	1173.3	1100.4	974.9	884.9	853.4
37.5°	1123.3	1044.7	912.0	813.5	777.9
40°	1070.5	984.9	846.4	745.1	708.0
42.5°	1016.2	924.9	780.8	675.1	639.5
45°	959.2	863.5	713.7	612.3	578.0
47.5°	905.0	803.6	649.5	548.1	516.7
50°	845.0	743.6	586.6	488.1	458.2
52.5°	786.4	679.3	526.7	432.4	405.4
55°	729.3	618.0	463.8	378.3	351.2
57.5°	670.9	556.7	408.2	328.3	305.5
60°	610.8	496.7	349.6	276.9	254.1
62.5°	552.5	438.3	299.7	231.2	219.9
65°	492.5	376.7	248.3	199.9	195.5
67.5°	435.4	319.7	199.9	175.5	171.2
70°	375.4	264.1	165.5	151.3	145.5
72.5°	318.3	212.6	138.4	127.1	124.2
75°	262.5	162.7	114.2	104.2	102.8
77.5°	207.0	115.5	90.0	84.2	81.3
80°	155.5	82.8	68.4	62.9	62.9
82.5°	108.5	55.7	47.1	44.2	44.2
85°	61.3	31.4	27.1	27.1	27.1
87.5°	22.9	11.4	11.4	10.0	10.0
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7

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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	7.36	8.06	8.45	9.15	10.65	3.33	4.04	4.43	5.13	6.63
	3H	9.02	9.65	10.12	10.75	12.26	4.51	5.14	5.61	6.24	7.75
	4H	9.61	10.21	10.73	11.31	12.83	4.95	5.55	6.06	6.65	8.17
	6H	10.02	10.57	11.15	11.68	13.21	5.26	5.81	6.38	6.91	8.45
	8H	10.14	10.67	11.27	11.79	13.31	5.34	5.87	6.47	6.99	8.51
	12H	10.20	10.70	11.33	11.81	13.36	5.38	5.88	6.51	6.99	8.54
4H	2H	7.36	7.96	8.48	9.06	10.58	3.91	4.51	5.03	5.61	7.13
	3H	9.17	9.67	10.30	10.79	12.33	5.24	5.74	6.37	6.87	8.40
	4H	9.85	10.31	10.98	11.42	12.98	5.78	6.24	6.91	7.36	8.91
	6H	10.35	10.74	11.49	11.88	13.43	6.19	6.58	7.33	7.72	9.27
	8H	10.52	10.88	11.66	12.01	13.58	6.31	6.68	7.45	7.81	9.37
	12H	10.60	10.93	11.76	12.08	13.64	6.37	6.70	7.52	7.84	9.41
8H	4H	9.81	10.17	10.94	11.30	12.86	6.05	6.41	7.19	7.54	9.11
	6H	10.36	10.66	11.52	11.83	13.39	6.56	6.86	7.71	8.03	9.59
	8H	10.57	10.83	11.73	11.99	13.56	6.74	7.01	7.91	8.16	9.74
	12H	10.70	10.93	11.87	12.08	13.69	6.85	7.08	8.02	8.23	9.85
12H	4H	9.75	10.08	10.91	11.23	12.79	6.05	6.38	7.20	7.52	9.09
	6H	10.33	10.60	11.50	11.75	13.33	6.60	6.87	7.77	8.02	9.60
	8H	10.54	10.78	11.71	11.92	13.54	6.80	7.03	7.97	8.18	9.80