

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: P921656

Luminaire Tested: DFN2DIP-HX3F0-040D070US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921656
REPORT IS A COMBINATION OF REPORTS P899260 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D070US940-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

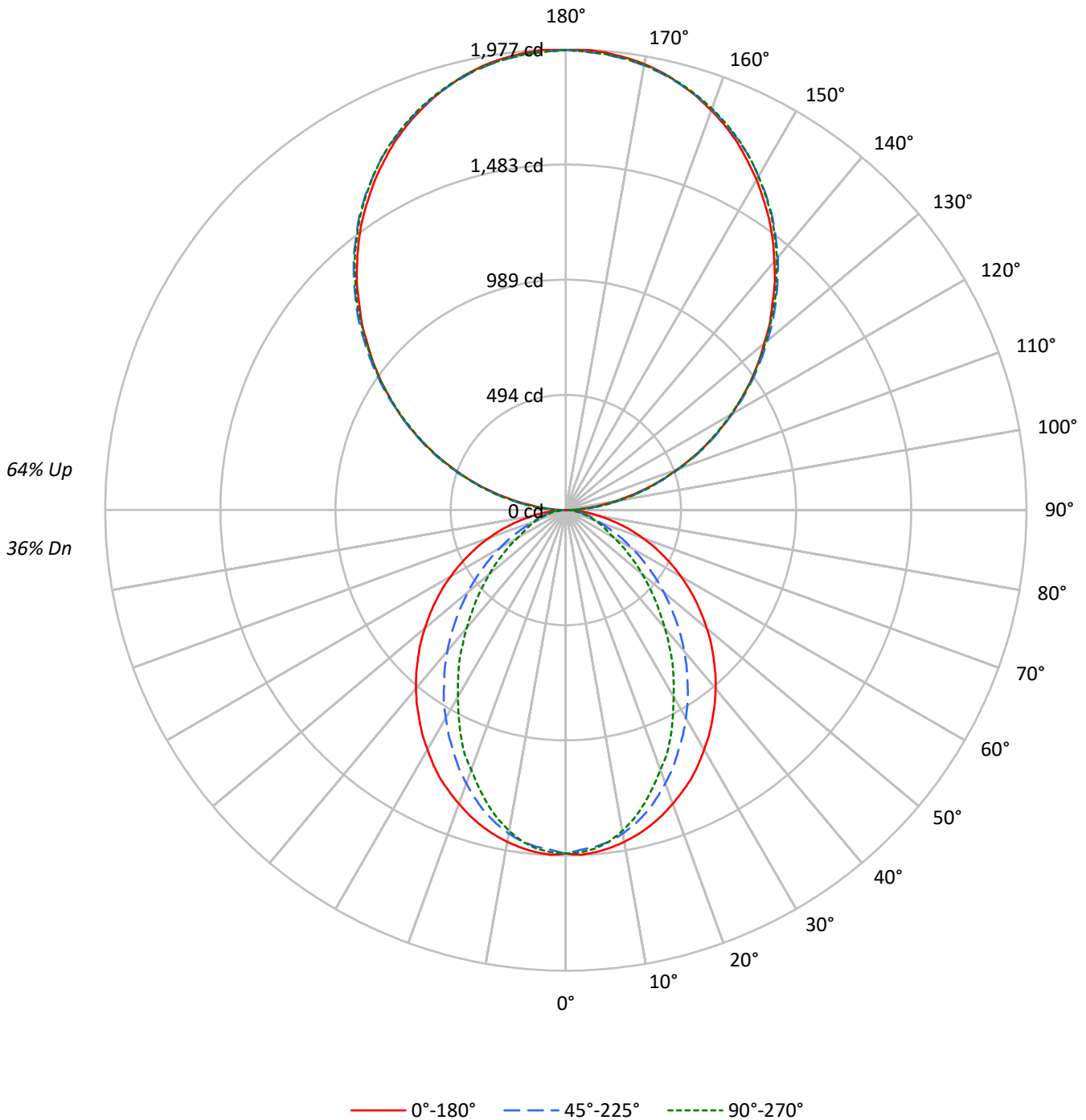
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8556.0 lumens
Efficiency: N/A
Efficacy: 97.3 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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43	36		
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37	31		
2	87	80	74	69	78	72	67	63	59	55	52	46	44	42	34	33	31	26		
3	79	70	63	58	71	64	58	53	52	48	44	41	38	36	31	29	27	23		
4	73	62	55	49	65	57	50	45	46	42	38	37	33	31	27	25	24	20		
5	67	56	48	42	60	51	44	39	42	37	33	33	29	27	25	23	21	17		
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18	15		
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	17	14		
8	53	41	33	28	48	38	31	26	31	26	23	25	21	19	19	17	15	12		
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	14	11		
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12	10		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1708	1708	1708
5°	1710	1679	1690
10°	1692	1645	1634
15°	1668	1590	1549
20°	1636	1514	1443
25°	1604	1428	1342
30°	1561	1341	1214
35°	1518	1248	1101
40°	1475	1151	972
45°	1425	1044	855
50°	1373	936	741
55°	1319	821	631
60°	1256	701	519
65°	1184	578	466
70°	1096	465	420
75°	986	407	380
80°	826	337	327
85°	565	220	240

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1857 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.6
10°-20°	379.3	4.4
20°-30°	532.5	6.2
30°-40°	580.5	6.8
40°-50°	533.5	6.2
50°-60°	419.0	4.9
60°-70°	272.7	3.2
70°-80°	140.4	1.6
80°-90°	41.4	0.5
90°-100°	122.2	1.4
100°-110°	388.1	4.5
110°-120°	664.2	7.8
120°-130°	873.6	10.2
130°-140°	980.5	11.5
140°-150°	961.5	11.2
150°-160°	806.6	9.4
160°-170°	534.9	6.3
170°-180°	187.0	2.2
0°-30°	1049.9	12.3
0°-40°	1630.4	19.1
0°-60°	2582.9	30.2
0°-90°	3037.4	35.5
90°-120°	1174.5	13.7
90°-150°	3990.1	46.6
90°-180°	5519.0	64.5
0°-180°	8556.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	21	58	55	56	8
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1



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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	7.43	8.16	8.51	9.23	10.70	3.41	4.13	4.49	5.21	6.67
	3H	9.09	9.74	10.18	10.83	12.31	4.58	5.23	5.67	6.32	7.80
	4H	9.69	10.31	10.79	11.39	12.88	5.03	5.64	6.13	6.73	8.22
	6H	10.10	10.67	11.21	11.76	13.26	5.34	5.90	6.45	6.99	8.49
	8H	10.22	10.76	11.33	11.86	13.36	5.42	5.96	6.54	7.07	8.56
	12H	10.28	10.79	11.39	11.88	13.40	5.46	5.97	6.58	7.07	8.59
4H	2H	7.44	8.05	8.54	9.14	10.63	3.99	4.60	5.09	5.69	7.18
	3H	9.25	9.76	10.36	10.87	12.37	5.32	5.83	6.43	6.94	8.45
	4H	9.93	10.40	11.05	11.50	13.02	5.86	6.33	6.98	7.43	8.96
	6H	10.43	10.83	11.55	11.96	13.47	6.27	6.67	7.39	7.80	9.31
	8H	10.60	10.98	11.72	12.09	13.62	6.40	6.77	7.52	7.89	9.42
	12H	10.69	11.03	11.82	12.15	13.69	6.45	6.79	7.59	7.92	9.46
8H	4H	9.89	10.26	11.01	11.38	12.91	6.13	6.50	7.25	7.62	9.15
	6H	10.44	10.75	11.59	11.91	13.44	6.64	6.95	7.78	8.11	9.63
	8H	10.65	10.92	11.80	12.06	13.61	6.83	7.10	7.97	8.23	9.78
	12H	10.78	11.02	11.93	12.15	13.74	6.94	7.17	8.09	8.31	9.89
12H	4H	9.84	10.17	10.97	11.30	12.84	6.13	6.47	7.27	7.60	9.13
	6H	10.42	10.69	11.57	11.83	13.38	6.69	6.96	7.83	8.09	9.64
	8H	10.63	10.87	11.78	12.00	13.59	6.89	7.12	8.04	8.26	9.84