

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: P926885

Luminaire Tested: DFN2DIP-HX4F0-040D070US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926885
REPORT IS A COMBINATION OF REPORTS P899354 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D070US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

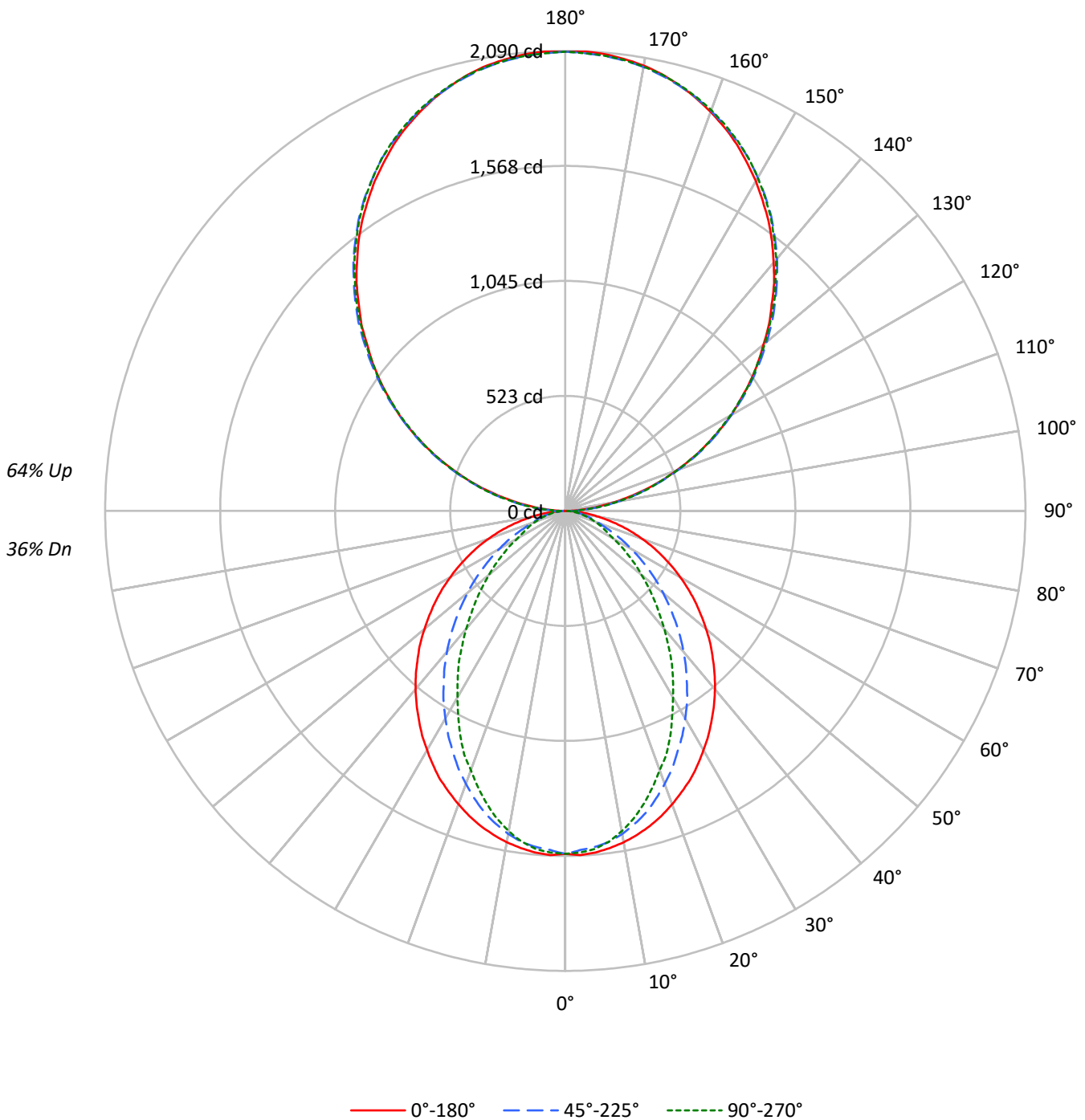
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9043.3 lumens
Efficiency: N/A
Efficacy: 104.8 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: Semi-Indirect

Input Watts (W): 86.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P926885
CATALOG NUMBER: DFN2DIP-HX4F0-040D070US830-RLFL

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1159	1159	1159
5°	1160	1140	1148
10°	1149	1118	1110
15°	1133	1081	1053
20°	1113	1030	982
25°	1091	973	913
30°	1063	915	827
35°	1035	852	751
40°	1006	787	663
45°	973	715	584
50°	938	642	507
55°	903	564	432
60°	861	483	356
65°	813	400	320
70°	756	322	290
75°	683	284	264
80°	578	239	229
85°	404	160	173

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1574 cd/sqm



TEST NUMBER: P926885

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US830-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	1.6
10°-20°	400.9	4.4
20°-30°	562.8	6.2
30°-40°	613.5	6.8
40°-50°	563.9	6.2
50°-60°	442.8	4.9
60°-70°	288.3	3.2
70°-80°	148.4	1.6
80°-90°	43.8	0.5
90°-100°	129.1	1.4
100°-110°	410.2	4.5
110°-120°	702.0	7.8
120°-130°	923.3	10.2
130°-140°	1036.4	11.5
140°-150°	1016.3	11.2
150°-160°	852.5	9.4
160°-170°	565.4	6.3
170°-180°	197.6	2.2
0°-30°	1109.7	12.3
0°-40°	1723.2	19.1
0°-60°	2730.0	30.2
0°-90°	3210.4	35.5
90°-120°	1241.4	13.7
90°-150°	4217.4	46.6
90°-180°	5833.0	64.5
0°-180°	9043.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1558	1558	1558	1558	1558	
5°	1558	1551	1533	1545	1541	148
15°	1482	1466	1419	1392	1378	418
25°	1345	1300	1207	1149	1128	619
35°	1159	1087	963	874	843	726
45°	948	853	705	605	571	732
55°	720	611	458	374	347	644
65°	486	372	245	198	193	482
75°	259	161	113	103	102	274
85°	61	31	27	27	27	70
90°	2	23	62	58	60	9
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	704	715	712	710	704	697
125°	1025	1040	1035	1030	1028	916
135°	1325	1345	1349	1347	1342	1024
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2086	2076	198
180°	2086	2086	2086	2086	2086	



TEST NUMBER: P926885

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US830-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1558.1	1558.1	1558.1	1558.1	1558.1
2.5°	1565.2	1558.1	1542.6	1556.8	1553.9
5°	1558.1	1551.1	1532.7	1545.4	1541.3
7.5°	1545.4	1537.0	1517.3	1522.8	1515.8
10°	1528.5	1518.7	1490.5	1486.1	1477.8
12.5°	1507.4	1494.7	1456.5	1448.2	1432.6
15°	1482.0	1466.4	1418.6	1391.8	1377.7
17.5°	1452.4	1429.8	1370.5	1339.6	1317.0
20°	1418.6	1390.3	1319.8	1284.6	1253.5
22.5°	1381.9	1349.5	1267.6	1219.7	1198.7
25°	1345.2	1300.1	1207.0	1149.3	1128.0
27.5°	1301.6	1253.5	1150.6	1084.3	1051.8
30°	1255.0	1201.3	1088.5	1016.7	978.6
32.5°	1209.9	1144.9	1029.4	944.8	909.4
35°	1159.2	1087.2	963.1	874.3	843.2
37.5°	1109.8	1032.1	901.0	803.7	768.5
40°	1057.6	973.0	836.2	736.1	699.4
42.5°	1004.0	913.8	771.3	666.9	631.8
45°	947.6	853.1	705.1	604.9	571.1
47.5°	894.1	794.0	641.7	541.5	510.5
50°	834.8	734.7	579.5	482.2	452.7
52.5°	776.9	671.2	520.4	427.2	400.5
55°	720.5	610.6	458.2	373.7	346.9
57.5°	662.8	549.9	403.3	324.3	301.8
60°	603.5	490.7	345.4	273.6	251.1
62.5°	545.8	433.0	296.0	228.5	217.2
65°	486.5	372.2	245.3	197.5	193.1
67.5°	430.2	315.8	197.5	173.4	169.2
70°	370.9	260.9	163.5	149.5	143.7
72.5°	314.5	210.1	136.8	125.5	122.7
75°	259.4	160.7	112.8	102.9	101.6
77.5°	204.5	114.1	88.9	83.2	80.3
80°	153.6	81.8	67.6	62.1	62.1
82.5°	107.2	55.0	46.6	43.6	43.6
85°	60.6	31.0	26.8	26.8	26.8
87.5°	22.6	11.2	11.2	9.9	9.9
90°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.5	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.0	459.2
110°	537.2	547.3	547.3	547.3	542.2



TEST NUMBER: P926885

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US830-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.2	630.3	625.3	621.5
115°	704.5	714.6	711.5	709.6	704.5
117.5°	786.9	800.7	792.0	786.9	781.9
120°	869.9	883.8	869.9	869.9	864.3
122.5°	945.4	963.0	954.3	949.2	945.4
125°	1024.7	1040.4	1035.4	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.4	1197.1	1194.0	1190.2	1183.2
132.5°	1255.6	1273.2	1274.4	1265.7	1260.6
135°	1325.4	1344.9	1348.7	1346.7	1341.7
137.5°	1403.4	1419.1	1422.2	1421.0	1413.5
140°	1472.0	1487.7	1496.5	1496.5	1489.6
142.5°	1542.4	1558.1	1563.1	1565.0	1558.1
145°	1609.1	1621.7	1631.8	1633.6	1626.8
147.5°	1668.9	1684.6	1692.2	1695.3	1688.4
150°	1730.5	1741.2	1748.1	1753.8	1748.1
152.5°	1785.2	1795.9	1804.7	1811.7	1804.7
155°	1839.9	1844.9	1850.7	1859.5	1853.8
157.5°	1887.2	1890.9	1894.0	1906.7	1897.8
160°	1929.3	1933.1	1935.0	1945.6	1938.1
162.5°	1968.3	1968.3	1970.2	1982.1	1973.3
165°	2001.6	1999.7	1999.7	2012.3	2003.5
167.5°	2031.8	2026.2	2026.2	2038.7	2030.0
170°	2054.5	2049.5	2047.6	2060.1	2049.5
172.5°	2070.2	2065.1	2063.2	2075.9	2065.1
175°	2082.7	2077.7	2074.0	2086.5	2075.9
177.5°	2089.7	2084.6	2080.9	2091.6	2080.9
180°	2086.5	2086.5	2086.5	2086.5	2086.5



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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	6.13	6.85	7.21	7.93	9.40	2.10	2.83	3.18	3.90	5.37
	3H	7.80	8.45	8.89	9.53	11.02	3.28	3.93	4.37	5.02	6.50
	4H	8.40	9.02	9.50	10.10	11.59	3.73	4.35	4.83	5.43	6.92
	6H	8.82	9.39	9.93	10.47	11.98	4.05	4.61	5.16	5.70	7.20
	8H	8.95	9.48	10.06	10.59	12.08	4.14	4.67	5.25	5.78	7.27
	12H	9.00	9.51	10.12	10.61	12.13	4.18	4.69	5.29	5.78	7.30
4H	2H	6.13	6.75	7.24	7.83	9.32	2.68	3.30	3.79	4.38	5.87
	3H	7.96	8.47	9.07	9.58	11.08	4.03	4.54	5.14	5.65	7.15
	4H	8.64	9.11	9.76	10.22	11.74	4.57	5.04	5.69	6.14	7.67
	6H	9.15	9.56	10.28	10.68	12.20	4.99	5.39	6.11	6.51	8.03
	8H	9.33	9.70	10.45	10.82	12.35	5.12	5.49	6.24	6.61	8.14
	12H	9.42	9.76	10.56	10.89	12.42	5.18	5.52	6.32	6.65	8.18
8H	4H	8.61	8.98	9.73	10.10	11.63	4.85	5.22	5.97	6.34	7.87
	6H	9.17	9.48	10.31	10.64	12.16	5.36	5.67	6.51	6.83	8.36
	8H	9.39	9.66	10.53	10.79	12.34	5.55	5.82	6.70	6.96	8.51
	12H	9.52	9.76	10.67	10.89	12.48	5.67	5.91	6.82	7.04	8.63
12H	4H	8.55	8.89	9.69	10.02	11.56	4.85	5.19	5.98	6.31	7.85
	6H	9.14	9.41	10.29	10.55	12.10	5.41	5.68	6.56	6.82	8.37
	8H	9.36	9.60	10.51	10.73	12.32	5.62	5.86	6.77	6.99	8.58