

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: P908197

Luminaire Tested: DFN2DIP-HX4F0-070D040US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908197
REPORT IS A COMBINATION OF REPORTS P899306 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D040US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

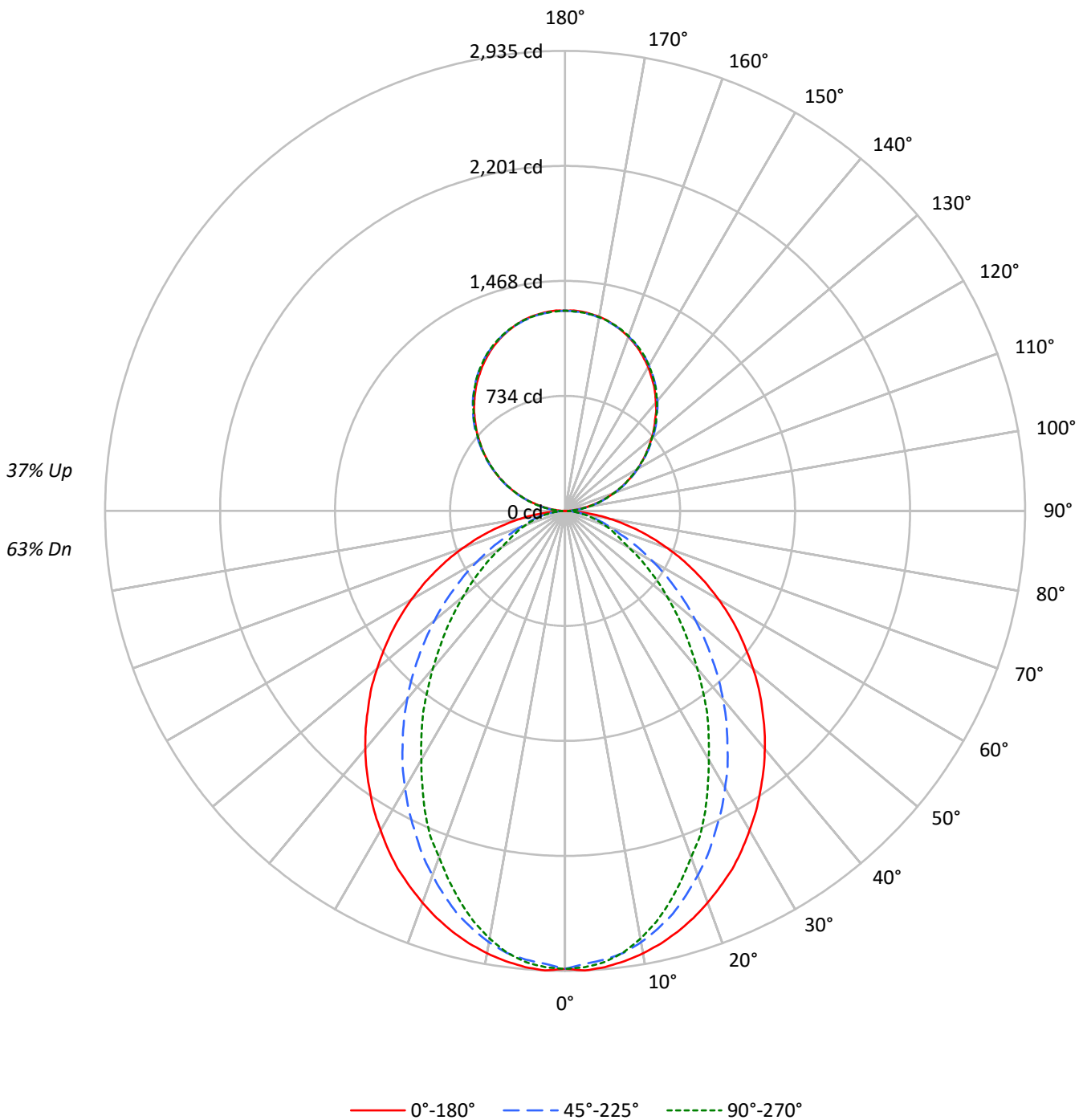
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9583.6 lumens
Efficiency: N/A
Efficacy: 106.5 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-Direct

Input Watts (W): 90
Input Voltage (V):
Input Current (A_{in}): 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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68	63		
1	101	97	93	90	95	91	88	85	80	78	76	70	68	67	61	60	58	54		
2	93	85	80	75	87	80	75	71	71	67	64	62	59	57	54	52	50	46		
3	85	76	69	63	79	71	65	60	63	58	54	56	52	49	49	46	43	40		
4	78	67	60	54	73	64	57	51	57	51	47	50	46	42	44	41	38	35		
5	72	61	53	47	67	57	50	45	51	45	41	45	41	37	40	36	33	31		
6	67	55	47	41	62	52	44	39	46	40	36	41	36	33	36	33	30	27		
7	62	50	42	36	58	47	40	35	42	36	32	38	33	29	33	30	27	24		
8	57	45	38	32	54	43	36	31	39	33	29	35	30	26	31	27	24	22		
9	54	42	34	29	50	40	33	28	36	30	26	32	27	24	29	25	22	20		
10	50	38	31	26	47	36	30	25	33	27	24	30	25	22	27	23	20	18		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2172	2172	2172
5°	2176	2138	2152
10°	2155	2096	2082
15°	2125	2027	1974
20°	2086	1932	1841
25°	2046	1825	1713
30°	1992	1715	1550
35°	1940	1598	1407
40°	1886	1476	1243
45°	1824	1340	1095
50°	1759	1204	950
55°	1692	1058	811
60°	1615	905	667
65°	1525	750	601
70°	1417	605	544
75°	1281	533	495
80°	1083	448	430
85°	757	300	324

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1824 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	2.9
10°-20°	751.7	7.8
20°-30°	1055.3	11.0
30°-40°	1150.4	12.0
40°-50°	1057.3	11.0
50°-60°	830.4	8.7
60°-70°	540.5	5.6
70°-80°	278.2	2.9
80°-90°	74.6	0.8
90°-100°	79.1	0.8
100°-110°	251.2	2.6
110°-120°	429.8	4.5
120°-130°	565.3	5.9
130°-140°	634.5	6.6
140°-150°	622.2	6.5
150°-160°	522.0	5.4
160°-170°	346.2	3.6
170°-180°	121.0	1.3
0°-30°	2080.9	21.7
0°-40°	3231.2	33.7
0°-60°	5118.9	53.4
0°-90°	6012.3	62.7
90°-120°	760.1	7.9
90°-150°	2582.2	26.9
90°-180°	3571.0	37.3
0°-180°	9583.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	1	14	38	35	37	9
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5



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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	10.96	11.90	11.80	12.77	13.85	6.93	7.87	7.77	8.74	9.82
	3H	12.64	13.49	13.50	14.36	15.47	8.13	8.97	8.99	9.85	10.95
	4H	13.26	14.06	14.13	14.94	16.05	8.58	9.38	9.46	10.26	11.38
	6H	13.69	14.42	14.57	15.31	16.44	8.91	9.65	9.80	10.53	11.67
	8H	13.82	14.51	14.71	15.42	16.55	9.01	9.71	9.90	10.61	11.74
	12H	13.88	14.55	14.78	15.44	16.60	9.06	9.72	9.96	10.62	11.77
4H	2H	10.99	11.79	11.87	12.67	13.78	7.54	8.34	8.42	9.22	10.33
	3H	12.83	13.49	13.72	14.40	15.54	8.90	9.56	9.79	10.48	11.61
	4H	13.53	14.13	14.43	15.04	16.20	9.45	10.06	10.36	10.97	12.13
	6H	14.05	14.57	14.97	15.50	16.66	9.88	10.40	10.80	11.33	12.49
	8H	14.23	14.71	15.15	15.64	16.81	10.01	10.50	10.93	11.43	12.60
	12H	14.33	14.76	15.27	15.71	16.89	10.09	10.52	11.02	11.47	12.65
8H	4H	13.50	13.99	14.42	14.91	16.09	9.74	10.23	10.66	11.16	12.33
	6H	14.07	14.48	15.02	15.44	16.62	10.27	10.67	11.21	11.64	12.81
	8H	14.29	14.65	15.25	15.61	16.80	10.46	10.82	11.42	11.78	12.97
	12H	14.44	14.75	15.39	15.70	16.94	10.59	10.90	11.55	11.85	13.09
12H	4H	13.46	13.90	14.40	14.84	16.02	9.75	10.19	10.69	11.14	12.31
	6H	14.05	14.41	15.01	15.36	16.55	10.32	10.67	11.27	11.63	12.82
	8H	14.28	14.59	15.23	15.54	16.78	10.54	10.85	11.49	11.80	13.04