

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: P924565

Luminaire Tested: DFN2DIP-HX4F0-070D040US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924565
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-HX4F0-070D040US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

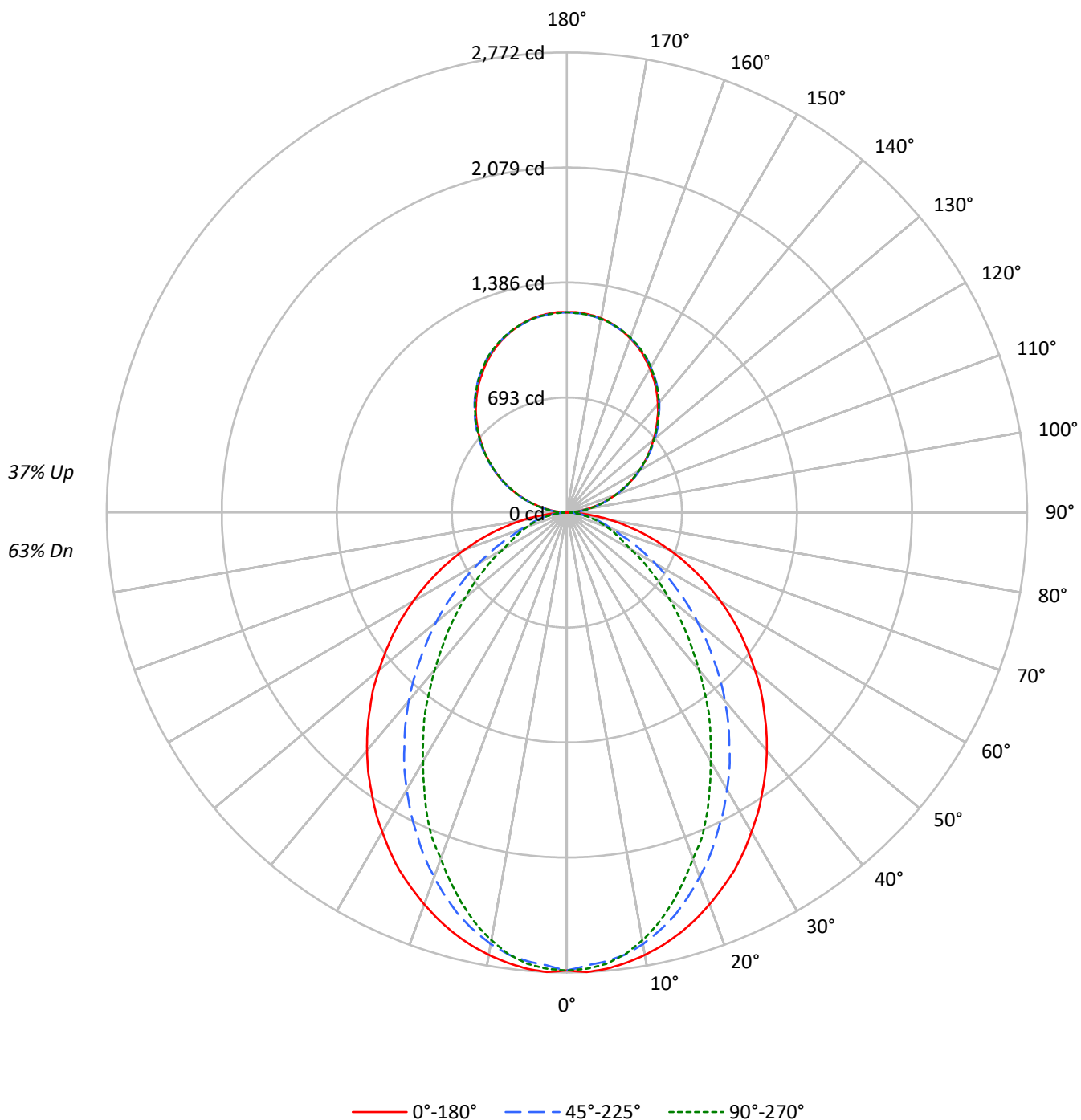
Lumens per Lamp: N/A
Luminaire Lumens: 9053.4 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2052	2052	2052
5°	2056	2020	2033
10°	2035	1980	1967
15°	2008	1915	1864
20°	1971	1825	1739
25°	1933	1724	1618
30°	1882	1621	1464
35°	1832	1509	1329
40°	1782	1394	1175
45°	1723	1266	1034
50°	1662	1137	897
55°	1599	999	766
60°	1525	855	630
65°	1441	708	568
70°	1338	571	514
75°	1210	504	468
80°	1024	423	406
85°	715	284	306

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1723 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.7	2.9
10°-20°	710.1	7.8
20°-30°	997.0	11.0
30°-40°	1086.8	12.0
40°-50°	998.8	11.0
50°-60°	784.4	8.7
60°-70°	510.6	5.6
70°-80°	262.8	2.9
80°-90°	70.5	0.8
90°-100°	74.7	0.8
100°-110°	237.3	2.6
110°-120°	406.1	4.5
120°-130°	534.0	5.9
130°-140°	599.4	6.6
140°-150°	587.8	6.5
150°-160°	493.1	5.4
160°-170°	327.0	3.6
170°-180°	114.3	1.3
0°-30°	1965.7	21.7
0°-40°	3052.5	33.7
0°-60°	4835.8	53.4
0°-90°	5679.7	62.7
90°-120°	718.0	7.9
90°-150°	2439.3	26.9
90°-180°	3374.0	37.3
0°-180°	9053.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2760	2760	2760	2760	2760	
5°	2760	2748	2715	2738	2730	262
15°	2625	2598	2513	2465	2440	740
25°	2383	2303	2138	2036	1998	1096
35°	2053	1926	1706	1549	1494	1285
45°	1679	1511	1249	1071	1012	1296
55°	1276	1082	812	662	615	1140
65°	862	659	435	350	342	854
75°	460	285	200	182	180	486
85°	107	55	47	47	47	123
90°	1	13	36	34	34	9
95°	53	63	65	65	63	59
105°	219	222	224	226	226	231
115°	408	413	412	410	408	403
125°	593	602	599	596	594	530
135°	767	778	780	779	776	593
145°	931	938	944	945	941	582
155°	1064	1067	1070	1076	1072	490
165°	1158	1157	1157	1164	1159	327
175°	1205	1202	1200	1207	1201	114
180°	1207	1207	1207	1207	1207	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2760.0	2760.0	2760.0	2760.0	2760.0
2.5°	2772.4	2760.0	2732.4	2757.6	2752.6
5°	2760.0	2747.5	2715.0	2737.5	2730.1
7.5°	2737.5	2722.6	2687.7	2697.4	2685.0
10°	2707.5	2690.1	2640.2	2632.6	2617.7
12.5°	2670.2	2647.6	2580.1	2565.2	2537.6
15°	2625.1	2597.6	2512.7	2465.3	2440.4
17.5°	2572.7	2532.7	2427.7	2372.8	2332.8
20°	2512.7	2462.7	2337.9	2275.6	2220.4
22.5°	2447.9	2390.3	2245.3	2160.5	2123.2
25°	2382.9	2302.9	2138.0	2035.7	1998.2
27.5°	2305.5	2220.4	2038.1	1920.8	1863.3
30°	2223.1	2128.0	1928.1	1801.0	1733.4
32.5°	2143.1	2028.1	1823.5	1673.5	1610.9
35°	2053.2	1925.7	1706.1	1548.7	1493.6
37.5°	1965.8	1828.2	1596.1	1423.6	1361.4
40°	1873.3	1723.6	1481.1	1303.8	1238.9
42.5°	1778.4	1618.7	1366.3	1181.3	1119.1
45°	1678.6	1511.0	1249.0	1071.4	1011.5
47.5°	1583.6	1406.4	1136.6	959.1	904.2
50°	1478.7	1301.4	1026.6	854.1	801.9
52.5°	1376.1	1188.8	921.7	756.8	709.4
55°	1276.3	1081.5	811.7	662.0	614.6
57.5°	1174.0	974.1	714.5	574.5	534.5
60°	1069.1	869.2	611.9	484.7	444.7
62.5°	966.7	766.9	524.4	404.7	384.7
65°	861.7	659.3	434.6	349.8	342.1
67.5°	761.9	559.4	349.8	307.1	299.7
70°	656.9	462.1	289.6	264.7	254.6
72.5°	557.0	372.1	242.2	222.4	217.3
75°	459.5	284.6	199.8	182.3	179.9
77.5°	362.2	202.2	157.4	147.3	142.3
80°	272.2	144.9	119.8	110.0	110.0
82.5°	189.8	97.5	82.4	77.4	77.4
85°	107.3	54.9	47.4	47.4	47.4
87.5°	40.0	19.8	19.8	17.5	17.5
90°	1.0	13.1	35.7	33.5	34.5
92.5°	22.5	30.5	31.7	32.7	32.7
95°	53.1	63.3	65.2	65.2	63.3
97.5°	88.4	97.9	101.9	101.9	101.9
100°	129.2	137.6	140.4	140.4	139.4
102.5°	172.1	178.3	182.3	183.4	182.3
105°	219.0	221.9	224.1	225.9	225.9
107.5°	265.6	270.0	270.0	270.6	265.6
110°	310.7	316.5	316.5	316.5	313.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	359.5	365.7	364.5	361.7	359.5
115°	407.5	413.4	411.5	410.4	407.5
117.5°	455.2	463.2	458.1	455.2	452.3
120°	503.2	511.2	503.2	503.2	499.9
122.5°	546.8	557.0	552.0	549.0	546.8
125°	592.7	601.8	598.9	595.6	594.5
127.5°	637.5	648.7	644.7	640.3	637.5
130°	679.2	692.4	690.6	688.4	684.4
132.5°	726.2	736.4	737.2	732.0	729.1
135°	766.6	777.9	780.1	778.9	776.1
137.5°	811.8	820.8	822.6	821.9	817.6
140°	851.3	860.5	865.6	865.6	861.6
142.5°	892.2	901.2	904.1	905.3	901.2
145°	930.7	938.0	943.8	944.9	940.9
147.5°	965.3	974.3	978.7	980.5	976.5
150°	1000.9	1007.1	1011.1	1014.4	1011.1
152.5°	1032.6	1038.7	1043.9	1047.9	1043.9
155°	1064.2	1067.1	1070.4	1075.5	1072.2
157.5°	1091.6	1093.7	1095.5	1102.8	1097.7
160°	1115.9	1118.1	1119.1	1125.3	1121.0
162.5°	1138.4	1138.4	1139.6	1146.4	1141.4
165°	1157.8	1156.6	1156.6	1163.9	1158.8
167.5°	1175.2	1171.9	1171.9	1179.2	1174.1
170°	1188.3	1185.3	1184.3	1191.5	1185.3
172.5°	1197.4	1194.5	1193.4	1200.7	1194.5
175°	1204.7	1201.8	1199.6	1206.8	1200.7
177.5°	1208.7	1205.8	1203.6	1209.8	1203.6
180°	1206.8	1206.8	1206.8	1206.8	1206.8

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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	10.76	11.70	11.60	12.57	13.65	6.73	7.68	7.58	8.54	9.62
	3H	12.44	13.29	13.30	14.16	15.27	7.93	8.78	8.79	9.65	10.76
	4H	13.06	13.86	13.94	14.74	15.85	8.39	9.18	9.26	10.06	11.18
	6H	13.49	14.22	14.38	15.11	16.24	8.72	9.45	9.60	10.34	11.47
	8H	13.62	14.32	14.51	15.22	16.35	8.81	9.51	9.71	10.41	11.54
	12H	13.68	14.35	14.58	15.25	16.40	8.86	9.52	9.76	10.42	11.58
4H	2H	10.79	11.59	11.67	12.47	13.59	7.34	8.14	8.22	9.02	10.14
	3H	12.63	13.29	13.52	14.21	15.34	8.70	9.37	9.59	10.28	11.41
	4H	13.33	13.93	14.23	14.84	16.00	9.26	9.86	10.16	10.77	11.93
	6H	13.85	14.37	14.77	15.30	16.46	9.68	10.20	10.60	11.14	12.30
	8H	14.03	14.51	14.95	15.44	16.61	9.82	10.30	10.74	11.23	12.40
	12H	14.13	14.57	15.07	15.51	16.69	9.89	10.33	10.83	11.27	12.45
8H	4H	13.31	13.79	14.22	14.72	15.89	9.55	10.03	10.47	10.96	12.13
	6H	13.88	14.28	14.82	15.25	16.42	10.07	10.47	11.02	11.44	12.61
	8H	14.09	14.45	15.05	15.41	16.60	10.26	10.62	11.22	11.58	12.77
	12H	14.24	14.55	15.20	15.50	16.74	10.39	10.70	11.35	11.65	12.89
12H	4H	13.26	13.70	14.20	14.64	15.82	9.56	9.99	10.50	10.94	12.12
	6H	13.85	14.21	14.81	15.17	16.36	10.12	10.48	11.08	11.44	12.63
	8H	14.08	14.39	15.04	15.34	16.58	10.34	10.65	11.30	11.60	12.84