

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: P919037

Luminaire Tested: DFN2DIP-HX3F0-090D040US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919037
REPORT IS A COMBINATION OF REPORTS P900748 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D040US935-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

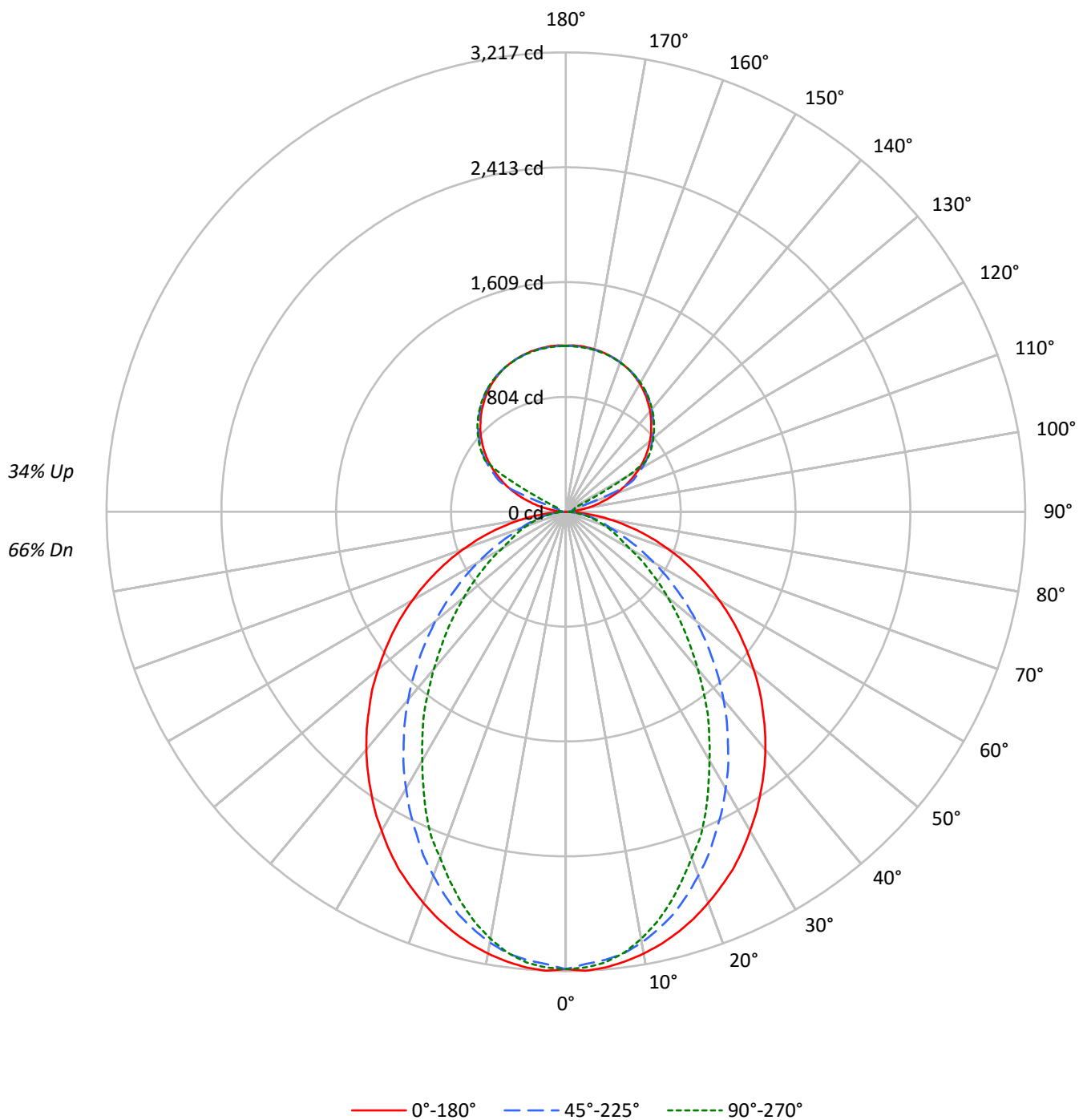
Lumens per Lamp: N/A
Luminaire Lumens: 9996.2 lumens
Efficiency: N/A
Efficacy: 81.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 122.4
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	71	69	64	62	61
2	93	86	80	75	88	81	76	72	73	68	65	64	61	59	57	54	52
3	86	76	69	63	80	72	66	61	65	60	55	57	54	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	37	31	27	33	28	25	30	26	23
10	51	39	32	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3710	3710	3710
5°	3714	3648	3672
10°	3676	3574	3551
15°	3623	3454	3364
20°	3555	3288	3136
25°	3484	3104	2915
30°	3391	2914	2637
35°	3299	2711	2392
40°	3205	2501	2111
45°	3096	2269	1857
50°	2984	2034	1609
55°	2866	1784	1371
60°	2729	1522	1127
65°	2572	1257	1012
70°	2382	1009	912
75°	2142	884	826
80°	1796	734	709
85°	1227	477	521

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3096 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	3.0
10°-20°	824.0	8.2
20°-30°	1156.9	11.6
30°-40°	1261.0	12.6
40°-50°	1159.0	11.6
50°-60°	910.3	9.1
60°-70°	592.5	5.9
70°-80°	305.0	3.1
80°-90°	79.9	0.8
90°-100°	38.3	0.4
100°-110°	142.9	1.4
110°-120°	378.9	3.8
120°-130°	628.5	6.3
130°-140°	667.6	6.7
140°-150°	620.4	6.2
150°-160°	498.8	5.0
160°-170°	321.4	3.2
170°-180°	110.6	1.1
0°-30°	2281.0	22.8
0°-40°	3542.0	35.4
0°-60°	5611.3	56.1
0°-90°	6588.7	65.9
90°-120°	560.1	5.6
90°-150°	2476.6	24.8
90°-180°	3407.0	34.1
0°-180°	9996.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	1	10	17	21	23	9
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	830.9	838.5	837.8
135°	846.1	859.6	867.1	875.5	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.4	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.4	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.3	1162.3	1162.3	1162.3	1162.3

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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	13.03	14.01	13.84	14.84	15.87	9.00	9.98	9.82	10.82	11.84
	3H	14.71	15.59	15.54	16.43	17.48	10.20	11.08	11.03	11.92	12.97
	4H	15.32	16.15	16.16	16.99	18.06	10.65	11.48	11.50	12.33	13.40
	6H	15.74	16.50	16.60	17.36	18.44	10.98	11.74	11.84	12.60	13.68
	8H	15.87	16.59	16.74	17.47	18.55	11.07	11.80	11.94	12.67	13.75
	12H	15.93	16.62	16.80	17.49	18.60	11.12	11.81	11.99	12.68	13.78
4H	2H	13.06	13.89	13.91	14.74	15.81	9.61	10.44	10.46	11.29	12.36
	3H	14.90	15.58	15.76	16.47	17.55	10.97	11.66	11.83	12.54	13.62
	4H	15.59	16.21	16.46	17.09	18.20	11.52	12.15	12.39	13.03	14.13
	6H	16.11	16.64	16.99	17.55	18.66	11.94	12.48	12.83	13.39	14.50
	8H	16.28	16.78	17.17	17.68	18.80	12.07	12.58	12.96	13.47	14.60
	12H	16.38	16.83	17.29	17.74	18.87	12.14	12.59	13.05	13.51	14.64
8H	4H	15.57	16.07	16.46	16.97	18.09	11.81	12.31	12.70	13.21	14.33
	6H	16.13	16.54	17.05	17.48	18.61	12.33	12.74	13.24	13.68	14.81
	8H	16.34	16.71	17.27	17.64	18.78	12.51	12.88	13.44	13.81	14.96
	12H	16.48	16.81	17.41	17.73	18.92	12.64	12.96	13.57	13.88	15.08
12H	4H	15.53	15.98	16.44	16.89	18.02	11.82	12.27	12.73	13.19	14.32
	6H	16.11	16.47	17.03	17.41	18.55	12.37	12.74	13.30	13.67	14.82
	8H	16.33	16.65	17.26	17.58	18.77	12.59	12.91	13.52	13.83	15.03