

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: P929362

Luminaire Tested: DFN2DIP-HX4F0-100D050US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929362
REPORT IS A COMBINATION OF REPORTS P900850 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US940-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

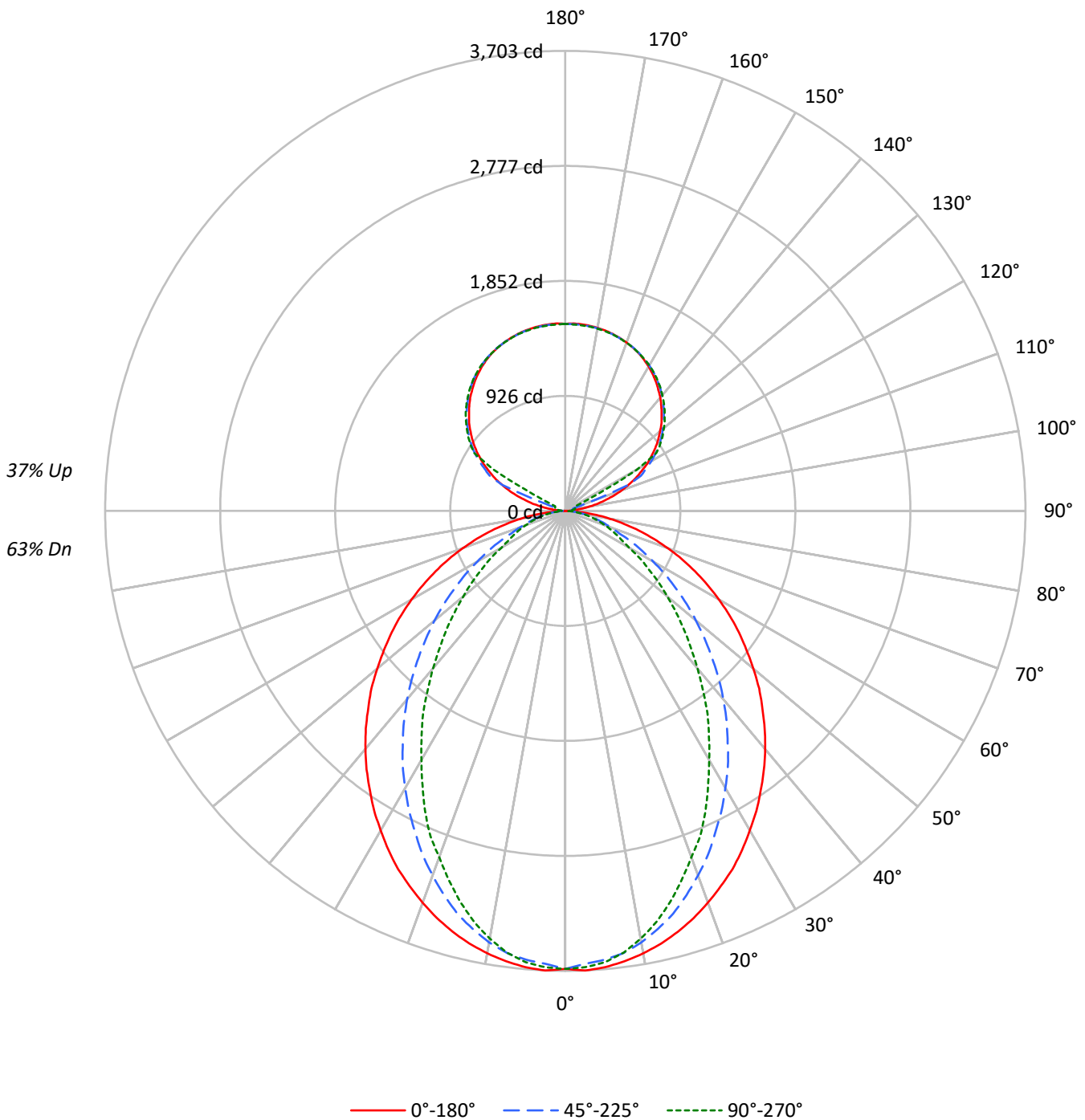
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11997.4 lumens
Efficiency: N/A
Efficacy: 87.6 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): 137
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	0
RCR																					
0	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59	61	60	59	54
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51	55	52	51	47
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44	49	46	44	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	44	41	38	35
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34	40	37	34	31
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30	37	33	30	27
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27	34	30	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	31	27	24	22
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22	29	25	22	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	27	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2741	2741	2741
5°	2746	2698	2715
10°	2719	2645	2627
15°	2682	2558	2490
20°	2632	2438	2323
25°	2582	2303	2161
30°	2514	2165	1956
35°	2448	2016	1776
40°	2380	1862	1569
45°	2301	1691	1382
50°	2220	1519	1199
55°	2135	1334	1023
60°	2037	1142	842
65°	1924	946	758
70°	1788	763	686
75°	1616	673	625
80°	1367	566	542
85°	955	379	408

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2301 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.5	2.9
10°-20°	948.5	7.9
20°-30°	1331.7	11.1
30°-40°	1451.6	12.1
40°-50°	1334.2	11.1
50°-60°	1047.8	8.7
60°-70°	682.0	5.7
70°-80°	351.1	2.9
80°-90°	92.3	0.8
90°-100°	49.7	0.4
100°-110°	185.0	1.5
110°-120°	490.7	4.1
120°-130°	813.9	6.8
130°-140°	864.5	7.2
140°-150°	803.5	6.7
150°-160°	646.0	5.4
160°-170°	416.2	3.5
170°-180°	143.3	1.2
0°-30°	2625.7	21.9
0°-40°	4077.3	34.0
0°-60°	6459.3	53.8
0°-90°	7584.6	63.2
90°-120°	725.4	6.0
90°-150°	3207.3	26.7
90°-180°	4413.0	36.8
0°-180°	11997.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3687	3687	3687	3687	3687	
5°	3687	3670	3626	3657	3647	350
15°	3506	3470	3356	3293	3260	988
25°	3183	3076	2856	2719	2669	1464
35°	2742	2572	2279	2069	1995	1717
45°	2242	2018	1668	1431	1351	1731
55°	1705	1445	1084	884	821	1523
65°	1151	881	580	467	457	1141
75°	614	380	267	244	240	649
85°	143	73	63	63	63	165
90°	1	13	22	27	29	11
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	645	672	168	89	617
125°	885	900	920	928	931	790
135°	1096	1113	1123	1134	1132	846
145°	1271	1270	1288	1296	1291	795
155°	1400	1390	1403	1409	1401	645
165°	1475	1468	1471	1479	1471	417
175°	1508	1501	1503	1511	1500	144
180°	1505	1505	1505	1505	1505	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3686.6	3686.6	3686.6	3686.6	3686.6
2.5°	3703.2	3686.6	3649.8	3683.4	3676.7
5°	3686.6	3670.0	3626.4	3656.6	3646.6
7.5°	3656.6	3636.7	3589.9	3603.1	3586.5
10°	3616.5	3593.2	3526.6	3516.4	3496.6
12.5°	3566.7	3536.5	3446.2	3426.4	3389.6
15°	3506.5	3469.6	3356.3	3293.0	3259.7
17.5°	3436.3	3382.9	3242.8	3169.5	3116.0
20°	3356.3	3289.4	3122.7	3039.6	2965.9
22.5°	3269.6	3192.8	2999.2	2886.0	2836.0
25°	3182.9	3076.1	2855.8	2719.2	2669.0
27.5°	3079.5	2965.9	2722.4	2565.6	2488.8
30°	2969.5	2842.4	2575.5	2405.6	2315.4
32.5°	2862.6	2708.9	2435.7	2235.4	2151.8
35°	2742.5	2572.3	2278.9	2068.6	1995.0
37.5°	2625.8	2442.0	2132.0	1901.6	1818.3
40°	2502.2	2302.3	1978.4	1741.5	1654.8
42.5°	2375.5	2162.0	1825.1	1578.0	1494.8
45°	2242.0	2018.3	1668.3	1431.1	1351.1
47.5°	2115.4	1878.6	1518.2	1281.0	1207.8
50°	1975.2	1738.3	1371.3	1140.9	1071.1
52.5°	1838.1	1587.9	1231.1	1010.9	947.6
55°	1704.7	1444.6	1084.2	884.2	820.8
57.5°	1568.1	1301.2	954.4	767.4	714.0
60°	1427.9	1161.0	817.3	647.4	594.0
62.5°	1291.3	1024.4	700.5	540.6	514.0
65°	1151.1	880.7	580.5	467.2	457.0
67.5°	1017.7	747.2	467.2	410.2	400.3
70°	877.5	617.4	386.9	353.6	340.2
72.5°	744.0	496.9	323.5	296.9	290.3
75°	613.8	380.2	266.9	243.5	240.3
77.5°	483.9	270.1	210.2	196.8	190.1
80°	363.5	193.7	160.0	146.9	146.9
82.5°	253.4	130.2	110.1	103.4	103.4
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.5	48.0	46.8
97.5°	127.4	38.2	55.5	58.9	59.9
100°	192.9	43.6	62.1	70.7	73.0
102.5°	264.7	262.5	64.3	76.2	79.6
105°	331.1	363.8	66.5	78.4	82.8
107.5°	408.4	435.6	68.7	80.5	85.0
110°	482.6	505.3	190.6	81.7	86.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.2	571.8	553.3	83.8	87.1
115°	626.3	644.7	672.0	167.8	89.4
117.5°	690.5	712.3	730.9	575.0	289.7
120°	762.4	778.7	798.3	811.5	664.4
122.5°	823.3	840.8	862.7	869.2	870.3
125°	885.4	899.7	920.4	927.9	931.2
127.5°	942.0	957.3	973.8	984.6	985.7
130°	995.5	1013.0	1024.8	1036.9	1035.9
132.5°	1050.0	1064.2	1076.0	1085.9	1084.9
135°	1095.7	1113.2	1122.8	1133.9	1131.7
137.5°	1143.5	1156.7	1167.6	1178.5	1175.3
140°	1190.4	1199.2	1211.1	1220.9	1215.5
142.5°	1229.7	1237.4	1251.5	1260.1	1254.7
145°	1271.1	1269.9	1288.4	1296.1	1290.6
147.5°	1307.0	1303.7	1322.2	1327.7	1323.4
150°	1341.8	1334.3	1351.6	1358.2	1352.7
152.5°	1371.2	1362.5	1378.9	1385.5	1377.8
155°	1399.5	1389.8	1402.8	1409.4	1400.7
157.5°	1422.4	1413.7	1423.5	1431.2	1422.4
160°	1442.1	1435.5	1442.1	1448.5	1440.9
162.5°	1459.4	1453.0	1458.3	1466.0	1456.2
165°	1474.7	1468.2	1471.4	1479.0	1471.4
167.5°	1486.7	1480.1	1483.5	1491.1	1481.3
170°	1496.5	1489.9	1492.1	1499.7	1489.9
172.5°	1503.0	1496.5	1498.7	1506.3	1496.5
175°	1508.5	1500.8	1503.0	1510.6	1499.7
177.5°	1510.6	1503.0	1504.2	1511.8	1501.9
180°	1505.2	1505.2	1505.2	1505.2	1505.2



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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	11.80	12.76	12.65	13.61	14.69	7.78	8.73	8.62	9.59	10.66
	3H	13.49	14.34	14.35	15.21	16.31	8.98	9.83	9.83	10.70	11.80
	4H	14.11	14.91	14.98	15.78	16.89	9.43	10.24	10.31	11.11	12.22
	6H	14.53	15.27	15.42	16.16	17.28	9.76	10.50	10.65	11.38	12.51
	8H	14.67	15.37	15.56	16.27	17.39	9.86	10.56	10.75	11.46	12.58
	12H	14.73	15.40	15.63	16.29	17.44	9.91	10.57	10.80	11.47	12.62
4H	2H	11.84	12.64	12.71	13.51	14.62	8.39	9.19	9.26	10.07	11.18
	3H	13.68	14.35	14.57	15.25	16.38	9.75	10.42	10.64	11.32	12.45
	4H	14.38	14.98	15.27	15.89	17.04	10.30	10.91	11.20	11.81	12.97
	6H	14.90	15.42	15.81	16.35	17.50	10.73	11.25	11.65	12.18	13.34
	8H	15.08	15.57	15.99	16.49	17.65	10.86	11.35	11.78	12.27	13.44
	12H	15.18	15.62	16.11	16.56	17.73	10.94	11.38	11.87	12.32	13.49
8H	4H	14.35	14.84	15.27	15.76	16.93	10.59	11.08	11.51	12.00	13.17
	6H	14.93	15.33	15.87	16.29	17.46	11.12	11.52	12.06	12.49	13.65
	8H	15.14	15.50	16.09	16.45	17.64	11.31	11.67	12.26	12.62	13.81
	12H	15.29	15.60	16.24	16.55	17.78	11.44	11.75	12.39	12.70	13.93
12H	4H	14.31	14.75	15.25	15.69	16.86	10.60	11.04	11.54	11.98	13.16
	6H	14.90	15.26	15.85	16.21	17.40	11.17	11.53	12.12	12.48	13.66
	8H	15.13	15.44	16.08	16.39	17.62	11.39	11.70	12.34	12.65	13.88