

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: P929160

Luminaire Tested: DFN2DIP-HX4F0-040D090US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929160
REPORT IS A COMBINATION OF REPORTS P900909 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

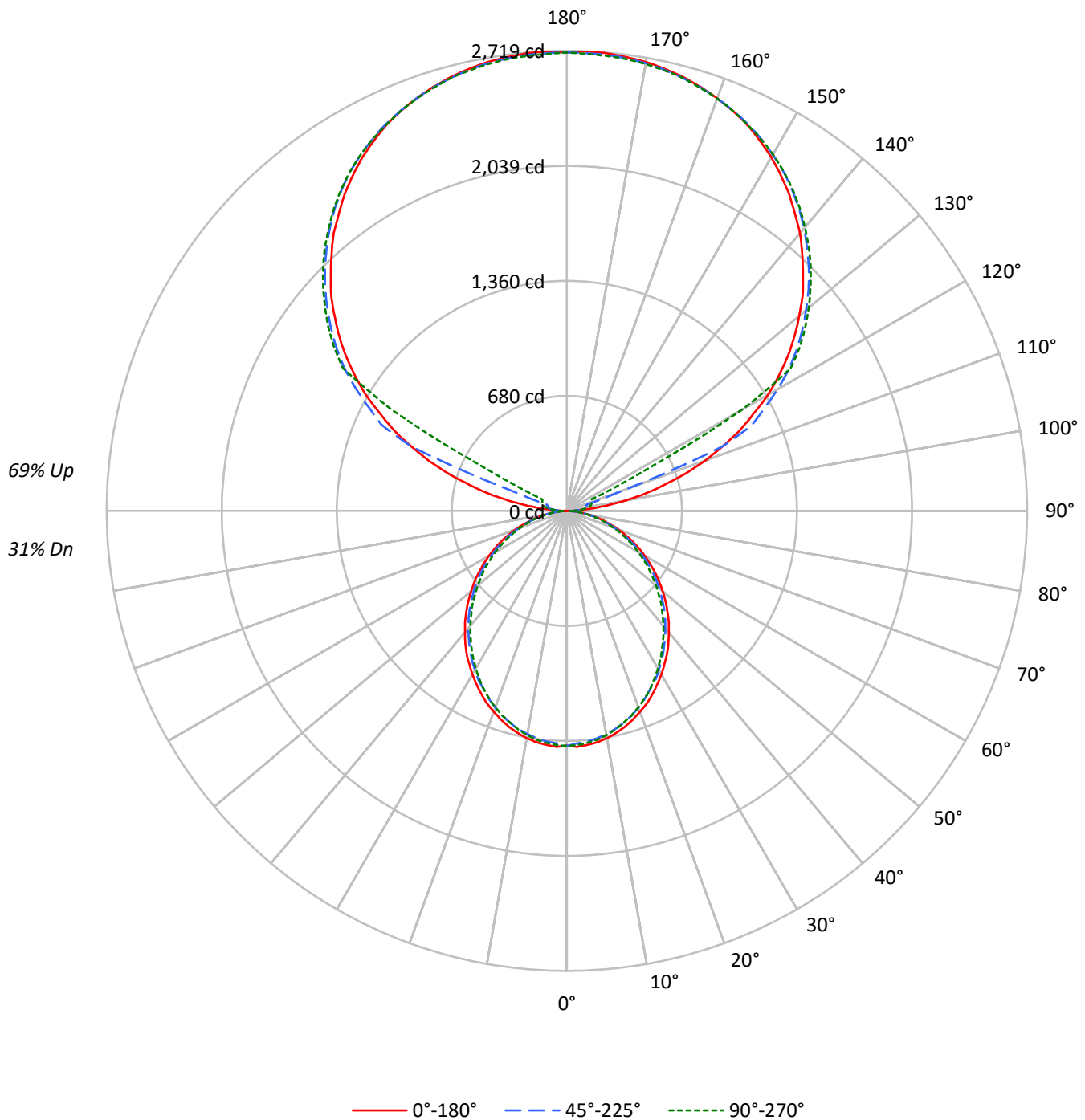
Lumens per Lamp: N/A
Luminaire Lumens: 11480.1 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
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

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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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1032	1032	1032
5°	1034	1018	1025
10°	1026	1004	1011
15°	1011	988	989
20°	990	965	967
25°	970	938	942
30°	945	912	909
35°	921	882	875
40°	891	852	842
45°	862	821	808
50°	830	790	769
55°	796	753	734
60°	758	709	693
65°	717	663	645
70°	664	608	593
75°	590	542	545
80°	502	457	453
85°	365	312	301

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1390 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.7	1.1
10°-20°	367.6	3.2
20°-30°	540.3	4.7
30°-40°	627.5	5.5
40°-50°	626.8	5.5
50°-60°	546.5	4.8
60°-70°	404.0	3.5
70°-80°	228.6	2.0
80°-90°	65.1	0.6
90°-100°	89.3	0.8
100°-110°	333.0	2.9
110°-120°	883.3	7.7
120°-130°	1465.0	12.8
130°-140°	1556.2	13.6
140°-150°	1446.3	12.6
150°-160°	1162.8	10.1
160°-170°	749.2	6.5
170°-180°	257.9	2.2
0°-30°	1038.6	9.0
0°-40°	1666.2	14.5
0°-60°	2839.4	24.7
0°-90°	3537.1	30.8
90°-120°	1305.7	11.4
90°-150°	5773.1	50.3
90°-180°	7943.0	69.2
0°-180°	11480.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1379	1376	132
15°	1322	1314	1296	1302	1295	372
25°	1196	1186	1163	1165	1163	550
35°	1032	1019	997	989	982	644
45°	840	830	810	796	790	648
55°	636	627	612	595	589	568
65°	429	420	407	395	389	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	2	24	39	49	53	11
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1210	302	161	1110
125°	1594	1619	1657	1670	1676	1421
135°	1972	2004	2021	2041	2037	1524
145°	2288	2286	2319	2333	2323	1431
155°	2519	2502	2525	2537	2521	1161
165°	2654	2643	2649	2662	2649	750
175°	2715	2701	2705	2719	2700	258
180°	2709	2709	2709	2709	2709	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1388.3	1388.3	1388.3	1388.3	1388.3
2.5°	1396.4	1389.7	1375.0	1388.3	1385.8
5°	1388.3	1383.0	1368.3	1378.9	1376.4
7.5°	1378.9	1371.0	1356.3	1367.1	1364.4
10°	1364.4	1355.0	1339.1	1349.7	1345.7
12.5°	1344.2	1336.3	1320.3	1327.0	1324.3
15°	1321.6	1313.6	1296.3	1301.6	1295.0
17.5°	1293.6	1285.6	1268.2	1274.8	1268.2
20°	1262.8	1254.9	1236.2	1240.1	1235.0
22.5°	1232.2	1220.2	1202.8	1202.8	1200.1
25°	1196.1	1185.5	1162.8	1165.4	1162.8
27.5°	1156.0	1146.7	1129.5	1125.4	1118.8
30°	1116.1	1105.4	1085.4	1081.4	1076.0
32.5°	1073.3	1065.4	1044.0	1036.0	1030.5
35°	1032.0	1018.7	997.3	989.2	982.5
37.5°	985.2	973.2	951.8	942.5	935.8
40°	937.2	926.4	905.0	893.2	887.8
42.5°	890.5	879.7	858.5	845.0	837.1
45°	839.7	830.5	810.3	795.8	790.3
47.5°	790.3	780.9	759.6	744.9	737.0
50°	738.2	731.5	712.9	694.2	687.5
52.5°	687.5	678.2	660.9	646.2	636.8
55°	635.6	627.4	611.5	595.4	588.8
57.5°	583.4	576.8	559.3	543.3	538.0
60°	531.3	526.0	507.4	492.7	488.6
62.5°	480.6	471.2	458.0	444.6	439.2
65°	428.6	420.5	407.2	395.2	388.6
67.5°	375.2	368.4	356.5	347.2	341.8
70°	325.8	320.4	308.4	299.0	293.7
72.5°	275.1	269.7	263.1	253.7	249.7
75°	224.2	221.7	214.9	206.9	209.6
77.5°	178.8	173.5	170.8	166.8	162.9
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.6	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.4	62.6	76.4	86.3	84.3
97.5°	229.3	68.7	99.9	105.9	107.8
100°	347.1	78.5	111.8	127.4	131.3
102.5°	476.3	472.6	115.7	137.1	143.2
105°	595.9	654.9	119.6	141.1	149.0
107.5°	735.2	784.1	123.6	145.0	153.0
110°	868.5	909.6	343.2	147.1	154.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	994.0	1029.2	995.9	150.8	156.9
115°	1127.2	1160.5	1209.6	301.9	160.8
117.5°	1242.9	1282.1	1315.5	1035.1	521.5
120°	1372.3	1401.7	1437.1	1460.6	1195.9
122.5°	1482.1	1513.5	1552.8	1564.4	1566.5
125°	1593.7	1619.3	1656.6	1670.4	1676.2
127.5°	1695.7	1723.2	1752.8	1772.3	1774.2
130°	1791.8	1823.3	1844.7	1866.3	1864.5
132.5°	1889.9	1915.5	1936.9	1954.6	1952.8
135°	1972.3	2003.7	2021.2	2041.0	2037.1
137.5°	2058.5	2081.9	2101.7	2121.3	2115.5
140°	2142.7	2158.6	2180.0	2197.6	2187.9
142.5°	2213.5	2227.2	2252.6	2268.2	2258.5
145°	2288.0	2285.8	2319.2	2332.9	2323.1
147.5°	2352.5	2346.7	2379.9	2389.8	2382.0
150°	2415.4	2401.6	2433.0	2444.6	2434.9
152.5°	2468.2	2452.6	2481.9	2493.8	2480.0
155°	2519.2	2501.7	2525.2	2536.8	2521.2
157.5°	2560.4	2544.8	2562.4	2576.2	2560.4
160°	2595.7	2583.9	2595.7	2607.4	2593.7
162.5°	2626.9	2615.3	2625.1	2638.8	2621.1
165°	2654.4	2642.7	2648.6	2662.4	2648.6
167.5°	2676.1	2664.2	2670.2	2683.9	2666.3
170°	2693.8	2681.9	2685.8	2699.5	2681.9
172.5°	2705.4	2693.8	2697.7	2711.4	2693.8
175°	2715.2	2701.4	2705.4	2719.1	2699.5
177.5°	2719.1	2705.4	2707.5	2721.2	2703.6
180°	2709.4	2709.4	2709.4	2709.4	2709.4

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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	5.28	5.99	6.39	7.09	8.61	4.85	5.56	5.95	6.66	8.18
	3H	6.93	7.57	8.04	8.68	10.22	6.46	7.09	7.57	8.20	9.74
	4H	7.51	8.12	8.64	9.23	10.77	7.04	7.64	8.16	8.75	10.30
	6H	7.90	8.46	9.04	9.57	11.13	7.43	7.98	8.56	9.10	10.65
	8H	8.00	8.53	9.14	9.66	11.21	7.53	8.06	8.66	9.19	10.74
	12H	8.05	8.55	9.19	9.67	11.24	7.57	8.07	8.71	9.19	10.76
4H	2H	5.72	6.33	6.86	7.44	8.98	5.38	5.98	6.51	7.09	8.64
	3H	7.58	8.08	8.71	9.22	10.78	7.18	7.69	8.32	8.83	10.38
	4H	8.29	8.75	9.43	9.88	11.45	7.88	8.34	9.02	9.47	11.05
	6H	8.79	9.19	9.94	10.34	11.91	8.38	8.78	9.53	9.93	11.50
	8H	8.94	9.31	10.09	10.45	12.04	8.53	8.90	9.67	10.04	11.62
	12H	9.01	9.34	10.17	10.50	12.08	8.58	8.92	9.75	10.07	11.66
8H	4H	8.47	8.84	9.62	9.98	11.57	8.11	8.48	9.26	9.62	11.21
	6H	9.10	9.40	10.26	10.59	12.17	8.73	9.04	9.90	10.22	11.80
	8H	9.32	9.58	10.49	10.75	12.35	8.95	9.21	10.12	10.38	11.98
	12H	9.44	9.68	10.62	10.84	12.47	9.06	9.29	10.23	10.45	12.09
12H	4H	8.45	8.79	9.61	9.94	11.53	8.10	8.43	9.26	9.59	11.17
	6H	9.13	9.39	10.30	10.56	12.16	8.77	9.04	9.95	10.20	11.80
	8H	9.36	9.60	10.54	10.76	12.39	9.00	9.24	10.18	10.40	12.03

END OF REPORT