

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: P928990

Luminaire Tested: DFN2DIP-HX4F0-080D110US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928990
REPORT IS A COMBINATION OF REPORTS P900954 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

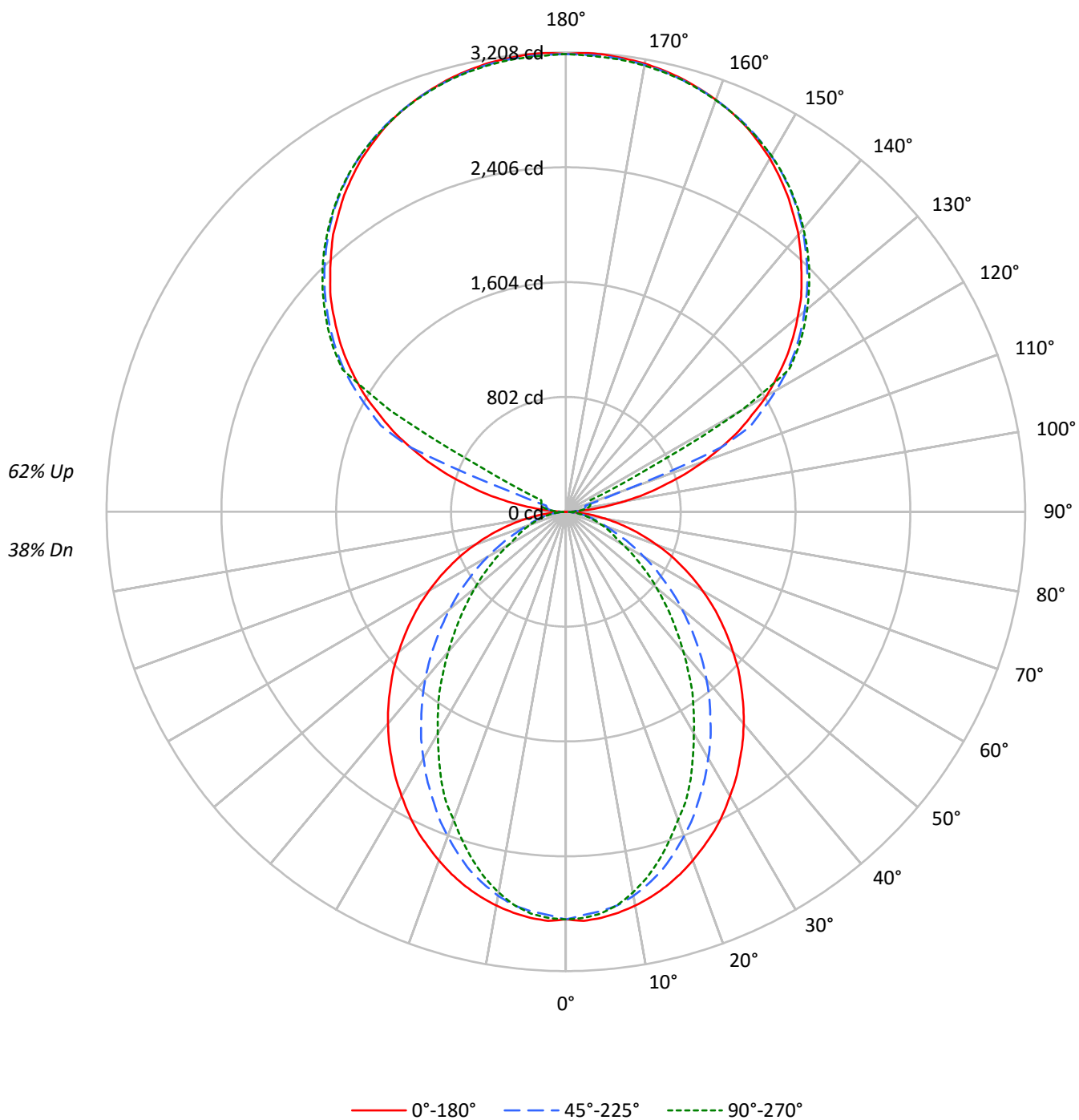
Lumens per Lamp: N/A
Luminaire Lumens: 15231.1 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLLONL

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	50	30	10
RCR																				
0	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38		
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33		
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28		
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24		
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21		
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19		
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17		
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15		
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13		
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12		
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2117	2117	2117
5°	2120	2083	2097
10°	2100	2043	2028
15°	2071	1975	1923
20°	2033	1883	1794
25°	1994	1778	1669
30°	1941	1672	1510
35°	1890	1557	1371
40°	1838	1438	1212
45°	1777	1306	1067
50°	1714	1173	926
55°	1649	1030	790
60°	1573	882	650
65°	1486	730	585
70°	1380	589	530
75°	1248	520	482
80°	1056	437	419
85°	738	293	315

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1777 cd/sqm

TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	1.8
10°-20°	732.4	4.8
20°-30°	1028.3	6.8
30°-40°	1120.9	7.4
40°-50°	1030.3	6.8
50°-60°	809.1	5.3
60°-70°	526.6	3.5
70°-80°	271.1	1.8
80°-90°	74.8	0.5
90°-100°	105.4	0.7
100°-110°	392.9	2.6
110°-120°	1042.0	6.8
120°-130°	1728.3	11.3
130°-140°	1835.9	12.1
140°-150°	1706.2	11.2
150°-160°	1371.8	9.0
160°-170°	883.9	5.8
170°-180°	304.2	2.0
0°-30°	2027.6	13.3
0°-40°	3148.5	20.7
0°-60°	4987.9	32.7
0°-90°	5860.4	38.5
90°-120°	1540.3	10.1
90°-150°	6810.7	44.7
90°-180°	9371.0	61.5
0°-180°	15231.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	2	28	46	58	62	14
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	

TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.7	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.9	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.2
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2190.0
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.9	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.2	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6

TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.3	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.9	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.9	2363.9	2384.5	2407.9	2403.1
137.5°	2428.5	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.6
152.5°	2911.8	2893.4	2928.0	2942.0	2925.9
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.1	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.7	3140.8	3124.7
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3178.0	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3178.0	3182.6	3198.8	3178.0
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4

TEST NUMBER: P928990

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US935-RLONL

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	8.57	9.32	9.63	10.37	11.80	4.55	5.29	5.60	6.35	7.78
	3H	10.24	10.91	11.31	11.97	13.42	5.73	6.40	6.80	7.46	8.91
	4H	10.85	11.48	11.93	12.55	14.00	6.18	6.81	7.25	7.87	9.33
	6H	11.27	11.85	12.35	12.92	14.38	6.50	7.08	7.58	8.15	9.61
	8H	11.39	11.94	12.48	13.03	14.49	6.58	7.14	7.68	8.22	9.68
	12H	11.45	11.98	12.55	13.05	14.54	6.63	7.15	7.72	8.23	9.71
4H	2H	8.58	9.21	9.66	10.28	11.73	5.13	5.76	6.22	6.83	8.28
	3H	10.40	10.93	11.49	12.02	13.49	6.48	7.00	7.57	8.09	9.56
	4H	11.09	11.57	12.19	12.66	14.15	7.02	7.50	8.12	8.59	10.07
	6H	11.60	12.02	12.71	13.12	14.61	7.44	7.85	8.54	8.96	10.44
	8H	11.78	12.16	12.88	13.26	14.76	7.57	7.95	8.67	9.05	10.55
	12H	11.87	12.22	12.99	13.33	14.83	7.63	7.98	8.75	9.09	10.59
8H	4H	11.06	11.44	12.16	12.54	14.04	7.30	7.68	8.40	8.78	10.28
	6H	11.62	11.94	12.74	13.08	14.57	7.81	8.13	8.94	9.27	10.77
	8H	11.84	12.11	12.97	13.24	14.75	8.01	8.28	9.14	9.41	10.92
	12H	11.97	12.22	13.11	13.33	14.89	8.12	8.37	9.26	9.49	11.04
12H	4H	11.00	11.35	12.12	12.46	13.97	7.30	7.64	8.42	8.76	10.26
	6H	11.59	11.87	12.73	12.99	14.51	7.86	8.14	8.99	9.26	10.78
	8H	11.81	12.06	12.95	13.17	14.73	8.07	8.32	9.21	9.43	10.99

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

8 of 8