

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: P916413

Luminaire Tested: DFN2DIP-HX4F0-080D110US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916413
REPORT IS A COMBINATION OF REPORTS P899434 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

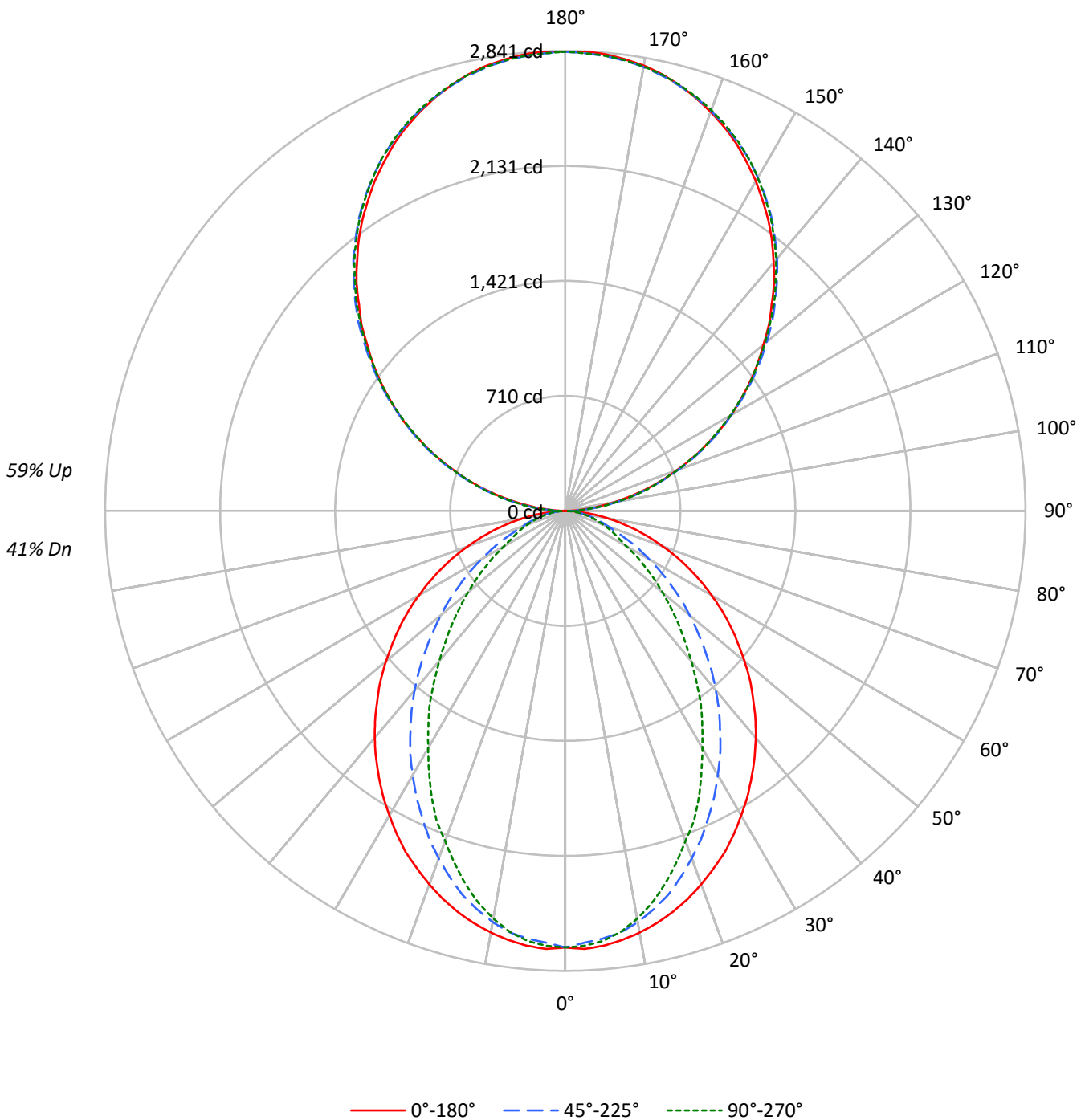
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13480.9 lumens
Efficiency: N/A
Efficacy: 95.0 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: General Diffuse

Input Watts (W): 141.9
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: P916413
CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLFL

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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48	48	48	48	41
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35	35	35	35	30
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31	31	31	31	26
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27	27	27	27	23
5	68	57	49	43	62	52	45	40	43	38	34	36	32	29	28	26	23	23	23	23	20
6	63	51	43	37	57	47	40	35	39	34	30	32	28	25	26	23	21	21	21	21	18
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	23	21	19	19	19	19	16
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	22	19	17	17	17	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	19	16	14	14	14	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2004	2004	2004
5°	2008	1973	1985
10°	1988	1934	1921
15°	1961	1871	1821
20°	1925	1783	1699
25°	1888	1684	1580
30°	1838	1583	1430
35°	1790	1474	1298
40°	1740	1362	1147
45°	1683	1237	1010
50°	1623	1111	876
55°	1561	976	748
60°	1490	835	616
65°	1407	691	554
70°	1307	558	502
75°	1182	492	457
80°	1000	414	396
85°	699	277	299

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2138 cd/sqm



TEST NUMBER: P916413

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	1.9
10°-20°	693.6	5.1
20°-30°	973.7	7.2
30°-40°	1061.4	7.9
40°-50°	975.6	7.2
50°-60°	766.2	5.7
60°-70°	498.7	3.7
70°-80°	256.7	1.9
80°-90°	73.6	0.5
90°-100°	175.5	1.3
100°-110°	557.7	4.1
110°-120°	954.3	7.1
120°-130°	1255.1	9.3
130°-140°	1408.8	10.5
140°-150°	1381.5	10.2
150°-160°	1158.9	8.6
160°-170°	768.5	5.7
170°-180°	268.6	2.0
0°-30°	1919.9	14.2
0°-40°	2981.4	22.1
0°-60°	4723.1	35.0
0°-90°	5552.1	41.2
90°-120°	1687.5	12.5
90°-150°	5732.8	42.5
90°-180°	7929.0	58.8
0°-180°	13480.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2696	2696	2696	2696	2696	
5°	2696	2684	2652	2674	2666	256
15°	2564	2537	2454	2408	2384	722
25°	2327	2249	2088	1988	1952	1070
35°	2005	1881	1666	1513	1459	1255
45°	1639	1476	1220	1046	988	1266
55°	1246	1056	793	646	600	1114
65°	842	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	31	84	79	81	13
95°	125	149	153	153	149	139
105°	515	522	527	531	531	543
115°	958	971	967	965	958	947
125°	1393	1414	1407	1400	1397	1245
135°	1802	1828	1833	1831	1824	1393
145°	2187	2204	2218	2221	2211	1367
155°	2501	2508	2516	2528	2520	1151
165°	2721	2718	2718	2735	2723	768
175°	2831	2824	2819	2836	2822	269
180°	2836	2836	2836	2836	2836	



TEST NUMBER: P916413

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2695.7	2695.7	2695.7	2695.7	2695.7
2.5°	2707.9	2695.7	2668.8	2693.3	2688.4
5°	2695.7	2683.6	2651.7	2673.7	2666.4
7.5°	2673.7	2659.2	2625.0	2634.6	2622.4
10°	2644.4	2627.4	2578.7	2571.2	2556.7
12.5°	2608.0	2586.0	2519.9	2505.4	2478.5
15°	2563.9	2537.0	2454.2	2407.9	2383.5
17.5°	2512.7	2473.6	2371.1	2317.6	2278.4
20°	2454.2	2405.3	2283.4	2222.6	2168.7
22.5°	2390.8	2334.6	2193.1	2110.2	2073.7
25°	2327.4	2249.2	2088.2	1988.3	1951.6
27.5°	2251.8	2168.7	1990.6	1876.0	1819.8
30°	2171.3	2078.4	1883.3	1759.0	1693.0
32.5°	2093.1	1980.8	1781.0	1634.5	1573.4
35°	2005.4	1880.9	1666.3	1512.6	1458.7
37.5°	1919.9	1785.7	1558.9	1390.4	1329.6
40°	1829.7	1683.4	1446.6	1273.4	1210.0
42.5°	1737.0	1580.9	1334.5	1153.9	1093.0
45°	1639.4	1475.9	1219.8	1046.4	988.0
47.5°	1546.8	1373.6	1110.1	936.7	883.1
50°	1444.2	1271.1	1002.7	834.2	783.2
52.5°	1344.1	1161.1	900.2	739.2	692.9
55°	1246.5	1056.3	792.8	646.5	600.2
57.5°	1146.6	951.5	697.8	561.2	522.0
60°	1044.1	849.0	597.6	473.4	434.3
62.5°	944.2	749.0	512.3	395.3	375.9
65°	841.7	643.9	424.4	341.7	334.1
67.5°	744.1	546.4	341.7	299.9	292.8
70°	641.6	451.4	282.9	258.5	248.7
72.5°	544.0	363.4	236.6	217.2	212.2
75°	448.8	278.0	195.2	178.1	175.8
77.5°	353.8	197.5	153.8	143.9	139.0
80°	265.8	141.6	117.0	107.4	107.4
82.5°	185.3	95.2	80.5	75.6	75.6
85°	104.8	53.6	46.3	46.3	46.3
87.5°	39.1	19.4	19.4	17.1	17.1
90°	2.5	30.8	83.8	78.7	81.2
92.5°	53.0	71.8	74.4	77.0	77.0
95°	124.8	148.8	153.0	153.0	148.8
97.5°	207.8	230.0	239.5	239.5	239.5
100°	303.5	323.2	330.0	330.0	327.5
102.5°	404.5	419.0	428.4	431.0	428.4
105°	514.8	521.6	526.8	531.0	531.0
107.5°	624.2	634.5	634.5	636.2	624.2
110°	730.3	744.0	744.0	744.0	737.1



TEST NUMBER: P916413

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	844.8	859.3	856.8	849.9	844.8
115°	957.7	971.3	967.1	964.6	957.7
117.5°	1069.8	1088.5	1076.5	1069.8	1062.9
120°	1182.6	1201.4	1182.6	1182.6	1174.9
122.5°	1285.2	1309.1	1297.1	1290.3	1285.2
125°	1392.9	1414.3	1407.4	1399.8	1397.2
127.5°	1498.1	1524.6	1515.2	1505.0	1498.1
130°	1596.4	1627.3	1622.9	1617.8	1608.4
132.5°	1706.7	1730.7	1732.4	1720.4	1713.6
135°	1801.6	1828.1	1833.3	1830.8	1823.9
137.5°	1907.7	1929.1	1933.3	1931.6	1921.4
140°	2000.9	2022.3	2034.3	2034.3	2024.9
142.5°	2096.7	2118.1	2124.9	2127.4	2118.1
145°	2187.3	2204.4	2218.1	2220.6	2211.3
147.5°	2268.6	2289.9	2300.2	2304.4	2295.1
150°	2352.4	2366.9	2376.3	2384.0	2376.3
152.5°	2426.7	2441.2	2453.2	2462.7	2453.2
155°	2501.2	2507.9	2515.7	2527.7	2519.9
157.5°	2565.3	2570.4	2574.6	2591.8	2579.8
160°	2622.6	2627.7	2630.2	2644.8	2634.6
162.5°	2675.6	2675.6	2678.2	2694.4	2682.4
165°	2720.9	2718.3	2718.3	2735.4	2723.4
167.5°	2761.9	2754.2	2754.2	2771.4	2759.4
170°	2792.7	2785.9	2783.3	2800.4	2785.9
172.5°	2814.1	2807.2	2804.7	2821.8	2807.2
175°	2831.2	2824.4	2819.2	2836.3	2821.8
177.5°	2840.6	2833.7	2828.6	2843.2	2828.6
180°	2836.3	2836.3	2836.3	2836.3	2836.3



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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	8.68	9.44	9.72	10.48	11.87	4.65	5.42	5.69	6.45	7.85
	3H	10.35	11.04	11.40	12.08	13.50	5.84	6.52	6.88	7.57	8.98
	4H	10.96	11.60	12.02	12.65	14.07	6.29	6.93	7.34	7.98	9.40
	6H	11.38	11.97	12.44	13.02	14.46	6.61	7.20	7.67	8.25	9.69
	8H	11.50	12.07	12.57	13.14	14.56	6.70	7.26	7.77	8.33	9.76
	12H	11.56	12.10	12.64	13.16	14.61	6.74	7.27	7.81	8.34	9.79
4H	2H	8.69	9.34	9.75	10.38	11.81	5.24	5.89	6.30	6.94	8.36
	3H	10.51	11.05	11.58	12.13	13.56	6.59	7.12	7.66	8.20	9.63
	4H	11.20	11.70	12.28	12.76	14.22	7.13	7.63	8.21	8.69	10.15
	6H	11.72	12.14	12.80	13.23	14.68	7.55	7.97	8.64	9.06	10.51
	8H	11.89	12.29	12.98	13.37	14.83	7.68	8.07	8.76	9.16	10.62
	12H	11.98	12.34	13.09	13.44	14.91	7.74	8.10	8.84	9.19	10.66
8H	4H	11.17	11.56	12.25	12.64	14.11	7.41	7.80	8.49	8.89	10.35
	6H	11.73	12.06	12.84	13.18	14.64	7.93	8.25	9.03	9.38	10.84
	8H	11.95	12.23	13.06	13.34	14.82	8.12	8.40	9.23	9.51	10.99
	12H	12.09	12.34	13.20	13.44	14.96	8.24	8.49	9.35	9.59	11.11
12H	4H	11.12	11.47	12.22	12.57	14.04	7.41	7.77	8.51	8.86	10.33
	6H	11.71	11.99	12.82	13.10	14.58	7.98	8.26	9.09	9.37	10.85
	8H	11.93	12.18	13.04	13.28	14.80	8.19	8.44	9.30	9.54	11.06