

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: P919131

Luminaire Tested: DFN2DIP-HX4F0-080D060US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

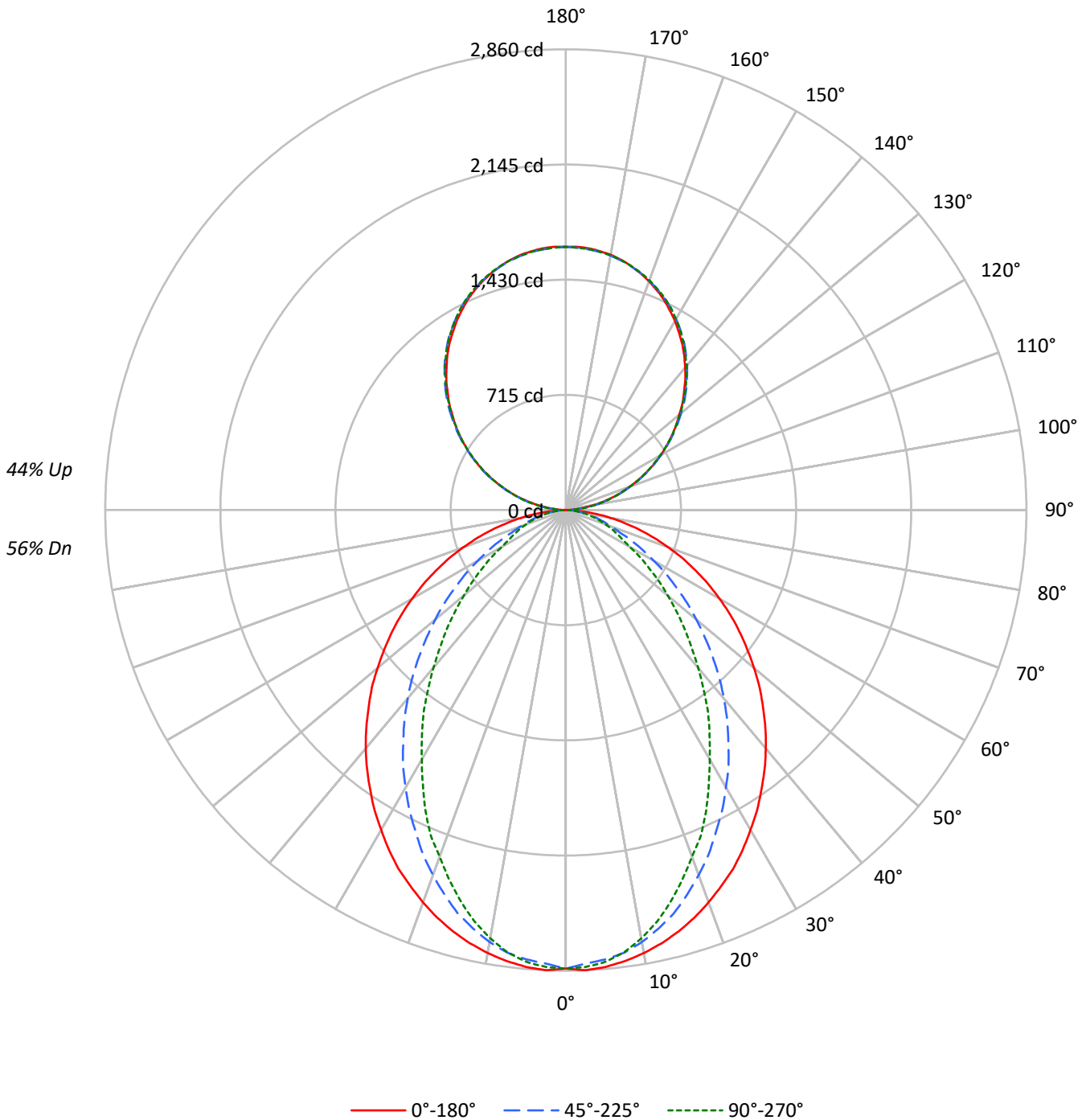
Test Method: LM-79-2019  
Report Number: P919131  
REPORT IS A COMBINATION OF REPORTS P899344 AND P896188  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX4F0-080D060US935-RLLFLL  
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10426.7 lumens  
Efficiency: N/A  
Efficacy: 94.2 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): 110.7  
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

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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
RCR																				
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56		
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53	48		
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46	41		
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40	36		
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35	31		
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30	27		
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27	24		
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24	22		
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22	20		
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20	18		
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18	16		

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2117	2117	2117
5°	2120	2083	2097
10°	2099	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



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.8	2.6
10°-20°	732.4	7.0
20°-30°	1028.3	9.9
30°-40°	1120.9	10.8
40°-50°	1030.3	9.9
50°-60°	809.1	7.8
60°-70°	526.6	5.1
70°-80°	271.1	2.6
80°-90°	73.9	0.7
90°-100°	101.1	1.0
100°-110°	321.2	3.1
110°-120°	549.7	5.3
120°-130°	723.0	6.9
130°-140°	811.5	7.8
140°-150°	795.8	7.6
150°-160°	667.5	6.4
160°-170°	442.7	4.2
170°-180°	154.7	1.5
0°-30°	2027.6	19.4
0°-40°	3148.5	30.2
0°-60°	4987.8	47.8
0°-90°	5859.4	56.2
90°-120°	972.0	9.3
90°-150°	3302.3	31.7
90°-180°	4567.0	43.8
0°-180°	10426.7	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	18	48	45	47	10
95°	72	86	88	88	86	80
105°	296	300	303	306	306	313
115°	552	560	557	556	552	546
125°	802	815	811	806	805	717
135°	1038	1053	1056	1055	1051	802
145°	1260	1270	1278	1279	1274	787
155°	1441	1445	1449	1456	1452	663
165°	1567	1566	1566	1576	1569	442
175°	1631	1627	1624	1634	1625	155
180°	1634	1634	1634	1634	1634	



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**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°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
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	1880.8	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	1226.1	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°	1.5	17.7	48.3	45.3	46.8
92.5°	30.6	41.4	42.9	44.3	44.3
95°	71.9	85.7	88.2	88.2	85.7
97.5°	119.7	132.5	137.9	137.9	137.9
100°	174.9	186.1	190.1	190.1	188.6
102.5°	233.0	241.3	246.8	248.2	246.8
105°	296.5	300.5	303.4	305.9	305.9
107.5°	359.6	365.5	365.5	366.4	359.6
110°	420.7	428.5	428.5	428.5	424.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	486.6	495.0	493.5	489.6	486.6
115°	551.6	559.6	557.1	555.6	551.6
117.5°	616.2	627.1	620.1	616.2	612.3
120°	681.2	692.1	681.2	681.2	676.7
122.5°	740.3	754.1	747.2	743.3	740.3
125°	802.4	814.7	810.7	806.3	804.9
127.5°	863.0	878.2	872.8	866.9	863.0
130°	919.6	937.4	934.9	931.9	926.5
132.5°	983.2	996.9	997.9	991.0	987.0
135°	1037.8	1053.1	1056.0	1054.6	1050.6
137.5°	1098.9	1111.2	1113.7	1112.7	1106.8
140°	1152.6	1164.9	1171.8	1171.8	1166.4
142.5°	1207.7	1220.0	1224.0	1225.5	1220.0
145°	1260.0	1269.8	1277.7	1279.2	1273.8
147.5°	1306.7	1319.0	1325.0	1327.4	1322.0
150°	1355.0	1363.4	1368.8	1373.2	1368.8
152.5°	1397.8	1406.3	1413.2	1418.6	1413.2
155°	1440.7	1444.7	1449.1	1456.0	1451.6
157.5°	1477.6	1480.7	1483.1	1493.0	1486.1
160°	1510.7	1513.6	1515.1	1523.4	1517.6
162.5°	1541.2	1541.2	1542.6	1552.0	1545.1
165°	1567.3	1565.8	1565.8	1575.7	1568.8
167.5°	1591.0	1586.6	1586.6	1596.4	1589.5
170°	1608.7	1604.7	1603.3	1613.1	1604.7
172.5°	1621.0	1617.0	1615.6	1625.4	1617.0
175°	1630.8	1626.9	1623.9	1633.8	1625.4
177.5°	1636.2	1632.4	1629.4	1637.7	1629.4
180°	1633.8	1633.8	1633.8	1633.8	1633.8



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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	10.31	11.20	11.22	12.12	13.30	6.29	7.17	7.19	8.09	9.27
	3H	11.99	12.78	12.92	13.72	14.93	7.48	8.27	8.40	9.20	10.41
	4H	12.61	13.35	13.54	14.29	15.51	7.93	8.68	8.87	9.62	10.83
	6H	13.03	13.72	13.98	14.66	15.89	8.26	8.95	9.21	9.89	11.12
	8H	13.16	13.81	14.11	14.77	16.00	8.35	9.01	9.31	9.97	11.19
	12H	13.22	13.85	14.18	14.80	16.05	8.40	9.02	9.36	9.97	11.23
4H	2H	10.34	11.08	11.28	12.02	13.24	6.89	7.63	7.83	8.57	9.79
	3H	12.17	12.79	13.12	13.76	14.99	8.24	8.86	9.20	9.83	11.06
	4H	12.87	13.43	13.83	14.40	15.65	8.80	9.36	9.76	10.32	11.58
	6H	13.39	13.87	14.36	14.86	16.11	9.22	9.71	10.19	10.69	11.95
	8H	13.56	14.02	14.54	15.00	16.27	9.35	9.81	10.33	10.78	12.05
	12H	13.66	14.07	14.66	15.07	16.34	9.42	9.83	10.41	10.83	12.10
8H	4H	12.84	13.29	13.82	14.27	15.54	9.08	9.54	10.06	10.51	11.78
	6H	13.41	13.78	14.41	14.81	16.07	9.60	9.98	10.60	11.00	12.27
	8H	13.63	13.96	14.64	14.97	16.25	9.80	10.13	10.81	11.14	12.42
	12H	13.77	14.06	14.78	15.06	16.39	9.92	10.21	10.93	11.21	12.54
12H	4H	12.79	13.20	13.79	14.20	15.47	9.09	9.50	10.08	10.49	11.77
	6H	13.38	13.72	14.39	14.73	16.01	9.65	9.98	10.66	10.99	12.28
	8H	13.61	13.90	14.62	14.90	16.23	9.87	10.16	10.88	11.16	12.49