

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: P902499

Luminaire Tested: DFN2DIP-HX2F0-060D020US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902499
REPORT IS A COMBINATION OF REPORTS P900679 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-060D020US830-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

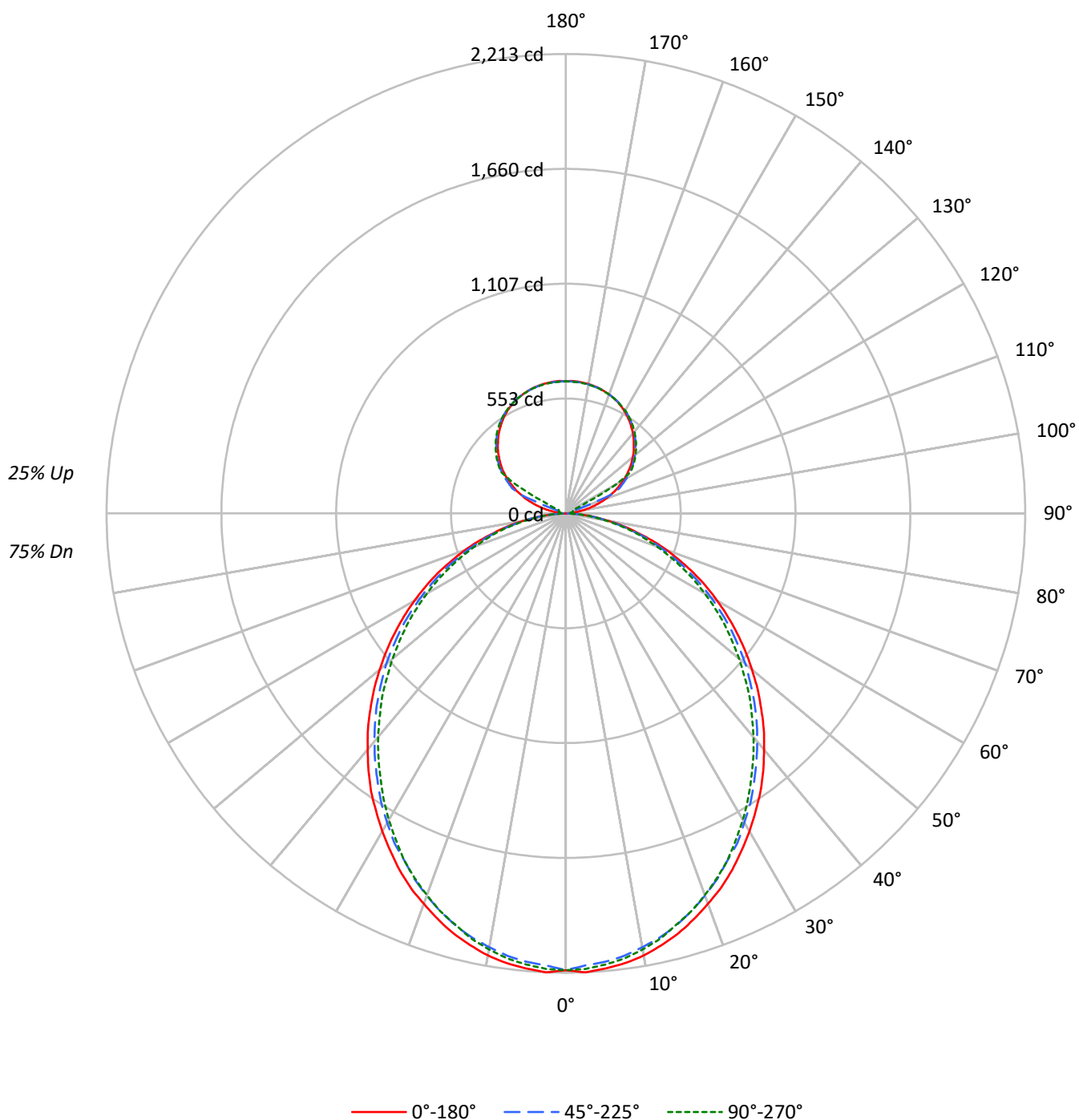
Lumens per Lamp: N/A
Luminaire Lumens: 7464.9 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 74.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41
5	72	60	52	46	69	58	50	44	53	46	41	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25
9	54	41	33	28	51	39	32	27	37	30	26	34	28	24	31	26	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5185	5185	5185
5°	5185	5100	5137
10°	5135	5019	5058
15°	5051	4924	4940
20°	4940	4797	4820
25°	4830	4648	4682
30°	4695	4508	4509
35°	4566	4345	4327
40°	4408	4179	4153
45°	4250	4013	3974
50°	4077	3838	3769
55°	3896	3636	3577
60°	3690	3399	3357
65°	3464	3151	3099
70°	3177	2848	2818
75°	2782	2485	2546
80°	2304	2023	2055
85°	1563	1270	1272

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4250 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	2.8
10°-20°	582.7	7.8
20°-30°	856.4	11.5
30°-40°	994.6	13.3
40°-50°	993.4	13.3
50°-60°	866.2	11.6
60°-70°	640.3	8.6
70°-80°	362.3	4.9
80°-90°	96.7	1.3
90°-100°	21.0	0.3
100°-110°	78.2	1.0
110°-120°	207.4	2.8
120°-130°	344.0	4.6
130°-140°	365.4	4.9
140°-150°	339.6	4.5
150°-160°	273.0	3.7
160°-170°	175.9	2.4
170°-180°	60.6	0.8
0°-30°	1646.2	22.1
0°-40°	2640.9	35.4
0°-60°	4500.5	60.3
0°-90°	5599.8	75.0
90°-120°	306.6	4.1
90°-150°	1355.6	18.2
90°-180°	1865.0	25.0
0°-180°	7464.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	0	6	9	12	12	7
95°	30	15	18	20	20	35
105°	140	154	28	33	35	150
115°	265	272	284	71	38	261
125°	374	380	389	392	394	334
135°	463	470	475	479	478	358
145°	537	537	545	548	546	336
155°	592	587	593	596	592	273
165°	623	621	622	625	622	176
175°	638	634	635	638	634	61
180°	636	636	636	636	636	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	0.5	5.6	9.1	11.5	12.4
92.5°	11.5	9.7	11.0	12.0	12.4
95°	29.9	14.7	17.9	20.3	19.8
97.5°	53.8	16.1	23.5	24.9	25.4
100°	81.5	18.4	26.2	29.9	30.8
102.5°	111.9	110.9	27.1	32.2	33.6
105°	140.0	153.7	28.1	33.1	35.0
107.5°	172.7	184.1	29.0	34.0	35.9
110°	204.0	213.6	80.6	34.6	36.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	233.4	241.7	233.8	35.4	36.9
115°	264.7	272.5	284.1	70.9	37.8
117.5°	291.8	301.0	308.9	243.1	122.4
120°	322.3	329.1	337.4	343.0	280.8
122.5°	348.0	355.3	364.6	367.3	367.9
125°	374.3	380.2	389.0	392.2	393.6
127.5°	398.2	404.6	411.6	416.1	416.6
130°	420.8	428.1	433.2	438.3	437.8
132.5°	443.7	449.8	454.8	458.9	458.5
135°	463.2	470.5	474.6	479.3	478.3
137.5°	483.3	488.9	493.5	498.1	496.7
140°	503.1	506.9	511.9	516.0	513.8
142.5°	519.7	523.0	529.0	532.6	530.3
145°	537.2	536.8	544.6	547.8	545.5
147.5°	552.4	551.0	558.8	561.1	559.3
150°	567.1	563.9	571.3	574.0	571.7
152.5°	579.6	575.9	582.8	585.6	582.3
155°	591.5	587.4	593.0	595.7	592.0
157.5°	601.2	597.6	601.7	604.9	601.2
160°	609.5	606.7	609.5	612.3	609.1
162.5°	616.8	614.1	616.4	619.6	615.5
165°	623.3	620.6	621.9	625.2	621.9
167.5°	628.4	625.6	627.0	630.3	626.0
170°	632.5	629.7	630.7	633.9	629.7
172.5°	635.3	632.5	633.5	636.7	632.5
175°	637.5	634.3	635.3	638.5	633.9
177.5°	638.5	635.3	635.7	638.9	634.8
180°	636.2	636.2	636.2	636.2	636.2

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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	14.90	16.04	15.61	16.77	17.63	14.48	15.62	15.19	16.35	17.21
	3H	16.56	17.58	17.28	18.32	19.22	16.10	17.12	16.82	17.86	18.75
	4H	17.14	18.11	17.88	18.86	19.76	16.68	17.65	17.42	18.40	19.30
	6H	17.53	18.43	18.29	19.19	20.11	17.07	17.97	17.83	18.73	19.65
	8H	17.64	18.49	18.40	19.27	20.19	17.18	18.03	17.94	18.81	19.73
	12H	17.69	18.50	18.45	19.27	20.22	17.22	18.04	17.99	18.81	19.76
4H	2H	15.39	16.35	16.13	17.10	18.01	15.05	16.02	15.79	16.76	17.67
	3H	17.25	18.06	18.00	18.84	19.76	16.86	17.67	17.62	18.46	19.38
	4H	17.95	18.69	18.72	19.47	20.43	17.56	18.29	18.33	19.08	20.03
	6H	18.46	19.10	19.25	19.91	20.87	18.06	18.70	18.85	19.51	20.47
	8H	18.60	19.20	19.40	20.00	20.98	18.21	18.80	19.00	19.61	20.58
	12H	18.68	19.22	19.49	20.04	21.02	18.27	18.81	19.09	19.64	20.62
8H	4H	18.16	18.76	18.95	19.56	20.53	17.81	18.41	18.60	19.21	20.18
	6H	18.77	19.27	19.60	20.11	21.09	18.42	18.92	19.25	19.76	20.74
	8H	18.98	19.42	19.81	20.26	21.25	18.62	19.06	19.46	19.91	20.90
	12H	19.11	19.50	19.95	20.33	21.38	18.74	19.13	19.58	19.96	21.01
12H	4H	18.16	18.69	18.97	19.52	20.50	17.81	18.35	18.63	19.18	20.15
	6H	18.80	19.24	19.63	20.09	21.08	18.46	18.90	19.29	19.74	20.73
	8H	19.04	19.43	19.87	20.26	21.31	18.69	19.08	19.53	19.92	20.96

END OF REPORT