

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: P928274

Luminaire Tested: DFN2DIP-HX4F0-060D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928274
REPORT IS A COMBINATION OF REPORTS P900968 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D120US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

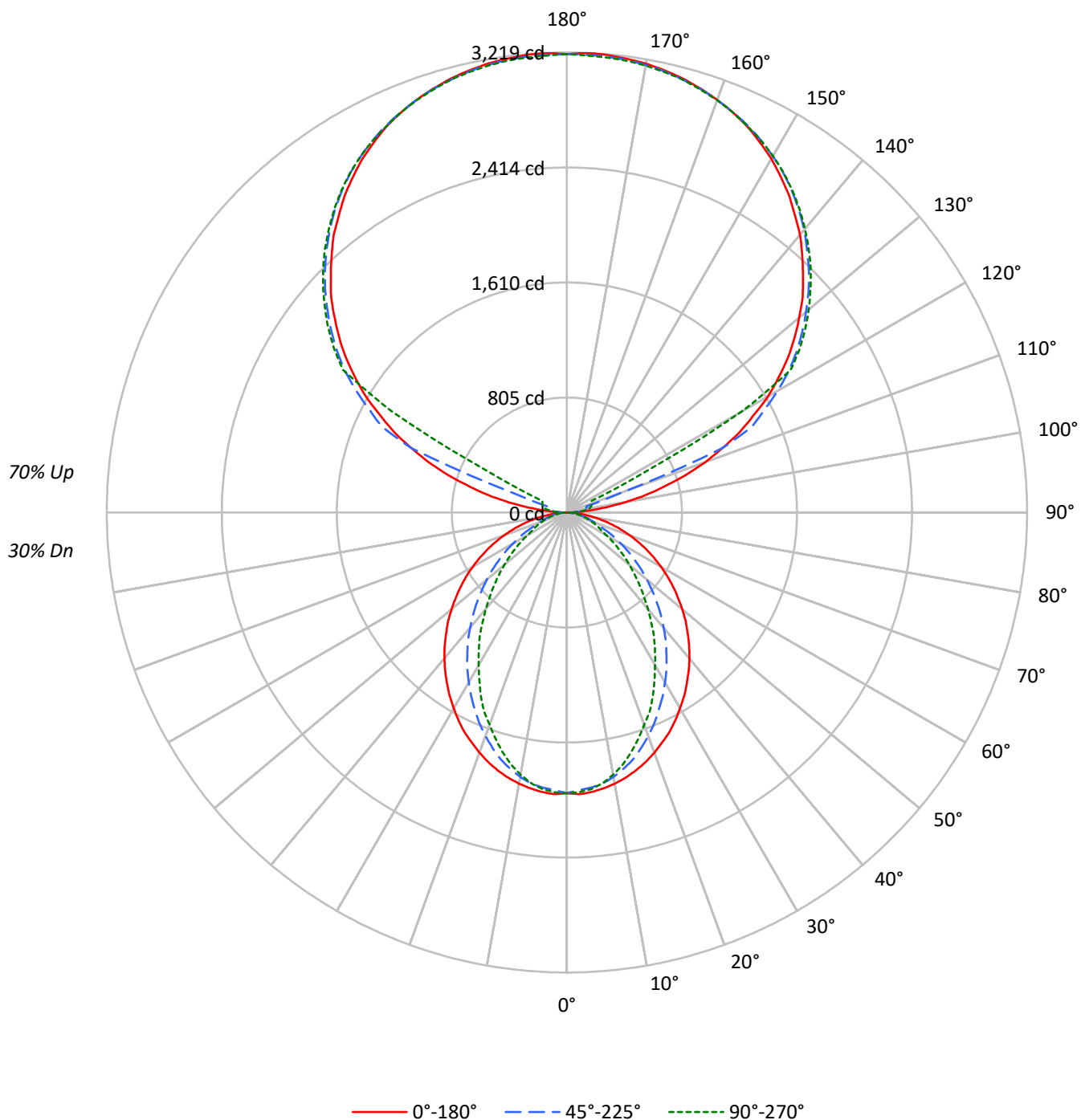
Lumens per Lamp: N/A
Luminaire Lumens: 13448.1 lumens
Efficiency: N/A
Efficacy: 89.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 150.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1460	1460	1460
5°	1463	1437	1446
10°	1448	1409	1399
15°	1429	1363	1327
20°	1402	1299	1238
25°	1376	1227	1151
30°	1339	1153	1042
35°	1304	1074	946
40°	1268	992	836
45°	1226	901	736
50°	1183	809	639
55°	1138	711	545
60°	1085	608	449
65°	1025	504	404
70°	952	406	366
75°	861	359	333
80°	728	301	289
85°	509	202	217

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1648 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.1	1.4
10°-20°	505.3	3.8
20°-30°	709.4	5.3
30°-40°	773.3	5.8
40°-50°	710.8	5.3
50°-60°	558.2	4.2
60°-70°	363.3	2.7
70°-80°	187.0	1.4
80°-90°	53.4	0.4
90°-100°	105.8	0.8
100°-110°	394.3	2.9
110°-120°	1045.7	7.8
120°-130°	1734.3	12.9
130°-140°	1842.3	13.7
140°-150°	1712.2	12.7
150°-160°	1376.5	10.2
160°-170°	887.0	6.6
170°-180°	305.3	2.3
0°-30°	1398.8	10.4
0°-40°	2172.1	16.2
0°-60°	3441.1	25.6
0°-90°	4044.8	30.1
90°-120°	1545.7	11.5
90°-150°	6834.5	50.8
90°-180°	9403.0	69.9
0°-180°	13448.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1955	1932	1948	1943	186
15°	1868	1848	1788	1754	1736	526
25°	1696	1639	1521	1449	1422	780
35°	1461	1370	1214	1102	1063	914
45°	1194	1075	889	762	720	922
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	202	142	130	128	346
85°	76	39	34	34	34	88
90°	2	28	46	58	63	12
95°	151	74	90	102	100	179
105°	706	775	142	167	176	754
115°	1334	1374	1432	357	190	1314
125°	1887	1917	1961	1978	1984	1683
135°	2335	2372	2393	2416	2412	1804
145°	2709	2706	2746	2762	2750	1694
155°	2982	2962	2990	3003	2985	1374
165°	3142	3129	3136	3152	3136	888
175°	3214	3198	3203	3219	3196	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.0	1964.0	1964.0	1964.0	1964.0
2.5°	1972.9	1964.0	1944.4	1962.3	1958.7
5°	1964.0	1955.1	1931.9	1948.0	1942.7
7.5°	1948.0	1937.4	1912.5	1919.5	1910.6
10°	1926.6	1914.2	1878.8	1873.3	1862.7
12.5°	1900.1	1884.0	1835.9	1825.4	1805.8
15°	1868.0	1848.4	1788.0	1754.3	1736.5
17.5°	1830.7	1802.2	1727.5	1688.5	1660.0
20°	1788.0	1752.4	1663.6	1619.2	1580.0
22.5°	1741.8	1700.9	1597.8	1537.4	1510.8
25°	1695.7	1638.7	1521.4	1448.6	1421.9
27.5°	1640.6	1580.0	1450.3	1366.8	1325.9
30°	1581.9	1514.2	1372.1	1281.5	1233.5
32.5°	1525.0	1443.2	1297.6	1190.9	1146.3
35°	1461.1	1370.4	1214.1	1102.0	1062.8
37.5°	1398.8	1300.9	1135.8	1013.0	968.7
40°	1333.0	1226.5	1053.9	927.7	881.6
42.5°	1265.5	1151.8	972.3	840.6	796.4
45°	1194.4	1075.2	888.8	762.4	719.8
47.5°	1126.9	1000.8	808.8	682.5	643.4
50°	1052.3	926.1	730.5	607.8	570.6
52.5°	979.2	845.9	655.9	538.6	504.8
55°	908.2	769.6	577.6	471.1	437.3
57.5°	835.4	693.2	508.4	408.8	380.3
60°	760.7	618.6	435.4	344.9	316.4
62.5°	687.9	545.8	373.2	288.0	273.8
65°	613.2	469.2	309.3	248.9	243.5
67.5°	542.1	398.1	248.9	218.6	213.3
70°	467.4	328.8	206.1	188.4	181.2
72.5°	396.4	264.8	172.3	158.2	154.6
75°	327.0	202.5	142.2	129.7	128.1
77.5°	257.8	143.9	112.0	104.9	101.3
80°	193.6	103.1	85.2	78.2	78.2
82.5°	135.0	69.4	58.6	55.0	55.0
85°	76.3	39.0	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.7	74.1	90.4	102.2	99.8
97.5°	271.5	81.3	118.2	125.4	127.6
100°	410.9	92.9	132.3	150.7	155.5
102.5°	563.9	559.5	136.9	162.4	169.5
105°	705.5	775.3	141.7	167.0	176.4
107.5°	870.3	928.2	146.4	171.7	181.1
110°	1028.3	1076.8	406.2	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.8	1218.4	1179.1	178.6	185.7
115°	1334.4	1373.9	1432.0	357.4	190.5
117.5°	1471.5	1517.8	1557.5	1225.3	617.4
120°	1624.7	1659.4	1701.3	1729.2	1415.8
122.5°	1754.5	1791.7	1838.3	1852.1	1854.5
125°	1886.8	1917.1	1961.2	1977.5	1984.4
127.5°	2007.5	2040.0	2075.0	2098.2	2100.4
130°	2121.3	2158.5	2183.9	2209.5	2207.3
132.5°	2237.3	2267.7	2293.0	2314.0	2311.8
135°	2334.9	2372.1	2392.8	2416.2	2411.6
137.5°	2436.9	2464.7	2488.1	2511.3	2504.4
140°	2536.7	2555.4	2580.7	2601.7	2590.2
142.5°	2620.4	2636.7	2666.7	2685.2	2673.6
145°	2708.6	2706.2	2745.5	2761.9	2750.2
147.5°	2785.0	2778.1	2817.5	2829.1	2820.0
150°	2859.4	2843.1	2880.3	2894.1	2882.6
152.5°	2921.9	2903.5	2938.2	2952.3	2936.0
155°	2982.3	2961.6	2989.5	3003.3	2984.8
157.5°	3031.1	3012.6	3033.6	3049.8	3031.1
160°	3073.0	3058.9	3073.0	3086.7	3070.5
162.5°	3109.9	3096.2	3107.7	3124.0	3103.1
165°	3142.4	3128.6	3135.5	3151.8	3135.5
167.5°	3168.1	3154.0	3161.2	3177.4	3156.5
170°	3189.0	3175.0	3179.6	3195.9	3175.0
172.5°	3202.8	3189.0	3193.7	3210.0	3189.0
175°	3214.3	3198.1	3202.8	3219.1	3195.9
177.5°	3219.1	3202.8	3205.3	3221.5	3200.6
180°	3207.5	3207.5	3207.5	3207.5	3207.5

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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	6.24	6.93	7.36	8.04	9.57	2.22	2.91	3.33	4.01	5.54
	3H	7.91	8.53	9.03	9.64	11.19	3.40	4.01	4.52	5.13	6.68
	4H	8.51	9.10	9.65	10.21	11.77	3.84	4.43	4.97	5.54	7.10
	6H	8.93	9.47	10.07	10.59	12.15	4.16	4.69	5.30	5.81	7.38
	8H	9.05	9.56	10.20	10.70	12.25	4.24	4.75	5.39	5.89	7.45
	12H	9.11	9.59	10.26	10.72	12.30	4.28	4.77	5.43	5.90	7.48
4H	2H	6.24	6.83	7.39	7.95	9.50	2.79	3.38	3.94	4.50	6.05
	3H	8.06	8.55	9.21	9.69	11.26	4.13	4.62	5.28	5.76	7.33
	4H	8.75	9.20	9.90	10.33	11.91	4.68	5.13	5.83	6.26	7.84
	6H	9.26	9.64	10.41	10.79	12.37	5.09	5.47	6.25	6.63	8.20
	8H	9.43	9.79	10.58	10.93	12.53	5.22	5.58	6.37	6.72	8.31
	12H	9.52	9.84	10.69	11.00	12.60	5.28	5.60	6.45	6.76	8.36
8H	4H	8.71	9.06	9.86	10.21	11.80	4.95	5.31	6.10	6.45	8.04
	6H	9.27	9.56	10.44	10.75	12.34	5.46	5.76	6.64	6.95	8.54
	8H	9.49	9.74	10.67	10.91	12.52	5.65	5.91	6.83	7.08	8.69
	12H	9.62	9.84	10.80	11.01	12.65	5.77	5.99	6.95	7.16	8.80
12H	4H	8.65	8.98	9.82	10.13	11.73	4.95	5.27	6.12	6.43	8.02
	6H	9.24	9.50	10.42	10.67	12.28	5.51	5.77	6.69	6.94	8.55
	8H	9.46	9.68	10.64	10.85	12.49	5.72	5.94	6.90	7.11	8.75