

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: P928454

Luminaire Tested: DFN2DIP-HX4F0-110D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928454
REPORT IS A COMBINATION OF REPORTS P900978 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D120US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

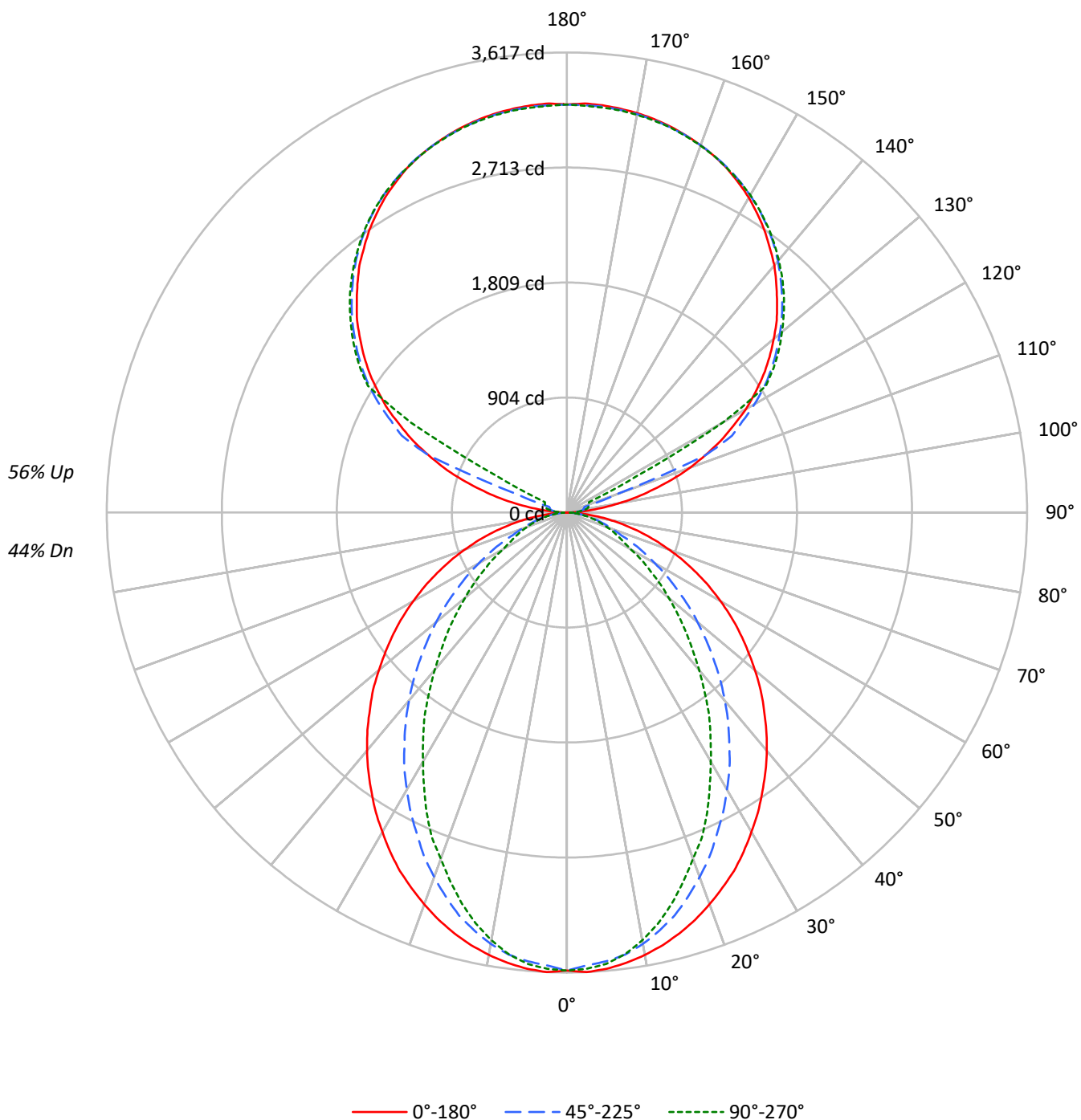
Lumens per Lamp: N/A
Luminaire Lumens: 16814.2 lumens
Efficiency: N/A
Efficacy: 80.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 208.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51			44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44			38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37			32
3	81	72	65	59	74	66	60	55	55	51	47	46	42	40	36	34	32			28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28			24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25			21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22			19
7	58	46	39	33	53	43	36	31	37	31	27	31	27	24	25	22	20			17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18			15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16			14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2677	2677	2677
5°	2682	2635	2652
10°	2655	2584	2566
15°	2619	2499	2432
20°	2571	2381	2269
25°	2522	2249	2111
30°	2455	2114	1910
35°	2390	1969	1734
40°	2324	1819	1532
45°	2248	1652	1350
50°	2168	1484	1171
55°	2085	1303	999
60°	1990	1115	822
65°	1879	924	740
70°	1746	745	670
75°	1578	657	610
80°	1335	553	530
85°	933	370	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2248 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	337.5	2.0
10°-20°	926.4	5.5
20°-30°	1300.6	7.7
30°-40°	1417.8	8.4
40°-50°	1303.1	7.7
50°-60°	1023.4	6.1
60°-70°	666.1	4.0
70°-80°	342.9	2.0
80°-90°	93.2	0.6
90°-100°	105.8	0.6
100°-110°	394.3	2.3
110°-120°	1045.7	6.2
120°-130°	1734.3	10.3
130°-140°	1842.3	11.0
140°-150°	1712.2	10.2
150°-160°	1376.5	8.2
160°-170°	887.0	5.3
170°-180°	305.3	1.8
0°-30°	2564.5	15.3
0°-40°	3982.2	23.7
0°-60°	6308.7	37.5
0°-90°	7410.8	44.1
90°-120°	1545.7	9.2
90°-150°	6834.5	40.6
90°-180°	9403.0	55.9
0°-180°	16814.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3601	3601	3601	3601	3601	
5°	3601	3584	3542	3571	3562	341
15°	3425	3389	3278	3216	3184	965
25°	3109	3004	2789	2656	2607	1430
35°	2679	2512	2226	2020	1948	1677
45°	2190	1971	1629	1398	1320	1691
55°	1665	1411	1059	864	802	1488
65°	1124	860	567	456	446	1115
75°	600	371	261	238	235	634
85°	140	72	62	62	62	161
90°	2	28	46	58	63	16
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°	3600.7	3600.7	3600.7	3600.7	3600.7
2.5°	3616.9	3600.7	3564.7	3597.6	3591.0
5°	3600.7	3584.4	3541.9	3571.3	3561.6
7.5°	3571.3	3551.9	3506.3	3519.1	3502.8
10°	3532.2	3509.4	3444.4	3434.3	3415.0
12.5°	3483.5	3454.1	3365.9	3346.5	3310.6
15°	3424.7	3388.7	3278.1	3216.2	3183.7
17.5°	3356.3	3304.1	3167.1	3095.5	3043.3
20°	3278.1	3212.7	3049.9	2968.7	2896.7
22.5°	3193.4	3118.3	2929.3	2818.6	2769.9
25°	3108.7	3004.3	2789.3	2655.8	2606.7
27.5°	3007.8	2896.7	2658.9	2505.7	2430.7
30°	2900.2	2776.1	2515.5	2349.5	2261.3
32.5°	2795.8	2645.8	2378.9	2183.2	2101.7
35°	2678.6	2512.3	2225.8	2020.4	1948.5
37.5°	2564.6	2385.1	2082.2	1857.2	1776.0
40°	2443.9	2248.6	1932.2	1700.9	1616.2
42.5°	2320.1	2111.6	1782.6	1541.2	1460.0
45°	2189.8	1971.3	1629.4	1397.7	1319.6
47.5°	2066.0	1834.7	1482.8	1251.1	1179.6
50°	1929.1	1697.8	1339.4	1114.3	1046.2
52.5°	1795.3	1550.9	1202.4	987.4	925.5
55°	1664.9	1410.9	1058.9	863.6	801.7
57.5°	1531.6	1270.8	932.0	749.5	697.3
60°	1394.6	1134.0	798.3	632.3	580.1
62.5°	1261.2	1000.5	684.2	527.9	502.0
65°	1124.2	860.1	567.0	456.4	446.3
67.5°	994.0	729.8	456.4	400.7	391.0
70°	857.0	602.9	377.9	345.4	332.2
72.5°	726.7	485.4	316.0	290.0	283.5
75°	599.5	371.3	260.6	237.8	234.7
77.5°	472.6	263.8	205.4	192.2	185.6
80°	355.1	189.1	156.3	143.5	143.5
82.5°	247.5	127.2	107.6	101.0	101.0
85°	140.0	71.6	61.9	61.9	61.9
87.5°	52.2	25.9	25.9	22.8	22.8
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	9.99	10.77	11.00	11.79	13.15	5.96	6.75	6.98	7.76	9.12
	3H	11.66	12.37	12.69	13.39	14.77	7.15	7.85	8.17	8.88	10.25
	4H	12.27	12.94	13.31	13.96	15.35	7.60	8.26	8.63	9.29	10.68
	6H	12.69	13.30	13.74	14.34	15.73	7.92	8.53	8.96	9.56	10.96
	8H	12.82	13.40	13.87	14.45	15.84	8.01	8.59	9.06	9.64	11.03
	12H	12.88	13.43	13.93	14.47	15.89	8.05	8.60	9.11	9.65	11.06
4H	2H	10.00	10.67	11.04	11.70	13.08	6.55	7.22	7.60	8.25	9.63
	3H	11.83	12.38	12.88	13.44	14.84	7.90	8.45	8.95	9.51	10.91
	4H	12.52	13.02	13.58	14.07	15.49	8.45	8.95	9.50	10.00	11.42
	6H	13.03	13.47	14.10	14.54	15.95	8.87	9.30	9.93	10.37	11.79
	8H	13.21	13.61	14.27	14.68	16.11	9.00	9.40	10.06	10.47	11.90
	12H	13.30	13.67	14.39	14.75	16.18	9.06	9.43	10.14	10.51	11.94
8H	4H	12.49	12.89	13.55	13.95	15.38	8.73	9.13	9.79	10.20	11.62
	6H	13.05	13.38	14.14	14.49	15.92	9.25	9.58	10.33	10.69	12.11
	8H	13.27	13.56	14.36	14.65	16.10	9.44	9.73	10.53	10.82	12.27
	12H	13.41	13.66	14.50	14.75	16.23	9.56	9.81	10.66	10.90	12.39
12H	4H	12.43	12.80	13.52	13.88	15.31	8.73	9.09	9.81	10.17	11.61
	6H	13.03	13.32	14.12	14.41	15.86	9.29	9.59	10.39	10.68	12.12
	8H	13.25	13.50	14.34	14.59	16.07	9.51	9.76	10.60	10.85	12.33

END OF REPORT