

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: P916303

Luminaire Tested: DFN2DIP-HX3F0-090D030US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916303
REPORT IS A COMBINATION OF REPORTS P900733 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D030US930-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

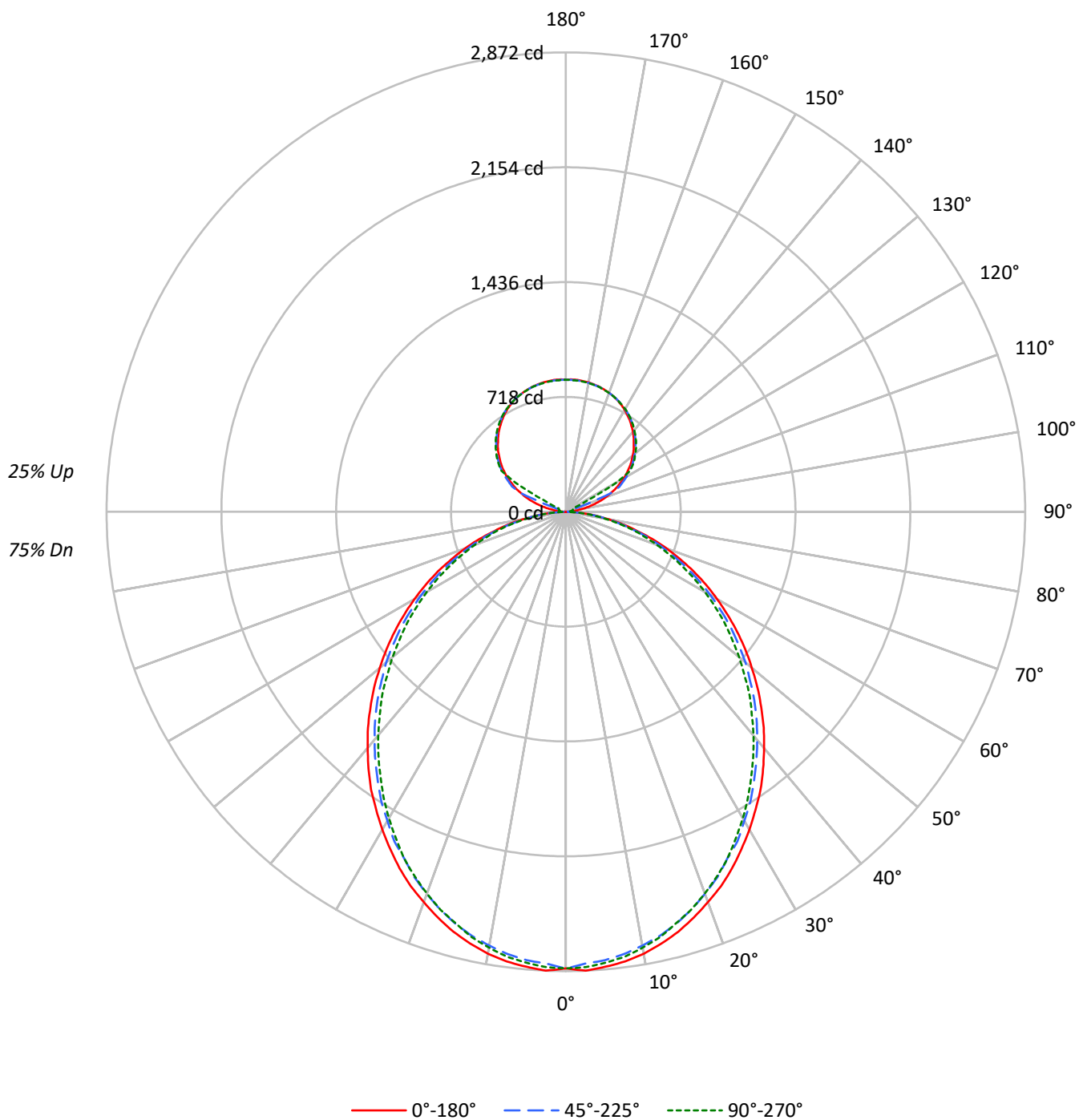
Lumens per Lamp: N/A
Luminaire Lumens: 9685.8 lumens
Efficiency: N/A
Efficacy: 83.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 115.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916303

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US930-FLLONL

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°	3307	3307	3307
5°	3311	3259	3281
10°	3283	3213	3235
15°	3233	3158	3164
20°	3166	3082	3091
25°	3100	2992	3007
30°	3017	2907	2901
35°	2938	2809	2788
40°	2842	2709	2682
45°	2745	2608	2572
50°	2640	2503	2445
55°	2529	2381	2328
60°	2404	2237	2194
65°	2267	2087	2036
70°	2093	1904	1865
75°	1853	1685	1705
80°	1562	1405	1404
85°	1107	930	910

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2745 cd/sqm

TEST NUMBER: P916303

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US930-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	2.8
10°-20°	756.1	7.8
20°-30°	1111.2	11.5
30°-40°	1290.5	13.3
40°-50°	1288.9	13.3
50°-60°	1123.9	11.6
60°-70°	830.8	8.6
70°-80°	470.1	4.9
80°-90°	125.5	1.3
90°-100°	27.2	0.3
100°-110°	101.5	1.0
110°-120°	269.1	2.8
120°-130°	446.3	4.6
130°-140°	474.1	4.9
140°-150°	440.6	4.5
150°-160°	354.3	3.7
160°-170°	228.3	2.4
170°-180°	78.6	0.8
0°-30°	2136.0	22.1
0°-40°	3426.5	35.4
0°-60°	5839.4	60.3
0°-90°	7265.8	75.0
90°-120°	397.8	4.1
90°-150°	1758.9	18.2
90°-180°	2420.0	25.0
0°-180°	9685.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	1	7	12	15	16	9
95°	39	19	23	26	26	46
105°	182	200	36	43	45	194
115°	343	354	368	92	49	338
125°	486	493	505	509	511	433
135°	601	610	616	622	621	464
145°	697	696	707	711	708	436
155°	768	762	769	773	768	354
165°	809	805	807	811	807	228
175°	827	823	824	828	822	79
180°	826	826	826	826	826	

TEST NUMBER: P916303

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US930-FLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	0.6	7.2	11.9	15.0	16.1
92.5°	15.0	12.6	14.3	15.6	16.1
95°	38.8	19.1	23.2	26.3	25.7
97.5°	69.9	21.0	30.4	32.3	32.9
100°	105.7	23.9	34.1	38.8	40.0
102.5°	145.1	144.0	35.2	41.7	43.6
105°	181.6	199.5	36.4	43.0	45.4
107.5°	224.0	238.9	37.7	44.2	46.6
110°	264.6	277.1	104.5	44.8	47.2



TEST NUMBER: P916303

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	302.9	313.6	303.5	46.0	47.8
115°	343.4	353.6	368.5	92.0	49.0
117.5°	378.7	390.6	400.8	315.4	158.9
120°	418.1	427.1	437.8	445.0	364.4
122.5°	451.5	461.1	473.1	476.6	477.3
125°	485.6	493.3	504.8	508.9	510.7
127.5°	516.7	525.0	534.0	540.0	540.5
130°	545.9	555.5	562.1	568.6	568.1
132.5°	575.8	583.6	590.1	595.5	594.9
135°	600.9	610.5	615.8	621.8	620.6
137.5°	627.1	634.3	640.3	646.3	644.5
140°	652.8	657.6	664.1	669.5	666.6
142.5°	674.4	678.6	686.3	691.0	688.1
145°	697.1	696.4	706.6	710.8	707.8
147.5°	716.7	714.9	725.1	728.1	725.7
150°	735.9	731.7	741.3	744.8	741.8
152.5°	751.9	747.2	756.2	759.8	755.6
155°	767.5	762.2	769.3	772.9	768.2
157.5°	780.1	775.3	780.7	784.9	780.1
160°	790.8	787.3	790.8	794.4	790.2
162.5°	800.4	796.8	799.8	804.0	798.6
165°	808.7	805.2	807.0	811.1	807.0
167.5°	815.3	811.7	813.5	817.7	812.4
170°	820.7	817.1	818.3	822.5	817.1
172.5°	824.3	820.7	821.9	826.1	820.7
175°	827.2	823.0	824.3	828.4	822.5
177.5°	828.4	824.3	824.9	829.1	823.7
180°	825.5	825.5	825.5	825.5	825.5

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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	13.43	14.57	14.14	15.30	16.16	13.00	14.14	13.71	14.87	15.74
	3H	15.10	16.13	15.83	16.87	17.76	14.64	15.66	15.36	16.40	17.30
	4H	15.70	16.67	16.44	17.42	18.32	15.23	16.20	15.97	16.95	17.85
	6H	16.11	17.00	16.86	17.76	18.68	15.64	16.53	16.39	17.29	18.21
	8H	16.22	17.07	16.98	17.85	18.77	15.75	16.60	16.51	17.38	18.30
	12H	16.27	17.09	17.04	17.86	18.81	15.80	16.61	16.57	17.38	18.33
4H	2H	13.92	14.89	14.67	15.64	16.55	13.58	14.55	14.32	15.30	16.20
	3H	15.80	16.61	16.56	17.40	18.32	15.42	16.22	16.17	17.01	17.93
	4H	16.52	17.26	17.30	18.04	19.00	16.12	16.86	16.89	17.64	18.60
	6H	17.05	17.69	17.84	18.49	19.46	16.64	17.28	17.43	18.09	19.05
	8H	17.20	17.80	17.99	18.60	19.57	16.79	17.39	17.59	18.19	19.17
	12H	17.28	17.82	18.10	18.65	19.62	16.87	17.40	17.68	18.23	19.21
8H	4H	16.74	17.34	17.53	18.14	19.11	16.38	16.98	17.18	17.78	18.76
	6H	17.37	17.87	18.20	18.72	19.69	17.02	17.51	17.84	18.36	19.33
	8H	17.59	18.03	18.43	18.88	19.87	17.23	17.67	18.06	18.51	19.50
	12H	17.73	18.12	18.57	18.95	20.00	17.35	17.74	18.19	18.58	19.62
12H	4H	16.74	17.28	17.55	18.10	19.08	16.39	16.93	17.20	17.75	18.73
	6H	17.40	17.85	18.24	18.69	19.68	17.06	17.50	17.89	18.34	19.33
	8H	17.65	18.04	18.49	18.88	19.92	17.30	17.69	18.14	18.52	19.57