

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: P910846

Luminaire Tested: DFN2DIP-HX3F0-090D030US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910846
REPORT IS A COMBINATION OF REPORTS P899213 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D030US850-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

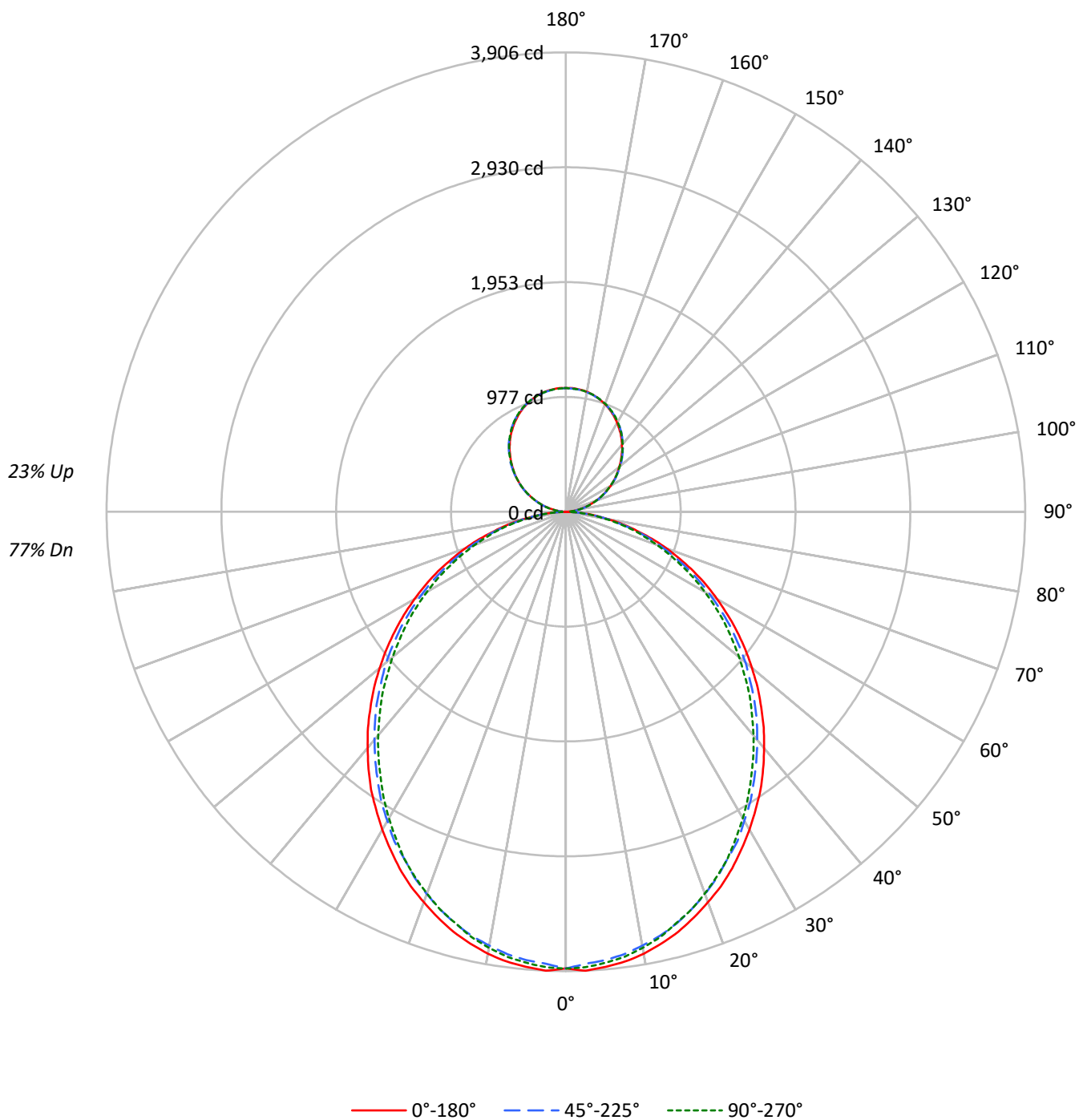
Lumens per Lamp: N/A
Luminaire Lumens: 12825.6 lumens
Efficiency: N/A
Efficacy: 110.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

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

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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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4499	4499	4499
5°	4504	4433	4463
10°	4465	4370	4400
15°	4398	4295	4303
20°	4307	4192	4204
25°	4216	4069	4090
30°	4104	3955	3946
35°	3997	3820	3793
40°	3865	3684	3647
45°	3734	3548	3498
50°	3591	3405	3326
55°	3440	3239	3167
60°	3270	3043	2985
65°	3084	2839	2769
70°	2848	2590	2537
75°	2520	2292	2319
80°	2124	1911	1910
85°	1506	1265	1239

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3734 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.9
10°-20°	1028.5	8.0
20°-30°	1511.4	11.8
30°-40°	1755.4	13.7
40°-50°	1753.3	13.7
50°-60°	1528.8	11.9
60°-70°	1130.1	8.8
70°-80°	639.4	5.0
80°-90°	171.8	1.3
90°-100°	65.1	0.5
100°-110°	206.9	1.6
110°-120°	354.0	2.8
120°-130°	465.6	3.6
130°-140°	522.6	4.1
140°-150°	512.5	4.0
150°-160°	429.9	3.4
160°-170°	285.1	2.2
170°-180°	99.7	0.8
0°-30°	2905.4	22.7
0°-40°	4660.9	36.3
0°-60°	7942.9	61.9
0°-90°	9884.2	77.1
90°-120°	626.0	4.9
90°-150°	2126.7	16.6
90°-180°	2941.0	22.9
0°-180°	12825.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	1	11	31	29	30	12
95°	46	55	57	57	55	52
105°	191	194	195	197	197	202
115°	355	360	359	358	355	351
125°	517	525	522	519	518	462
135°	668	678	680	679	677	517
145°	812	818	823	824	820	507
155°	928	930	933	938	935	427
165°	1009	1008	1008	1015	1010	285
175°	1050	1048	1046	1052	1047	100
180°	1052	1052	1052	1052	1052	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	1.0	11.4	31.1	29.2	30.2
92.5°	19.6	26.6	27.6	28.5	28.5
95°	46.4	55.2	56.8	56.8	55.2
97.5°	77.1	85.3	88.8	88.8	88.8
100°	112.6	119.9	122.4	122.4	121.5
102.5°	150.0	155.5	158.9	159.9	158.9
105°	191.0	193.5	195.4	197.0	197.0
107.5°	231.6	235.3	235.3	236.0	231.6
110°	270.9	276.0	276.0	276.0	273.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	313.4	318.8	317.8	315.3	313.4
115°	355.3	360.3	358.8	357.9	355.3
117.5°	396.8	403.8	399.4	396.8	394.2
120°	438.7	445.7	438.7	438.7	435.8
122.5°	476.8	485.6	481.2	478.6	476.8
125°	516.8	524.7	522.1	519.2	518.3
127.5°	555.7	565.6	562.2	558.3	555.7
130°	592.2	603.6	602.1	600.2	596.6
132.5°	633.1	642.0	642.7	638.2	635.7
135°	668.4	678.2	680.1	679.2	676.6
137.5°	707.7	715.6	717.2	716.6	712.8
140°	742.3	750.2	754.7	754.7	751.1
142.5°	777.9	785.7	788.3	789.3	785.7
145°	811.5	817.8	822.9	823.8	820.3
147.5°	841.6	849.5	853.3	854.9	851.4
150°	872.7	878.1	881.5	884.4	881.5
152.5°	900.3	905.6	910.0	913.6	910.0
155°	927.9	930.3	933.2	937.7	934.9
157.5°	951.6	953.5	955.2	961.5	957.1
160°	972.9	974.8	975.8	981.1	977.4
162.5°	992.6	992.6	993.6	999.5	995.1
165°	1009.4	1008.4	1008.4	1014.7	1010.3
167.5°	1024.6	1021.7	1021.7	1028.0	1023.6
170°	1036.0	1033.5	1032.6	1038.9	1033.5
172.5°	1043.9	1041.5	1040.5	1046.8	1041.5
175°	1050.3	1047.8	1045.9	1052.2	1046.8
177.5°	1053.8	1051.2	1049.3	1054.8	1049.3
180°	1052.2	1052.2	1052.2	1052.2	1052.2

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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	14.65	15.82	15.34	16.53	17.35	14.22	15.39	14.91	16.10	16.92
	3H	16.33	17.38	17.02	18.09	18.95	15.86	16.91	16.56	17.62	18.48
	4H	16.92	17.92	17.64	18.64	19.51	16.45	17.45	17.17	18.17	19.04
	6H	17.33	18.25	18.06	18.98	19.87	16.86	17.78	17.59	18.51	19.40
	8H	17.44	18.32	18.18	19.07	19.96	16.97	17.85	17.71	18.60	19.49
	12H	17.50	18.33	18.24	19.08	19.99	17.02	17.86	17.77	18.60	19.52
4H	2H	15.15	16.14	15.87	16.86	17.73	14.80	15.80	15.52	16.52	17.39
	3H	17.03	17.86	17.76	18.62	19.51	16.64	17.47	17.37	18.23	19.12
	4H	17.75	18.51	18.50	19.27	20.18	17.35	18.10	18.10	18.87	19.78
	6H	18.28	18.93	19.04	19.72	20.64	17.87	18.53	18.64	19.31	20.24
	8H	18.43	19.04	19.20	19.82	20.76	18.02	18.63	18.79	19.42	20.35
	12H	18.51	19.06	19.31	19.87	20.81	18.10	18.65	18.89	19.45	20.40
8H	4H	17.97	18.58	18.74	19.36	20.30	17.61	18.22	18.38	19.01	19.94
	6H	18.60	19.11	19.40	19.94	20.87	18.25	18.75	19.05	19.58	20.52
	8H	18.82	19.27	19.64	20.10	21.05	18.46	18.91	19.27	19.73	20.69
	12H	18.96	19.36	19.78	20.18	21.19	18.58	18.98	19.40	19.80	20.81
12H	4H	17.97	18.52	18.76	19.32	20.27	17.62	18.17	18.41	18.98	19.92
	6H	18.64	19.09	19.45	19.91	20.87	18.29	18.74	19.10	19.56	20.52
	8H	18.89	19.28	19.70	20.10	21.11	18.53	18.93	19.35	19.74	20.76