

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: P918827

Luminaire Tested: DFN2DIP-HX2F0-040D020US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918827
REPORT IS A COMBINATION OF REPORTS P900675 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D020US935-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

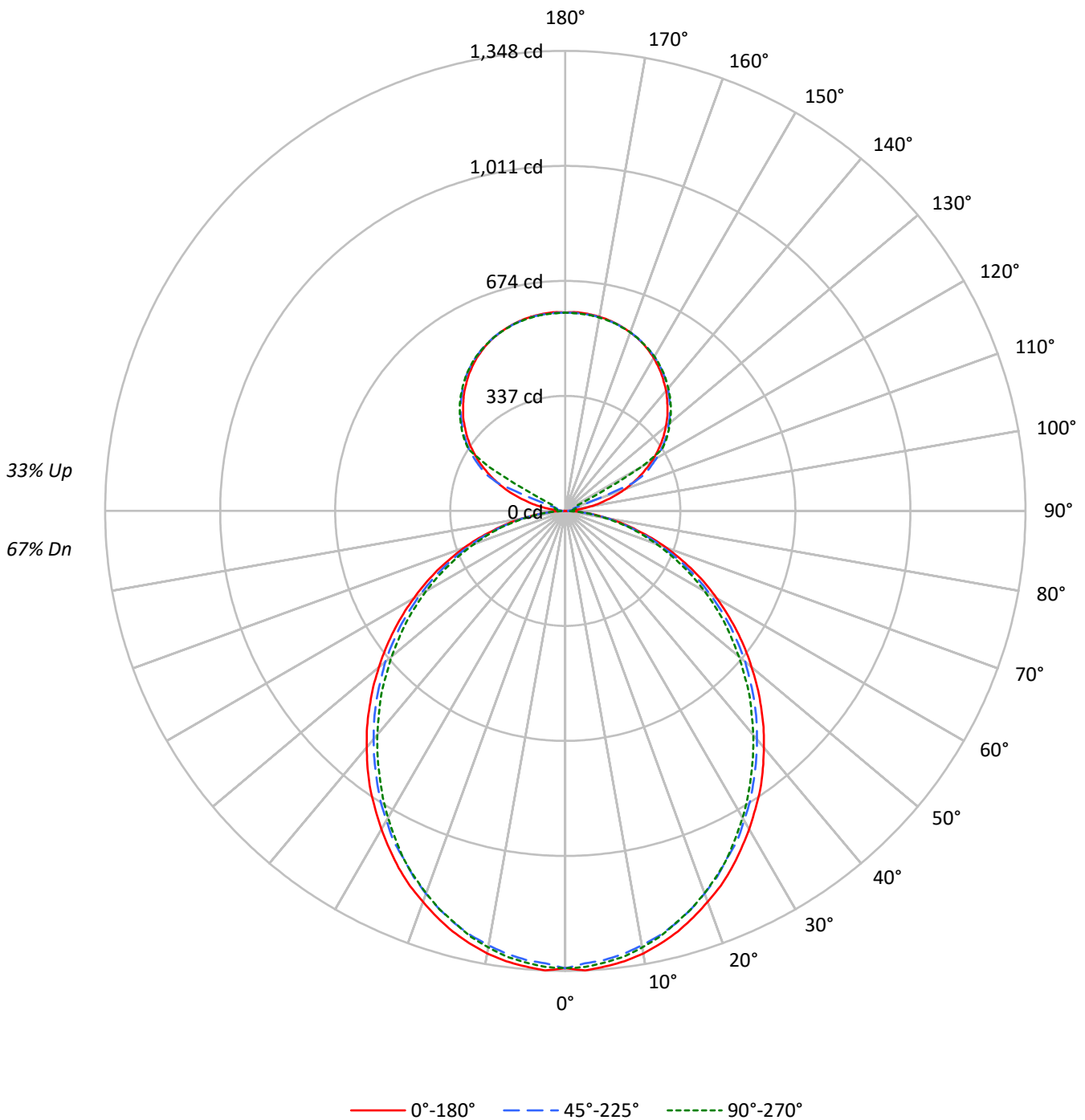
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5114.3 lumens
Efficiency: N/A
Efficacy: 99.7 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): 51.3
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67		
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56		
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47		
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40		
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34		
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30		
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26		
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23		
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21		
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19		
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3157	3157	3157
5°	3157	3106	3129
10°	3127	3057	3080
15°	3076	2999	3009
20°	3009	2921	2935
25°	2942	2830	2851
30°	2859	2745	2746
35°	2780	2646	2635
40°	2685	2545	2529
45°	2588	2444	2420
50°	2483	2337	2295
55°	2373	2215	2178
60°	2247	2070	2045
65°	2109	1918	1888
70°	1934	1734	1716
75°	1695	1513	1551
80°	1403	1231	1252
85°	953	773	774

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2588 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	2.5
10°-20°	354.9	6.9
20°-30°	521.5	10.2
30°-40°	605.7	11.8
40°-50°	605.0	11.8
50°-60°	527.5	10.3
60°-70°	389.9	7.6
70°-80°	220.6	4.3
80°-90°	59.3	1.2
90°-100°	19.2	0.4
100°-110°	71.4	1.4
110°-120°	189.5	3.7
120°-130°	314.2	6.1
130°-140°	333.8	6.5
140°-150°	310.2	6.1
150°-160°	249.4	4.9
160°-170°	160.7	3.1
170°-180°	55.3	1.1
0°-30°	1002.5	19.6
0°-40°	1608.3	31.4
0°-60°	2740.7	53.6
0°-90°	3410.6	66.7
90°-120°	280.0	5.5
90°-150°	1238.3	24.2
90°-180°	1704.0	33.3
0°-180°	5114.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1340	1340	1340	1340	1340	
5°	1340	1335	1321	1331	1329	127
15°	1276	1268	1251	1256	1250	359
25°	1154	1144	1122	1125	1122	531
35°	996	983	963	955	948	622
45°	810	802	782	768	763	626
55°	614	606	590	575	568	548
65°	414	406	393	381	375	409
75°	216	214	207	200	202	231
85°	53	52	50	46	45	59
90°	0	5	8	10	11	5
95°	27	13	16	18	18	32
105°	128	140	26	30	32	137
115°	242	249	260	65	34	238
125°	342	347	355	358	360	305
135°	423	430	434	438	437	327
145°	491	490	498	500	498	307
155°	540	537	542	544	541	249
165°	569	567	568	571	568	161
175°	582	580	580	583	579	55
180°	581	581	581	581	581	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1340.1	1340.1	1340.1	1340.1	1340.1
2.5°	1347.9	1341.4	1327.2	1340.1	1337.6
5°	1340.1	1335.0	1320.8	1331.0	1328.6
7.5°	1331.0	1323.4	1309.1	1319.6	1317.0
10°	1317.0	1307.9	1292.5	1302.8	1298.9
12.5°	1297.5	1289.9	1274.4	1280.9	1278.2
15°	1275.7	1268.0	1251.2	1256.4	1250.0
17.5°	1248.6	1241.0	1224.2	1230.5	1224.2
20°	1218.9	1211.3	1193.3	1197.0	1192.1
22.5°	1189.4	1177.8	1161.0	1161.0	1158.4
25°	1154.5	1144.3	1122.4	1124.9	1122.4
27.5°	1115.9	1106.8	1090.2	1086.3	1079.9
30°	1077.3	1066.9	1047.7	1043.8	1038.6
32.5°	1036.0	1028.4	1007.7	1000.0	994.7
35°	996.1	983.3	962.6	954.8	948.4
37.5°	951.0	939.3	918.7	909.7	903.3
40°	904.7	894.2	873.6	862.1	857.0
42.5°	859.5	849.1	828.6	815.6	808.0
45°	810.5	801.6	782.1	768.1	762.8
47.5°	762.8	753.8	733.2	719.0	711.4
50°	712.6	706.1	688.1	670.0	663.6
52.5°	663.6	654.6	637.9	623.7	614.7
55°	613.5	605.6	590.2	574.7	568.3
57.5°	563.1	556.7	539.8	524.4	519.3
60°	512.8	507.7	489.7	475.5	471.7
62.5°	463.9	454.9	442.0	429.1	424.0
65°	413.7	405.9	393.0	381.4	375.1
67.5°	362.1	355.6	344.1	335.1	329.9
70°	314.4	309.3	297.6	288.6	283.5
72.5°	265.5	260.3	253.9	244.9	241.0
75°	216.5	214.0	207.4	199.8	202.3
77.5°	172.6	167.5	164.9	161.0	157.2
80°	128.9	127.5	124.9	121.1	118.6
82.5°	87.6	87.6	86.4	81.2	81.2
85°	52.8	51.6	50.3	46.3	45.1
87.5°	23.2	20.7	18.1	14.2	12.8
90°	0.4	5.1	8.4	10.5	11.4
92.5°	10.5	8.9	10.1	10.9	11.4
95°	27.3	13.4	16.4	18.5	18.1
97.5°	49.2	14.7	21.4	22.7	23.2
100°	74.5	16.8	23.9	27.3	28.2
102.5°	102.2	101.3	24.8	29.4	30.7
105°	127.9	140.4	25.7	30.2	31.9
107.5°	157.7	168.2	26.5	31.1	32.8
110°	186.3	195.1	73.6	31.6	33.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	213.2	220.8	213.6	32.4	33.7
115°	241.8	248.9	259.5	64.7	34.5
117.5°	266.6	275.0	282.1	222.1	111.8
120°	294.4	300.7	308.2	313.3	256.5
122.5°	317.9	324.6	333.0	335.5	336.0
125°	341.9	347.3	355.3	358.3	359.6
127.5°	363.8	369.6	376.0	380.1	380.6
130°	384.3	391.1	395.7	400.4	399.9
132.5°	405.4	410.9	415.4	419.2	418.9
135°	423.1	429.8	433.5	437.8	437.0
137.5°	441.5	446.6	450.8	455.0	453.7
140°	459.6	463.0	467.6	471.4	469.3
142.5°	474.8	477.8	483.2	486.5	484.4
145°	490.8	490.3	497.5	500.4	498.3
147.5°	504.6	503.3	510.5	512.6	510.9
150°	518.1	515.1	521.9	524.3	522.3
152.5°	529.4	526.1	532.4	534.9	531.9
155°	540.4	536.6	541.7	544.2	540.8
157.5°	549.2	545.9	549.7	552.6	549.2
160°	556.8	554.2	556.8	559.3	556.4
162.5°	563.4	560.9	563.1	566.0	562.2
165°	569.4	566.9	568.1	571.1	568.1
167.5°	574.0	571.4	572.7	575.7	571.9
170°	577.8	575.2	576.1	579.0	575.2
172.5°	580.3	577.8	578.7	581.6	577.8
175°	582.4	579.5	580.3	583.2	579.0
177.5°	583.2	580.3	580.7	583.7	579.9
180°	581.2	581.2	581.2	581.2	581.2



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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	12.54	13.58	13.34	14.40	15.41	12.12	13.15	12.92	13.98	14.99
	3H	14.19	15.12	15.00	15.95	16.99	13.73	14.66	14.54	15.49	16.53
	4H	14.77	15.65	15.60	16.49	17.54	14.31	15.19	15.14	16.03	17.08
	6H	15.16	15.97	16.00	16.82	17.88	14.70	15.51	15.54	16.36	17.42
	8H	15.26	16.03	16.11	16.90	17.96	14.80	15.57	15.65	16.44	17.50
	12H	15.30	16.04	16.16	16.90	17.99	14.84	15.58	15.70	16.44	17.53
4H	2H	13.01	13.89	13.85	14.73	15.78	12.68	13.55	13.51	14.39	15.44
	3H	14.87	15.60	15.71	16.47	17.54	14.48	15.22	15.33	16.09	17.16
	4H	15.57	16.24	16.43	17.11	18.20	15.17	15.84	16.03	16.71	17.81
	6H	16.07	16.65	16.94	17.54	18.64	15.67	16.25	16.55	17.15	18.24
	8H	16.21	16.75	17.09	17.64	18.75	15.81	16.35	16.69	17.24	18.35
	12H	16.28	16.77	17.18	17.68	18.79	15.88	16.36	16.77	17.27	18.39
8H	4H	15.77	16.31	16.65	17.20	18.31	15.42	15.96	16.29	16.85	17.96
	6H	16.38	16.82	17.28	17.75	18.86	16.03	16.47	16.93	17.40	18.51
	8H	16.58	16.98	17.50	17.90	19.03	16.23	16.62	17.14	17.55	18.67
	12H	16.71	17.06	17.62	17.97	19.15	16.34	16.69	17.26	17.60	18.78
12H	4H	15.76	16.25	16.66	17.15	18.27	15.42	15.90	16.31	16.81	17.93
	6H	16.40	16.80	17.32	17.72	18.85	16.06	16.46	16.98	17.38	18.51
	8H	16.64	16.98	17.55	17.90	19.08	16.29	16.64	17.21	17.55	18.73