

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: P918765

Luminaire Tested: DFN2DIP-4P4F0-080D030US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918765
REPORT IS A COMBINATION OF REPORTS P900610 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D030US935-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

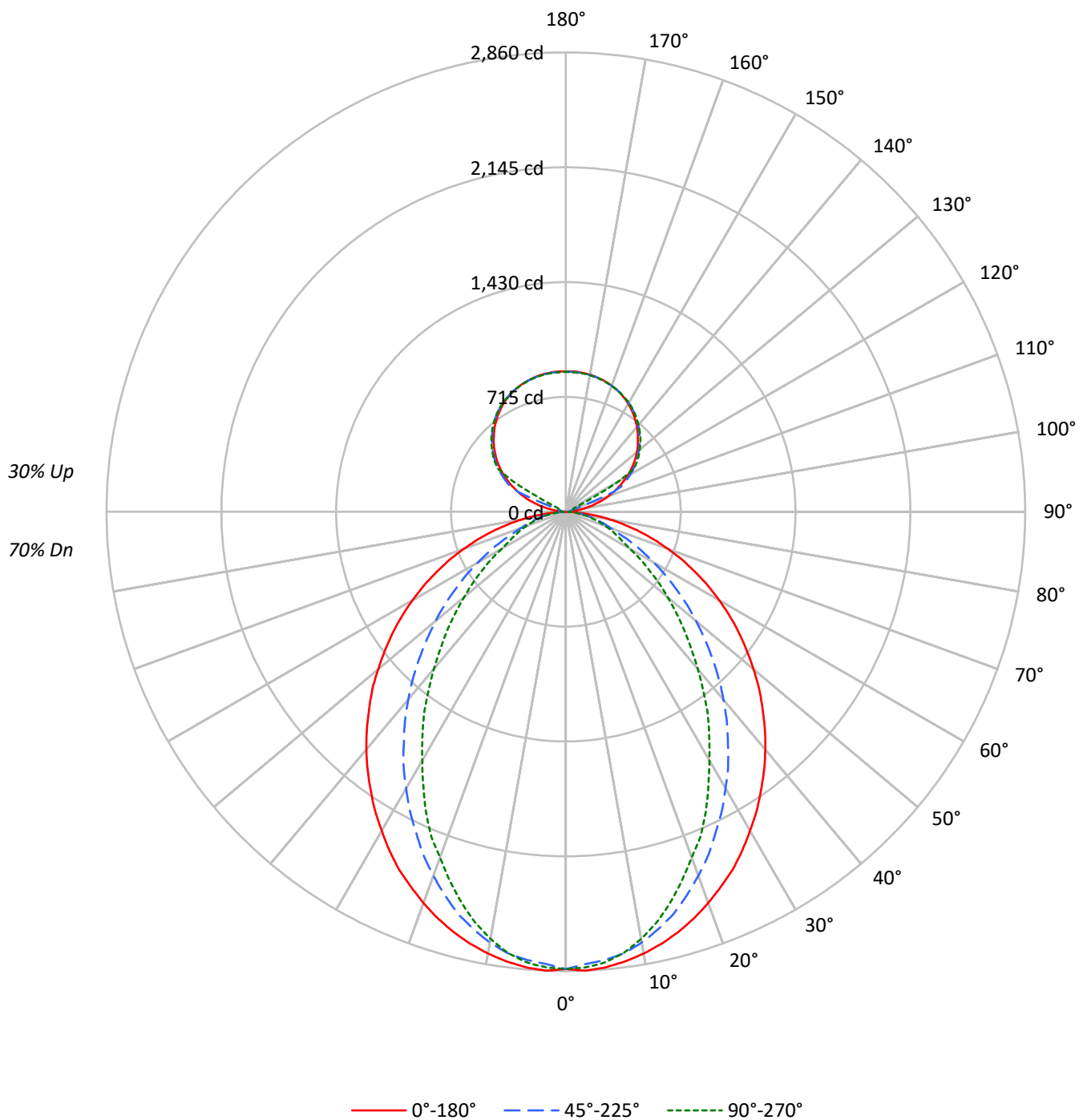
Lumens per Lamp: N/A
Luminaire Lumens: 8412.0 lumens
Efficiency: N/A
Efficacy: 77.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	74	74	74
1	103	99	95	92	97	93	90	87	84	81	79	75	73	71	67	65	64
2	94	87	81	76	89	83	77	73	74	70	67	67	63	61	59	57	55
3	86	77	70	64	82	73	67	62	66	61	57	59	55	52	53	50	48
4	79	69	61	55	75	65	58	53	59	54	49	53	49	45	48	45	42
5	73	62	54	48	69	59	52	46	53	47	43	48	44	40	44	40	37
6	68	56	48	42	64	53	46	41	49	42	38	44	39	35	40	36	33
7	63	51	43	37	60	49	41	36	44	38	34	40	35	32	37	32	29
8	59	46	39	33	56	44	37	32	41	35	30	37	32	28	34	30	27
9	55	43	35	30	52	41	34	29	37	32	27	34	29	26	31	27	24
10	51	39	32	27	49	38	31	26	35	29	25	32	27	24	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1847	1847	1847
5°	1850	1818	1830
10°	1832	1783	1771
15°	1807	1725	1679
20°	1773	1644	1567
25°	1739	1553	1459
30°	1694	1461	1321
35°	1649	1361	1199
40°	1603	1257	1060
45°	1550	1142	934
50°	1496	1026	811
55°	1438	902	693
60°	1372	772	571
65°	1296	640	514
70°	1204	517	467
75°	1088	457	426
80°	921	386	372
85°	643	261	284

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1550 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	3.2
10°-20°	732.4	8.7
20°-30°	1028.3	12.2
30°-40°	1120.9	13.3
40°-50°	1030.3	12.2
50°-60°	809.1	9.6
60°-70°	526.6	6.3
70°-80°	271.1	3.2
80°-90°	70.7	0.8
90°-100°	28.7	0.3
100°-110°	107.2	1.3
110°-120°	284.2	3.4
120°-130°	471.3	5.6
130°-140°	500.7	6.0
140°-150°	465.3	5.5
150°-160°	374.1	4.4
160°-170°	241.1	2.9
170°-180°	83.0	1.0
0°-30°	2027.6	24.1
0°-40°	3148.5	37.4
0°-60°	4987.8	59.3
0°-90°	5856.3	69.6
90°-120°	420.1	5.0
90°-150°	1857.5	22.1
90°-180°	2556.0	30.4
0°-180°	8412.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	1	8	13	16	17	8
95°	41	20	24	28	27	49
105°	192	211	38	45	48	205
115°	363	373	389	97	52	357
125°	513	521	533	537	539	457
135°	635	645	650	657	655	490
145°	736	736	746	751	747	460
155°	810	805	812	816	811	373
165°	854	850	852	857	852	241
175°	874	869	870	875	869	83
180°	872	872	872	872	872	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.8	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.1	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
90°	0.6	7.6	12.6	15.8	17.0
92.5°	15.8	13.3	15.2	16.4	17.0
95°	41.0	20.1	24.5	27.8	27.1
97.5°	73.8	22.1	32.1	34.1	34.7
100°	111.7	25.2	36.0	41.0	42.3
102.5°	153.3	152.1	37.2	44.1	46.1
105°	191.7	210.7	38.5	45.4	48.0
107.5°	236.5	252.3	39.8	46.7	49.2
110°	279.5	292.7	110.4	47.4	49.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	319.9	331.1	320.5	48.6	50.5
115°	362.7	373.4	389.2	97.1	51.7
117.5°	399.9	412.5	423.3	333.0	167.8
120°	441.5	451.0	462.4	469.9	384.8
122.5°	476.8	487.0	499.6	503.3	504.0
125°	512.8	521.0	533.0	537.4	539.3
127.5°	545.6	554.4	564.0	570.2	570.8
130°	576.5	586.7	593.6	600.5	599.9
132.5°	608.0	616.3	623.2	628.9	628.3
135°	634.6	644.7	650.3	656.7	655.4
137.5°	662.3	669.9	676.2	682.5	680.6
140°	689.4	694.5	701.4	707.1	704.0
142.5°	712.2	716.6	724.8	729.8	726.7
145°	736.2	735.5	746.2	750.6	747.4
147.5°	756.9	755.0	765.8	768.9	766.4
150°	777.1	772.7	782.8	786.5	783.4
152.5°	794.1	789.1	798.6	802.4	798.0
155°	810.5	804.9	812.4	816.2	811.2
157.5°	823.8	818.8	824.5	828.9	823.8
160°	835.2	831.4	835.2	839.0	834.5
162.5°	845.2	841.5	844.6	849.0	843.3
165°	854.0	850.3	852.2	856.6	852.2
167.5°	861.0	857.2	859.1	863.6	857.9
170°	866.7	862.9	864.2	868.6	862.9
172.5°	870.5	866.7	868.0	872.4	866.7
175°	873.6	869.2	870.5	874.9	868.6
177.5°	874.9	870.5	871.2	875.5	869.9
180°	871.8	871.8	871.8	871.8	871.8

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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	10.96	11.98	11.74	12.77	13.74	6.92	7.94	7.70	8.73	9.70
	3H	12.66	13.57	13.45	14.37	15.37	8.13	9.04	8.92	9.84	10.84
	4H	13.28	14.14	14.09	14.95	15.96	8.59	9.45	9.39	10.26	11.26
	6H	13.72	14.51	14.53	15.33	16.35	8.92	9.71	9.74	10.53	11.55
	8H	13.85	14.60	14.68	15.44	16.46	9.01	9.77	9.84	10.61	11.63
	12H	13.92	14.64	14.75	15.47	16.51	9.07	9.78	9.90	10.61	11.66
4H	2H	11.00	11.86	11.81	12.67	13.68	7.54	8.40	8.35	9.21	10.22
	3H	12.85	13.57	13.68	14.41	15.44	8.91	9.63	9.73	10.47	11.49
	4H	13.56	14.21	14.39	15.05	16.10	9.47	10.12	10.30	10.96	12.01
	6H	14.09	14.65	14.94	15.52	16.57	9.90	10.46	10.75	11.33	12.38
	8H	14.27	14.79	15.13	15.66	16.72	10.03	10.56	10.89	11.42	12.49
	12H	14.38	14.85	15.25	15.73	16.80	10.11	10.58	10.98	11.46	12.53
8H	4H	13.54	14.06	14.40	14.93	15.99	9.77	10.29	10.62	11.15	12.22
	6H	14.12	14.55	15.00	15.46	16.52	10.29	10.73	11.18	11.63	12.70
	8H	14.34	14.72	15.24	15.62	16.71	10.49	10.87	11.38	11.77	12.85
	12H	14.49	14.83	15.39	15.72	16.86	10.62	10.95	11.51	11.84	12.98
12H	4H	13.50	13.97	14.38	14.85	15.93	9.78	10.25	10.66	11.13	12.20
	6H	14.10	14.48	14.99	15.38	16.46	10.35	10.73	11.24	11.63	12.71
	8H	14.33	14.67	15.22	15.56	16.69	10.57	10.90	11.46	11.79	12.93