

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: P902323

Luminaire Tested: DFN2DIP-4P4F0-050D030US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902323
REPORT IS A COMBINATION OF REPORTS P900603 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D030US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

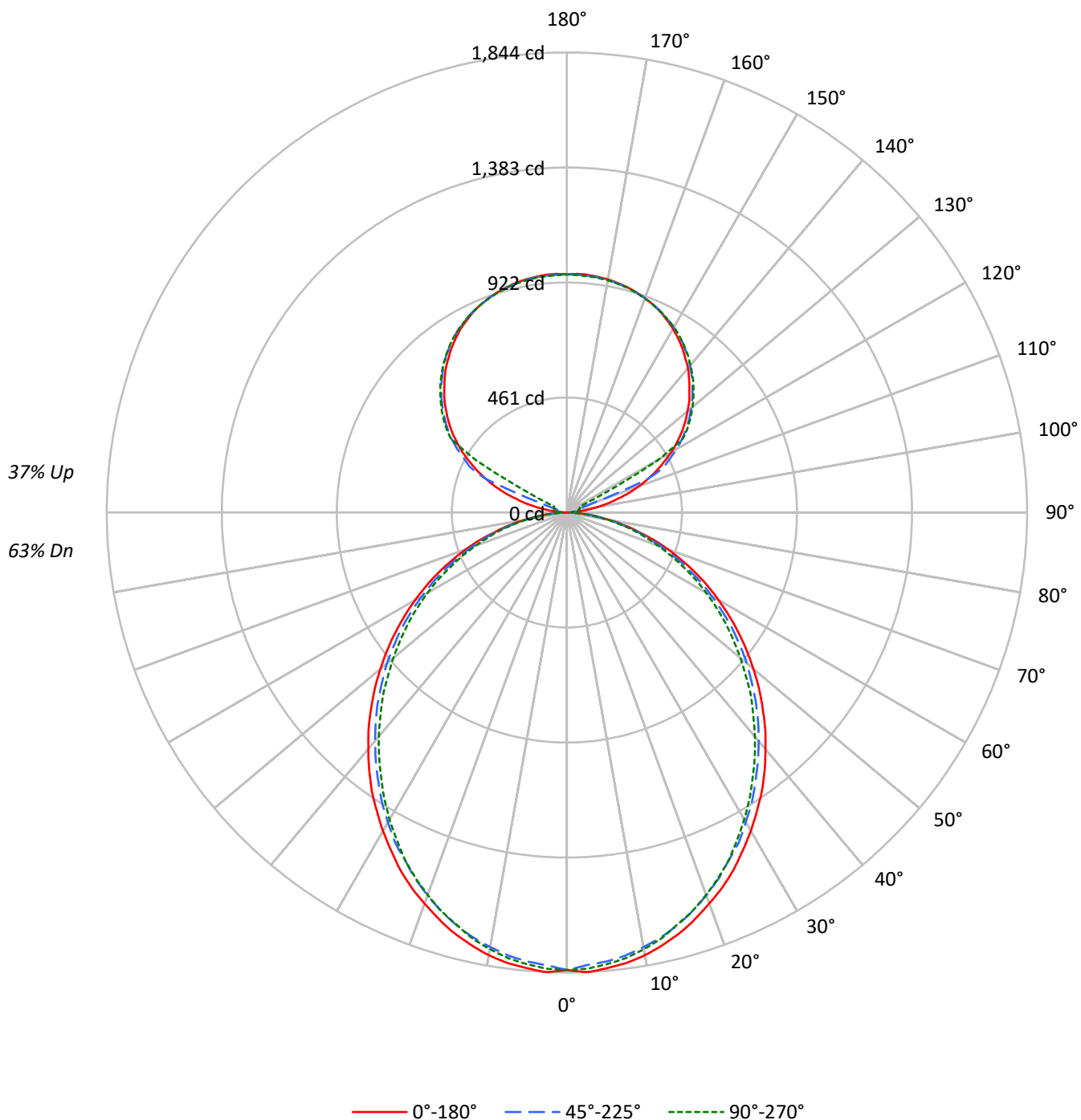
Lumens per Lamp: N/A
Luminaire Lumens: 7465.0 lumens
Efficiency: N/A
Efficacy: 102.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 73.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57
2	92	84	78	72	86	79	73	69	69	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	57	61	56	52	54	50	46	47	44	41
4	77	65	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	38	32	40	34	30	35	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	37	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	34	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1190	1190	1190
5°	1192	1173	1181
10°	1182	1158	1166
15°	1165	1139	1141
20°	1141	1113	1116
25°	1118	1082	1087
30°	1089	1053	1050
35°	1061	1018	1010
40°	1027	984	973
45°	993	949	935
50°	956	913	890
55°	917	870	850
60°	873	820	803
65°	826	768	748
70°	765	705	689
75°	680	630	636
80°	578	534	532
85°	420	367	359

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 993 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	2.3
10°-20°	485.6	6.5
20°-30°	713.7	9.6
30°-40°	828.9	11.1
40°-50°	827.8	11.1
50°-60°	721.8	9.7
60°-70°	533.6	7.1
70°-80°	301.9	4.0
80°-90°	81.4	1.1
90°-100°	31.5	0.4
100°-110°	117.3	1.6
110°-120°	311.1	4.2
120°-130°	516.0	6.9
130°-140°	548.1	7.3
140°-150°	509.4	6.8
150°-160°	409.6	5.5
160°-170°	263.9	3.5
170°-180°	90.8	1.2
0°-30°	1371.9	18.4
0°-40°	2200.7	29.5
0°-60°	3750.4	50.2
0°-90°	4667.3	62.5
90°-120°	459.9	6.2
90°-150°	2033.4	27.2
90°-180°	2798.0	37.5
0°-180°	7465.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1346	1317	1307	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	1	8	14	17	19	7
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.7	1833.7	1833.7	1833.7	1833.7
2.5°	1844.4	1835.6	1816.2	1833.7	1830.4
5°	1833.7	1826.8	1807.3	1821.4	1818.1
7.5°	1821.4	1810.9	1791.5	1805.7	1802.1
10°	1802.1	1789.8	1768.7	1782.6	1777.4
12.5°	1775.6	1765.1	1744.0	1752.8	1749.2
15°	1745.6	1735.1	1712.1	1719.3	1710.4
17.5°	1708.5	1698.1	1675.1	1683.9	1675.1
20°	1668.0	1657.6	1632.9	1638.0	1631.2
22.5°	1627.6	1611.7	1588.7	1588.7	1585.1
25°	1579.9	1565.8	1535.9	1539.3	1535.9
27.5°	1526.9	1514.6	1491.8	1486.5	1477.7
30°	1474.1	1460.0	1433.6	1428.3	1421.3
32.5°	1417.7	1407.2	1378.9	1368.3	1361.2
35°	1363.0	1345.5	1317.2	1306.6	1297.8
37.5°	1301.3	1285.4	1257.2	1244.8	1236.0
40°	1237.9	1223.7	1195.4	1179.7	1172.6
42.5°	1176.2	1162.0	1133.9	1116.1	1105.6
45°	1109.2	1096.8	1070.3	1051.0	1043.9
47.5°	1043.9	1031.5	1003.3	983.8	973.4
50°	975.1	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.9	853.5	841.1
55°	839.4	828.8	807.6	786.5	777.7
57.5°	770.5	761.8	738.8	717.7	710.5
60°	701.7	694.8	670.1	650.6	645.5
62.5°	634.8	622.5	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.4	356.2	347.4	335.1	329.8
75°	296.1	292.8	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3

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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	8.98	9.96	9.82	10.83	11.91	8.53	9.52	9.37	10.38	11.46
	3H	10.65	11.54	11.51	12.41	13.52	10.16	11.05	11.01	11.92	13.03
	4H	11.25	12.08	12.12	12.96	14.08	10.75	11.59	11.62	12.47	13.59
	6H	11.66	12.43	12.54	13.32	14.45	11.16	11.93	12.04	12.82	13.95
	8H	11.77	12.50	12.66	13.41	14.54	11.27	12.00	12.16	12.91	14.04
	12H	11.82	12.52	12.72	13.42	14.58	11.31	12.01	12.21	12.91	14.07
4H	2H	9.45	10.29	10.33	11.17	12.29	9.10	9.94	9.97	10.82	11.93
	3H	11.34	12.03	12.22	12.95	14.08	10.93	11.63	11.82	12.54	13.67
	4H	12.06	12.70	12.96	13.61	14.76	11.64	12.27	12.53	13.18	14.34
	6H	12.59	13.14	13.50	14.07	15.23	12.16	12.71	13.07	13.64	14.80
	8H	12.74	13.26	13.66	14.18	15.36	12.31	12.82	13.22	13.75	14.92
	12H	12.83	13.29	13.76	14.23	15.41	12.38	12.84	13.31	13.78	14.96
8H	4H	12.27	12.78	13.18	13.71	14.88	11.89	12.41	12.81	13.33	14.51
	6H	12.91	13.34	13.85	14.30	15.48	12.53	12.95	13.47	13.92	15.09
	8H	13.14	13.51	14.09	14.47	15.66	12.74	13.12	13.70	14.08	15.27
	12H	13.28	13.61	14.23	14.56	15.80	12.87	13.20	13.82	14.15	15.39
12H	4H	12.26	12.72	13.19	13.67	14.85	11.89	12.36	12.83	13.30	14.48
	6H	12.94	13.32	13.89	14.28	15.47	12.57	12.95	13.52	13.91	15.10
	8H	13.19	13.53	14.15	14.48	15.72	12.81	13.15	13.77	14.10	15.34

END OF REPORT