

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: P924110

Luminaire Tested: DFN2DIP-4P4F0-030D060US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924110
REPORT IS A COMBINATION OF REPORTS P899115 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D060US950-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

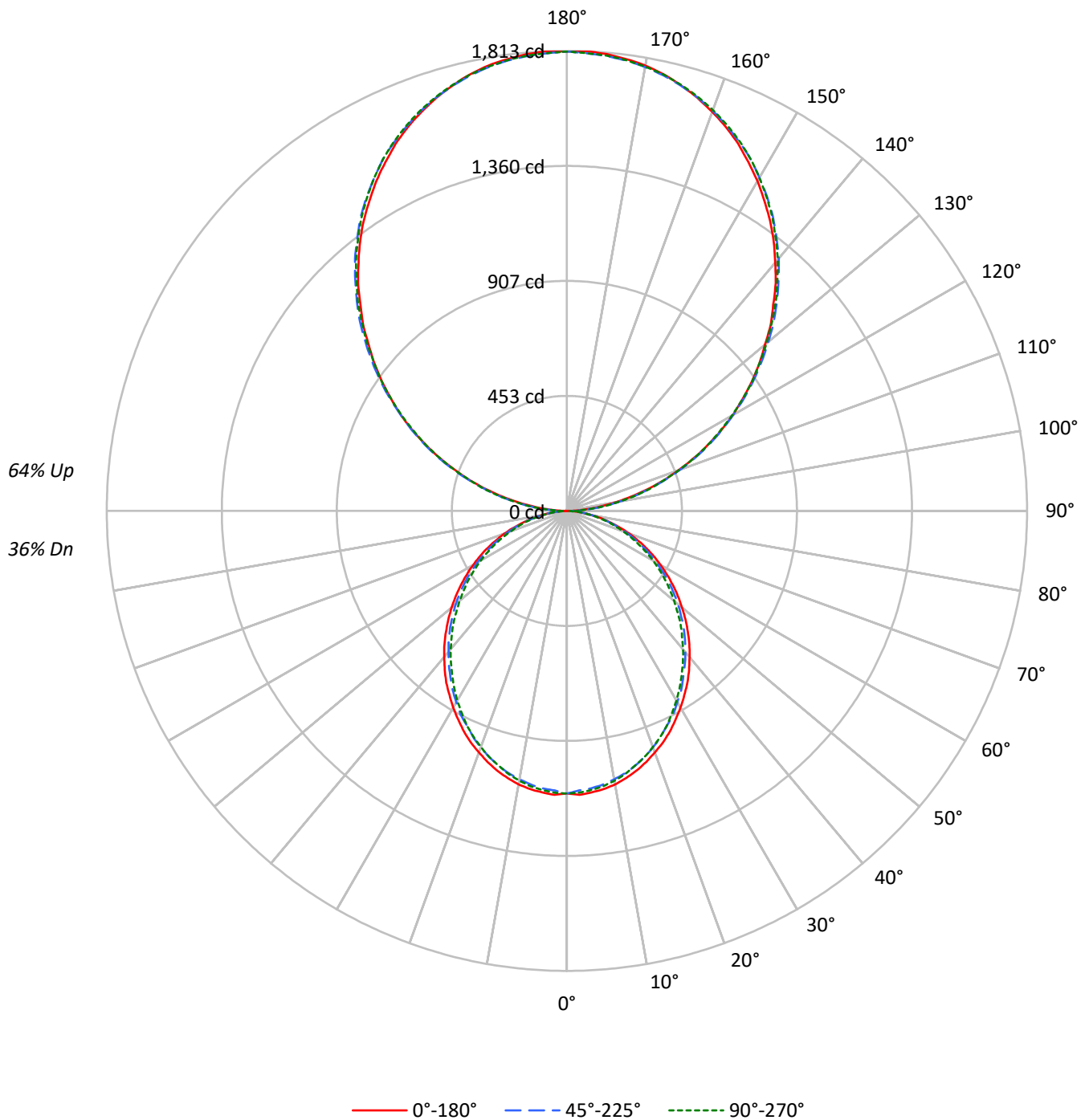
Lumens per Lamp: N/A
Luminaire Lumens: 7899.1 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 78
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	722	722	722
5°	724	713	717
10°	718	703	708
15°	707	692	693
20°	693	676	678
25°	679	657	660
30°	661	639	638
35°	645	618	614
40°	624	597	591
45°	603	576	568
50°	581	554	541
55°	557	529	516
60°	530	498	488
65°	501	467	455
70°	464	428	419
75°	413	383	386
80°	351	324	323
85°	255	223	218

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1369 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.8	1.3
10°-20°	294.9	3.7
20°-30°	433.4	5.5
30°-40°	503.4	6.4
40°-50°	502.7	6.4
50°-60°	438.4	5.5
60°-70°	324.1	4.1
70°-80°	183.3	2.3
80°-90°	53.5	0.7
90°-100°	112.0	1.4
100°-110°	355.9	4.5
110°-120°	609.1	7.7
120°-130°	801.1	10.1
130°-140°	899.2	11.4
140°-150°	881.7	11.2
150°-160°	739.6	9.4
160°-170°	490.5	6.2
170°-180°	171.4	2.2
0°-30°	833.1	10.5
0°-40°	1336.5	16.9
0°-60°	2277.6	28.8
0°-90°	2838.5	35.9
90°-120°	1077.0	13.6
90°-150°	3659.0	46.3
90°-180°	5061.0	64.1
0°-180°	7899.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1114	1114	1114	1114	1114	
5°	1114	1109	1098	1106	1104	106
15°	1060	1054	1040	1044	1039	299
25°	959	951	933	935	933	441
35°	828	817	800	793	788	517
45°	674	666	650	638	634	520
55°	510	503	490	478	472	456
65°	344	337	327	317	312	340
75°	180	178	172	166	168	192
85°	44	43	42	38	38	49
90°	2	20	54	50	52	8
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1113.6	1113.6	1113.6	1113.6	1113.6
2.5°	1120.1	1114.7	1102.9	1113.6	1111.6
5°	1113.6	1109.4	1097.6	1106.2	1104.1
7.5°	1106.2	1099.8	1087.9	1096.6	1094.4
10°	1094.4	1086.9	1074.1	1082.6	1079.5
12.5°	1078.3	1071.9	1059.1	1064.4	1062.3
15°	1060.1	1053.8	1039.8	1044.1	1038.7
17.5°	1037.6	1031.3	1017.3	1022.6	1017.3
20°	1013.0	1006.6	991.6	994.7	990.5
22.5°	988.4	978.8	964.8	964.8	962.6
25°	959.4	950.9	932.7	934.8	932.7
27.5°	927.3	919.8	905.9	902.8	897.4
30°	895.2	886.6	870.6	867.4	863.1
32.5°	861.0	854.6	837.4	830.9	826.6
35°	827.8	817.1	799.9	793.4	788.1
37.5°	790.3	780.7	763.5	755.9	750.6
40°	751.8	743.2	726.0	716.5	712.2
42.5°	714.3	705.7	688.6	677.8	671.4
45°	673.6	666.1	650.0	638.2	633.9
47.5°	633.9	626.5	609.3	597.5	591.1
50°	592.1	586.8	571.8	556.8	551.5
52.5°	551.5	544.0	530.1	518.3	510.8
55°	509.8	503.3	490.5	477.7	472.3
57.5°	467.9	462.6	448.7	435.8	431.5
60°	426.2	422.0	407.0	395.1	392.0
62.5°	385.5	378.0	367.3	356.6	352.3
65°	343.8	337.3	326.6	317.0	311.7
67.5°	301.0	295.5	285.9	278.5	274.2
70°	261.3	257.0	247.4	239.8	235.6
72.5°	220.7	216.3	210.9	203.5	200.3
75°	179.8	177.8	172.4	166.0	168.2
77.5°	143.5	139.2	137.0	133.8	130.7
80°	107.1	106.0	103.8	100.6	98.5
82.5°	72.8	72.8	71.8	67.4	67.4
85°	43.9	42.8	41.8	38.5	37.5
87.5°	19.3	17.2	15.0	11.8	10.7
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3

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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	4.70	5.44	5.77	6.52	7.97	4.25	5.00	5.32	6.07	7.53
	3H	6.35	7.02	7.43	8.10	9.58	5.86	6.53	6.94	7.61	9.09
	4H	6.94	7.58	8.03	8.66	10.14	6.45	7.08	7.54	8.16	9.65
	6H	7.34	7.92	8.44	9.01	10.50	6.84	7.42	7.94	8.51	10.00
	8H	7.44	8.00	8.55	9.10	10.59	6.94	7.50	8.04	8.60	10.09
	12H	7.49	8.02	8.60	9.11	10.62	6.98	7.51	8.09	8.60	10.12
4H	2H	5.14	5.78	6.24	6.86	8.34	4.79	5.43	5.89	6.51	7.99
	3H	7.01	7.54	8.11	8.65	10.14	6.60	7.13	7.70	8.24	9.73
	4H	7.72	8.21	8.83	9.31	10.82	7.30	7.78	8.40	8.88	10.40
	6H	8.23	8.65	9.35	9.77	11.28	7.80	8.22	8.92	9.34	10.85
	8H	8.38	8.77	9.50	9.89	11.41	7.95	8.34	9.06	9.45	10.98
	12H	8.46	8.81	9.59	9.93	11.46	8.01	8.36	9.14	9.48	11.01
8H	4H	7.91	8.30	9.02	9.41	10.94	7.53	7.92	8.65	9.04	10.56
	6H	8.54	8.86	9.68	10.02	11.54	8.16	8.48	9.30	9.64	11.16
	8H	8.77	9.05	9.91	10.18	11.73	8.37	8.65	9.52	9.79	11.33
	12H	8.90	9.14	10.04	10.28	11.85	8.48	8.73	9.63	9.86	11.44
12H	4H	7.89	8.24	9.02	9.37	10.90	7.52	7.88	8.65	9.00	10.53
	6H	8.57	8.85	9.71	9.99	11.53	8.20	8.48	9.34	9.62	11.16
	8H	8.81	9.06	9.96	10.19	11.77	8.43	8.68	9.58	9.81	11.39

END OF REPORT