

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: P902334

Luminaire Tested: DFN2DIP-4P4F0-050D060US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902334
REPORT IS A COMBINATION OF REPORTS P899119 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D060US830-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

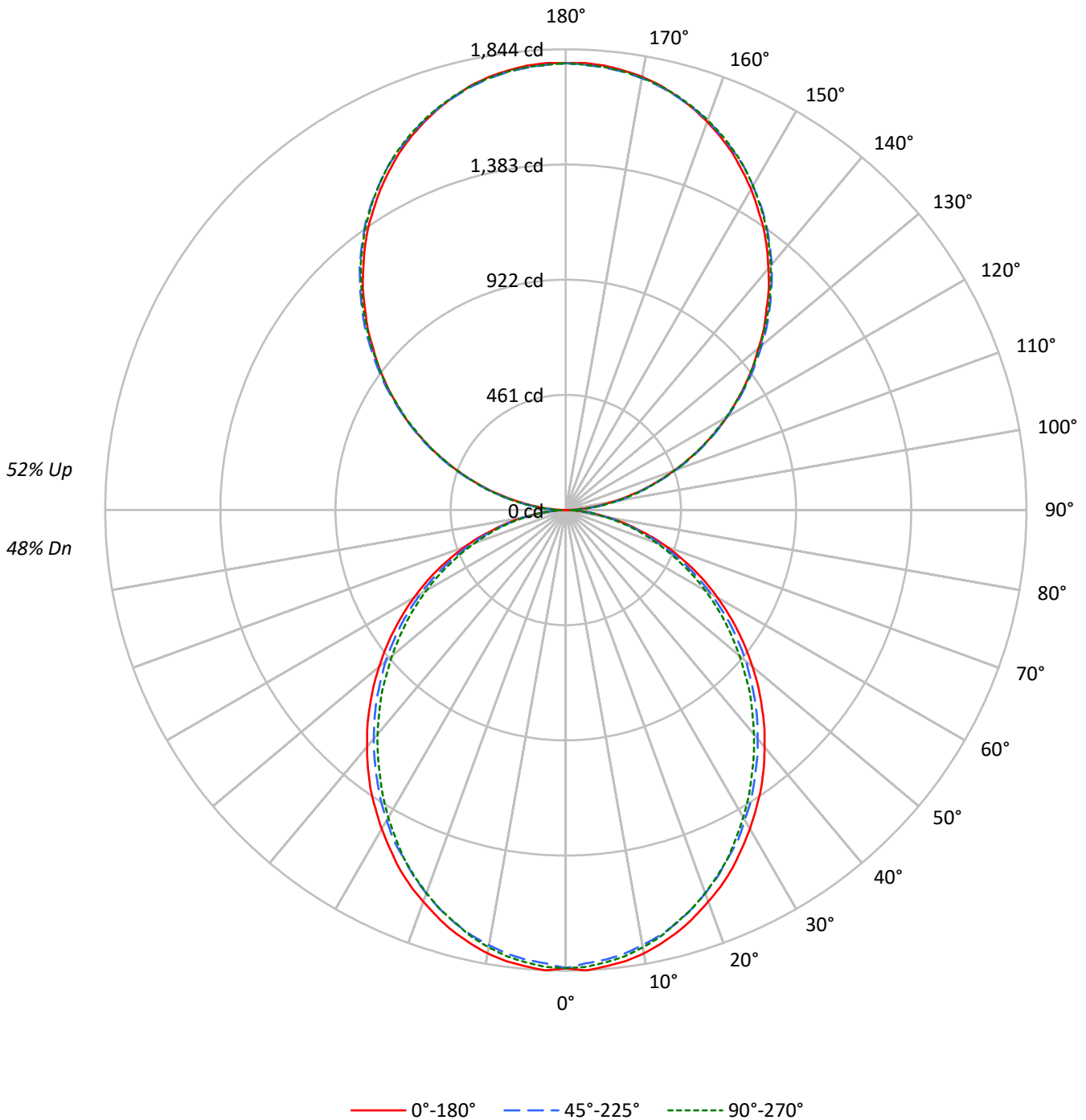
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9670.5 lumens
Efficiency: N/A
Efficacy: 96.3 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: General Diffuse

Input Watts (W): 100.4
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55	48	48	48	48
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46	41	41	41	41
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39	34	34	34	34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33	29	29	29	29
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28	25	25	25	25
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22	22	22	22
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22	19	19	19	19
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19	17	17	17	17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14	14	14	14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12	12	12	12

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: 90°
 Vertical Angle: 90°
 Luminance: 1353 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.8
10°-20°	485.6	5.0
20°-30°	713.7	7.4
30°-40°	828.9	8.6
40°-50°	827.8	8.6
50°-60°	721.8	7.5
60°-70°	533.6	5.5
70°-80°	301.9	3.1
80°-90°	84.8	0.9
90°-100°	110.7	1.1
100°-110°	351.6	3.6
110°-120°	601.8	6.2
120°-130°	791.4	8.2
130°-140°	888.4	9.2
140°-150°	871.1	9.0
150°-160°	730.8	7.6
160°-170°	484.6	5.0
170°-180°	169.4	1.8
0°-30°	1371.9	14.2
0°-40°	2200.7	22.8
0°-60°	3750.4	38.8
0°-90°	4670.7	48.3
90°-120°	1064.1	11.0
90°-150°	3615.0	37.4
90°-180°	5000.0	51.7
0°-180°	9670.5	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°	2	19	53	50	51	9
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	613	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1582	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1789	1779	170
180°	1789	1789	1789	1789	1789	



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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°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.1	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.2	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.9	540.3	535.9	532.7
115°	603.9	612.6	609.8	608.2	603.9
117.5°	674.6	686.5	678.8	674.6	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.5	817.9	813.7	810.4
125°	878.4	891.8	887.5	882.7	881.1
127.5°	944.7	961.4	955.5	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.3
132.5°	1076.3	1091.4	1092.4	1084.9	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.1
137.5°	1203.0	1216.4	1219.2	1218.0	1211.6
140°	1261.8	1275.3	1282.8	1282.8	1276.9
142.5°	1322.1	1335.6	1339.9	1341.5	1335.6
145°	1379.3	1390.1	1398.7	1400.3	1394.4
147.5°	1430.5	1444.0	1450.5	1453.1	1447.2
150°	1483.4	1492.5	1498.5	1503.3	1498.5
152.5°	1530.2	1539.5	1547.0	1552.9	1547.0
155°	1577.2	1581.5	1586.3	1593.9	1589.0
157.5°	1617.6	1620.9	1623.5	1634.4	1626.8
160°	1653.8	1657.0	1658.6	1667.7	1661.3
162.5°	1687.2	1687.2	1688.8	1699.0	1691.5
165°	1715.7	1714.1	1714.1	1724.9	1717.4
167.5°	1741.6	1736.8	1736.8	1747.6	1740.0
170°	1761.0	1756.7	1755.1	1765.9	1756.7
172.5°	1774.5	1770.2	1768.6	1779.3	1770.2
175°	1785.3	1781.0	1777.7	1788.6	1779.3
177.5°	1791.2	1787.0	1783.7	1792.8	1783.7
180°	1788.6	1788.6	1788.6	1788.6	1788.6



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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	7.73	8.58	8.70	9.56	10.86	7.29	8.14	8.26	9.12	10.42
	3H	9.40	10.16	10.38	11.15	12.47	8.91	9.67	9.89	10.66	11.98
	4H	9.99	10.71	10.98	11.71	13.03	9.49	10.21	10.49	11.21	12.54
	6H	10.39	11.05	11.40	12.06	13.40	9.89	10.55	10.90	11.56	12.89
	8H	10.50	11.13	11.51	12.15	13.48	10.00	10.63	11.01	11.65	12.98
	12H	10.55	11.15	11.57	12.16	13.52	10.04	10.64	11.06	11.65	13.01
4H	2H	8.19	8.91	9.19	9.91	11.24	7.84	8.56	8.84	9.56	10.88
	3H	10.06	10.66	11.08	11.69	13.03	9.66	10.26	10.67	11.28	12.62
	4H	10.78	11.33	11.80	12.35	13.71	10.36	10.91	11.38	11.93	13.29
	6H	11.30	11.77	12.33	12.82	14.18	10.87	11.34	11.90	12.39	13.74
	8H	11.45	11.90	12.48	12.93	14.30	11.02	11.46	12.05	12.49	13.87
	12H	11.53	11.93	12.58	12.98	14.36	11.08	11.48	12.13	12.53	13.91
8H	4H	10.98	11.42	12.01	12.46	13.83	10.60	11.04	11.63	12.08	13.45
	6H	11.62	11.98	12.67	13.06	14.43	11.23	11.60	12.29	12.67	14.05
	8H	11.84	12.16	12.90	13.22	14.61	11.45	11.77	12.51	12.83	14.22
	12H	11.97	12.26	13.04	13.31	14.75	11.56	11.85	12.63	12.90	14.34
12H	4H	10.96	11.36	12.01	12.41	13.79	10.60	10.99	11.65	12.05	13.42
	6H	11.65	11.97	12.71	13.03	14.42	11.27	11.60	12.34	12.66	14.05
	8H	11.89	12.17	12.96	13.23	14.66	11.51	11.79	12.58	12.85	14.28