

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: P902338

Luminaire Tested: DFN2DIP-4P4F0-050D070US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902338
REPORT IS A COMBINATION OF REPORTS P899131 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D070US830-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

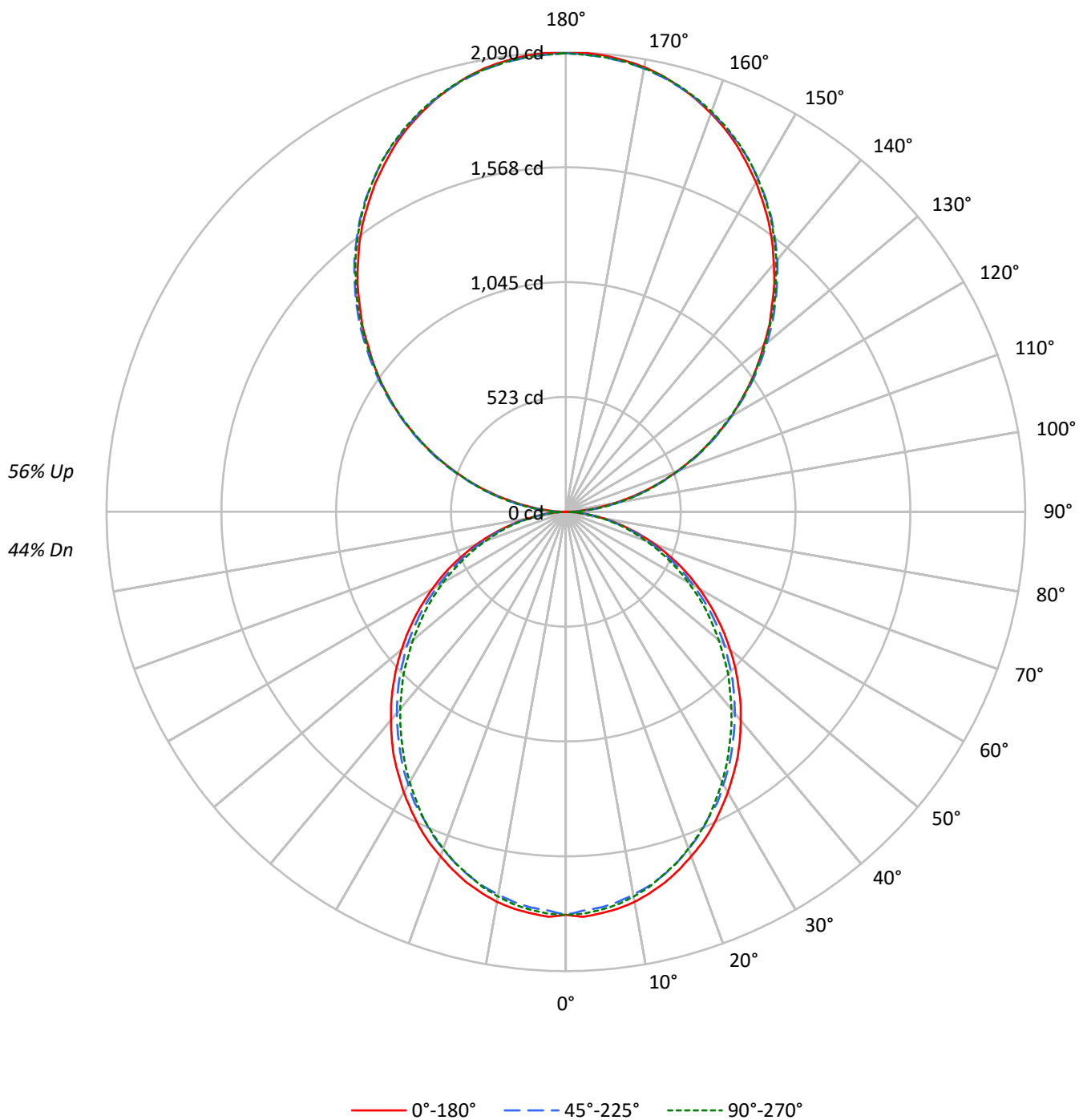
Lumens per Lamp: N/A
Luminaire Lumens: 10504.7 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.2
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

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: 1580 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.6
10°-20°	485.6	4.6
20°-30°	713.7	6.8
30°-40°	828.9	7.9
40°-50°	827.8	7.9
50°-60°	721.8	6.9
60°-70°	533.6	5.1
70°-80°	301.9	2.9
80°-90°	85.6	0.8
90°-100°	129.1	1.2
100°-110°	410.3	3.9
110°-120°	702.1	6.7
120°-130°	923.3	8.8
130°-140°	1036.4	9.9
140°-150°	1016.3	9.7
150°-160°	852.6	8.1
160°-170°	565.4	5.4
170°-180°	197.6	1.9
0°-30°	1371.9	13.1
0°-40°	2200.7	20.9
0°-60°	3750.4	35.7
0°-90°	4671.5	44.5
90°-120°	1241.5	11.8
90°-150°	4217.6	40.1
90°-180°	5833.0	55.5
0°-180°	10504.7	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	23	62	58	60	10
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	705	715	712	710	705	697
125°	1025	1040	1036	1030	1028	916
135°	1326	1345	1349	1347	1342	1025
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2087	2076	198
180°	2087	2087	2087	2087	2087	

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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°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.6	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.1	459.2
110°	537.2	547.3	547.3	547.3	542.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.3	630.4	625.3	621.5
115°	704.6	714.6	711.5	709.6	704.6
117.5°	786.9	800.8	792.0	786.9	781.9
120°	870.0	883.8	870.0	870.0	864.3
122.5°	945.5	963.1	954.3	949.2	945.5
125°	1024.7	1040.5	1035.5	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.5	1197.1	1194.0	1190.2	1183.3
132.5°	1255.7	1273.3	1274.5	1265.7	1260.7
135°	1325.5	1344.9	1348.8	1346.8	1341.8
137.5°	1403.4	1419.2	1422.3	1421.1	1413.5
140°	1472.1	1487.8	1496.6	1496.6	1489.7
142.5°	1542.5	1558.2	1563.2	1565.1	1558.2
145°	1609.2	1621.7	1631.8	1633.7	1626.8
147.5°	1669.0	1684.7	1692.2	1695.4	1688.5
150°	1730.6	1741.3	1748.2	1753.9	1748.2
152.5°	1785.3	1796.0	1804.8	1811.8	1804.8
155°	1840.0	1845.0	1850.8	1859.5	1853.9
157.5°	1887.3	1891.0	1894.1	1906.8	1897.9
160°	1929.4	1933.2	1935.0	1945.7	1938.1
162.5°	1968.4	1968.4	1970.3	1982.2	1973.4
165°	2001.7	1999.8	1999.8	2012.4	2003.6
167.5°	2031.9	2026.3	2026.3	2038.8	2030.0
170°	2054.6	2049.6	2047.7	2060.2	2049.6
172.5°	2070.3	2065.2	2063.3	2075.9	2065.2
175°	2082.8	2077.8	2074.1	2086.6	2075.9
177.5°	2089.8	2084.7	2080.9	2091.7	2080.9
180°	2086.6	2086.6	2086.6	2086.6	2086.6

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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	7.36	8.17	8.36	9.19	10.53	6.91	7.73	7.92	8.74	10.09
	3H	9.02	9.75	10.03	10.77	12.14	8.53	9.26	9.54	10.28	11.65
	4H	9.61	10.30	10.64	11.33	12.70	9.12	9.81	10.14	10.83	12.21
	6H	10.01	10.65	11.05	11.68	13.07	9.51	10.15	10.55	11.18	12.57
	8H	10.12	10.72	11.16	11.77	13.15	9.62	10.22	10.66	11.27	12.65
	12H	10.17	10.74	11.21	11.78	13.19	9.66	10.23	10.70	11.27	12.68
4H	2H	7.81	8.51	8.85	9.53	10.91	7.46	8.15	8.49	9.18	10.55
	3H	9.68	10.26	10.72	11.31	12.70	9.28	9.85	10.32	10.91	12.30
	4H	10.40	10.93	11.45	11.97	13.39	9.98	10.50	11.02	11.55	12.96
	6H	10.92	11.37	11.97	12.44	13.85	10.49	10.94	11.54	12.01	13.42
	8H	11.07	11.49	12.13	12.55	13.98	10.63	11.06	11.69	12.12	13.54
	12H	11.14	11.53	12.22	12.60	14.03	10.69	11.08	11.77	12.15	13.58
8H	4H	10.59	11.02	11.65	12.08	13.50	10.22	10.64	11.27	11.70	13.12
	6H	11.23	11.58	12.31	12.68	14.10	10.85	11.20	11.93	12.30	13.72
	8H	11.45	11.76	12.54	12.85	14.29	11.06	11.37	12.15	12.46	13.89
	12H	11.59	11.86	12.68	12.94	14.42	11.18	11.45	12.27	12.53	14.01
12H	4H	10.58	10.96	11.65	12.04	13.46	10.21	10.59	11.29	11.67	13.10
	6H	11.26	11.57	12.35	12.65	14.09	10.89	11.20	11.98	12.28	13.72
	8H	11.50	11.77	12.60	12.86	14.34	11.12	11.39	12.22	12.48	13.96