

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: P903660

Luminaire Tested: DFN2DIP-SQ3F0-050D070US830-FLLFLL

Issue Date: 11/21/2024

**Test Information**

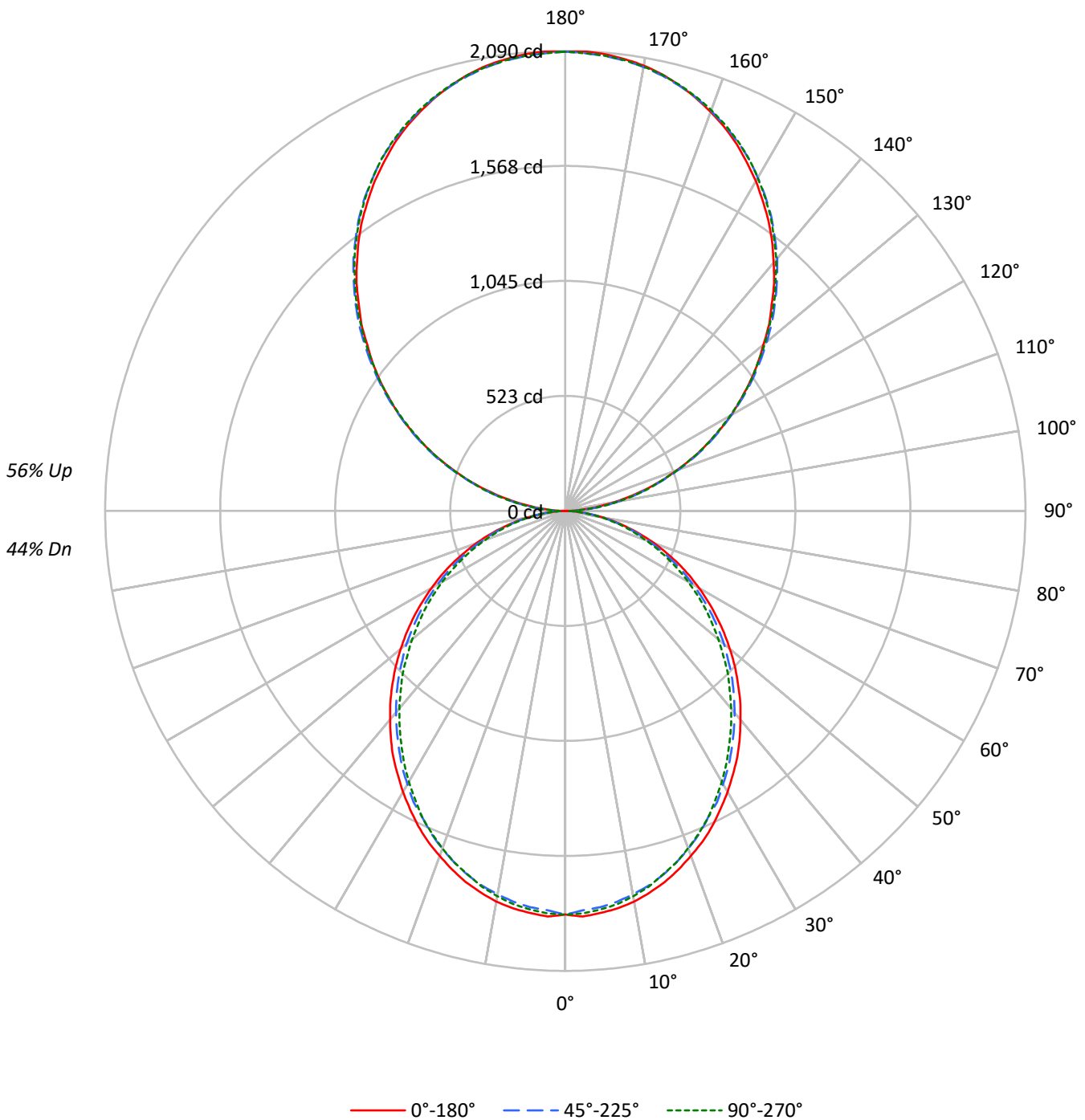
Test Method: LM-79-2019  
Report Number: P903660  
REPORT IS A COMBINATION OF REPORTS P899917 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-050D070US830-FLLFLL  
Description: 3 foot, Square 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: 110.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 94.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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				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	50	30	10	
RCR																								
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51				44			
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43				37			
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36				31			
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31				27			
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27				23			
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23				20			
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20				17			
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18				15			
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16				14			
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15				12			
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13				11			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2101	2101	2101
5°	2103	2070	2085
10°	2085	2041	2056
15°	2053	2006	2011
20°	2010	1958	1966
25°	1967	1901	1913
30°	1914	1848	1846
35°	1864	1785	1775
40°	1802	1721	1707
45°	1741	1658	1638
50°	1673	1591	1558
55°	1602	1514	1484
60°	1522	1422	1400
65°	1434	1327	1300
70°	1323	1211	1193
75°	1169	1072	1093
80°	982	894	903
85°	691	592	591

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2100 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	9.28	10.10	10.28	11.11	12.46	8.84	9.65	9.84	10.67	12.01
	3H	10.93	11.66	11.95	12.69	14.06	10.44	11.17	11.46	12.20	13.56
	4H	11.52	12.21	12.54	13.23	14.61	11.02	11.71	12.05	12.74	14.12
	6H	11.91	12.55	12.95	13.58	14.97	11.41	12.05	12.45	13.08	14.47
	8H	12.01	12.62	13.05	13.66	15.05	11.51	12.12	12.55	13.16	14.55
	12H	12.06	12.63	13.10	13.67	15.08	11.55	12.12	12.59	13.16	14.57
4H	2H	9.73	10.42	10.77	11.45	12.83	9.38	10.07	10.41	11.10	12.47
	3H	11.59	12.17	12.63	13.22	14.61	11.18	11.76	12.22	12.81	14.20
	4H	12.30	12.83	13.35	13.87	15.28	11.87	12.40	12.92	13.45	14.86
	6H	12.81	13.26	13.86	14.33	15.74	12.37	12.83	13.43	13.90	15.30
	8H	12.95	13.38	14.01	14.44	15.86	12.52	12.94	13.57	14.00	15.42
	12H	13.02	13.40	14.10	14.48	15.91	12.57	12.96	13.65	14.03	15.46
8H	4H	12.49	12.91	13.54	13.97	15.39	12.11	12.53	13.17	13.60	15.02
	6H	13.11	13.46	14.19	14.56	15.98	12.73	13.08	13.81	14.18	15.60
	8H	13.33	13.63	14.42	14.72	16.16	12.93	13.24	14.02	14.33	15.77
	12H	13.45	13.72	14.54	14.81	16.28	13.04	13.31	14.13	14.39	15.87
12H	4H	12.47	12.85	13.55	13.93	15.36	12.10	12.48	13.18	13.56	14.99
	6H	13.14	13.45	14.23	14.53	15.97	12.77	13.07	13.85	14.16	15.60
	8H	13.37	13.64	14.47	14.73	16.21	12.99	13.26	14.08	14.35	15.82