

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: P915979

Luminaire Tested: DFN2DIP-4P4F0-050D070US930-FLONL

Issue Date: 11/21/2024

**Test Information**

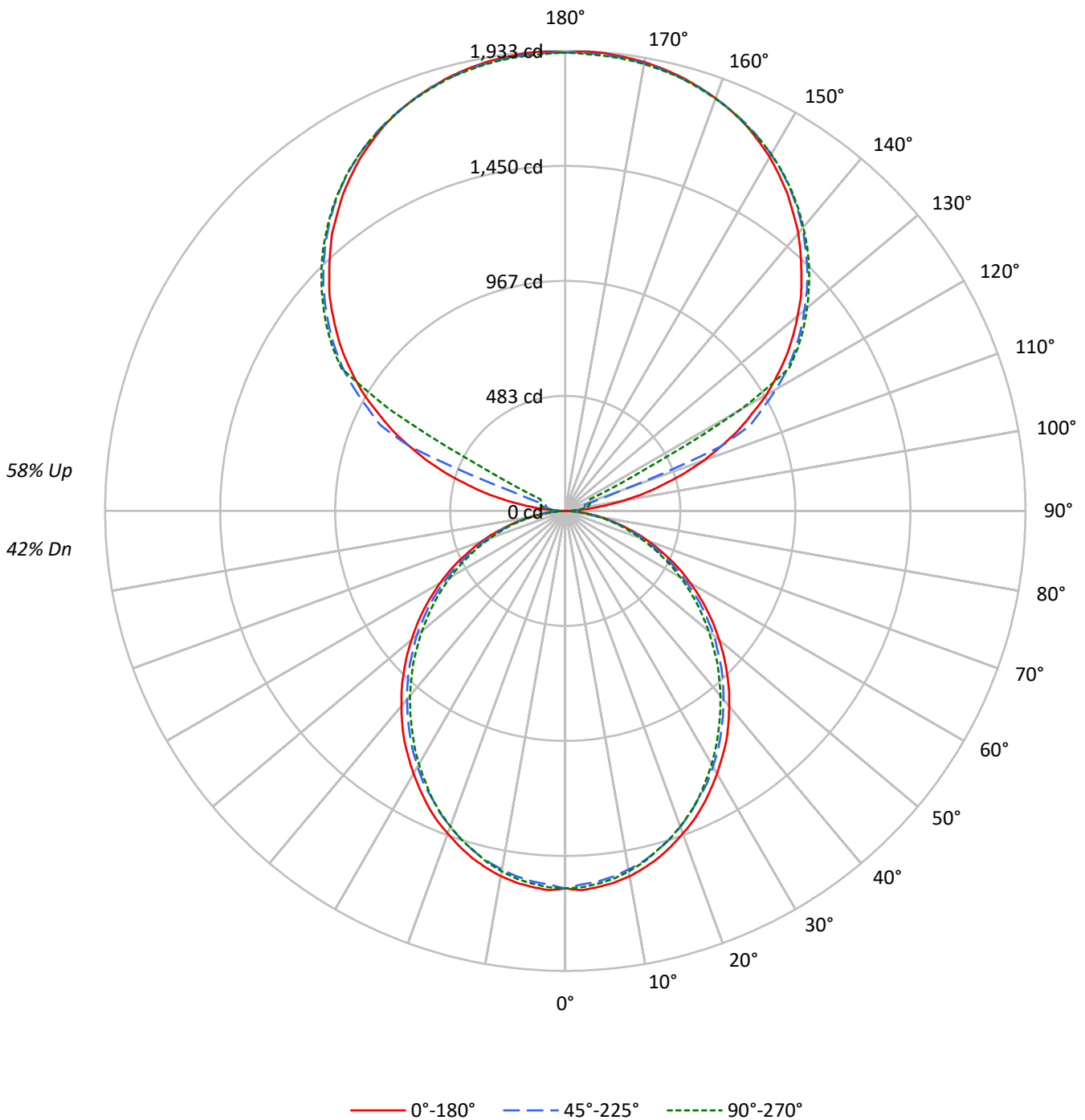
Test Method: LM-79-2019  
Report Number: P915979  
REPORT IS A COMBINATION OF REPORTS P900651 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-050D070US930-FLLONL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9685.7 lumens  
Efficiency: N/A  
Efficacy: 87.1 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: 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			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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	42
1	96	92	88	84	87	84	80	78	69	67	65	55	54	52	43	42	41	41	41	41	35
2	87	80	74	69	79	73	68	64	60	57	53	49	46	44	38	36	34	34	34	34	29
3	80	70	63	57	72	64	58	53	53	49	45	43	40	37	33	31	29	29	29	29	25
4	73	62	54	48	66	57	50	45	47	42	38	38	35	32	30	27	25	25	25	25	21
5	67	55	47	41	61	51	44	39	42	37	33	34	30	27	27	24	22	22	22	22	19
6	62	50	42	36	56	46	39	33	38	33	29	31	27	24	24	22	19	19	19	19	16
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17	17	17	17	14
8	53	41	33	28	48	37	31	26	31	26	22	26	22	19	20	18	15	15	15	15	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	14	14	14	12
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	18	15	13	13	13	13	11

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

	0°	45°	90°
0°	1029	1029	1029
5°	1031	1015	1022
10°	1022	1002	1008
15°	1007	986	987
20°	987	963	965
25°	967	936	940
30°	942	911	908
35°	918	881	874
40°	889	851	842
45°	859	821	809
50°	827	789	770
55°	793	753	735
60°	755	709	695
65°	714	665	647
70°	661	610	597
75°	588	545	550
80°	500	462	460
85°	363	317	310

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 994 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	149.3	1.5
10°-20°	420.0	4.3
20°-30°	617.3	6.4
30°-40°	717.0	7.4
40°-50°	716.1	7.4
50°-60°	624.4	6.4
60°-70°	461.6	4.8
70°-80°	261.1	2.7
80°-90°	72.3	0.7
90°-100°	63.5	0.7
100°-110°	236.8	2.4
110°-120°	627.9	6.5
120°-130°	1041.5	10.8
130°-140°	1106.3	11.4
140°-150°	1028.1	10.6
150°-160°	826.6	8.5
160°-170°	532.6	5.5
170°-180°	183.3	1.9
0°-30°	1186.6	12.3
0°-40°	1903.6	19.7
0°-60°	3244.1	33.5
0°-90°	4039.1	41.7
90°-120°	928.2	9.6
90°-150°	4104.1	42.4
90°-180°	5647.0	58.3
0°-180°	9685.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1586	1586	1586	1586	1586	
5°	1586	1580	1563	1576	1573	151
15°	1510	1501	1481	1487	1480	425
25°	1367	1354	1328	1332	1328	629
35°	1179	1164	1139	1130	1123	736
45°	959	949	926	909	903	740
55°	726	717	698	680	673	649
65°	490	480	465	452	444	484
75°	256	253	246	236	240	273
85°	62	61	60	55	53	70
90°	1	17	28	35	38	9
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1586.2	1586.2	1586.2	1586.2	1586.2
2.5°	1595.4	1587.8	1571.0	1586.2	1583.3
5°	1586.2	1580.2	1563.3	1575.5	1572.6
7.5°	1575.5	1566.4	1549.6	1561.9	1558.9
10°	1558.9	1548.2	1529.9	1542.0	1537.5
12.5°	1535.9	1526.8	1508.5	1516.1	1513.0
15°	1509.9	1500.9	1481.0	1487.2	1479.5
17.5°	1477.9	1468.8	1448.9	1456.5	1448.9
20°	1442.8	1433.8	1412.4	1416.9	1411.0
22.5°	1407.9	1394.1	1374.2	1374.2	1371.1
25°	1366.6	1354.5	1328.5	1331.5	1328.5
27.5°	1320.8	1310.1	1290.4	1285.8	1278.2
30°	1275.1	1262.9	1240.1	1235.5	1229.4
32.5°	1226.3	1217.2	1192.8	1183.6	1177.5
35°	1179.0	1163.8	1139.4	1130.2	1122.6
37.5°	1125.6	1111.9	1087.4	1076.8	1069.2
40°	1070.8	1058.5	1034.0	1020.4	1014.3
42.5°	1017.4	1005.1	980.8	965.4	956.3
45°	959.4	948.8	925.8	909.1	902.9
47.5°	902.9	892.3	867.9	851.0	842.0
50°	843.4	835.8	814.5	793.1	785.5
52.5°	785.5	774.8	755.0	738.3	727.6
55°	726.1	716.9	698.5	680.3	672.7
57.5°	666.5	658.9	639.0	620.8	614.6
60°	607.0	601.0	579.7	562.8	558.3
62.5°	549.1	538.4	523.2	507.9	501.8
65°	489.7	480.5	465.2	451.5	443.8
67.5°	428.7	420.9	407.3	396.6	390.4
70°	372.2	366.1	352.3	341.6	335.7
72.5°	314.3	308.1	300.5	289.8	285.3
75°	256.2	253.2	245.5	236.4	239.5
77.5°	204.4	198.2	195.2	190.6	186.1
80°	152.6	151.0	147.9	143.4	140.3
82.5°	103.7	103.7	102.2	96.1	96.1
85°	62.5	61.0	59.5	54.9	53.4
87.5°	27.5	24.5	21.4	16.8	15.2
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1



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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	6.57	7.36	7.60	8.40	9.78	6.13	6.92	7.15	7.95	9.34
	3H	8.23	8.94	9.27	9.98	11.39	7.74	8.45	8.78	9.49	10.90
	4H	8.82	9.49	9.87	10.54	11.95	8.33	9.00	9.37	10.04	11.45
	6H	9.22	9.84	10.28	10.89	12.31	8.72	9.34	9.78	10.39	11.81
	8H	9.33	9.92	10.39	10.98	12.40	8.82	9.41	9.89	10.48	11.90
	12H	9.37	9.93	10.44	10.99	12.44	8.86	9.42	9.93	10.48	11.93
4H	2H	7.02	7.70	8.08	8.74	10.15	6.67	7.34	7.72	8.39	9.80
	3H	8.89	9.45	9.95	10.52	11.95	8.48	9.04	9.55	10.12	11.54
	4H	9.61	10.12	10.67	11.18	12.63	9.18	9.70	10.25	10.76	12.21
	6H	10.12	10.57	11.20	11.65	13.09	9.69	10.13	10.77	11.22	12.66
	8H	10.27	10.69	11.35	11.77	13.22	9.84	10.25	10.91	11.33	12.79
	12H	10.35	10.72	11.44	11.81	13.27	9.90	10.27	10.99	11.36	12.82
8H	4H	9.80	10.21	10.88	11.29	12.75	9.42	9.83	10.50	10.91	12.37
	6H	10.43	10.77	11.53	11.90	13.35	10.05	10.39	11.15	11.51	12.97
	8H	10.66	10.96	11.76	12.06	13.53	10.26	10.56	11.37	11.67	13.14
	12H	10.79	11.05	11.90	12.15	13.66	10.38	10.64	11.49	11.74	13.25
12H	4H	9.78	10.15	10.88	11.25	12.71	9.41	9.79	10.51	10.88	12.34
	6H	10.46	10.76	11.57	11.87	13.34	10.09	10.39	11.20	11.49	12.97
	8H	10.71	10.97	11.82	12.07	13.58	10.33	10.59	11.44	11.69	13.20