

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: P904974

Luminaire Tested: DFN2DIP-4P3F0-050D050US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904974
REPORT IS A COMBINATION OF REPORTS P899065 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D050US835-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

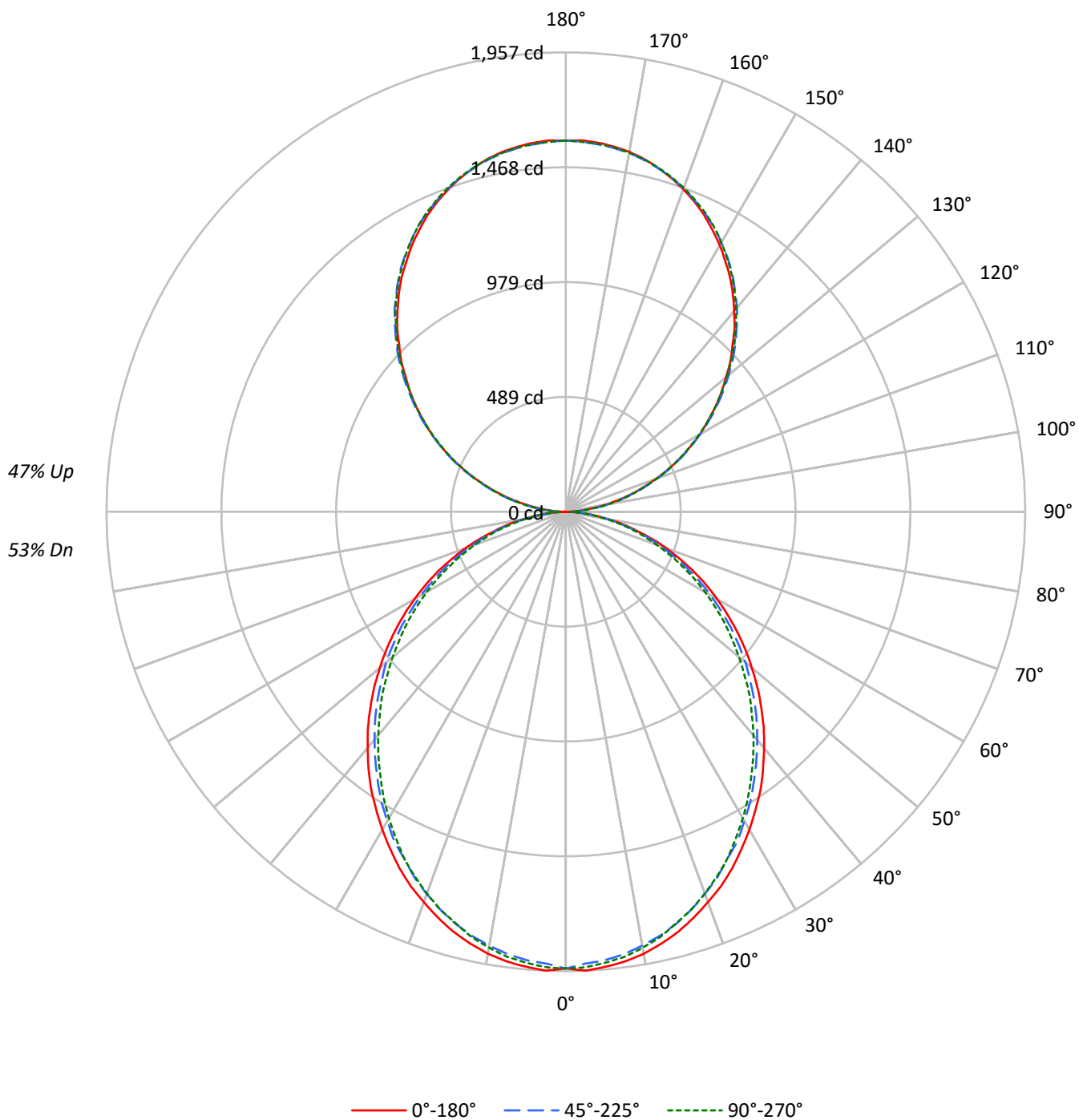
Lumens per Lamp: N/A
Luminaire Lumens: 9375.0 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 87
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2217	2217	2217
5°	2219	2185	2200
10°	2200	2154	2170
15°	2166	2117	2122
20°	2121	2066	2074
25°	2076	2006	2018
30°	2020	1950	1948
35°	1967	1884	1873
40°	1902	1817	1802
45°	1837	1750	1729
50°	1766	1679	1644
55°	1691	1597	1567
60°	1606	1501	1478
65°	1514	1400	1372
70°	1396	1278	1259
75°	1234	1131	1154
80°	1037	944	953
85°	730	626	624

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1837 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	183.1	2.0
10°-20°	515.2	5.5
20°-30°	757.2	8.1
30°-40°	879.4	9.4
40°-50°	878.3	9.4
50°-60°	765.8	8.2
60°-70°	566.1	6.0
70°-80°	320.3	3.4
80°-90°	89.0	0.9
90°-100°	97.8	1.0
100°-110°	310.9	3.3
110°-120°	532.1	5.7
120°-130°	699.7	7.5
130°-140°	785.4	8.4
140°-150°	770.2	8.2
150°-160°	646.1	6.9
160°-170°	428.5	4.6
170°-180°	149.8	1.6
0°-30°	1455.5	15.5
0°-40°	2334.9	24.9
0°-60°	3979.0	42.4
0°-90°	4954.5	52.8
90°-120°	940.8	10.0
90°-150°	3196.2	34.1
90°-180°	4421.0	47.2
0°-180°	9375.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1946	1946	1946	1946	1946	
5°	1946	1938	1918	1932	1929	185
15°	1852	1841	1816	1824	1815	522
25°	1676	1661	1630	1633	1630	771
35°	1446	1428	1398	1386	1377	903
45°	1177	1164	1136	1115	1108	908
55°	891	879	857	834	825	796
65°	601	589	571	554	544	594
75°	314	311	301	290	294	335
85°	77	75	73	67	66	85
90°	1	17	47	44	45	9
95°	70	83	85	85	83	77
105°	287	291	294	296	296	303
115°	534	542	539	538	534	528
125°	777	788	785	780	779	694
135°	1004	1019	1022	1021	1017	776
145°	1220	1229	1237	1238	1233	762
155°	1394	1398	1402	1409	1405	642
165°	1517	1516	1516	1525	1518	428
175°	1578	1575	1572	1581	1573	150
180°	1581	1581	1581	1581	1581	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1945.5	1945.5	1945.5	1945.5	1945.5
2.5°	1956.8	1947.5	1926.9	1945.5	1942.0
5°	1945.5	1938.2	1917.5	1932.4	1928.9
7.5°	1932.4	1921.3	1900.7	1915.8	1912.0
10°	1912.0	1898.9	1876.5	1891.3	1885.8
12.5°	1883.8	1872.7	1850.3	1859.6	1855.8
15°	1852.0	1840.9	1816.5	1824.1	1814.7
17.5°	1812.7	1801.6	1777.2	1786.5	1777.2
20°	1769.7	1758.6	1732.4	1737.9	1730.6
22.5°	1726.8	1709.9	1685.5	1685.5	1681.7
25°	1676.2	1661.3	1629.5	1633.1	1629.5
27.5°	1620.0	1606.9	1582.7	1577.1	1567.8
30°	1564.0	1549.0	1521.0	1515.4	1507.9
32.5°	1504.1	1493.0	1463.0	1451.7	1444.2
35°	1446.1	1427.5	1397.5	1386.2	1376.9
37.5°	1380.6	1363.8	1333.8	1320.7	1311.4
40°	1313.4	1298.3	1268.3	1251.6	1244.1
42.5°	1247.9	1232.8	1203.0	1184.1	1173.0
45°	1176.8	1163.7	1135.5	1115.1	1107.5
47.5°	1107.5	1094.4	1064.5	1043.8	1032.7
50°	1034.5	1025.2	999.0	972.8	963.4
52.5°	963.4	950.3	926.1	905.5	892.4
55°	890.6	879.3	856.8	834.4	825.1
57.5°	817.5	808.2	783.8	761.4	753.8
60°	744.5	737.2	711.0	690.3	684.8
62.5°	673.5	660.4	641.7	623.0	615.5
65°	600.6	589.3	570.6	553.8	544.4
67.5°	525.8	516.3	499.6	486.5	478.9
70°	456.5	449.0	432.1	419.0	411.7
72.5°	385.5	377.9	368.6	355.5	349.9
75°	314.2	310.6	301.1	290.0	293.8
77.5°	250.7	243.1	239.4	233.8	228.3
80°	187.2	185.2	181.4	175.9	172.1
82.5°	127.2	127.2	125.4	117.9	117.9
85°	76.6	74.8	73.0	67.3	65.5
87.5°	33.7	30.0	26.2	20.6	18.7
90°	1.4	17.2	46.7	43.9	45.3
92.5°	29.6	40.0	41.5	42.9	42.9
95°	69.6	83.0	85.3	85.3	83.0
97.5°	115.8	128.2	133.5	133.5	133.5
100°	169.2	180.2	184.0	184.0	182.6
102.5°	225.5	233.6	238.8	240.3	238.8
105°	287.0	290.8	293.7	296.0	296.0
107.5°	348.0	353.7	353.7	354.7	348.0
110°	407.1	414.8	414.8	414.8	410.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	471.0	479.1	477.7	473.9	471.0
115°	533.9	541.6	539.2	537.8	533.9
117.5°	596.4	606.9	600.2	596.4	592.6
120°	659.3	669.8	659.3	659.3	655.0
122.5°	716.5	729.9	723.2	719.4	716.5
125°	776.6	788.5	784.7	780.4	779.0
127.5°	835.2	850.0	844.8	839.0	835.2
130°	890.1	907.2	904.8	902.0	896.7
132.5°	951.6	964.9	965.9	959.2	955.4
135°	1004.5	1019.2	1022.1	1020.7	1016.9
137.5°	1063.6	1075.5	1077.9	1076.9	1071.2
140°	1115.5	1127.5	1134.1	1134.1	1128.9
142.5°	1168.9	1180.9	1184.7	1186.1	1180.9
145°	1219.5	1229.0	1236.6	1238.1	1232.8
147.5°	1264.8	1276.7	1282.4	1284.8	1279.5
150°	1311.5	1319.6	1324.8	1329.1	1324.8
152.5°	1353.0	1361.1	1367.7	1373.0	1367.7
155°	1394.4	1398.2	1402.5	1409.2	1404.9
157.5°	1430.2	1433.0	1435.4	1445.0	1438.3
160°	1462.1	1465.0	1466.4	1474.5	1468.8
162.5°	1491.7	1491.7	1493.1	1502.2	1495.5
165°	1517.0	1515.5	1515.5	1525.1	1518.4
167.5°	1539.8	1535.5	1535.5	1545.1	1538.4
170°	1557.0	1553.2	1551.8	1561.3	1553.2
172.5°	1568.9	1565.1	1563.7	1573.2	1565.1
175°	1578.5	1574.6	1571.8	1581.3	1573.2
177.5°	1583.7	1579.9	1577.0	1585.1	1577.0
180°	1581.3	1581.3	1581.3	1581.3	1581.3

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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	10.26	11.15	11.19	12.10	13.33	9.82	10.71	10.75	11.66	12.89
	3H	11.92	12.72	12.86	13.68	14.93	11.43	12.23	12.37	13.19	14.44
	4H	12.51	13.26	13.46	14.22	15.49	12.01	12.77	12.97	13.73	14.99
	6H	12.90	13.60	13.87	14.57	15.84	12.40	13.10	13.37	14.07	15.34
	8H	13.01	13.67	13.98	14.66	15.93	12.51	13.17	13.48	14.15	15.43
	12H	13.06	13.69	14.04	14.66	15.96	12.55	13.18	13.53	14.16	15.45
4H	2H	10.72	11.48	11.69	12.44	13.70	10.37	11.12	11.33	12.09	13.35
	3H	12.59	13.22	13.56	14.21	15.48	12.18	12.81	13.15	13.80	15.08
	4H	13.30	13.87	14.28	14.86	16.16	12.87	13.45	13.86	14.44	15.74
	6H	13.81	14.31	14.80	15.32	16.61	13.38	13.87	14.37	14.88	16.18
	8H	13.96	14.42	14.95	15.42	16.74	13.52	13.98	14.52	14.99	16.30
	12H	14.03	14.45	15.05	15.47	16.79	13.58	14.00	14.60	15.02	16.34
8H	4H	13.49	13.96	14.49	14.96	16.27	13.12	13.58	14.11	14.58	15.90
	6H	14.12	14.50	15.14	15.55	16.86	13.74	14.12	14.76	15.16	16.47
	8H	14.34	14.67	15.37	15.71	17.04	13.94	14.28	14.97	15.31	16.64
	12H	14.47	14.76	15.50	15.79	17.16	14.06	14.35	15.09	15.38	16.75
12H	4H	13.48	13.90	14.49	14.92	16.23	13.11	13.53	14.13	14.55	15.87
	6H	14.15	14.49	15.18	15.52	16.85	13.78	14.11	14.80	15.15	16.47
	8H	14.39	14.68	15.42	15.71	17.08	14.01	14.30	15.04	15.33	16.70