

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: P907326

Luminaire Tested: DFN2DIP-TR4F0-050D090US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907326
REPORT IS A COMBINATION OF REPORTS P900461 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D090US835-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

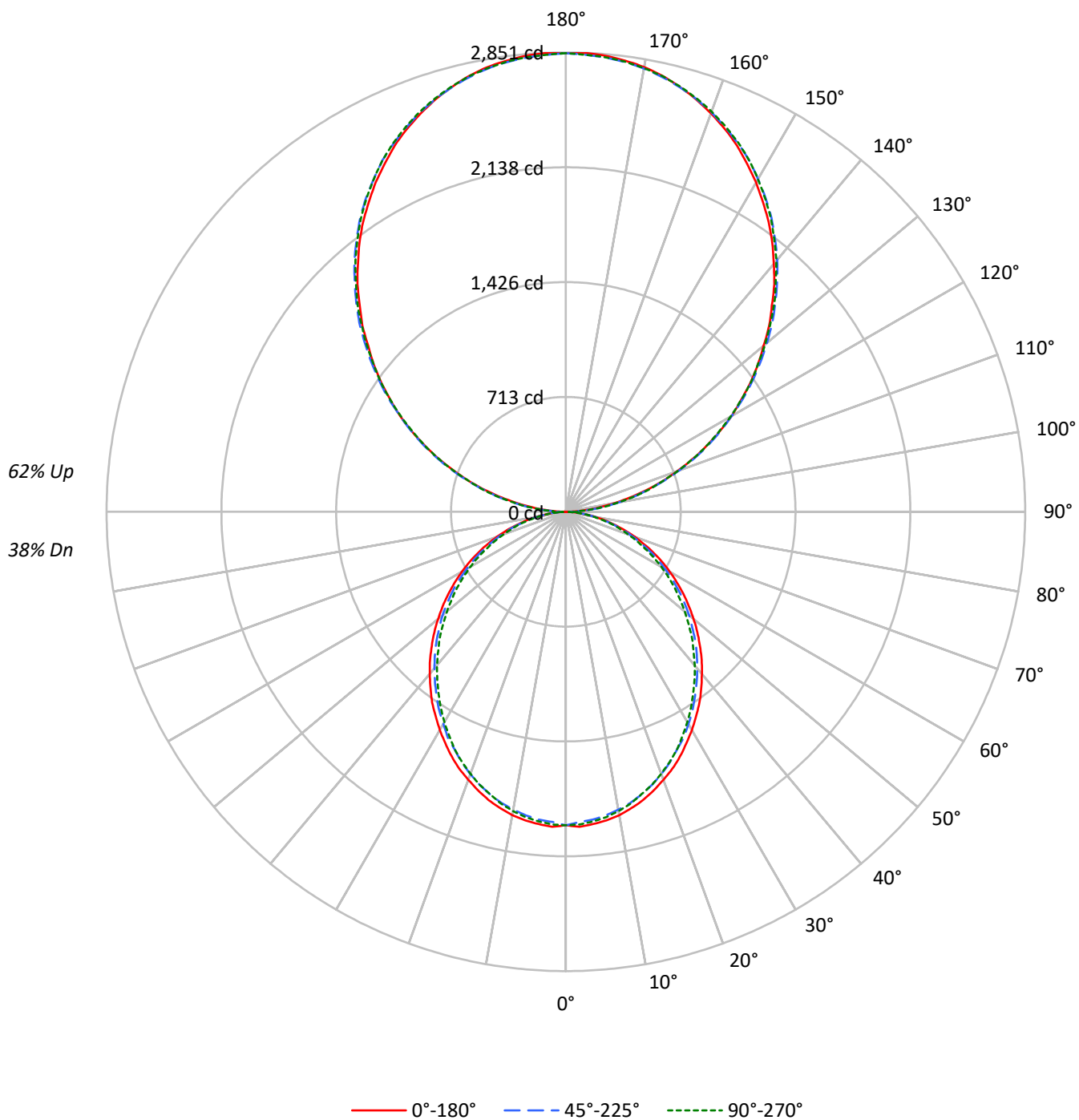
Lumens per Lamp: N/A
Luminaire Lumens: 12915.0 lumens
Efficiency: N/A
Efficacy: 117.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 109.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	45	45	45
1	95	91	87	84	86	83	79	77	67	65	63	53	52	50	40	39	38
2	87	79	73	68	78	72	67	63	59	55	52	47	44	42	35	34	32
3	79	70	63	57	71	64	57	52	52	47	44	41	38	35	31	29	27
4	72	62	54	48	65	56	50	44	46	41	37	37	33	30	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	36	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	25	31	25	22	25	21	18	19	16	14
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	33	26	22	41	31	24	20	26	21	17	21	17	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1546	1546	1546
5°	1548	1524	1534
10°	1536	1504	1513
15°	1513	1479	1481
20°	1482	1444	1448
25°	1452	1403	1409
30°	1414	1365	1360
35°	1378	1320	1309
40°	1334	1274	1259
45°	1290	1228	1209
50°	1241	1180	1151
55°	1191	1125	1097
60°	1133	1059	1036
65°	1071	991	963
70°	991	908	885
75°	881	808	813
80°	749	681	676
85°	542	462	448

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2218 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	183.1	1.4
10°-20°	515.2	4.0
20°-30°	757.2	5.9
30°-40°	879.4	6.8
40°-50°	878.3	6.8
50°-60°	765.8	5.9
60°-70°	566.1	4.4
70°-80°	320.3	2.5
80°-90°	92.6	0.7
90°-100°	176.1	1.4
100°-110°	559.6	4.3
110°-120°	957.7	7.4
120°-130°	1259.5	9.8
130°-140°	1413.8	10.9
140°-150°	1386.4	10.7
150°-160°	1163.0	9.0
160°-170°	771.2	6.0
170°-180°	269.6	2.1
0°-30°	1455.5	11.3
0°-40°	2334.9	18.1
0°-60°	3979.0	30.8
0°-90°	4958.1	38.4
90°-120°	1693.5	13.1
90°-150°	5753.1	44.5
90°-180°	7957.0	61.6
0°-180°	12915.0	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°	3	31	84	79	82	13
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	

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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°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4

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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	7.60	8.36	8.65	9.42	10.85	7.17	7.93	8.22	8.99	10.42
	3H	9.25	9.94	10.31	11.00	12.45	8.78	9.46	9.84	10.53	11.98
	4H	9.83	10.48	10.91	11.55	13.00	9.36	10.01	10.43	11.08	12.53
	6H	10.23	10.83	11.31	11.90	13.36	9.75	10.35	10.83	11.42	12.89
	8H	10.33	10.90	11.42	11.99	13.45	9.86	10.43	10.94	11.51	12.97
	12H	10.38	10.92	11.47	12.00	13.48	9.90	10.44	10.99	11.52	13.00
4H	2H	8.05	8.70	9.13	9.76	11.22	7.70	8.35	8.78	9.42	10.87
	3H	9.91	10.45	10.99	11.54	13.01	9.51	10.06	10.60	11.15	12.62
	4H	10.62	11.11	11.71	12.20	13.68	10.21	10.71	11.30	11.79	13.28
	6H	11.12	11.55	12.22	12.66	14.14	10.72	11.14	11.82	12.25	13.73
	8H	11.27	11.67	12.37	12.77	14.27	10.86	11.26	11.96	12.36	13.86
	12H	11.34	11.70	12.46	12.81	14.32	10.92	11.28	12.04	12.39	13.89
8H	4H	10.80	11.20	11.90	12.30	13.80	10.44	10.84	11.54	11.94	13.44
	6H	11.43	11.76	12.55	12.90	14.40	11.07	11.40	12.19	12.54	14.03
	8H	11.65	11.94	12.78	13.06	14.58	11.28	11.57	12.41	12.69	14.21
	12H	11.78	12.03	12.91	13.15	14.70	11.39	11.65	12.53	12.77	14.32
12H	4H	10.79	11.15	11.90	12.26	13.76	10.43	10.80	11.55	11.91	13.41
	6H	11.46	11.75	12.59	12.87	14.39	11.11	11.40	12.24	12.52	14.03
	8H	11.70	11.95	12.83	13.07	14.62	11.34	11.60	12.47	12.71	14.26