

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: P921453

Luminaire Tested: DFN2DIP-4P4F0-060D050US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921453
REPORT IS A COMBINATION OF REPORTS P900630 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D050US940-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

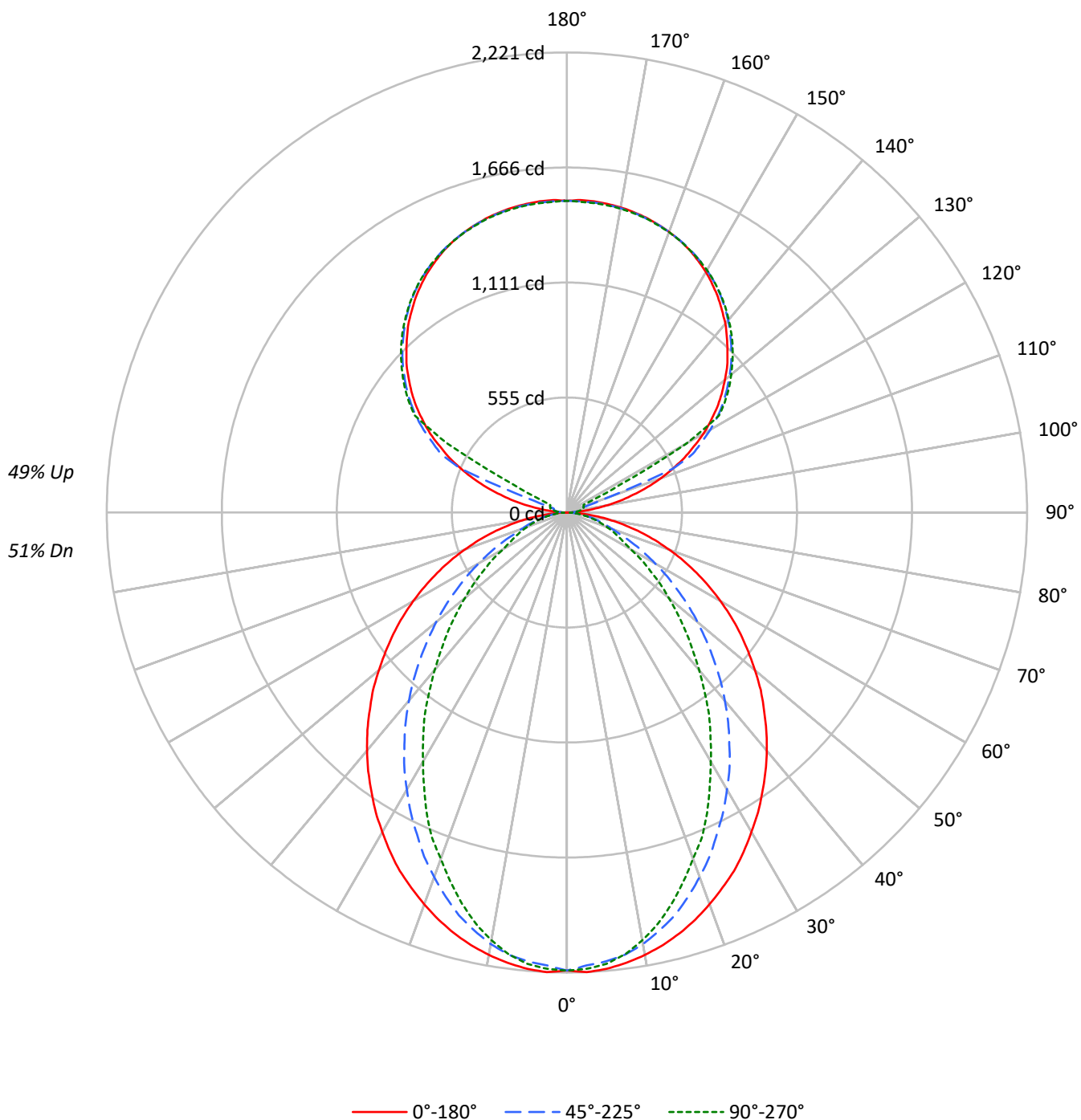
Lumens per Lamp: N/A
Luminaire Lumens: 8961.7 lumens
Efficiency: N/A
Efficacy: 88.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 101.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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
RCR																	
0	107	107	107	107	99	99	99	99	84	84	84		70	70	70		57
1	98	94	91	87	91	87	84	81	74	72	70		62	61	59		51
2	90	83	77	72	83	77	72	67	66	62	59		55	52	50		45
3	82	73	66	61	76	68	62	57	58	54	50		49	46	43		41
4	76	65	58	52	70	61	54	49	52	47	43		44	40	37		37
5	70	58	50	45	64	54	47	42	47	41	37		40	36	33		33
6	64	53	45	39	59	49	42	37	42	37	33		36	32	29		30
7	60	48	40	34	55	45	38	33	39	33	29		33	29	26		28
8	55	43	36	31	51	41	34	29	35	30	26		30	26	23		26
9	52	40	32	27	48	37	31	26	32	27	23		28	24	21		24
10	48	36	29	25	45	34	28	24	30	25	21		26	22	19		22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1435	1435	1435
5°	1437	1412	1421
10°	1423	1385	1376
15°	1403	1340	1305
20°	1377	1277	1217
25°	1351	1207	1133
30°	1316	1134	1026
35°	1281	1057	932
40°	1245	976	824
45°	1204	887	726
50°	1162	797	630
55°	1117	701	538
60°	1066	600	443
65°	1007	497	400
70°	935	402	362
75°	845	355	331
80°	715	299	289
85°	500	202	221

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1204 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.2	2.3
10°-20°	568.9	6.3
20°-30°	798.7	8.9
30°-40°	870.7	9.7
40°-50°	800.3	8.9
50°-60°	628.5	7.0
60°-70°	409.1	4.6
70°-80°	210.6	2.3
80°-90°	56.4	0.6
90°-100°	49.6	0.6
100°-110°	185.0	2.1
110°-120°	490.6	5.5
120°-130°	813.6	9.1
130°-140°	864.3	9.6
140°-150°	803.2	9.0
150°-160°	645.8	7.2
160°-170°	416.1	4.6
170°-180°	143.2	1.6
0°-30°	1574.9	17.6
0°-40°	2445.6	27.3
0°-60°	3874.3	43.2
0°-90°	4550.4	50.8
90°-120°	725.2	8.1
90°-150°	3206.2	35.8
90°-180°	4411.0	49.2
0°-180°	8961.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	1	13	22	27	29	8
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	644	672	168	89	616
125°	885	899	920	928	931	789
135°	1095	1113	1122	1134	1131	846
145°	1271	1270	1288	1296	1290	795
155°	1399	1389	1402	1409	1400	645
165°	1474	1468	1471	1478	1471	416
175°	1508	1500	1502	1510	1499	144
180°	1505	1505	1505	1505	1505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.4	48.0	46.8
97.5°	127.3	38.2	55.5	58.9	59.8
100°	192.8	43.6	62.1	70.7	72.9
102.5°	264.6	262.4	64.3	76.2	79.5
105°	331.0	363.7	66.4	78.4	82.8
107.5°	408.3	435.4	68.7	80.5	85.0
110°	482.4	505.2	190.6	81.7	86.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.1	571.6	553.1	83.8	87.1
115°	626.1	644.5	671.8	167.7	89.3
117.5°	690.3	712.0	730.7	574.8	289.6
120°	762.1	778.5	798.1	811.2	664.1
122.5°	823.0	840.5	862.4	868.9	870.0
125°	885.1	899.4	920.1	927.6	930.9
127.5°	941.7	957.0	973.5	984.3	985.3
130°	995.1	1012.6	1024.5	1036.5	1035.5
132.5°	1049.6	1063.8	1075.7	1085.6	1084.5
135°	1095.4	1112.9	1122.5	1133.5	1131.3
137.5°	1143.2	1156.3	1167.2	1178.1	1174.9
140°	1190.0	1198.8	1210.7	1220.5	1215.1
142.5°	1229.3	1237.0	1251.1	1259.7	1254.3
145°	1270.7	1269.5	1288.0	1295.7	1290.2
147.5°	1306.5	1303.2	1321.8	1327.2	1322.9
150°	1341.4	1333.8	1351.2	1357.7	1352.3
152.5°	1370.7	1362.1	1378.4	1385.0	1377.3
155°	1399.1	1389.4	1402.4	1408.9	1400.3
157.5°	1421.9	1413.3	1423.1	1430.7	1421.9
160°	1441.6	1435.0	1441.6	1448.0	1440.5
162.5°	1458.9	1452.5	1457.9	1465.5	1455.7
165°	1474.2	1467.8	1471.0	1478.5	1471.0
167.5°	1486.2	1479.6	1483.0	1490.6	1480.8
170°	1496.0	1489.4	1491.7	1499.2	1489.4
172.5°	1502.5	1496.0	1498.3	1505.8	1496.0
175°	1508.0	1500.3	1502.5	1510.1	1499.2
177.5°	1510.1	1502.5	1503.7	1511.3	1501.5
180°	1504.7	1504.7	1504.7	1504.7	1504.7

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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	8.49	9.33	9.45	10.30	11.56	4.45	5.29	5.41	6.26	7.52
	3H	10.18	10.92	11.14	11.90	13.19	5.64	6.39	6.61	7.37	8.65
	4H	10.79	11.50	11.77	12.48	13.77	6.10	6.80	7.08	7.78	9.08
	6H	11.22	11.87	12.21	12.85	14.16	6.42	7.07	7.41	8.06	9.36
	8H	11.34	11.96	12.34	12.97	14.27	6.51	7.13	7.51	8.13	9.43
	12H	11.41	12.00	12.41	12.99	14.32	6.55	7.14	7.56	8.14	9.47
4H	2H	8.51	9.22	9.50	10.20	11.49	5.05	5.76	6.04	6.74	8.03
	3H	10.35	10.93	11.34	11.95	13.25	6.41	6.99	7.40	8.00	9.31
	4H	11.04	11.58	12.05	12.58	13.92	6.96	7.49	7.96	8.50	9.83
	6H	11.57	12.03	12.58	13.05	14.38	7.38	7.84	8.39	8.86	10.19
	8H	11.74	12.17	12.76	13.19	14.54	7.51	7.94	8.52	8.96	10.30
	12H	11.84	12.23	12.88	13.27	14.61	7.57	7.96	8.61	9.00	10.35
8H	4H	11.01	11.44	12.03	12.46	13.81	7.24	7.67	8.26	8.69	10.03
	6H	11.59	11.94	12.63	13.00	14.34	7.76	8.12	8.80	9.18	10.52
	8H	11.81	12.12	12.86	13.17	14.53	7.95	8.27	9.00	9.31	10.67
	12H	11.95	12.22	13.00	13.27	14.67	8.07	8.35	9.13	9.39	10.79
12H	4H	10.97	11.35	12.00	12.39	13.74	7.25	7.63	8.28	8.67	10.02
	6H	11.56	11.87	12.61	12.92	14.28	7.81	8.12	8.86	9.17	10.53
	8H	11.79	12.06	12.84	13.10	14.51	8.02	8.30	9.08	9.34	10.74