

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: P915952

Luminaire Tested: DFN2DIP-4P4F0-040D060US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915952
REPORT IS A COMBINATION OF REPORTS P899118 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D060US930-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

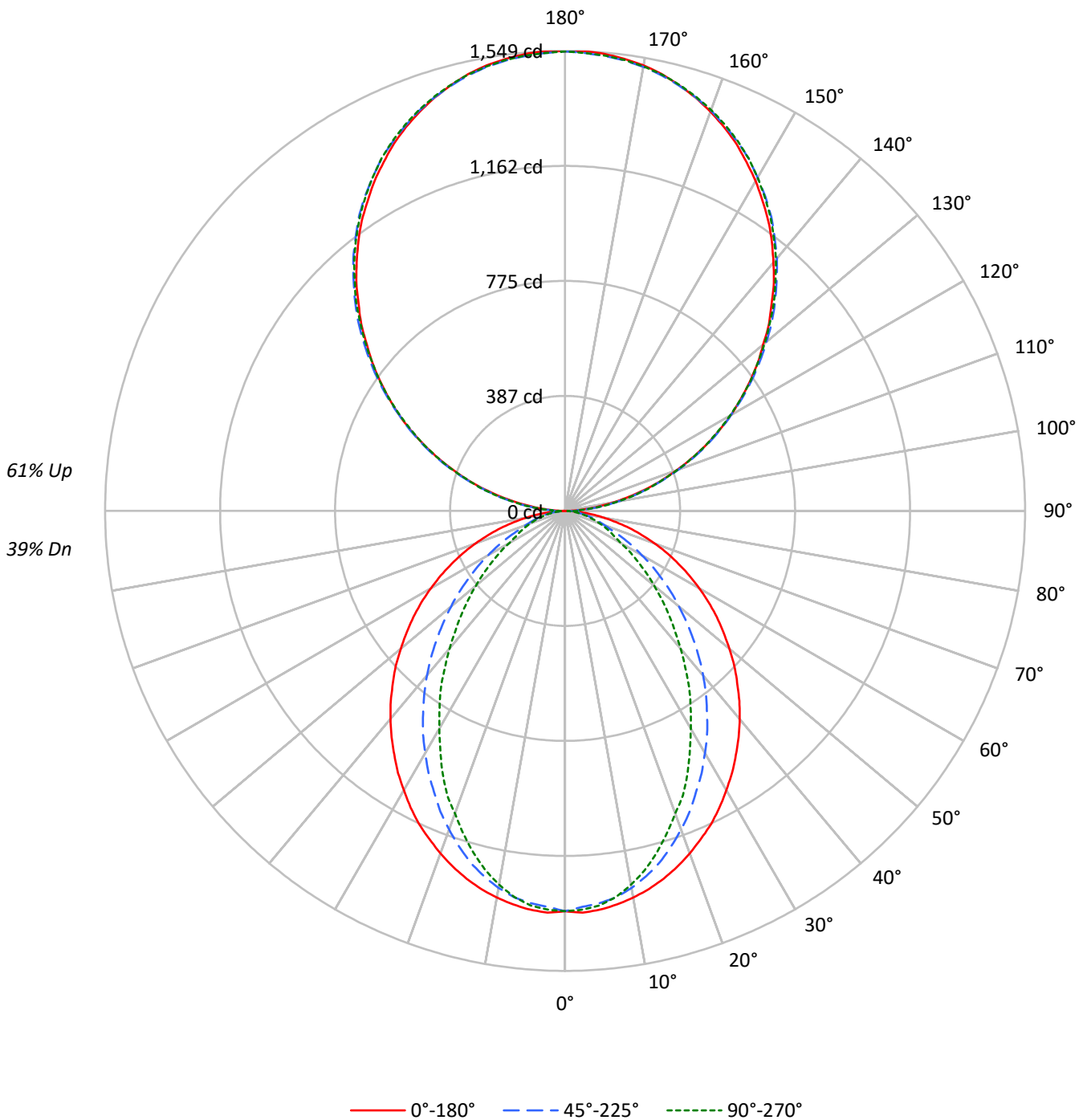
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7101.3 lumens
Efficiency: N/A
Efficacy: 79.7 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: Semi-Indirect

Input Watts (W): 89.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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				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	95	95	95	95	77	77	77	61	61	61	46	46	46	39				39
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40	34				34
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29				29
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25				25
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26	22				22
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22	19				19
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20	17				17
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18	15				15
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14				14
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	874	874	874
5°	876	861	866
10°	867	844	839
15°	855	817	795
20°	840	778	742
25°	824	735	691
30°	802	691	625
35°	781	644	568
40°	759	595	502
45°	734	541	442
50°	708	486	384
55°	681	427	328
60°	650	366	270
65°	614	303	244
70°	570	245	221
75°	515	217	202
80°	436	183	176
85°	305	124	135

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1171 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.3	1.8
10°-20°	346.8	4.9
20°-30°	486.9	6.9
30°-40°	530.7	7.5
40°-50°	487.8	6.9
50°-60°	383.1	5.4
60°-70°	249.3	3.5
70°-80°	128.4	1.8
80°-90°	37.2	0.5
90°-100°	95.7	1.3
100°-110°	304.2	4.3
110°-120°	520.6	7.3
120°-130°	684.6	9.6
130°-140°	768.4	10.8
140°-150°	753.5	10.6
150°-160°	632.1	8.9
160°-170°	419.2	5.9
170°-180°	146.5	2.1
0°-30°	960.0	13.5
0°-40°	1490.7	21.0
0°-60°	2361.5	33.3
0°-90°	2776.4	39.1
90°-120°	920.5	13.0
90°-150°	3127.0	44.0
90°-180°	4325.0	60.9
0°-180°	7101.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1348	1348	1348	1348	1348	
5°	1348	1342	1326	1337	1333	128
15°	1282	1268	1227	1204	1192	361
25°	1164	1125	1044	994	976	535
35°	1003	940	833	756	729	628
45°	820	738	610	523	494	633
55°	623	528	396	323	300	557
65°	421	322	212	171	167	417
75°	224	139	98	89	88	237
85°	52	27	23	23	23	60
90°	1	17	46	43	44	7
95°	68	81	84	84	81	76
105°	281	284	287	290	290	296
115°	522	530	528	526	522	517
125°	760	771	768	764	762	679
135°	983	997	1000	999	995	760
145°	1193	1202	1210	1211	1206	745
155°	1364	1368	1372	1379	1374	628
165°	1484	1483	1483	1492	1486	419
175°	1544	1541	1538	1547	1539	147
180°	1547	1547	1547	1547	1547	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1347.9	1347.9	1347.9	1347.9	1347.9
2.5°	1354.0	1347.9	1334.4	1346.7	1344.2
5°	1347.9	1341.7	1325.8	1336.8	1333.3
7.5°	1336.8	1329.6	1312.5	1317.3	1311.2
10°	1322.3	1313.7	1289.3	1285.6	1278.4
12.5°	1304.0	1293.0	1260.0	1252.7	1239.3
15°	1282.0	1268.5	1227.1	1204.0	1191.8
17.5°	1256.4	1236.8	1185.5	1158.8	1139.2
20°	1227.1	1202.6	1141.7	1111.3	1084.3
22.5°	1195.4	1167.3	1096.5	1055.1	1036.9
25°	1163.7	1124.6	1044.1	994.2	975.7
27.5°	1125.9	1084.3	995.3	938.0	909.9
30°	1085.7	1039.2	941.6	879.5	846.5
32.5°	1046.6	990.4	890.5	817.3	786.7
35°	1002.7	940.4	833.2	756.3	729.4
37.5°	960.0	892.8	779.4	695.2	664.8
40°	914.8	841.7	723.3	636.7	605.0
42.5°	868.5	790.4	667.2	576.9	546.5
45°	819.7	737.9	609.9	523.3	494.0
47.5°	773.4	686.8	555.1	468.4	441.6
50°	722.1	635.5	501.3	417.1	391.6
52.5°	672.1	580.6	450.1	369.6	346.4
55°	623.3	528.2	396.4	323.3	300.1
57.5°	573.3	475.7	348.9	280.5	261.1
60°	522.0	424.4	298.8	236.7	217.2
62.5°	472.1	374.5	256.1	197.6	187.9
65°	420.9	322.0	212.2	170.8	167.1
67.5°	372.1	273.2	170.8	150.0	146.3
70°	320.8	225.7	141.5	129.3	124.3
72.5°	272.1	181.7	118.3	108.6	106.2
75°	224.4	139.0	97.6	89.0	87.9
77.5°	176.9	98.7	76.9	72.0	69.5
80°	132.9	70.8	58.5	53.7	53.7
82.5°	92.7	47.6	40.3	37.7	37.7
85°	52.4	26.8	23.2	23.2	23.2
87.5°	19.6	9.7	9.7	8.6	8.6
90°	1.4	16.8	45.7	42.9	44.3
92.5°	28.9	39.2	40.6	42.0	42.0
95°	68.1	81.1	83.5	83.5	81.1
97.5°	113.3	125.5	130.6	130.6	130.6
100°	165.6	176.3	180.0	180.0	178.6
102.5°	220.6	228.5	233.7	235.1	233.7
105°	280.8	284.5	287.3	289.7	289.7
107.5°	340.5	346.1	346.1	347.0	340.5
110°	398.4	405.8	405.8	405.8	402.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	460.8	468.7	467.3	463.6	460.8
115°	522.4	529.9	527.5	526.1	522.4
117.5°	583.5	593.8	587.2	583.5	579.8
120°	645.1	655.3	645.1	645.1	640.8
122.5°	701.0	714.0	707.5	703.8	701.0
125°	759.8	771.4	767.7	763.5	762.1
127.5°	817.2	831.6	826.5	820.9	817.2
130°	870.8	887.6	885.3	882.5	877.3
132.5°	931.0	944.0	944.9	938.4	934.7
135°	982.8	997.2	1000.0	998.6	994.8
137.5°	1040.6	1052.2	1054.6	1053.6	1048.1
140°	1091.4	1103.1	1109.6	1109.6	1104.5
142.5°	1143.6	1155.3	1159.0	1160.4	1155.3
145°	1193.1	1202.4	1209.9	1211.3	1206.2
147.5°	1237.4	1249.0	1254.7	1256.9	1251.8
150°	1283.1	1291.0	1296.2	1300.3	1296.2
152.5°	1323.6	1331.6	1338.1	1343.3	1338.1
155°	1364.2	1368.0	1372.1	1378.8	1374.5
157.5°	1399.2	1402.1	1404.4	1413.7	1407.2
160°	1430.5	1433.3	1434.7	1442.6	1437.0
162.5°	1459.4	1459.4	1460.8	1469.7	1463.1
165°	1484.1	1482.7	1482.7	1492.1	1485.6
167.5°	1506.5	1502.4	1502.4	1511.6	1505.1
170°	1523.3	1519.6	1518.2	1527.5	1519.6
172.5°	1535.0	1531.2	1529.8	1539.1	1531.2
175°	1544.3	1540.6	1537.7	1547.1	1539.1
177.5°	1549.4	1545.7	1542.9	1550.8	1542.9
180°	1547.1	1547.1	1547.1	1547.1	1547.1



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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	5.59	6.34	6.64	7.39	8.81	1.55	2.30	2.60	3.35	4.77
	3H	7.26	7.93	8.32	8.99	10.43	2.73	3.40	3.79	4.46	5.90
	4H	7.87	8.51	8.94	9.57	11.02	3.18	3.81	4.25	4.87	6.32
	6H	8.29	8.88	9.38	9.94	11.40	3.50	4.08	4.58	5.15	6.60
	8H	8.42	8.98	9.51	10.06	11.51	3.59	4.14	4.67	5.22	6.68
	12H	8.48	9.01	9.57	10.09	11.56	3.63	4.15	4.72	5.23	6.71
4H	2H	5.59	6.23	6.67	7.29	8.74	2.13	2.77	3.21	3.83	5.28
	3H	7.42	7.95	8.51	9.04	10.50	3.48	4.01	4.57	5.10	6.56
	4H	8.12	8.60	9.21	9.68	11.16	4.03	4.51	5.12	5.59	7.07
	6H	8.63	9.05	9.73	10.15	11.62	4.44	4.86	5.54	5.96	7.44
	8H	8.81	9.20	9.91	10.29	11.78	4.57	4.96	5.67	6.05	7.54
	12H	8.90	9.25	10.02	10.36	11.86	4.63	4.98	5.75	6.09	7.59
8H	4H	8.08	8.47	9.18	9.56	11.05	4.30	4.69	5.40	5.79	7.28
	6H	8.65	8.97	9.77	10.10	11.59	4.82	5.14	5.94	6.28	7.77
	8H	8.87	9.15	10.00	10.27	11.77	5.01	5.29	6.14	6.41	7.92
	12H	9.01	9.25	10.14	10.37	11.91	5.13	5.38	6.26	6.49	8.04
12H	4H	8.03	8.38	9.14	9.49	10.98	4.31	4.66	5.42	5.76	7.26
	6H	8.62	8.90	9.75	10.02	11.53	4.87	5.15	6.00	6.27	7.78
	8H	8.84	9.09	9.97	10.20	11.75	5.08	5.33	6.21	6.44	7.99