

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: P924142

Luminaire Tested: DFN2DIP-4P4F0-040D080US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924142
REPORT IS A COMBINATION OF REPORTS P899141 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D080US950-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

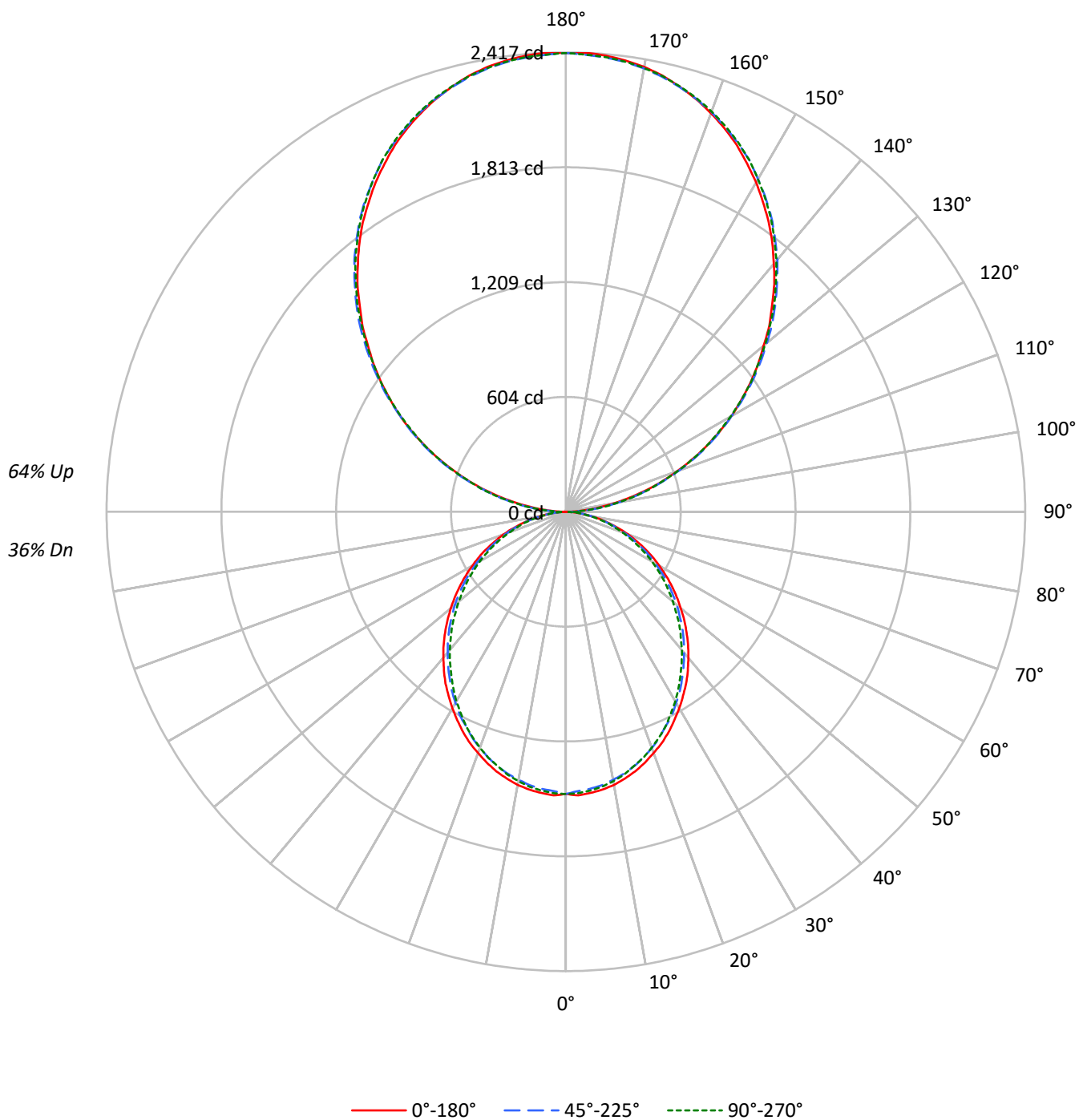
Lumens per Lamp: N/A
Luminaire Lumens: 10532.2 lumens
Efficiency: N/A
Efficacy: 93.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 112.3
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
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	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	963	963	963
5°	965	950	957
10°	957	938	944
15°	943	923	924
20°	924	901	904
25°	905	876	880
30°	882	852	850
35°	859	825	818
40°	832	796	788
45°	804	768	757
50°	774	739	721
55°	743	705	688
60°	707	664	650
65°	668	622	606
70°	619	571	558
75°	551	510	515
80°	468	432	431
85°	340	297	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1829 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.3
10°-20°	393.2	3.7
20°-30°	577.9	5.5
30°-40°	671.2	6.4
40°-50°	670.3	6.4
50°-60°	584.5	5.5
60°-70°	432.1	4.1
70°-80°	244.5	2.3
80°-90°	71.4	0.7
90°-100°	149.4	1.4
100°-110°	474.6	4.5
110°-120°	812.1	7.7
120°-130°	1068.1	10.1
130°-140°	1198.9	11.4
140°-150°	1175.6	11.2
150°-160°	986.2	9.4
160°-170°	654.0	6.2
170°-180°	228.6	2.2
0°-30°	1110.8	10.5
0°-40°	1782.0	16.9
0°-60°	3036.8	28.8
0°-90°	3784.7	35.9
90°-120°	1436.1	13.6
90°-150°	4878.6	46.3
90°-180°	6747.0	64.1
0°-180°	10532.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	2	26	71	67	69	10
95°	106	127	130	130	127	118
105°	438	444	448	452	452	462
115°	815	827	823	821	815	806
125°	1185	1204	1198	1191	1189	1059
135°	1533	1556	1560	1558	1552	1185
145°	1861	1876	1888	1890	1882	1163
155°	2128	2134	2141	2151	2144	980
165°	2316	2313	2313	2328	2318	653
175°	2409	2404	2399	2414	2401	229
180°	2414	2414	2414	2414	2414	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	2.2	26.2	71.4	67.0	69.2
92.5°	45.1	61.2	63.3	65.4	65.4
95°	106.3	126.6	130.2	130.2	126.6
97.5°	176.9	195.8	203.8	203.8	203.8
100°	258.3	275.0	280.9	280.9	278.7
102.5°	344.2	356.6	364.5	366.7	364.5
105°	438.1	443.9	448.3	451.9	451.9
107.5°	531.2	540.0	540.0	541.4	531.2
110°	621.4	633.1	633.1	633.1	627.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	718.9	731.3	729.1	723.3	718.9
115°	815.0	826.6	823.0	820.8	815.0
117.5°	910.3	926.3	916.1	910.3	904.5
120°	1006.4	1022.4	1006.4	1006.4	999.8
122.5°	1093.7	1114.1	1103.9	1098.1	1093.7
125°	1185.3	1203.6	1197.7	1191.2	1189.1
127.5°	1274.9	1297.4	1289.4	1280.7	1274.9
130°	1358.6	1384.7	1381.1	1376.8	1368.8
132.5°	1452.5	1472.8	1474.3	1464.1	1458.3
135°	1533.2	1555.8	1560.2	1558.0	1552.2
137.5°	1623.4	1641.6	1645.3	1643.8	1635.1
140°	1702.8	1720.9	1731.1	1731.1	1723.1
142.5°	1784.3	1802.5	1808.3	1810.5	1802.5
145°	1861.4	1875.9	1887.6	1889.8	1881.8
147.5°	1930.5	1948.7	1957.4	1961.1	1953.1
150°	2001.9	2014.2	2022.2	2028.8	2022.2
152.5°	2065.1	2077.5	2087.7	2095.7	2087.7
155°	2128.5	2134.3	2140.9	2151.0	2144.5
157.5°	2183.0	2187.4	2191.1	2205.6	2195.4
160°	2231.8	2236.2	2238.4	2250.7	2242.0
162.5°	2276.9	2276.9	2279.1	2292.9	2282.7
165°	2315.5	2313.3	2313.3	2327.9	2317.6
167.5°	2350.4	2343.9	2343.9	2358.4	2348.2
170°	2376.6	2370.8	2368.6	2383.2	2370.8
172.5°	2394.8	2389.0	2386.8	2401.3	2389.0
175°	2409.3	2403.5	2399.1	2413.7	2401.3
177.5°	2417.3	2411.5	2407.1	2419.5	2407.1
180°	2413.7	2413.7	2413.7	2413.7	2413.7

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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	5.70	6.44	6.77	7.52	8.97	5.25	6.00	6.32	7.07	8.53
	3H	7.35	8.02	8.43	9.10	10.58	6.86	7.53	7.94	8.61	10.09
	4H	7.94	8.58	9.03	9.66	11.14	7.45	8.08	8.54	9.16	10.65
	6H	8.34	8.92	9.44	10.01	11.50	7.84	8.42	8.94	9.51	11.00
	8H	8.44	9.00	9.54	10.10	11.59	7.94	8.50	9.04	9.60	11.09
	12H	8.49	9.02	9.60	10.11	11.62	7.98	8.51	9.09	9.60	11.12
4H	2H	6.15	6.78	7.24	7.86	9.35	5.79	6.43	6.89	7.51	8.99
	3H	8.01	8.54	9.11	9.65	11.14	7.60	8.13	8.70	9.24	10.73
	4H	8.72	9.21	9.83	10.31	11.82	8.30	8.78	9.40	9.88	11.40
	6H	9.23	9.65	10.35	10.77	12.28	8.80	9.22	9.92	10.34	11.85
	8H	9.38	9.77	10.50	10.89	12.41	8.95	9.34	10.06	10.45	11.98
	12H	9.46	9.81	10.59	10.93	12.46	9.01	9.36	10.14	10.48	12.02
8H	4H	8.91	9.30	10.02	10.41	11.94	8.53	8.92	9.65	10.04	11.56
	6H	9.54	9.86	10.68	11.02	12.54	9.16	9.48	10.30	10.64	12.16
	8H	9.77	10.05	10.91	11.18	12.73	9.37	9.65	10.52	10.79	12.33
	12H	9.90	10.14	11.04	11.28	12.85	9.48	9.73	10.63	10.86	12.44
12H	4H	8.89	9.24	10.02	10.37	11.90	8.52	8.88	9.65	10.00	11.53
	6H	9.57	9.85	10.71	10.99	12.53	9.20	9.48	10.34	10.62	12.16
	8H	9.81	10.06	10.96	11.19	12.77	9.43	9.68	10.58	10.81	12.39

END OF REPORT