

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: P913306

Luminaire Tested: DFN2DIP-4P4F0-080D030US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913306
REPORT IS A COMBINATION OF REPORTS P899089 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D030US927-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

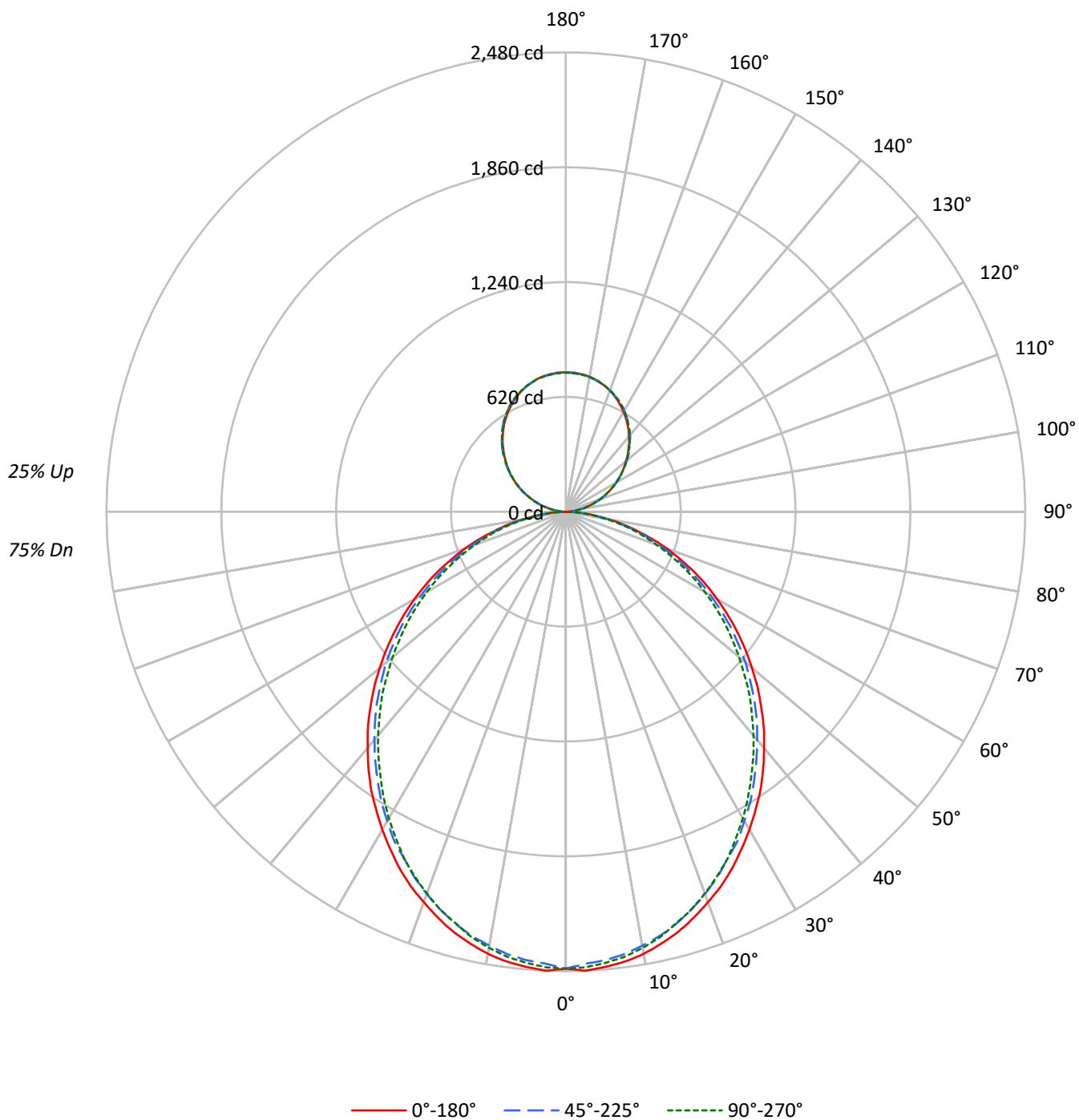
Lumens per Lamp: N/A
Luminaire Lumens: 8377.3 lumens
Efficiency: N/A
Efficacy: 77.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.8
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	50	30	10
RCR																				
0	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79	75		
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67	63		
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56	53		
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48	45		
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41	38		
5	72	60	52	45	69	58	50	44	53	46	41	48	43	39	44	40	36	33		
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32	29		
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28	26		
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25	23		
9	54	41	33	28	51	39	32	27	36	30	26	34	28	24	31	26	23	21		
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21	19		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1600	1600	1600
5°	1602	1578	1589
10°	1590	1557	1568
15°	1566	1532	1535
20°	1535	1497	1501
25°	1504	1455	1462
30°	1464	1416	1412
35°	1427	1370	1359
40°	1381	1323	1308
45°	1336	1276	1257
50°	1286	1227	1197
55°	1233	1170	1143
60°	1174	1103	1080
65°	1110	1033	1006
70°	1028	948	927
75°	914	847	855
80°	778	718	715
85°	564	493	482

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1336 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.1	2.8
10°-20°	653.0	7.8
20°-30°	959.7	11.5
30°-40°	1114.6	13.3
40°-50°	1113.2	13.3
50°-60°	970.7	11.6
60°-70°	717.6	8.6
70°-80°	406.0	4.8
80°-90°	109.3	1.3
90°-100°	46.5	0.6
100°-110°	147.8	1.8
110°-120°	252.9	3.0
120°-130°	332.6	4.0
130°-140°	373.3	4.5
140°-150°	366.1	4.4
150°-160°	307.1	3.7
160°-170°	203.7	2.4
170°-180°	71.2	0.8
0°-30°	1844.8	22.0
0°-40°	2959.4	35.3
0°-60°	5043.4	60.2
0°-90°	6276.2	74.9
90°-120°	447.2	5.3
90°-150°	1519.2	18.1
90°-180°	2101.0	25.1
0°-180°	8377.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	1	8	22	21	22	8
95°	33	40	41	41	40	37
105°	136	138	140	141	141	144
115°	254	257	256	256	254	251
125°	369	375	373	371	370	330
135°	477	484	486	485	483	369
145°	580	584	588	588	586	362
155°	663	665	667	670	668	305
165°	721	720	720	725	722	203
175°	750	748	747	752	748	71
180°	752	752	752	752	752	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	0.7	8.2	22.2	20.8	21.5
92.5°	14.0	19.0	19.7	20.4	20.4
95°	33.1	39.5	40.6	40.6	39.5
97.5°	55.1	60.9	63.5	63.5	63.5
100°	80.4	85.6	87.5	87.5	86.8
102.5°	107.2	111.1	113.5	114.2	113.5
105°	136.4	138.2	139.6	140.7	140.7
107.5°	165.4	168.1	168.1	168.6	165.4
110°	193.5	197.2	197.2	197.2	195.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	223.9	227.8	227.0	225.2	223.9
115°	253.8	257.4	256.3	255.6	253.8
117.5°	283.4	288.4	285.3	283.4	281.6
120°	313.4	318.4	313.4	313.4	311.3
122.5°	340.6	346.9	343.7	341.9	340.6
125°	369.2	374.8	373.0	370.9	370.3
127.5°	397.0	404.0	401.6	398.8	397.0
130°	423.0	431.2	430.1	428.7	426.2
132.5°	452.3	458.6	459.1	455.9	454.1
135°	477.4	484.4	485.8	485.1	483.3
137.5°	505.5	511.2	512.3	511.9	509.1
140°	530.2	535.9	539.1	539.1	536.5
142.5°	555.6	561.3	563.1	563.8	561.3
145°	579.6	584.2	587.8	588.4	586.0
147.5°	601.2	606.8	609.5	610.7	608.2
150°	623.4	627.2	629.7	631.8	629.7
152.5°	643.1	646.9	650.1	652.6	650.1
155°	662.8	664.6	666.6	669.8	667.8
157.5°	679.8	681.1	682.3	686.8	683.7
160°	695.0	696.3	697.0	700.8	698.1
162.5°	709.0	709.0	709.7	714.0	710.8
165°	721.0	720.3	720.3	724.8	721.7
167.5°	731.9	729.8	729.8	734.4	731.2
170°	740.1	738.2	737.6	742.1	738.2
172.5°	745.7	743.9	743.2	747.7	743.9
175°	750.3	748.5	747.1	751.6	747.7
177.5°	752.7	750.9	749.6	753.4	749.6
180°	751.6	751.6	751.6	751.6	751.6

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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	10.96	12.10	11.67	12.83	13.70	10.52	11.66	11.23	12.39	13.25
	3H	12.65	13.67	13.37	14.41	15.31	12.16	13.18	12.88	13.92	14.82
	4H	13.25	14.22	13.99	14.97	15.88	12.76	13.73	13.50	14.48	15.38
	6H	13.67	14.57	14.43	15.32	16.25	13.17	14.06	13.92	14.82	15.75
	8H	13.79	14.64	14.55	15.42	16.34	13.28	14.14	14.05	14.91	15.84
	12H	13.85	14.66	14.62	15.43	16.38	13.34	14.15	14.11	14.92	15.87
4H	2H	11.46	12.43	12.20	13.17	14.08	11.10	12.07	11.85	12.82	13.73
	3H	13.35	14.16	14.11	14.95	15.87	12.95	13.76	13.70	14.54	15.47
	4H	14.08	14.82	14.86	15.60	16.56	13.66	14.40	14.43	15.18	16.14
	6H	14.62	15.26	15.41	16.07	17.03	14.19	14.83	14.98	15.64	16.60
	8H	14.78	15.38	15.57	16.18	17.16	14.34	14.94	15.14	15.74	16.72
	12H	14.87	15.41	15.68	16.23	17.21	14.42	14.96	15.23	15.78	16.76
8H	4H	14.30	14.90	15.10	15.71	16.68	13.93	14.52	14.72	15.33	16.30
	6H	14.95	15.45	15.78	16.30	17.27	14.57	15.06	15.39	15.91	16.89
	8H	15.18	15.62	16.02	16.47	17.46	14.79	15.23	15.62	16.07	17.06
	12H	15.33	15.72	16.17	16.55	17.60	14.92	15.31	15.76	16.14	17.19
12H	4H	14.30	14.84	15.12	15.67	16.65	13.94	14.47	14.75	15.30	16.28
	6H	14.99	15.43	15.82	16.27	17.26	14.61	15.05	15.45	15.90	16.89
	8H	15.25	15.63	16.08	16.47	17.52	14.87	15.25	15.70	16.09	17.14

END OF REPORT