

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: P922311

Luminaire Tested: DFN2DIP-PN4F0-050D120US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922311
REPORT IS A COMBINATION OF REPORTS P901276 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D120US940-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

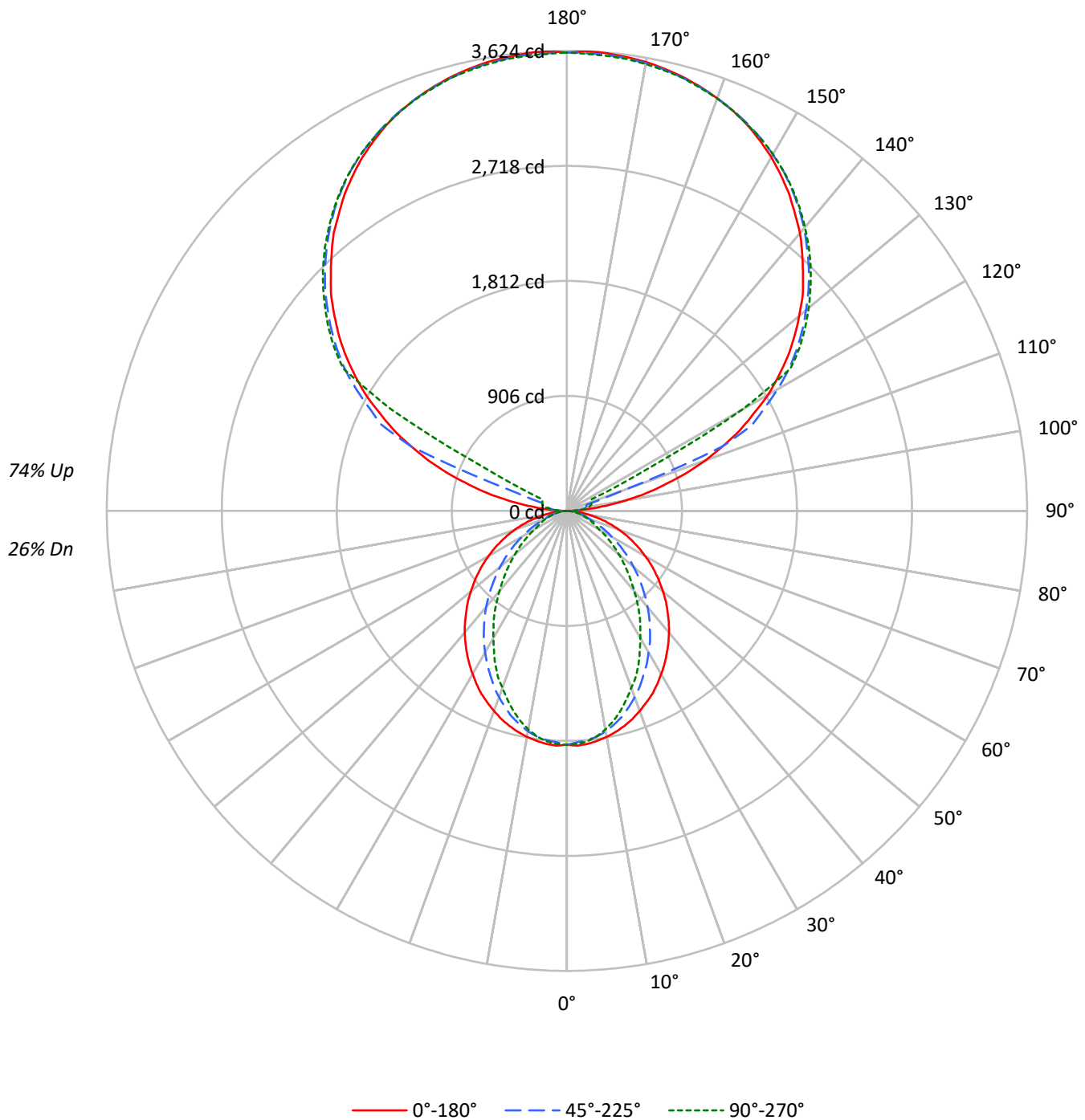
Lumens per Lamp: N/A
Luminaire Lumens: 14383.3 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 147.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	102	102	102	102		91	91	91	91		70	70	70		52	52	52		34	34	34
1	93	89	85	82		83	79	76	74		62	60	58		46	44	43		31	30	29
2	85	78	72	67		75	70	65	61		54	51	48		40	38	36		27	26	25
3	77	68	62	56		69	61	56	51		48	44	41		36	33	31		24	23	22
4	71	61	53	47		63	54	48	43		43	38	35		32	29	27		22	20	19
5	65	54	46	41		58	49	42	37		38	34	30		29	26	23		20	18	17
6	60	48	41	35		53	44	37	32		35	30	26		26	23	20		18	16	15
7	55	44	36	31		49	39	33	28		31	27	23		24	20	18		17	15	13
8	51	39	32	27		46	36	29	25		28	24	20		22	18	16		15	13	12
9	48	36	29	24		42	33	26	22		26	21	18		20	17	14		14	12	11
10	44	33	26	21		40	30	24	20		24	19	16		18	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1345	1345	1345
5°	1347	1324	1332
10°	1334	1298	1289
15°	1316	1255	1223
20°	1291	1196	1141
25°	1266	1130	1061
30°	1233	1063	961
35°	1200	990	872
40°	1167	914	771
45°	1128	830	679
50°	1088	746	589
55°	1046	655	503
60°	998	561	414
65°	942	465	373
70°	875	375	338
75°	790	331	308
80°	668	278	268
85°	465	187	203

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1925 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.7	1.2
10°-20°	474.1	3.3
20°-30°	665.6	4.6
30°-40°	725.6	5.0
40°-50°	666.9	4.6
50°-60°	523.7	3.6
60°-70°	340.9	2.4
70°-80°	175.5	1.2
80°-90°	51.2	0.4
90°-100°	119.1	0.8
100°-110°	443.9	3.1
110°-120°	1177.3	8.2
120°-130°	1952.7	13.6
130°-140°	2074.2	14.4
140°-150°	1927.7	13.4
150°-160°	1549.8	10.8
160°-170°	998.7	6.9
170°-180°	343.7	2.4
0°-30°	1312.4	9.1
0°-40°	2038.0	14.2
0°-60°	3228.6	22.4
0°-90°	3796.1	26.4
90°-120°	1740.3	12.1
90°-150°	7694.9	53.5
90°-180°	10587.0	73.6
0°-180°	14383.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1834	1813	1828	1823	175
15°	1753	1734	1678	1646	1629	494
25°	1591	1538	1427	1359	1334	732
35°	1371	1286	1139	1034	997	858
45°	1121	1009	834	715	675	865
55°	852	722	542	442	410	761
65°	575	440	290	234	228	570
75°	307	190	133	122	120	324
85°	72	37	32	32	32	82
90°	2	31	52	66	70	13
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1842.7	1842.7	1842.7	1842.7	1842.7
2.5°	1851.0	1842.7	1824.4	1841.1	1837.7
5°	1842.7	1834.4	1812.7	1827.6	1822.7
7.5°	1827.6	1817.8	1794.4	1801.0	1792.6
10°	1807.7	1796.0	1762.7	1757.7	1747.7
12.5°	1782.7	1767.7	1722.6	1712.7	1694.2
15°	1752.7	1734.3	1677.7	1646.0	1629.3
17.5°	1717.6	1691.0	1620.9	1584.2	1557.5
20°	1677.7	1644.2	1560.8	1519.3	1482.5
22.5°	1634.3	1595.9	1499.1	1442.5	1417.6
25°	1590.9	1537.5	1427.4	1359.1	1334.0
27.5°	1539.3	1482.5	1360.8	1282.4	1244.0
30°	1484.3	1420.8	1287.4	1202.4	1157.3
32.5°	1430.8	1354.1	1217.5	1117.3	1075.6
35°	1370.8	1285.8	1139.1	1033.9	997.2
37.5°	1312.4	1220.7	1065.7	950.5	908.9
40°	1250.7	1150.8	988.8	870.5	827.2
42.5°	1187.4	1080.7	912.2	788.7	747.2
45°	1120.7	1008.9	833.8	715.3	675.3
47.5°	1057.3	939.0	758.8	640.3	603.7
50°	987.3	868.9	685.5	570.2	535.4
52.5°	918.8	793.7	615.4	505.3	473.7
55°	852.1	722.0	541.9	441.9	410.3
57.5°	783.8	650.4	477.0	383.6	356.9
60°	713.7	580.3	408.5	323.6	296.9
62.5°	645.4	512.0	350.2	270.2	256.9
65°	575.3	440.2	290.2	233.5	228.5
67.5°	508.6	373.5	233.5	205.1	200.1
70°	438.6	308.5	193.4	176.7	170.0
72.5°	371.9	248.4	161.8	148.5	145.1
75°	306.8	190.0	133.4	121.7	120.1
77.5°	241.8	135.0	105.1	98.4	95.0
80°	181.7	96.8	80.0	73.4	73.4
82.5°	126.7	65.1	55.0	51.6	51.6
85°	71.7	36.6	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	5.43	6.10	6.57	7.23	8.80	1.40	2.06	2.54	3.19	4.77
	3H	7.10	7.70	8.25	8.83	10.42	2.57	3.17	3.72	4.31	5.90
	4H	7.70	8.27	8.86	9.40	11.00	3.02	3.58	4.17	4.72	6.31
	6H	8.12	8.64	9.28	9.78	11.38	3.33	3.85	4.49	4.99	6.60
	8H	8.24	8.74	9.41	9.89	11.49	3.41	3.91	4.58	5.06	6.66
	12H	8.30	8.77	9.47	9.92	11.54	3.45	3.92	4.62	5.07	6.69
4H	2H	5.43	6.00	6.59	7.13	8.73	1.97	2.54	3.14	3.68	5.27
	3H	7.25	7.72	8.42	8.88	10.49	3.31	3.78	4.48	4.94	6.55
	4H	7.93	8.37	9.11	9.52	11.14	3.85	4.29	5.02	5.44	7.06
	6H	8.44	8.81	9.62	9.99	11.60	4.26	4.63	5.44	5.81	7.42
	8H	8.62	8.96	9.79	10.13	11.76	4.39	4.73	5.56	5.90	7.53
	12H	8.71	9.02	9.90	10.20	11.83	4.45	4.76	5.64	5.94	7.57
8H	4H	7.89	8.24	9.07	9.40	11.03	4.12	4.47	5.30	5.63	7.26
	6H	8.45	8.74	9.65	9.95	11.57	4.63	4.92	5.83	6.13	7.76
	8H	8.67	8.92	9.87	10.10	11.75	4.83	5.07	6.03	6.26	7.91
	12H	8.80	9.02	10.01	10.21	11.89	4.94	5.16	6.14	6.34	8.02
12H	4H	7.83	8.15	9.03	9.32	10.96	4.12	4.43	5.31	5.61	7.25
	6H	8.43	8.68	9.63	9.86	11.51	4.68	4.93	5.88	6.12	7.77
	8H	8.64	8.86	9.85	10.04	11.73	4.89	5.11	6.09	6.29	7.97

END OF REPORT